Lokalplan 499 & 509.

Hej. Jeg synes jeg vil fortælle at vi er rigtig kede af de planer kommunen er igang med for vores dejlige oase i Kolbækvænget. Vi flyttede herud i 2010 pga den dejlige natur og den fred og ro man kan nyde herude sammen med diverse fuglestemmer. Nu påtænker kommunen så at byggemodne jord til 74 huse i den første del af skoven og til 52 huse hvor hestene fredeligt går og græsser idag. Alt sammen lige klods op af vores matrikel. Vi er så "heldige" at blive plastret inde i huse da vi bor i sidste hus på vejen-nr.16- og det var slet slet ikke det grundlag vi købte hus ud fra i tidernes morgen. Hvis vi ville være midt i et villakvarter kunne vi have købt hus mange steder men det var lige præcis det vi IKKE ville. Nej Tak. Bare tanken om at larmen og forberedelserne til 126 huse kan tage op til 2 år er næsten ikke til at holde ud. Tanken om at flytte `er skam på banen men det er hårdt når vi nu er glade for vores lille grønne plet. Hvis jeg skulle komme med et alternativt forslag til byggeri andre steder så forstår jeg ikke hvorfor kommunen ikke lige bevægede sig lidt længere over til Finderupvej istedet. Her kunne man sagtens fortsætte byen ud mod skoven uden at genere andre mennesker da Liseborg anlægget ligger på højre side når man kører ud af byen på Finderupvej. Det er stadig en dårlig idé at ødelægge naturen og måske er det ikke så let at få tilladelse til byggeri i en statsskov? De kære dollars tegn i øjnene vejer tungt når der tales byggeri... jo jo.... men se nu ude ved Arnbjerg. Der er det hele gået i stå... grundene er blevet alt for dyre. Ikke altid går det som planlagt... og bundlinjens tal fik den forkerte farve. Der er byggeri igang flere steder.Er det ikke nok? Møgelkær har også noget igang og her er det jo marker der bliver opkøbt. Jeg synes Sydbyens vækst er rigelig igang så måske man liiige skulle klappe hesten og se hvor meget "guld" der ruller i kommune kassen inden man påbegynder flere store projekter.

Det var et lille hjertesuk fra en husejer som er utrolig ked af de nye planer.

Mvh Brita Riis Kjellerup .

Indsendt af Brita Riis Kjellerup

indsigelse

Jeg synes det er en utrolig dårlig beslutning at spolere et af fine rekreative områder mellem Hald Ege og Viborg. Hald Ege er netop kendetegnende ved de grønne områder og skoven ind mod bydelen, det er dette der er med til at gøre Hald Ege unik. Der er i forvejen blevet bygget meget i Hald ege de seneste år og desuden er foretaget store udbyggelser tæt ved, i Arndal. Der er fortsat mange usolgte grunde begge steder. Den øgede trafik af Egeskov vej gennem Hald Ege og er ikke hensigtsmæssig ifht mange skole børn- det er et stort skolediskirkt og mange børn færdes på cykel eller går.

Indsendt af camilla

Bred borgerkritik af lokalplansforslag 509, 499 og 487.

Jeg har på vegne af en flok Hald Ege- og Kolbækvænget-borgere (121 i alt) lovet at stille nedenstående spørgsmål til lokalplanerne nr. 476, 499 og 509 her i høringsperioden, som ligger hen over julen.

Anmodningen om agtindsigt ved jeg ikke hvortil skal rettes, så den er også rettet til dig i denne mail (pkt. 6 nedenfor).

Endelig: Vedhæftede dokument har også spørgsmål, der går på krav om naturgenopretning samt vildtkorridorer under Vejlevej samt andre spørgsmål. Men i det følgende har jeg udvalgt de, der fylder mest i diskussionen på Hald Eges lokale, lukkede Facebookgruppe Hald Ege Diverse.

Jeg har i mangel på overblik fra VK's side selv sammensat (og delt lokalt) et kort der viser de tre forslag til lokalplaner (kan forstå, at der derudover også er et fjerde på vej om 8 nye boliger ved Solvang, dvs. i alt 268 nye boliger):

1. Hvad er motivet for byudvikling i netop dette område? (der mangler tilsyneladende et behov – kan du henvise til behovsafdækning som resultat af en helhedsplan for byudvikling af Viborg). Med 700 boliger i Arnbjerg er væksten vel dækket af i en årrække.

2. Sikker Skolevej er i forvejen yderst kompromitteret i Hald Ege, og med stigende trafiktryk, som følge af 268 nye boliger + lukning af udkørsel fra Kolbækvænget til Vejlevej, samt deraf stigende antal bløde trafikanter, der skal krydse Egeskovvej efter opførsel af nye boliger, vil vi gerne vide, hvad er Viborg Kommunes strategi for Sikker Skolevej i den meget nære fremtid, både hvad angår

a. Blød cykel (elev-)trafik fra det gamle kurområde (Videbechs Allé) mod Hald Ege Skole (vest mod øst)?

b. Blød trafik fra (gl.) Hald Ege (fra øst mod vest) til Hald Ege Høj, Fri- og Efterskole, 2 daginstitutioner samt fritidsklub?

c. Hvad er tidsplanen for anlæggelse af cykelsti på Egeskovvej?

d. Banestien (Alhedestien) er ikke brugbar for alle dem, der skal krydse Egeskovvej. Det sker reelt to steder, ved Videbechs Allé (hvor der engang var en fodgængerovergang - den er nu forsvundet), hvorfra elever cykler på fortovet til skole (naturligvis uhensigtsmæssigt også ud fra trafik-opdragelsesmæssigt synspunkt), og alle de, der skal vestpå mod institutionerne på Videbechs Allé vil aldrig få gavn af Alhedestien, som ligger på den gale side ift. trafikretningen.

3. Hvad er VK's estimat for øget trafikstøj og -gener for husejere med grund til Egeskovvej?

4. Hvad er planen for begrænsning af tung trafik og øget turisttrafik gennem Hald Ege i fremtiden (Hald Hovedgaard forventes at blive en turistattraktion, dvs. mere trafik)

5. Hvad er tankerne om at lede trafik uden om Hald Ege (kan den eksisterende rundkørsel (fra statsvej) ikke bare udvides med en fjerde afkørsel, der kan lede trafik til nye boligområder?

6. Endelig: Agtindsigt i tidligere afslag

a. Jeg ønsker agtindsigt i kommunens oprindelige plan (og historik) for udlægning af Kolbæk-området til grønt, rekreativt område (dvs. ubebyggeligt), samt ansøgninger og kommunens afslag om bebyggelse på disse arealer

b. Jeg ønsker agtindsigt i afslagsbegrundelserne til de borgere, der tidligere fik afslag – i lyset af, at det med et trylleslag pludselig var OK at bygge på det område, som Kommunen selv havde gjort ubebyggeligt med egen lokalplan. Dette giver ikke mening for os, så derfor nok heller ikke for mange andre.

Lars Norup, chefredaktør på Viborg Stifts Folkeblad følger interesseret sagen og har bebudet, at avisen møder op ved det første af de to borgermøder den 17.1. kl. 17 i Multisalen. Borgerne i Hald Ege samles et par uger før borgermødet for at forberede borgermødet, herunder for i fællesskab at formulere de spørgsmål, der eventuelt stadig består efter et svar fra dig som følge af denne henvendelse.

På vegne af de nævnte 121 borgere, som aktivt diskuterer lokalplanen, ser jeg frem til at høre fra jer.

Venlige hilsner,

Simon Olling Rebsdorf

Indsendt af Simon Olling Rebsdorf

Vedhæftet fil

Borgerkritik af planer om opførelse af 268 nye boliger ved Hald Ege.

- Opdateret, samlet opslag til at copy-paste fra til at dele videre på medierne

Hald Ege reduceres endnu mere til en gennemfartsby med risiko for mindre sikker skolevej. Der er høringsrunde lige nu midt i juletiden. En stor gruppe borgere slår til lyd for en anden løsning, for bedre helheds- og konsekvenstænkning, for bedre trafiksikkerhed, for alternativ vejføring mhp. støjreduktion og sundhed/sikkerhed samt mere fokus på natur. Motivet for et påstået behov for byudviklingen kritiseres.

Mange Hald Ege borgere møder op Borgermøderne i Multisalen på Rådhuset og viser med fødderne, at de kerer dig om bysbørnene og naturen.

2 borgermøder - SÆT 2 KRYDS I KALENDEREN

- 17. januar kl. 17.15: Lokalplan nr. 499 SAMT nr. 509, i alt 126 boliger.
- 19. februar kl. 17.15: Lokalplan nr. 487, i alt 134 boliger.

I alt er der tale om alt 268 nye boliger.

"Hvis man kan bruge 18 mio. kr. på en bro til en hasselmus, kan man vel også sørge for at børn kan komme sikkert over Egeskovvej." - et borgerperspektiv

Baggrund
Når udkørsel til Vejlevej lukkes fra Kolbækvænget (og det gør den jo med eksisterende forslag 487), og der sammen med forslag nr. 499 og 509 i alt planlægges opført 260 (nok 268) nye boliger, så får vi en mindre motorvej gennem Hald Ege hver dag i myldretiden, mens flest børn cykler gennem byen. I dag er trafiktrykket allerede højt (se nedenfor – Rambøll har undersøgt trafiktrykket).

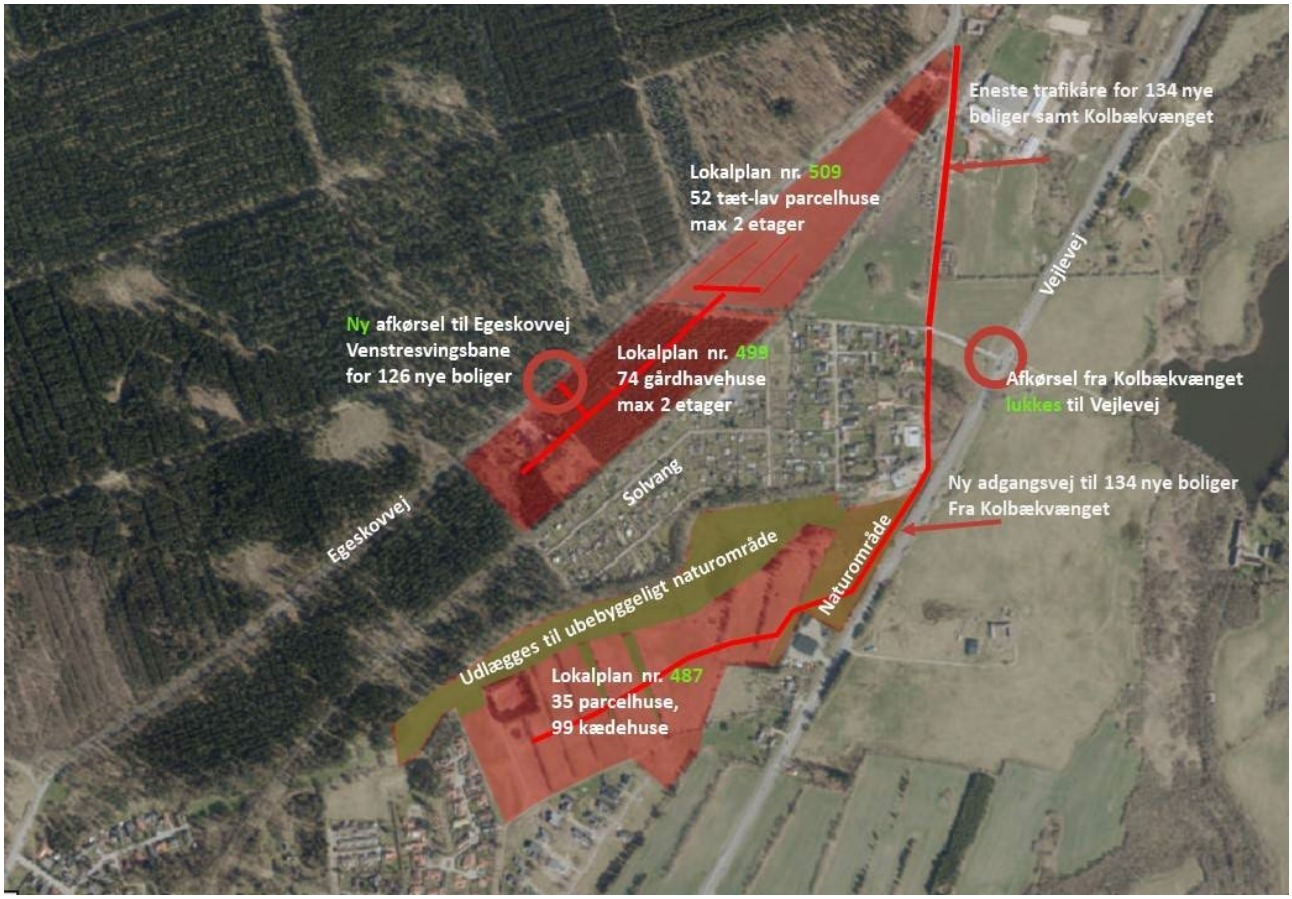
Med 268 boliger mere, som huser daginstitutions- og skolebørn, der nok til dels bliver kørt i skole i bil, samt med en væsentlig andel af folk, der skal syd- eller vestpå som pendlere til Karup, Silkeborg, Ikast, Vejle og Herning, vil trafiktrykket stige betragteligt. Beboere på Kolbækvænget med samme destinationer må også køre gennem Hald Ege. Belastningen på Koldingvej og Egeskovvej er stor, og vil kun blive større med nyt boligområde.

Overblik og argumenter imod forslag om 268 nye boliger

Her oversigt over de 260 nye boliger, som nogen mener, der er fornuftige argumenter for at opføre. (de ekstra 8 boliger er ikke medtaget her).

- Lokalplan nr. 487: 134 boliger (35 parceller, 99 kæde-/rækkehuse)
- Lokalplan nr. 499: 74 boliger (gårdhave, 2 etager, <8,5 m)
- Lokalplan nr. 52: 52 boliger (tæt-lav, max 2 etager, < 8,5 m).
- [Hertil er der ifølge kilde i Teknik og Miljø planer om opførelse af yderligere 8 boliger i Solvang, dvs. 268 i alt). Lokalplanerne kræver revidering af kommunalplanens rammebestemmelser, så anvendelse ændres fra rekreativt område til boligbebyggelse.]

Problemerne i forslagene skitseret nedenfor handler om helhedstænkning, trafiksikkerhed og trafik-tryk (herunder støj), manglende helheds- og konsekvenstænkning samt manglende øje for vildtovergange samt naturgenopretningskrav.



Figur 1 Forslagene 487, 499 og 509 samlet på ét kort af Simon O. Rebsdorf. Forslag om yderligere 8 boliger i Solvang er ikke medtaget.

1. Motiv bag behov for byudvikling

Manglende argument/motiv for byudvikling i netop dette område (manglende helhedsplanlægning og -tænkning). Der er ikke er behov for de ekstra boliger i dette område. Men hvis det ikke står til at ændre, så skal trafikken som et minimum ikke plage borgerne, men ledes udenom. Og hvorfor skal der overhovedet ske byudvikling i Hald Ege, når kommunen har planlagt for Arnbjerg, hvor der kommer ca. 700 boliger?

2. Plan for øgede elev-optag på skoler

Kan Søndre Skole og Hald Ege skole huse de ca. 260 * 1,5 = 390 nye børn fra de 260 nye boliger? Er der en plan og en økonomi for dette?

3. Vejføring uden om Hald Ege eller gennemfartsby

Manglende fornuftig vejføringsplan uden om Hald Ege som følge af lukning af afkørsel til Vejlevej fra Kolbækvænget (øget trafiktryk fra nye udstykning samt boliger på Kolbækvænget)

4. Trafiksikkerhed 1

Helt uambitiøs og mangelfuld trafiksikkerhedsplan. Manglende plan for Sikker Skolevej til to skoler, klub, efterskole og 2 daginstitutioner - og generel mangel på fokus på trafiksikkerhed for bløde trafikanter gennem Hald Ege med øget trafiktryk.

5. Cykelsti og sikre overgange

Krav cykelsti på Egeskovvej samt flere sikre belyste overgange over Egeskovvej (børn kører på fortovet og krydser Egeskovvej fra ubelyst, ikke-markeret skovsti.

- Adgang til Banestien er IKKE en mulighed for mange børn.
- Trafikken går begge veje over Egeskovvej, hver morgen og eftermiddag.

6. Øget trafiktryk/årsdøgnstrafik med 20 procent

Konsulentfirmaet Rambøll har målt årsdøgnstrafikken fra Kolbækvænget til/fra Vejlevej. Der passerer 693 biler alle dage året rundt. Formanden for Teknisk Udvalg mener, at når man lukker denne udkørsel, så har man fundet løsningen på den udkørsel, der vil finde sted fra bebyggelsen langs Vejlevej . 134 + 8 boliger giver en årsddøgnstrafik på 134 x 4 *ekstra* udkørsler pr. bolig. I alt ca. 568 udkørsler. Hvor de eksisterende 693 udkørsler bliver af siger Johannes Vesterby ikke noget om. Samler vi dem, bliver det estimeret 1.261 udkørsler ved Rideskolen. Kører de mon til Hald Ege? Eller fordeler de sig ligeligt, dvs. en halvering mod syd, og en halvering mod nord?

Egeskovvej har en årsdøgnstrafik på 3.623 i dag. Læg hertil fx halvdelen beskrevet ovenfor (1.261 / 2=) 630 *plus* halvdelen af udkørsler fra de 126 nye boliger ved Egeskovvej (0,5 x (126 x 4) = 0,5 x 504 = 252). Det giver en estimeret årsdøgnstrafik på

Ny årsdøggnstrafik = 3.623 + 630 + 252 = 4.505 (antagelsen om halvering syd/nord)

Eller en *stigning med 20 procentpoints*.

Hertil kommer en forventet trafikforøgelse Viborg-Hald Ege – Hald Hovedgaard som følge af en af Midtjyllands største attraktioner, der åbner i 2019 på Hald Hovedgaard/Hald Ruin (Kulturstyrelsen/Naturstyrelsen/A.P. Møller-projektet).

7. Trafikstøj

I nr. 499 står at hastigheden på Egeskovvej KAN nedsættes til 50 km/t. Men også at ibrugtagning først kan ske når støjmålinger viser det er OK. Skal man forvente, at støjberegninger ligger på vippen - og hvis det viser sig at være for højt - så HAR man jo givet sig selv lov til at nedsætte hastigheden.

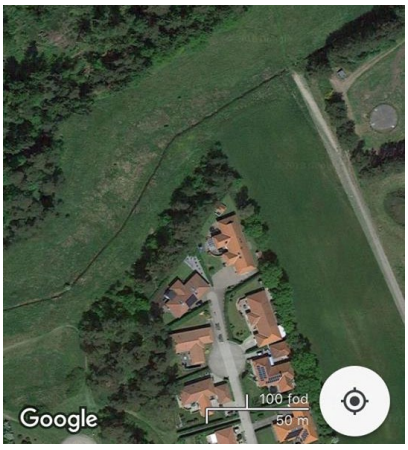
- Hvad er estimeret støjstigning gennem Hald Ege?
- Er husejere langs Egeskovvej blevet hørt?

8. Skovrejsningsansvar

Hvad er kommunens skovrejsningsansvar svarende til det, der fældes? Ved anlæg af motorvej skal man fx naturgenoprette et tilsvarende areal. Hvad er reglerne, og følges de?

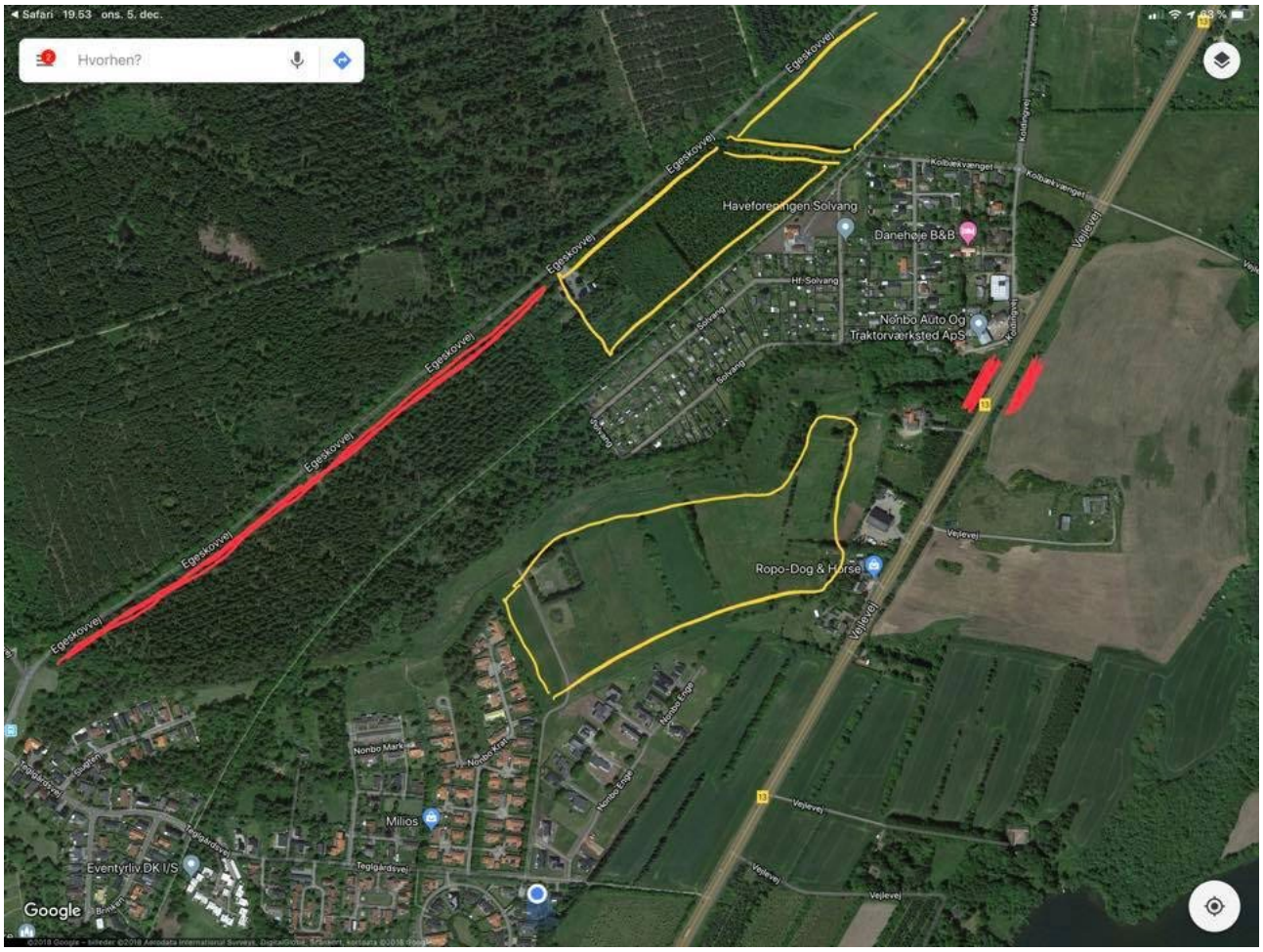
9. Fredede områder

Hvor tæt må man bygge på Kolbækken, som er fredet? Der er p.t. bygget ind til godt 50 meter fra bækken. Vil der ske ændringer af det?



10. Fældning eller ikke?

De består af en juridisk del og en ikke juridisk del, og man gør ikke noget særligt ud af at almindelige borgere skal forstå hvor skellet er. I nr. 499 betoner man eksempelvis værdien af træer langs Egeskovvej. Men på lokalplankortet angiver man en områdebetegnelse for grønt, og dette går IKKE langs med Egeskovvej. Ergo - træer forsvinder til fordel for støjvold. Det med at træerne havde værdi var i den IKKE juridiske del. Men det er fuldt menneskeligt at læse det man gerne vil og blive glad for at de skriver træerne har værdi - og så blive skuffet bagefter.



Figur 2 De røde streger angiver de eneste tilbageværende overgange for vildt i fremtiden, såfremt lokalplansforslag godkendes. Der bliver nok trængsel på Vejlevej! En korridor under Vejlevej kan være en løsning, hvis vildtet vil benytte sådan en.

11. Reduceret vildtovergang over Vejlevej

De fleste med kørsel på Egeskovvej har i skumring set råvildt krydse. Antager vi at samme mængde råvildt vil krydse, men kun på det sidste stykke skov efter Viggo, hvad kan vi da forvente? Skal grundejer sørge for en undergravning som grøn korridor på det sidste stykke skov, samt hegn på begge sider af korridoren? Det samme gælder i endnu højere grad for Vejlevej.

12. Fra landsby til bydel

Diskussionen om Hald Ege skal forblive en landsby (som er grunden til at mange er flyttet derud) er følelsesladet og svær at medtage med rationelle argumenter, så den behandles ikke her. Så længe byudviklingsplaner indgår i en helhedsplan for Viborgs udvikling, hvor der er tænkt over tingene, FØR man lader jordejere byde sig til med potentielle byggeområder, kan det give mening for nogle, og ikke for andre (se argumentationspunkt 1).

Links til de tre lokalplaner

- Nr. 487: https://kommune.viborg.dk/Politik/Dagsordener-og-referater/Dagsordner-og-referater-fra-byraad-udvalg-raad-naevn-2018til2021/Teknisk-Udvalg/2018/11/281120182018112808 30?#1
- Nr. 499: https://kommune.viborg.dk/Borger/Byggeri,-bolig-og-flytning/Kommune-og-lokalplanlaegning/Lokalplaner/Lokalplanforslag/Lokalplan_499_Egeskovvej_delomr3
- Nr. 509: https://kommune.viborg.dk/Borger/Byggeri,-bolig-og-flytning/Kommune-og-lokalplanlaegning/Lokalplaner/Lokalplanforslag/Lokalplan_509_Egeskovvej_delomr2

Teknisk Udvalg - Referat fra mødet den 28-11-2018

Protest mod forslag til lokalplan

Kære medlemmer af Teknisk Udvalg i Viborg kommune, Janne Berg, medlemmer af byrådet, borgmester Ulrik Wilbek og ikke mindst borgere i Viborg.

Dette er en indsigelse vedrørende forslag til lokalplan 499 og 509 om voldsom bebyggelse langs Egeskovvej på bekostning af skov og engområde.

Vi vil blandt mange andre også protestere mod planforslagene. Der er mange grunde til at byggeriet ikke skal tillades. Vores forslag er konkret, at lokalplanerne ændres til ”0 nye bygninger” eller forslagene helt afvises.

Vi finder det positivt, at byrådet ønsker byvækst og attraktive boligområder, men ikke på bekostning af eksisterende velfungerende boligområder.

Miljø og bæredygtighed.

Det er problematisk, at et forslag med fokus på kortvarig økonomisk gevinst for få kan vægtes højere end et fantastisk naturområde med smukke egetræer, oldtidshistoriske mindesmærker og værdifuld grundvandsressource til glæde for mange.

Vi oplever, at Viborg kommune heldigvis har fokus på betydningen af rekreative naturområder nær byen, så det undrer os, at I overvejer at give tilladelse til at ødelægge skov- og naturområdet, når der er alternativer nær Viborg?

Den øgede trafik vil være hård ved plante- og dyreliv, og de nye bygninger vil ødelægge æstetikken, som gør området omkring Hærvejsruten i Viborgs sydlige del unik og tiltrækkende for turister og viborgensere året rundt.

Viborgs historie.

Når naturfredningslinjer ignoreres, og overbebygges til grænsen, har det omkostninger, da uvurderlige spor fra fortiden ødelægges.

Viborg kommune profilerer sig tydeligt på det rekreative og i endnu højere grad på sin fantastiske natur og historiske betydning for Danmark. Det er reformationen, De Fem Halder, Ridder Niels Bugge og Hærvejen.

Hærvejsmarchen fører utallige folk langs Egeskovvej under de smukke egekroner.

Hvorfor vil I forringe den naturoplevelse?

Støj-, sikkerheds- og trafikforhold.

Byggeriet vil kort og godt have negative konsekvenser for beboere i Hald Ege, herunder give problemer med skole- og trafikforhold.

Hvor skal børnene gå i skole, hvis der ikke er ordentlige pladsforhold i de nuværende skoler i Hald Ege samt Søndre Skole?

Hvor store trafikgener vil I byde folk?

Hvis langt mere end 100 nye huse betyder flere hundrede tilflyttere, så vil trafikken gennem Hald Ege, som i forvejen er voldsom i myldretiderne, blive uforholdsmæssig støjende, farlig og generende. Her tør vi ikke engang tænke på generne under byggeriet.

Potentiel forurening af grundvandsressource.

Hvorfor vil I bygge nyt i et skovområde og øge anvendelsen af ukrudtsmidler, gødning, brug af vejsalt i et naturområde? Ikke mindst vil byggeriet forurene området pga. udvaskning fra byggematerialer: https://www2.mst.dk/Udgiv/publikationer/2015/12/978-87-93352-99-5.pdf.

Vi er bekymrede for vores børns sikkerhed omkring Egeskovvej.

Hvordan vil I i Teknisk Udvalg og byrådet sikre, at den øgede trafik kan ledes uden om byen og væk fra Egeskovvej, når planen ydermere er at lukke Kolbækvænget for gennemkørsel?

Hvordan vil I sikre Hald Ege som et fortsat attraktivt boligområde, der ikke skal kendetegnes som en overtrafikeret gennemkørselsbydel?

Endelig kan man stille Teknisk Udvalg, byrådet og ikke mindst borgmester Ulrik Wilbek spørgsmålet:

Hvad får I ud af det her?

Borgerne i Hald Ege får ikke noget positivt ud af det.

Med venlig hilsen

Laura og Anders Just Schade

Hald Ege

Indsendt af Anders Just Schade

Protest mod de nye lokalplaner 487, 499 og 509

Protest mod de nye lokalplaner 487, 499 og 509

Som mangeårig beboere i Hald Ege er det med stor bekymring, vi læser om de nye lokalplaner. I de papirer, der er fremlagt på kommunen hjemmeside, fremgår der intet om, hvorledes byggeplanerne vil påvirke beboerne og lokalsamfundet i Hald Ege på følgende punkter:

1. Det forventes, at beboerne i den nye bebyggelse primært tilknyttes Hald Ege - og dermed også Hald Ege skole. Hald Ege skole huser i forvejen 598 elever. Det er altså en temmelig stor skole i et lille bysamfund, og skolen er med det nuværende elevantal tæt pakket. Hvordan skal skolen blive gearet til de mange ekstra elever, som den nye bebyggelse vil medføre? Som forældre til to børn på skolen er det en stærkt bekymrende tanke, at der indenfor få år måske vil komme 200-300 børn mere på skolen. Der er fysisk ikke plads til så mange ekstra børn - hverken i lokalerne eller i skolegården. Det vil påvirke støjniveauet meget, og så stor en elevmasse vil gøre skoledagen mere stressende og uoverskuelig, fordi de klemmes sammen på alt for lidt plads. Hvorledes er dette tænkt ind i planerne, så det ikke går ud over elevernes trivsel og indlæringsmuligheder?

2. Det samme gælder daginstitutionerne i Hald Ege. Selvom de givetvis vil være glade for flere børn, så er den meget store mængde børn, der risikerer at komme til på kort tid, hverken holdbart pladsmæssigt eller trivselsmæssigt. Hvordan vil støjniveauet fx blive i Egeskovens Børnehave, der i forvejen har mange børn pakket sammen i relativt små lokaler?

3. I Region Midtjylland arbejdes der seriøst med FNs Verdensmål. Et af de udvalgte mål er nr 11: Bæredygtige byer og lokalsamfund. Hvorledes stemmer lokalplan 487, 499 og 509 overens med dette? At tilføre et velfungerende lokalsamfund op mod 268 nye boliger, som vil føre til en overbelastning af skolen, daginstitutionerne og vejene, samt betyde fældning af et større skovområde og dermed en nedgang i biodiversiteten, virker på ingen måde bæredygtigt. Tværtimod.

4. Hvor er de gode argumenter for at tilføre lokalområdet op mod 268 nye boliger, når der i forvejen er tomme byggegrunde i området?

5. Sidst men ikke mindst, er det så tænkt ind i planerne, at det attraktive ved at bo i Hald Ege risikerer at forsvinde, når skovene omkring byen fældes, trafikbelastningen øges væsentligt og skole og daginstitutioner vokser kraftigt? Hald Ege har idag en unik beliggenhed midt skoven og en charme, som ikke findes ret mange steder tæt på Viborg. Den charme er med til at skabe et godt image for Viborg som helhed. Hald Ege er et attraktivt område. Det attraktive risikerer at forsvinde med de nye planer for bebyggelse.

Protesten er indsendt af Nicolai og Dorthe Aaboe Kallestrup, Hald Ege.

Indsendt af Dorthe Aaboe Kallestrup

23-12-2018 6

Kommuneplans ændring

Indsendt af Jørgen Buus

Vedhæftet fil

Vedhæftede fil kunne ikke åbnes.
Indsiger Jørgen Buus er kontaktet af Janne Berg onsdag 30. januar 2019 angående fejlen i vedhæftede fil.
Indsiger fremsender ny pdf, som lægges ind efter høringsfristens udløb.

Indsigelse

Såfremt dette er en reel høring...!! (hvilket man desværre ikke kan tage for givet), ønsker jeg at gøre indsigelse. Hvorfor ..hvorfor skal ALLE grønne områder i og omkring Viborg bebygges ?? Det er jo netop dette, der gør Viborg til noget særligt. Og Hald Ege' status som "landsby" forsvinder.

Indsendt af Karsten Binderup

03-01-2019 8

Egeskovvej

Indsendt af Henrik Degn

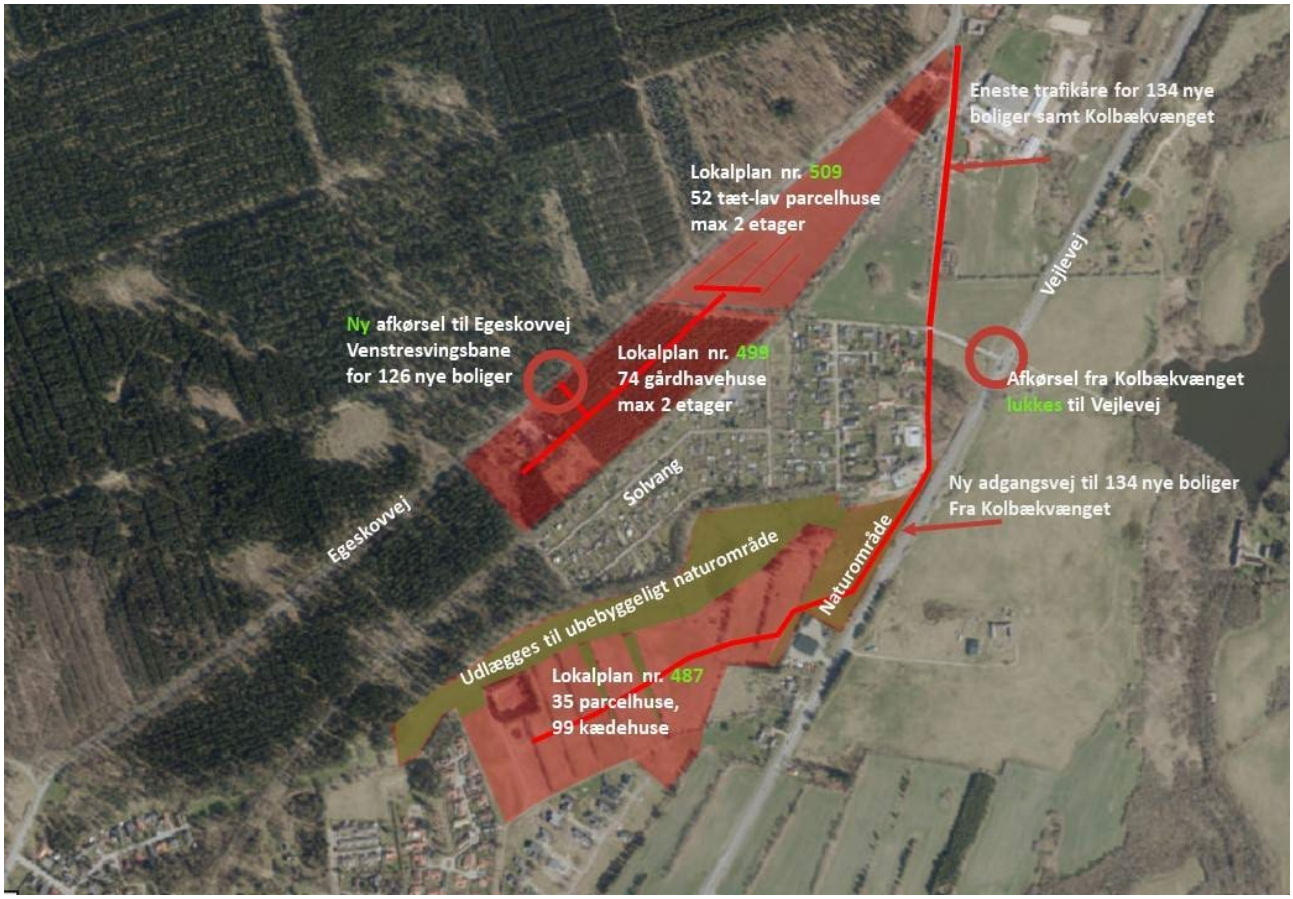
Vedhæftet fil

Til Planafdelingen Viborg Kommune
Indsigelse imod ændring af den i 2017 vedtagne Kommuneplan. (Tillæg 26)

Jeg kan ikke forstå, at forvaltningen går i mod sin egen vedtagne kommuneplan fra 2017. Kommuneplanen fra 2017 har vedtaget området til at være "Grønne rekreative områder". Og nu i 2018/19 er der pludselig en reel trussel om at bebygge arealet totalt uden nogen sans for æstetiske landskabstyper. Området kranser op til et af Danmarks smukkeste områder, som i den grad er præget af istiden. Med de fem Halder i mente, så er det utilgiveligt at planlægge bebyggelse langs Egeskovvej til Hald Ege.

Jeg kan ikke forstå, at området behandles som et enkelt planforslag, når der ligger planforslag for yderligere to områder. Derfor giver det ikke nogen mening at behandle området langs Egeskovvej, som et enkelt planforslag. Det er nødvendigt, at alle tre planforslag behandles som et forslag, da det vil få en enorm betydning for området samt dets lokalsamfund. Det er must, at der bliver lavet en ny høringsrunde, hvor alle tre planforslag bliver set i sømmene frem for at forsøge at få det ene område igennem efter det andet, og så fremdeles.

Jeg kan ikke acceptere, at trafikken skal ledes ud på Egeskovvej. Der må kunne findes en anden løsning f.eks. ud på Vejlevej. Jeg kan heller ikke forstå, at forvaltningen er indstillet på at lukke udkørslen til Vejlevej? Der er målt trafik på ca. 693 bilister per dag (Rambøl). Hvordan skulle det gavne Hald Ege med denne lukning, så vil bilisterne, der skal mod Vejle/Herning vælge at køre igennem Hald Ege -frem for at lede trafikken uden om byen? (Se de tre planforslags lagt sammen til et kort)



Jeg forstår ikke, at det skulle være nødvendigt med bebyggelse af de tre områder langs Egeskovvej-Vejlevej, når det ifølge kommunes egen prognosetal for tilvækst til Viborg ikke er så stor som forventet. I Viborg Stift Folkeblad kan man læse, at stigningen har været størst i Løgstrup. Hvad med Viborgs landsbyer -de har behov for byvækst. Elevtallene går i den forkerte retning, når der ikke er øget fokus på at skabe byvækst i større grad. Med de enorme arealer, der er udlagt i Taphede, Arnbjerg og et nyindkøbt areal, så er behovet dækket for de næste mange år. Boliga har lavet en undersøgelse, hvor det viser sig, at Viborg er langt ned på rangskalaen i.f.t. interesser ved køb af bolig. Selv om det er positivt, at Viborg vokser, og man kan tale noget op, så viser det sig at Viborg måske i virkeligheden ikke er helt så tiltrækningskraftig, som det gøres til.

Jeg kan ikke forstå, at forvaltningen er indstillet på at sænke fartgrænsen fra de nuværende 80km/t til 50km/t blot for at byggegrænsen kan rykkes tættere på Egeskovvej, når støjniveauet fra trafikken ikke må overskride 52db.

Jeg kan ikke acceptere, at der ikke skal laves undersøgelser af vejstøjgener i Hald Ege i en højde af 1.5m, når der åbenbart kan laves støjgener ved nybyggeri. Hvorfor skal vi finde os i at blive yderligere generet af støjgener grundet en kommende øget trafik gennem byen? Vi er nogle, der ikke bare kan rykke huset længere væk fra Egeskovvej! Støj er i dag anerkendt som skadelig og usundt for helbredet. Det virker meget besynderligt, at man i kommunen planlægger med at lede ekstra trafik igennem en by i stedet for at lede trafikken uden om byen?

Gammel Århusvej har igennem årtier været at betragte som en ringvej, og er i daglig tale blevet omtalt som en ”ambulancevej”. Pludselig i 2018 skal der pludselig laves chikaner i hobetal, der kommer til at fungere som en yderlig forhindring for trafikken gennem byen. Hvorfor skal der pludselig være chikaner langs det nye Søhuse-område? Er det fordi, at støjniveauet skal under 52db, når der planlægges nybyggeri? Jeg kan ikke forstå, at man løser byggeri i områder ved blot at sænke farten til 50km/t, og er det scenariet, der kommer til at ske på Egeskovvej uden hensyntagen til at lede trafik væk fra området. Så er det bedre med at trafikken ”propper” til -bare der kan bygges og så bare ærgeligt for de allerede eksisterende huse (ironi kan forekomme).

Egeskovvej har en årsdøgnstrafik på 3623 i dag. Kommunens egne tal viser dog noget andet… Det hænger nok sammen med at tællingen af bilister er sket ud for de nye seniorboliger på Egeskovvej. Dermed er trafikken til institutionerne Hald Ege Efterskole og fri skole ikke talt med. Ligeledes heller trafikken til institutionerne på Tårnlyvej. Her er der heftig trafik i de tidlige morgentimer og i eftermiddagstimer. Det fremgår dog af undersøgelsen, at 15% kører hurtigere end det tilladte, som er 50km/t. Men der er blå skilte, hvor det anbefales med 40km/t. Hald Ege by skriger efter flere chikaner, der kan holde hastigheden nede for at sikre skolebørnene. I Hald Ege er der et stort behov for en forlængelse af cykelstien fra Viborg til Hald Ege Skole. Cyklisterne kører i dag på fortovet grundet manglende cykelsti, men det er direkte farligt. Hvad er planen for Hald Ege by med hensyn til at lede trafik uden om byen, og hvordan sikres de bløde trafikanter?

Mastra — **Hastighedsklassifikation** — **Hovedresultater**

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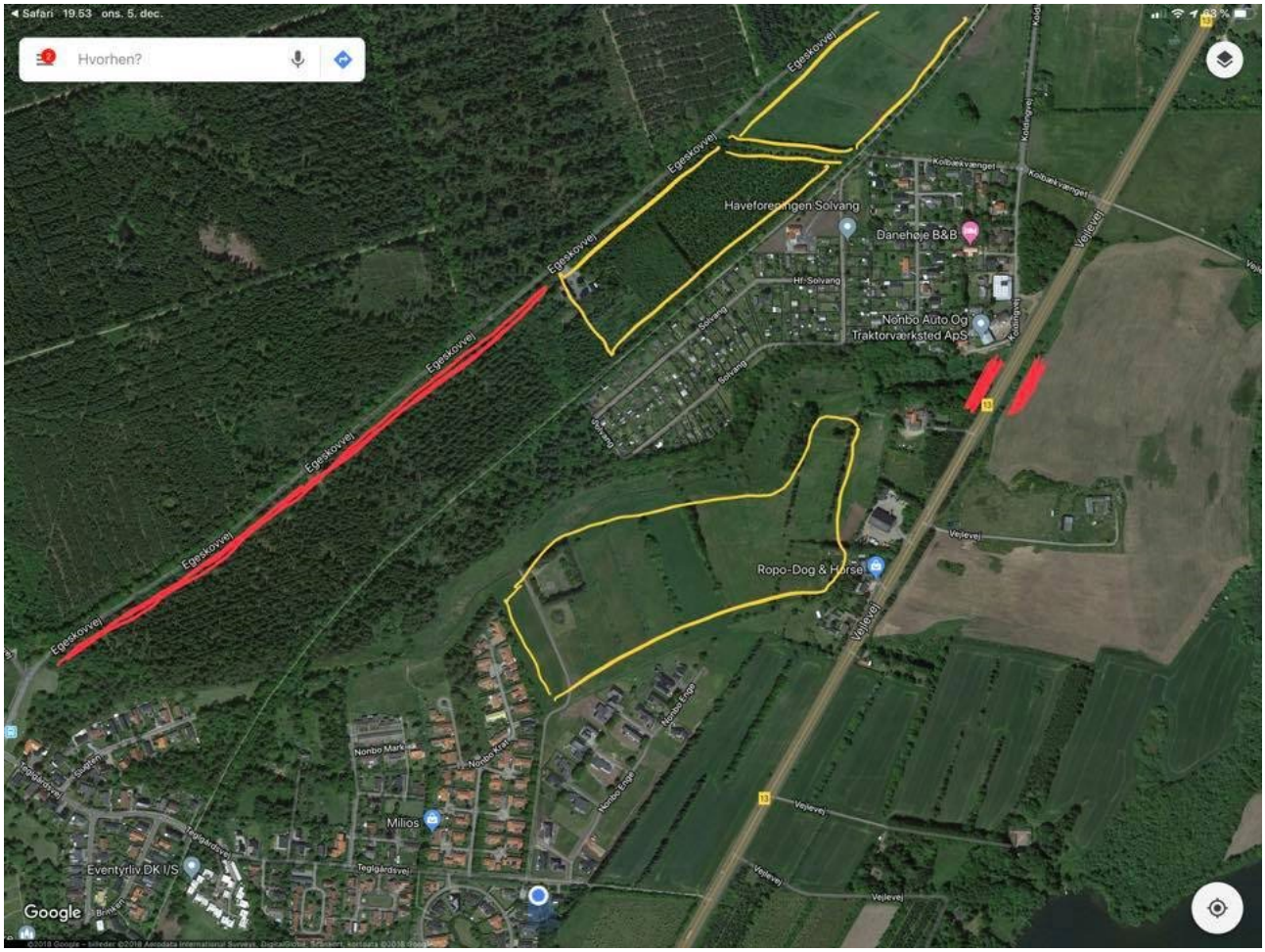
Resultater for	År
Årsdøgn	2.523
Juli døgn	2.281
Hverdagsdøgn	2.749
Æ 10høj	78
Æ 10lav	42
Talte dage	6,9
Trafiktype	By- og lokaltrafik

Målested	79116683	Ved nr. 35
Bestyrer	791	Viborg
Vej	7911686-0	Egeskovvej
Lokalitet	2/676	Hald ege
RetningSpor	T	Total trafik
Køretøjsart	MOTORKTJ	Motorkøretøjer
Periode	01.01-31.12.2017	(metro_m_ek, HK-12 50D)
Kommentar		
Hast.grænse	50	km/t

Kun fuldt talte døgn indgår

Hastigheds-interval	Hverdage (pr.døgn) Døgn 4 antal	%	akk.%	Lørdage (pr.døgn) Døgn 1 antal	%	akk.%	Søndage (pr.døgn) Døgn 1 antal	%	akk.%	Helligdage (pr.døgn) Døgn 0 antal	%	akk.%	Ugedøgn (5*hvd+lør+søn)/7 antal	%	akk.%
0 - 20	78	3	3	56	3	3	63	3	3				73	3	3
20 - 25	108	3	6	89	4	7	71	3	6				100	3	6
25 - 30	156	5	11	101	5	12	113	5	11				142	5	11
30 - 35	292	10	21	172	9	21	259	11	22				270	10	21
35 - 40	674	23	44	383	19	40	474	21	43				604	22	43
40 - 45	901	29	73	574	29	69	639	28	71				817	30	73
45 - 50	544	19	92	382	20	89	432	19	90				505	18	91
50 - 55	186	6	98	151	7	96	162	7	97				178	7	98
55 - 60	46	1	99	53	3	99	38	2	99				46	1	99
60 - 65	13	1	100	18	1	100	14	1	100				14	1	100
65 - 70	6	0	100	5	0	100	5	0	100				6	0	100
70 - 180	2	0	100	1	0	100	0	0	100				2	0	100
85% fraktil km/t	48,2			49,1			48,6						48,3		
Gennemsnit km/t	40,1			40,7			40,3						40,2		
I alt antal	3.006			1.985			2.270						2.757		

Når man kører i tidlige morgentimer eller sene aftentimer, så kører vi (folk der bor i byen) ekstremt varsomt, da der er meget råvildt, der løber over vejen. Er der tænkt faunapassager ind for råvildt og andre dyr i området, så de ikke bliver ladt i stikken? Forslagene for bebyggelse i området levner ikke mange muligheder for dyrene. Se de røde streger på kortet, der viser muligheder vildtet at trænge igennem området. Bør der så ikke laves en faunapassage-bro over Vejlevej og ligeledes for Egeskovvej? Ellers blive det røde område en ”dræber” på Vejlevej, hvor der køres med høj hastighed.



Området vil fuldstændig ændre karakter, og den landskabelige æstetik forsvinder ved de fremkomne forslag (Område 1+2+3). Jeg kan ikke acceptere, at forvaltningen er indstillet på at ændre de 300m til kun sølle 30m i.f.t. skovgrænse.

Det er glædeligt, at forvaltningen fastholder en grænse på 100m fra gravhøje. Men det synes at fremkomme på gamle kort, at der er er to (måske flere) overpløjede gravhøje -de skal vel også respekteres?

Jeg kan ikke forstå, at der på et tidspunkt er givet tilladelse til juletræsproduktion på området, da de kræver øget tilførsel af gødningsstoffer samt sprøjtegifte. Nu er juletræsproduktionen så blevet til en forvokset granskov. Men er der givet tilladelse til juletræsproduktion på arealet, og er der givet tilladelse til at omdanne agerbrug til skovbrug? Det kan jeg ikke se på nettet (GIS). Hvis ikke -hvad så? Byggeri -er det løsning?

Rambøls miljøundersøgelse viser at grundvandet står 2,5m nede under jordoverfladen. Derfor anbefales det heller ikke, at der saltes med natriumklorid, som er et helt almindeligt salt! Hvis det skulle blive vedtaget, at der skal bygges i området, så er det nok svært at forestille sig, at den enkelte boligejer ikke skulle have lyst til at fjerne sne og is på fliser? Eller om sommeren hvor der vokser ukrudt, at der lige skulle sprøjtes med Roundup eller andre kemikalier for ukrudt? Området er særligt følsomt, da det er vandindvindingsområde for boring syd. Derfor kan det ikke hjælpe at plastre området til med boliger, hvor

risikoen for nedsivning af uønskede stoffer til grundvandet øges med en væsentlig faktor. Se læserbrev i VSF:

Birthe Marie Harritz
15. december kl. 22.35 ·

Læserbrev fra Viborg Stifts Folkeblad i dag
Sprøjteforbud ved drikkevandsboringer
Det var næsten som at få en julegave før tid, da jeg erfarede, at Miljøminister Jakob Ellemann- Jensen nu går ind for sprøjteforbud ved drikkevandsboringer. For blot et år siden var han, og resten af Regeringen, ellers lodret imod et sådant forbud.
Jeg mener, at vi skal gøre alt hvad vi kan for at bevare rent drikkevand. I modsætning til mange andre lande pumper vi her i landet vandet op fra magasiner i undergrunden og sender det direkte ud til forbrugerne, uden at tilsætte stoffer.
Jakob Ellemann skriver i sin pressemeddelelse, at det er de mange pesticidfund i drikkevandet, der har fået ham til at ændre holdning, det passer mig rigtig fint. For flere måneder siden tog jeg samme emne op i Klima- og Miljøudvalget, fordi jeg ønskede at få en orientering om den aktuelle situation i Viborg Kommune. Forholdene er selvsagt meget forskellige ved vandværkerne, men fakta er, at de nyeste analyser viser, at der er pesticidfund ved 17 vandværker, svarende til hver 4. vandværk, og at grænseværdien for pesticider er overskredet ved hver 20. vandværk.
Disse oplysninger beroligede mig naturligvis ikke, og jeg mener, at det er relevant at intensivere indsatsen overfor anvendelse og håndtering af pesticider, især i de særligt følsomme indvindingsområder.
Jeg går selvfølgelig ind for, at der gives en kompensation til de lodsejere, der vil blive omfattet af sprøjteforbuddet.
Socialdemokratisk byrådsmedlem
Birthe Harritz

Hvordan vil Viborg Kommune sikrer vores allesamnens fremtidige drikkevand ved at påtænke nybygeri i et særligt følsomt vandindvindingsområde?

Det er nu op til miljø- og fødevareministeren Jakob Ellemann-Jensen (V) at tage stilling til anbefalinger herunder økonomien til en markant udvidet screening af grundvandet. Dansk Vand- og Spildevandsforening (Danva) vurderer, at en bedre screening kan laves for et etcifret millionbeløb hvert år. Danva har til gengæld tidligere skønnet, at hver gang det er nødvendigt at lave nye indvindingsboringer til erstatning for de forurenede, så koster det to til fem millioner kroner per boring. (Kristelig Dagblad)

Fakta:
Viborg kommune har foretaget trafiktælling på Egeskovvej midt i byen. Ca. 2.500 biler kører hver dag gennem Hald Ege. 15% kører hurtigere end det tilladte.
Se vedhæftede måling fra kommunen.

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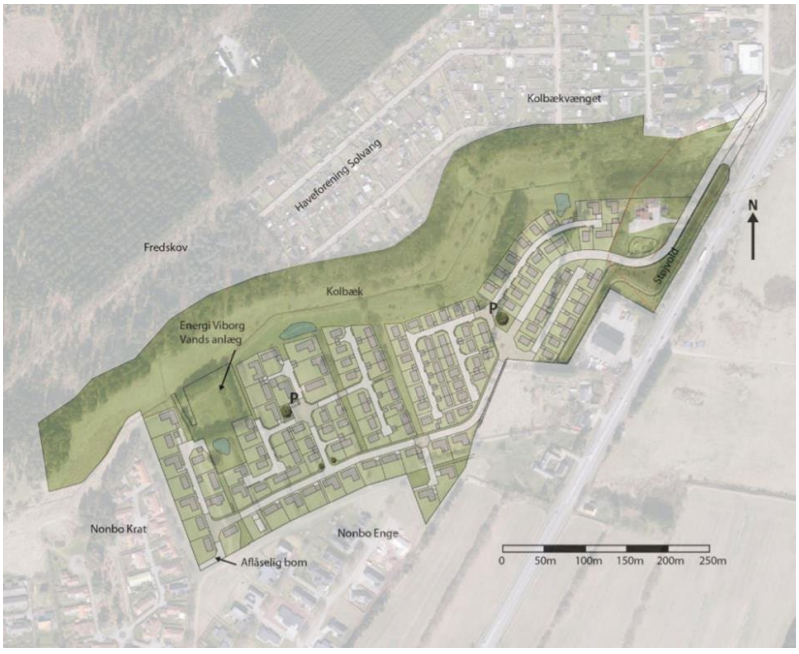
I alt antal	3.006			1.985			2.270						2.757		

Jeg kan ikke forstå, at kommunen vil være villig til at vedtage planen for området, når der samtidigt er sat en undersøgelse i gang m.h.t. hvordan det kan lade sig gøre at lave en syd-østlig omfartsvej? Her tænkes altså at lede trafikken uden om byen, og det vil jeg hilse velkommen som et kærkomment nødvendigt onde (der er trafikpropper gennem byen). Det håber jeg også, at det vil tænkes ind for Hald Ege, så trafikken ikke skal ledes igennem byen, men uden om byen.

Jeg kan ikke acceptere at Hald Ege by får en tunnelvej i form af støjvold, og vi der skal igennem Viborg by øger vores trafiktid for at komme ud på den anden side af Overlund

- Vi bør ikke ændre den nuværende kommuneplan, som udlægger arealet som et grønt rekreativt område. Der har været masser af lokale protester, og der må da være grænser for, hvor mange steder i kommunen vi vil skabe byudvikling, fordi nogle private grundejere ser en mulighed for at skaffe sig en god fortjeneste, sagde Flemming Gundersen. (Kilde VSF)



Høringssvar vedr. planforlaget 499 og 509

Høringssvar ang. lokalplan 499 og 509

Hald Ege er en landsby med knap 1400 indbyggere, beliggende smukt midt i skoven. Byens relativt lille størrelse er grundlaget for et stort sammenhold og engagement. Et sådant er svært at etablere/bevare i en større by, hvor man ikke kender hinanden på tværs af alder og interesser. I Hald Ege kender vi hinanden, vi vil hinanden og sammenholdet. Dette kommer til udtryk i en aktiv kulturforening, ugentlige fællesspisninger med ca. 80 deltagere hver gang, en aktiv idrætsforening, private party crawls, byfester og "pop op" aktiviteter for børn mv. Man kunne frygte, at ved gennemførelsen af lokalplanerne vil dette sammenhold stille og roligt svækkes, idet Hald Eges identitet som landsby vil forsvinde. Hald Ege vil således stille og roligt blive til en "forstad til Viborg". Vi har valgt at bosætte os i Hald Ege netop på grund af nærhedsprincippet, den unikke landsbystemning, den aktive kulturforening samt naturen. Vores børn er trygge, når de bevæger sig rundt i byen, både fordi det er afgrænset og overskueligt, men også fordi de kender de mennesker, de møder på deres vej.

Der findes stort set ingen landsbyer i Danmark, som har samme karakteristika som Hald Ege, og med gennemførelsen af lokalplanerne vælger kommunens politikere bevidst at ødelægge dette unikke landsbysamfund.

Trafik

Ved gennemførelse af lokalplan 499 og 509 vil Hald Ege få en væsentlig forøget mængde trafik til gene primært for beboerne bosat langs Egeskovvej. Med tilførsel af 126 ekstra husstande plus husstande på nyt område ved Kolbækken (ekstra 100) og en lukning af tilkørsel til Vejlevej ved Kolbækvænget, vil trafikken, der skal i retning mod Herning og Vejle naturligt finde vej gennem Hald Ege. En øget trafikmængde vil forringe miljøet omkring Egeskovvej, dette i form af både forøget luftforurening, men også i form af forøget støjniveau. Den videre effekt af dette vil naturligt afspejle sig i faldende huspriser for de berørte grundejere. Ved at gøre Hald Ege til en gennemkørselsby vil byens særpræg ændres, et særpræg som de fleste borgere i Hald Ege har haft som overvejende grund til at bosætte sig i netop denne by. Byen bliver med andre ord mindre attraktiv.

Hver dag krydser utallige skolebørn i alle aldre Egeskovvej for at komme i skole. Forøget trafik igennem byen vil betyde en øget risiko for de "bløde trafikanter". Der foreligger i lokalplanerne ingen forslag til at øge trafiksikkerheden i Hald Ege.

Lokalplanforslagene 499 og 509 lægger endvidere op til en reduktion af hastighedsgrænsen på strækningen Viborg - Hald Ege, hvilket vil være til gene i form af længere rejsetid på den eneste reelle vejstrækning til Viborg for borgere i Hald Ege.

Det er således bekymrende, at planerne ikke tager hensyn til de gener en forøget trafik gennem Hald Ege vil give henholdsvis miljømæssigt og sikkerhedsmæssigt.

Miljø

Hald Ege er et unikt område, omgivet af fredskov og plantage. Af miljørapporten fremgår det, at " Det visuelle udtryk af landskabet ændres fra åbent land til bykarakter." og, at der er en "væsentlig miljøkonsekvens" ved at gennemføre bebyggelse i to etager - som lokalplanen lægger op til.

Gennemfører man planforslagene vælger man bevidst at ødelægge den helt unikke tilkørselsvej til Hald Ege. Man vil altså fælde et stykke skov, som i øjeblikket ifølge kommuneplanen er udlagt til grønt område. Området antages at være udlagt til grønt område, netop for at bevare den særegne karakter og for at beskytte kulturarven i området. Det forekommer derfor betænkeligt, at kommunen med ét vil kompromittere et grønt område til fordel for bymæssig bebyggelse. Især i betragtning af, at der findes andre områder, som med fordel kan udstykkes, uden at skulle inddrage grønne områder til boligområder.

Kommunen er i henhold til lokalplanforslagene villige til at løbe en betydelig risiko for at forringe vandkvaliteten af drikkevand til sydvandværket. Der er ifølge miljørapporten opstillet en række tiltag som skal sikre vandkvaliteten mod forureningskilder fra boligområdet (ingen anvendelse af salt til glatførebekæmpelse, ingen bilvask, ingen zinktagrender mm). Det er imidlertid svært at se, hvordan Viborg kommune vil sikre, at de i miljørapporten nævnte tiltag vil blive håndhævet. Når først et boligområde er etableret, vil den enkelte husstand over tid "glemme" deres restriktioner, og eksempelvis begynde at salte egen indkørsel, bruge sprøjtemiddel i haven eller vaske deres bil i området. Dertil kommer spørgsmålet om, hvordan man vil sikre, at membraner under parkeringsarealer etableres således, at de holder langt nok ind i fremtiden. Der er specifikt anført i miljørapporten, at området er "sårbart i forhold til grundvandsressourcen og er et følsomt indvindingsområde". Iht. statens bestemmelser på området fremgår det, at man kun i ganske særlige tilfælde bør opføre bygninger/boliger på sådan et område. Igen, er det betænkeligt, at Viborg Kommune vil etablere et boligområde i et område, hvor vi skal hente vores rene drikkevand nu og i fremtiden. Hvordan kan man overhovedet overveje at sætte dette over styr?

Afsluttende bemærkninger

Det er meget bekymrende, at Viborg Kommune og de folkevalgte politikere vælger at se bort fra samtlige af ovenstående punkter. Summen af problemstillingerne og deres karakter burde få politikerne i Viborg Kommune til at trække i bremsen.

Det virker, som om man bevidst vælger at se bort fra en masse faktorer som peger i retning af, at gennemførelsen af lokalplan 499 og 509 ikke burde finde sted, set ud fra et fornuftbaseret perspektiv og en rationel tilgang, for i stedet at tilgodese en økonomisk gevinst for bygherrer, lodsejere og evt. kommune.

Ud fra ovenstående betragtninger og et helhedsperspektiv, kan vi kun på det kraftigste henstille til ikke at gennemføre planforslagene.

Line og Lars Kirkegaard
Trinbrætvej 8
Hald Ege
8800 Viborg

Indsendt af Line og Lars Kirkegaard

04-01-2019 10

Indsigelse mod lokalplanforslag 509

Hermed fremsendes vores indsigelse mod lokalplanforslag 509.

- Mvh. Maria og Morten Sigby-Clausen

Indsendt af Maria og Morten Sigby-Clausen

Vedhæftet fil

Indsigelse vedr. forslag til lokalplan 509 for boligområde langs Egeskovvej

Denne indsigelse til lokalplanforslag 509 falder i 3 dele, som beror på:

1. Visuelle/æstetiske forhold
2. Naturbeskyttelsesmæssige forhold
3. Overlevelsesgrundlaget for en lokal forening (Viborg Rideklub)

1. Visuelle/æstetiske forhold

Vi mener, at en bebyggelse af området foreslået i denne lokalplan vil ødelægge den grønne korridor, som pt. ligger mellem Hald Ege og Viborg by. Selvom skoven fra ejendommen Egeskovvej 1 mod Hald Ege bibeholdes (jf. lokalplanforslag 499), vil vedtagelse af de to lokalplaner i høj grad indskrænke korridoren, og skoven vil være klemt inde af byggeri på alle sider. Lige nu bidrager området, som tænkes bebygget, med et åbent landskabselement, som både fra Egeskovvej, Kolbækvænget og ikke mindst Alhedestien giver luft og udsyn i et område, som ellers er dækket af enten skov eller bebyggelse.

Disse betragtninger stemmer godt overens med den miljørapport, som kommunen selv har fået lavet af Rambøll. Her står der bl.a.:

> *Boligbebyggelse i én etage vurderes at medføre en moderat visuel miljøkonsekvens, hvor bebyggelsen har samme skala som den øvrige bebyggelse i nærområdet.*
>
> *Boligbebyggelse i to etager vurderes at medføre en væsentlig miljøkonsekvens, hvor bebyggelsen vil fremstå mere synlig og fremtrædende end i én etage bebyggelse og i højere grad være synlig ovenover de levende hegn, der skal etableres rundt om boligbebyggelsen. Ligeledes har bebyggelsen en anden skala end den øvrige i nærområdet.*
>
> *En blandet boligbebyggelse vurderes at medføre en væsentlig miljøkonsekvens, selv om området ikke vil være så synlig, som ved to etagers bebyggelse, og bebyggelsen vil fremstå mere varieret.*

Og videre:

> *Viborg Hedeplantage har en stor værdi som et landskabselement i området og bidrager til at skabe en skovkarakter i området omkring planområdet, hvor skoven kan ses. Ved en realisering af lokalplanen vil landskabselementet mindskes lokal, idet skoven ikke vil være så synlig fra områderne mod øst.*

Pointerne fra ovenstående citater er sammenfattet i denne tabel fra miljørapporten:

Miljøpåvirkning	Sandsyn-lighed	Geografisk ud-bredelse	Påvirknings-grad	Varighed	Konsekvenser
Visuel påvirkning ved 1 etage be-byggelse	Meget stor	Lokal	Moderat	Vedvarende	Moderat
Visuel påvirkning ved 2 etage be-byggelse	Meget stor	Lokal	Høj	Vedvarende	Væsentlig
Visuel påvirkning ved blandet be-byggelse	Meget stor	Lokal	Høj	Vedvarende	Væsentlig

Miljørapporten konkluderer altså entydigt, at en realisering af lokalplanen vil have væsentlige negative konsekvenser i forhold til områdets visuelle/landskabelige karakter.

Hvordan kan kommunen sidde dette fuldstændigt overhørig?

2. Naturbeskyttelsesmæssige forhold

a) <u>Skovbyggelinjen</u>

Vi studser meget over, at Naturbeskyttelseslovens §17 helt overraskende slet ikke nævnes i miljørapporten for lokalplanforslaget. (Hvordan kan dette forklares?!)
Det noteres dog i selve lokalplanforslaget, at byggeriet vil komme til at ligge indenfor skovbyggelinjen, som hører til Viborg Hedeplantage. Realiseres lokalplanen vil denne blive reduceret fra de normale 300 meter (jf. Naturbeskyttelsesloven §17) til sølle 30 meter – svarende til 1/10 af det oprindelige:

> *Den eksisterende skovbyggelinje omkring Viborg Plantage søges reduceret i forbindelse med lokalplanens vedtagelse, jf. oversigtskort på side 6. Skovbyggelinjen ønskes reduceret fra 300 m til 30 m.*

Med hvilken begrundelse finder kommunen, at dette er forsvarligt?!

Er det muligt at få indsigt i kommunens ansøgning til Miljøstyrelsen angående reduktion af skovbyggelinjen, så vi selv kan se, hvilke argumenter kommunen lægger til grund for deres ansøgning?

b) <u>Bilag IV-arter</u>

Så vidt vi ved, skal man både i vurderingen af, om det er forsvarligt at indskrænke skovbyggelinjen, og i selve lokalplanen tage hensyn til, om der kan forekomme naturbeskyttelsesmæssige hensyn i tilknytning til området (f.eks. skovbrynene) – Herunder Bilag IV-arter.

I forslag til lokalplan 509 står der under afsnittet *Lokalplanens forhold til anden planlægning*:

> *Bilag IV-arter Planområdet er blevet regelmæssigt omlagt, og det vurderes på den baggrund ikke at indeholde levesteder og ynglesteder for særlige arter, herunder Bilag IV-arter.*

Denne formulering er efter vores opfattelse ekstremt vag og bygger ikke på noget fagligt grundlag! Har kommunen overhovedet besværet sig med at undersøge, om denne antagelse holder vand?

Faktum er, at der i sommeren 2018 faktisk <u>ER</u> blevet fundet en Bilag IV-art på området: Langs skovbrynet i den sydlige ende af området blev der i juli 2018 fundet to rastende og fouragerende individer af arten ***Grøn Køllegguldsmed***, som er medtaget i Habitatdirektivets bilag IV. Observationen er registreret i *Naturbasen* med fotodokumentation.

Vi mener i øvrigt også at have observeret en anden Bilag IV-art, nemlig ***Markfirben***, i området, men mangler dokumentation for dette. Vi vil i 2019 prøve at dokumentere disse observationer og registrere dem i *Naturbasen*.

c) <u>Naturbeskyttelseslovens §3</u>

Kigger man på ortofotos for området som ønskes bebygget, er det tydeligt, at det ikke har været i omdrift siden allersenest 2008 og muligvis i endnu længere tid. Græsområder, der omlægges sjældnere end hvert 7. til 10. år, defineres (jf. Naturstyrelsen 2008[1]) som kultureng og er beskyttet under naturbeskyttelseslovens §3.

Området er pt. ikke udpeget som §3-natur, men burde jf. ovenstående være det.

3. Overlevelsesgrundlaget for en lokal forening (Viborg Rideklub)

I forslag til lokalplan 509 står der således:

Lokalplanområdet er omfattet af rammeområde VIBSV.R1.01 i Kommuneplan 2017-2029, der udlægger arealet til rekreativt område.

Lokalplanen er ikke i overensstemmelse med Kommuneplan 2017-2029, hvad angår rammen.

Der er udarbejdet et tillæg nr. 26 til Kommuneplan 2017-2029.

Med kommuneplantillægget ændres rammen fra rekrativt område til blandet boligområde (åben-lav).

Med hvilken begrundelse mener kommunen, at det kan forsvares pludselig at ændre et områdes status fra rekreativt område til boligområde, når området helt tydeligt har en vigtig betydning for et stort antal rekreative formål (rideskole, gåture, løbeture, cykling mv.)?

Selvom ikke alle disse rekreative aktiviteter foregår direkte på området, er deres rekreative værdi i større eller mindre omfang afhængige af, at området har en naturmæssig karakter, så det kan "nydes", når man passerer det eller passerer igennem det.

Mest iøjnefaldende er det dog at området som dækkes af lokalplanforslaget pt. bruges som folde for den lokale forening Viborg Rideklub. Denne forening er et stort aktiv for lokalområdet og mange at områdets beboere har stor glæde af rideklubbens mange tilbud til både børn og voksne.

Realiseres lokalplanen, vil det reducere rideklubbens foldareal med en anseelig andel, og det vil følgelig blive meget svært for klubben at bibeholde det aktivitetsniveau, som man pt. har.

Ønsker kommunen virkelig at underminere en aktiv lokal sportsforenings eksistensgrundlag på denne måde?

Vi forventer naturligvis et svar fra kommunen, hvor alle punkter i denne indsigelse adresseres og besvares sagligt og fagligt velbegrundet.

Maria og Morten Sigby-Clausen
Videbechs Allé 4m
8800 Viborg

[1] Naturstyrelsen 2008: Ferske enge – En beskyttet naturtype https://naturstyrelsen.dk/publikationer/2008/dec/ferske-enge/

05-01-2019 11

Bebyggelsen i det nordlige lokalplanområde

Se bilaget Boliger

Indsendt af Jørgen Buus

Vedhæftet fil

Indsigelse mod byggeriet på Egeskovvej.
På formødet i februar 2018 om de dengang benævnte områder 2 og 3 talte planchef Karl Johan Legaard Jensen, Viborg Kommune, om en øst vest gående kile og en nord – sydgående kile i de to planområder langs Egeskovvej.
Den øst- vestgående linje frem kommer på grund af hensynet til beskyttelseslinjerne for gravhøjene, i planområde 509, men den nord - sydgående kile er forsvundet. Dette bevirker at byggeriet fremstår massivt langs med Egeskovvej og Alhedestien.
I Miljørapporten for lokalplan 509 fremgår det at den visuelle påvirkning af landskabet her vil være moderat!
Dette kan ikke være korrekt!
Den evt. kommende bebyggelse svarer til, at man forskyder granplantagen på Egeskovvej 1 omkring 300 meter mod nord, så hele fornemmelsen af istidslandskabet forsvinder og erstattes af en udsigt mod bebyggelsen omkring rideskolen set sydfra.
Fra nord er det lidt bedre, men Danehøje ser man ikke mere.
Halvdelen af det landskabelige indtryk er forsvundet – Moderat, Nej, det er en væsentlig forringelse af og oplevelse af et unikt istidslandskab.
Da bebyggelsen grundet bevaringslinjerne er presset helt ned i bunden af arealet, fremstår området uden sammenhæng med Viborg by og bebyggelsen hænger heller ikke sammen med Hald Ege, grundet de 1½ kilometer fredskov, der er til byskiltet i Hald Ege .
På det omtalte møde i februar sagde formanden for teknisk udvalg, ”at Viborg havde brug for dette byggeri – der manglede boliger, og forsamlingen skulle være glade for, at der var bygherrer, der ville bygge her”!
Man har ønsket at bygge her de sidste 4 byrådsperioder, men med Viborg Kommunes fremragende planlægning af Banebyen, Arnbjerg og Taphede er der rigeligt med boliger og arealer til alle, så dette påståede behov er ikke tilstede. Se medfølgende bilag med op til 5000 boliger.
En såkaldt O- løsning bør foretrækkes.
MVH J.Buus

Bebyggelse af det nordlige lokalplanområde

Bilag til Egeskovvej3.1

Indsendt af Jørgen Buus

Vedhæftet fil

Oversigt over kendte byggerier og byggeprojekter efterår 2018
På Viborg Kommunes Hjemmeside forventes befolkningstilvæksten således:
2016 – 2029 i Viborg By 3603 personer
2016 - 2029 i hele Viborg kommune 4790 personer
Arnbjerg 800 boliger
Sønæs Have 42 boliger
Sct. Ibsgade 11 boliger
Vendersgade 16 boliger
Nonbo 150 boliger
Rosen Vænget 17 mindst
Banebyen 2000 boliger
Brøndums Have 100 boliger (skønnet tal)
Bach gruppen i samme
område 100 boliger (mindst
Posthusgrunden 80 boliger
Liseborg plantage 73 boliger
Punkthuse ved Søndersø 40 boliger
Møgelkærvej 54 enkelthuse
80 dobbelt el. rækkehuse
Taphede 2000 boliger (skøn) ca. 3500 indbyggere (skøn af Covi)
Udenfor Viborg 250 boliger
I alt ca. boliger 5000 -5500 boliger Hovedparten rækkehuse og parcelhuse
under opførelse eller planlagt
Personer pr. hustand.
Parcelhus 3,4 personer
Rækkehus 2,4 ”
Etagebolig 1,7 ”

Ny Lokalplan, Egeskovvej, Hald Ege

Kortsigtet økonomisk vækst frem for trivsel - Viborg Kommunes lokalplaner forekommer dybt utroværdige.

I den politiske ledelse tæller tilsyneladende reelt kun en værdi i Viborg Kommunes lokalplaner: kortsigtet økonomisk vækst! Vækst konkretiseret ved størst muligt antal nybyggede boliger, der mases ind på rekreative arealer, der skulle være en kilde til trivsel.

Hald Ege er siden årtusindskiftet mere end fordoblet i indbyggertal og området, der har været kendt for sin særprægede og smukke natur, har radikalt skiftet karakter.

Høringen giver indtryk af en formssag; selvom der er gjort kvalificerede indsigelser, har byrådet tilsyneladende allerede besluttet sig. Høringsprocessen fremstår dermed utroværdig - ligesom kommunens lokalplaner.

Indsendt af Tove Kristensen

Boliger i Nonbo og langs Egeskovvej

Der er ikke brug for de boliger, der er i høring. Dokumentationen mangler fortsat.

Der kommer færre nye indbyggere til Viborg end forventet - kun halvt så mange nye skatteydere. Mindre skatteintægter og brug for langt færre boliger.

For at de fremragende planer for Banebyen, Arnbjerg og Taphede skal kunne gennemføres og de store kommunale investeringer forrentes, må firmaer der ønsker at bygge i Viborg henvises til disse områder, så projekt Baneby ++ ikke kommer til at stå som Sydspanien omkring 2010.

Kommunens toppolitikere og kommunens økonomer må på bannen

Indsendt af Jørgen Buus

12-01-2019 15

Indsigelse mod lokalplanforslag 499 0g 509

Læs venligst min vedhæftede fil.

Indsendt af Bodil Ullerup Bech

Vedhæftet fil

Indsigelse mod lokalplanforslag 499 og 509.

Ændring af kommuneplan:

Dette område er i kommuneplanen udlagt som rekreativ grønt område med beskyttelse af gravhøje (vores kulturarv), naturen, fredskov og ikke mindst beskyttelse af de dyr, der lever i dette område (faunapassage).

Området indeholder også en bynær rideskole, som ved bebyggelse af noget af området evt. helt vil lukke rideskolens muligheder for fortsat drift – her tænker jeg på reduceret græsningsareal og store trafikale gener.

Ændring af en relativ ny kommuneplan kræver vigtige argumenter/begrundelser, men hvad er disse ?????????

Kommunens egen planlægning:

Der er allerede igangsat byudvikling flere steder i Viborg, som skal og kan fuldt ud dække befolkningstilvæksten.

Disse påtænkte byggerier langs Egeskovvej virker som en "Hovsa" løsning udtænkt af lodsejere, der ønsker egen vinding/økonomisk gevinst. Det undrer mig, at byrådet stemmer for, går imod egne planer og ikke tager den demokratiske proces seriøs, selvom det er én af Viborg kommunes grundværdier sammen med "ordentlighed". Ved første høringsmøde blev der ikke demokratisk lyttet men snarere forsvaret og afvist. Husk vi er vælgerne.

Det bærer også præg af en Hovsa løsning, når man tænker på, at de store trafikale problemer/øget trafik/støj gener/ og ikke mindst sikring af skolevej slet ikke virker som ordentligt gennemtænkt og planlagt.!!!!

For nylig læste jeg at betingelserne for at blive årets lokalområde er ændret til, at områderne skal tiltrække nye beboere. Det er da en fantatisk god ide til Viborg kommunes landsbyer, hvor indbyggertallet falder, folk flytter fra på grund af manglende indkøbsmuligheder osv.

Hvorfor planlægger I ikke nye boligområder i kommunens yderområder, hvor de fleste af byrådets medlemmer kommer fra ?? Hald Ege har mer end fordoblet sit indbyggertal i de seneste år.

Viborg Kommune er nr 8 på listen af grønne kommuner, hvilket ikke undrer, da alle ledige steder i byen plastres til med byggeri-gudskelov for søerne og Borgvold.Jeg tror simpelthen ikke I forstår, hvor vigtig naturen er for menneskets trivsel.

Min forventning til kommunen var, at I skulle være med til at beskytte vores natur, byggelinier ved vandløb (Kolbækken) og skov og gravhøje, men ved første høring i byrådssalen blev der sagt ” det kan vi søge om dispensation for ”!!!

Politikere arbejder vel som folkevalgte af mængden og ikke kun for få pengegriske lodsejere ??????

Der står her i vejledningen at indsigelserne vil indgå i det videre arbejde med planerne. Det sætter jeg min lid til, for ellers er det jo om pseudodemokrati.

Bodil Ullerup Bech, Hald Ege.

Indsigelse mod særskilt opdeling af lokalplan 487 i f.t. 509 og 499

Indsigelse mod opdeling af lokalplan 487, 499 og 509

Der mangler daglig begrundelse for, hvorfor lokalplan 487 er udskilt til særskilt behandling i forhold til lokalplan 499 og 509. Dette forekommer ulogisk og mærkværdigt i forhold til samme forhold gør sig gældende områder som involverende borgerkreds, Viborgs historie, miljø, støj, sikkerhed, trafikforhold, befolknings- og byudviklingsprognose, økonomi m.v.

Begrundelse ønskes for denne særbehandling og ulejlighed for borgerinddragelse.

Indsendt af Kai Skou Hansen

Indsendt af Kai Skou Hansen

Manglende begrundelse og argumenter for ændring af Kommuneplan

Kommuneplan 2017-2029 blev vedtaget af Viborg Byråd den 21. juni 2017. Der mangler i de fremsendte planforslag begrundelser og argumenter for allerede nu efter kun 1½ år at være opstået behov for at ændre Kommuneplanens bestemmelser

Indsendt af Kai Skou Hansen

Protest over lukning af Kolbækvej

Det kan undre, at Ole Phillipsen kan skrive en del af vejen fra Kolbækvej ud mod Vejlevej lukkes? Det er vel ikke op til firmaet Hector Aps at beslutte?

Argumentet med at ca 693 bilister per dag vil forsvinde med en lukning af Kolbækvej, hvormed der kan skabes en uændret trafikmængde ved en evt. ny bebyggelse..... ?

Denne argumentation holder ikke!

Når man har lidt kendskab til trafikken i Viborg, så er det en generel opfattelse, at det er utroligt svært at komme op på Vejlevej ved Løvbjerg/Rema. Det er især i morgentimer og efter 14.30. Derfor er der også billister fra Viborg, der kører videre ned til Rideskolen, for at dreje til venstre for at komme ud på Vejlevej. Hvis denne udkørsel lukkes, så vil det få katastrofale følger for Egeskovvejvej i.f.t. trafikstørrelse. Vi kan i Hald Ege allerede konstatere en øget trafik i de tidlige morgentimer og efter 14.40.

En løsning på den "trælse" løsning med at komme op på Vejlevej kunne være at lave et fjerde spor til den store rundkørsel til Århus/Vejlevej. Det ville betyde, at der skulle laves en ny vejføring ind til Transformerstationen med en rundkørsel ved Egeskovvej, hvor der kunne lukkes ned for mængden af trafik via Egeskovvej. Denne nye vej kunne føres videre ud til Storcenteret, således at man på den måde leder trafikken ud om de nye boligområder (Liseborg), hvor politiet gentagne gange har taget billister i for høj fart.

Jeg kan ikke se nogen argumenter for denne lukning af Kolbækvej ud mod Vejlevej. Det vil kun medføre en yderlig belastning af Egeskovvej. Hvad med støj, bløde trafikanter (findes ikke cykelstil I Hald Ege). Jeg kan ikke gå ind for, at man planlægger nye boligområder ved at lede trafikken ind gennem allerede eksisterende boligområder i stedet for at lede trafikken udenom boligområder.

Indsendt af Henrik Degn

Kolbækvej-ridning

Det undrer mig, at Rideskolen ikke har en holdning til trafikken på Kolbækvej? Det undrer mig også, at Rideskolen kan undvære arealet med den planlagte bebyggelse langs Alhedestien/Egeskovvej? Mange af byens børn og unge bruger mange timer på rideskolen, og går op i deres interesse. Det handler om at passe på Rideskolen, som er en slags institution for hele Viborg og opland.

Jeg tænker, at en udvidelse af boliger vil medføre en øget trafik, og det vil blive langt sværere for de ridende at komme ud og ride. Dette er gældende for Kolbækvej samt Egeskovvej. Hvis det skulle vise sig, at planforslaget skulle blive vedtaget, så må der garanteres en tunnel under Egeskovvej på en strækning langt væk fra Hærvejsstenen, så dette unikke stykke areal ikke bliver yderlig ødelagt. Her findes fortsat hærvejsspor.

Indsendt af Henrik Degn

Planforslag 509

Det er rigtig positivt, at Viborg Kommune er i gang med at lave forslag, der kan sikre oplandsbyernes drikkevandsforsyningsområder. Der står også beskrevet, at der en ny Viborg Model... Men der ikke yderligere informationer om modellen eller hvad den går ud på (kan ikke søges efter)? Når kommunen er i gang med at lave forslag til sikring af drikkevandsområderne, så ville det være på sin plads, at Viborg Kommune også får lavet undersøgelser for drikkes-vandsboringen i syd, der berører arealet langs Egeskovvej og Alhedestien? Jeg kan ikke finde materiale for dette område. Bør det ikke også indgå i samlet betragtning? Der er miljørapporten, men hvordan vil Viborg Kommune sikre drikkevand for byens borgere i fremtiden? Birthe Harritz har i et læserbrev beskrevet problematikken med forureningsstoffer i drikkevandet, og det kalder i den grad på en plan. Med den nye stramning af drikkevandscirkulativet, hvor der nu skal undersøges for ca. 400 uønskede stoffer i drikkevandet, hvordan ser det så ud for drikkevandsboringen i syd? En ny drikkevandsboring skulle koste 5-7mio kr.

Indsendt af Henrik Degn

Manglende planforslag for området mod Vejlevej/Kolvækvej

Når der fortsat ikke er kommet et planforslag mod Vejlevej/Koldbækvej, som skulle være kommet d. 10/1-19. Så mener jeg, at det må og skal forskyde hele processen, da vi beboere i området er nødt til at have et samlet overblik for de tre områder m.h.t. t. trafikmæssige betydning. Det er svært at have en mening om noget, som ikke er offentliggjort. Der er kun tre dage til d. 17/1, og det er ikke ordentlighed, at publiceringer af høringsforslag ikke holder tidsfrister.

Indsendt af Henrik Degn

Hald Ege, lokalplanforslag

Indsigelse mod forslag til tillæg nr. 19 og 26 til Kommuneplan 2017-2029 samt forslagene til lokalplan 499 og 509 om byudvikling. Jeg henviser til min indsigelse, der er vedhæftet.

Indsendt af Axel Kristiansen

Vedhæftet fil

Indsigelse mod forslag til tillæg nr. 19 og 26 til Kommuneplan 2017-2029 samt forslagene til lokalplan 499 og 509.
Jeg gør indsigelse mod forslag til tillæg nr. 19 og 26 til Kommuneplan 2017-2029 samt forslagene til lokalplan 499 og 509
i forhold til Planlovens bestemmelser om by-vækst (§ 11a og §11b) og fastsættelse af behov for større rummelighed i forhold til areal udlæg til byudvikling. Indsigelsen vedrører også det kommende forslag til tillæg nr. 10 til Kommuneplanen 2017-2029 samt forslag til lokalplan nr. 487, som Kommunalbestyrelsen på sit møde d. 19. december 2018 besluttede at fremlægge i offentlig høring.

Jeg finder ikke, at planforslagene redegør for, hvordan Viborg kommune vurderer for behovet for rummelighed til byudvikling i Kommuneplanen 2017 -2029 i relation til det forventede behov for supplerende arealer til ny byudvikling for Viborg by, jf. Planlovens § 11 a stk. 6 og 7. Ifølge alment anvendte befolkningsfremskrivninger for Viborg Kommune kan der forventes en befolknings tilvækst på 4.000 indbyggere for perioden 2017 til 2029 og en befolknings tilvækst for kommunen på 5.200 indbyggere for perioden 2018 til 2033 (befolkningsfremskrivninger fra Danmarks statistiks hjemmeside). De nævnte befolkningsfremskrivninger er ikke væsentligt forskellige fra de forudsætninger for befolknings udvikling, der ligger til grund for Kommuneplan 2017-2029. Jeg ønsker derfor oplyst:

- kommunens redegørelse for, at der er behov for yderligere areal udlæg til byudvikling?
- Hvilke forudsætninger er ændrede vedr. befolkningsudviklingen for Viborg kommune og Viborg by - herunder en større befolkningstilvækst - end forudsat i Kommuneplan 2017?

Planforslagene redegør ikke for, hvilke opgørelser og hvilken metode vedr. befolkningstilvækst og rummelighed i plan perioden, kommunen har anvendt, og som ligger til grund for, at kommunen foreslår at overføre i alt 13 ha til byzone, omfattende 126 boliger i forslag til lokalplanerne nr. 509 og nr. 499. Medtages det kommende lokal forslag nr. 487, vil de 3 forslag til lokal planer (nr. 499, 509 og 487) omfatte i alt ca. 33 ha med 260 boliger til byudvikling af Viborg by. De pågældende arealer har ikke indgået i opgørelsen af behovet for byudvikling i Kommuneplan 2017. Det fremgår ikke forslagene til tillæg til kommuneplanen og forslagene til lokalplaner, hvordan Viborg Kommune forholder sig til Erhvervsministeriets bekendtgørelse nr. 940 af 26/10/2017, stk. 3 om planlægning for by vækst:

- Vil kommunen derfor fremlægge og redegøre for de befolkningsfremskrivninger, der ligger til grund for, at der er behov for at forøge rummeligheden til byudvikling for Viborg by med de pågældende planforslag?

Der er i Kommuneplanen med tilhørende lokalplaner en rummelighed til byudvikling for Viborg by på 5000 til 5500 boliger, hvor hovedparten bliver rækkehuse og parcelhuse. De pågældende boligområder er enten under opførelse – f.eks. banebyen - eller planlagt. Gennemføres de pågældende projekter vil de rumme mellem 10.000 til 15.000 indbyggere. Det er væsentligt højere end den forventede befolknings tilvækst for Viborg by på 3600 indbyggere for perioden 2016-2029 (tal fra kommunens hjemmeside). Kommunens planforslag redegør ikke for, at der er behov for at forøge rummeligheden til byudvikling for Viborg by. Jeg anfægter således, at der behov for at planlægge for yderligere overførsel af arealer til byzone, der går ud over de rammer der er fastlagt i Kommuneplan 2017 og ønsker oplyst:

- Hvorledes vil Viborg kommune opfylde Planlovens § 11 a stk. 6, hvor kommunen har mulighed for at omfordele arealer, dvs. lægge nye byzone arealer ind i kommuneplanen, forudsat at andre arealer af omtrent samme størrelse udtages, således at den samlede rummelighed i Kommuneplanen ikke øges væsentligt?
- Vil kommunen derfor redegøre for, om der udtages arealer af nogenlunde samme størrelses orden i Kommuneplanen – ca. 33 ha. – som tilbageføres til landzone status og hvilke arealer, den i givet fald planlægger at udtage?
- Hvilke bysamfund i Viborg Kommune vil blive berørt af, at deres arealer og rummelighed til byudvikling vil blive udtaget af kommuneplanen?

Til slut finder jeg ikke, at der er redegjort for, hvordan har Viborg kommune har redegjort for, hvordan den har opfyldt forpligtelserne i Planlovens § 11 a, stk. 8 om byudvikling skal ske i tilknytning til eksisterende bymæssig bebyggelse. Jeg vil derfor bede om en redegørelse for:

- hvordan kommunen har anvendt den metode, der er beskrevet i Erhvervsstyrelsens vejledning om by vækst (oktober 2017), kapitel 4 (s.11) om "Indefra og ud og undtagelsesbestemmelser".

Støj og helbred. Beregninger af L-den (Day-evening-night-vægtet sound pressure level jf ISO standarden)

Kommunen bedes gøre rede for, om der i lokalplansforslaget er taget hensyn til WHO anbefalingerne for gennemsnitlig støjeksponering jf vedhæftede rapport "European Noise Guidelines for the European region" publiceret i 2018.

Herunder om der er lavet Sound Pressure Level målinger af støjbelastningen på Egeskovvej samt beregninger af den forventede nye støjbelastning. Er der lavet simulationer, der estimerer hvilke støjdæmpende tiltag der skal til, for at nedbringe trafikstøjen til et niveau, så det ikke er skadeligt for beboerne langs vejen, givet der bygges ialt 260 nye boliger og med den øgede trafikbelastning det giver?

Indsendt af Larry Kristiansen

Vedhæftet fil

("ENVIRONMENTAL NOISE GUIDELINES for the European Region", World Health Organization)

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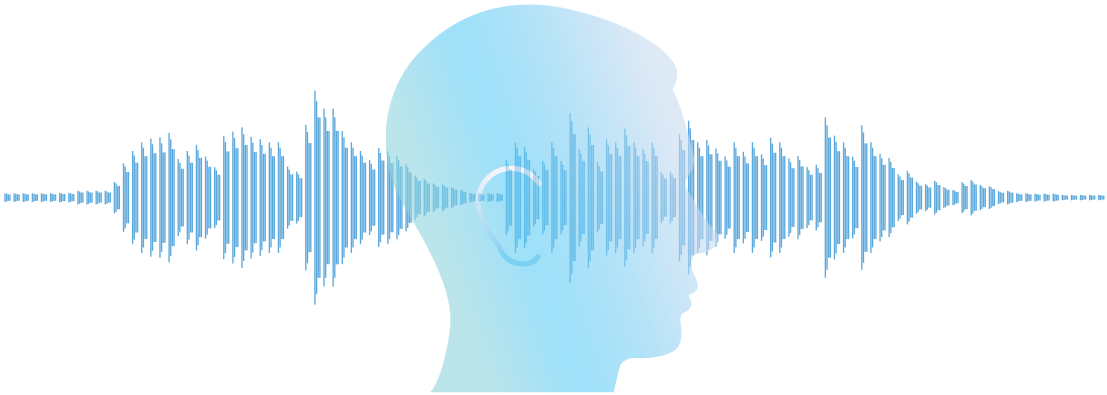
for the European Region



Abstract

Noise is an important public health issue. It has negative impacts on human health and well-being and is a growing concern. The WHO Regional Office for Europe has developed these guidelines, based on the growing understanding of these health impacts of exposure to environmental noise. The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. They provide robust public health advice underpinned by evidence, which is essential to drive policy action that will protect communities from the adverse effects of noise. The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience.

Keyword

NOISE – ADVERSE EFFECTS, PREVENTION AND CONTROL

ENVIRONMENTAL EXPOSURE – ADVERSE EFFECTS, PREVENTION AND CONTROL

GUIDELINES

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Environmental Noise Guidelines for the European Region

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Foreword

Noise is one of the most important environmental risks to health and continues to be a growing concern among policy-makers and the public alike. Based on the assessment threshold specified in the Environmental Noise Directive of the European Union (EU), at least 100 million people in the EU are affected by road traffic noise, and in western Europe alone at least 1.6 million healthy years of life are lost as a result of road traffic noise.

At the request of Member States at the Fifth Ministerial Conference on Environment and Health in Parma, Italy, in March 2010, the WHO Regional Office for Europe has developed these guidelines, based on the growing understanding of the health impacts of exposure to environmental noise. They provide robust public health advice, which is essential to drive policy action that will protect communities from the adverse effects of noise.

These WHO guidelines – the first of their kind globally – provide recommendations for protecting human health from exposure to environmental noise originating from various sources. They not only offer robust public health advice but also serve as a solid basis for future updates, given the growing recognition of the problem and the rapid advances in research on the health impacts of noise. The comprehensive process of developing the guidelines has followed a rigorous methodology; their recommendations are based on systematic reviews of evidence that consider more health outcomes of noise exposure than ever before. Through their potential to influence urban, transport and energy policies, these guidelines contribute to the 2030 Agenda for Sustainable Development and support WHO's vision of creating resilient communities and supportive environments in the European Region.

Following the publication of WHO's community noise guidelines in 1999 and night noise guidelines for Europe in 2009, these latest guidelines represent the next evolutionary step, taking advantage of the growing diversity and quality standards in this research domain. Comprehensive and robust, and underpinned by evidence, they will serve as a sound basis for action. While these guidelines focus on the WHO European Region and provide policy guidance to Member States that is compatible with the noise indicators used in the EU's Environmental Noise Directive, they still have global relevance. Indeed, a large body of the evidence underpinning the recommendations was derived not only from noise effect studies in Europe but also from research in other parts of the world – mainly in Asia, Australia and the United States of America.

I am proud to present these guidelines as another leading example of the normative work undertaken in our Region in the area of environment and health. On behalf of the WHO Regional Office for Europe and our European Centre for Environment and Health in Bonn, Germany, which coordinated the development of the guidelines, I would like to express my gratitude to the large network of experts, partners, colleagues and consultants who have contributed to this excellent publication. I would also like to thank Switzerland and Germany for providing financial support to this complex project, and look forward to following the influence of the guidelines on policy and research in the years to come.

Dr Zsuzsanna Jakab

WHO Regional Director for Europe

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The WHO Regional Office for Europe, through its European Centre for Environment and Health, coordinated the development of these guidelines. The project was coordinated by Marie-Eve Héroux and Dorota Jarosinska, under the overall supervision of Elizabet Paunovic, Head of the European Centre for Environment and Health.

The members of the Steering Group were: Shelly Chadha, Carlos Dora, Rokho Kim, Jurgita Lekaviciute, Srdan Matic, Julia Nowacki, Poonum Wilkhu and Joerdis Wothge (see Annex 1 Table A1.1 for affiliations).

The members of the Guideline Development Group were: Stephen Stansfeld (Chair), Wolfgang Babisch, Goran Belojevic, Mark Brink, Sabine Janssen, Peter Lercher (2013–2014), Marco Paviotti, Göran Pershagen, Kerstin Persson Waye, Anna Preis, Martin van den Berg and Jos Verbeek (methodologist) (see Annex 1 Table A1.2 for affiliations).

The Systematic Review Team comprised the following experts: Mathias Basner, Lex Brown, Charlotte Clark, Payam Dadvand, Maria Foraster, Rainer Guski, Sarah McGuire, Mark Nieuwenhuijsen, Katarina Paunovic, Göran Pershagen, Gordana Ristovska, Maribel Casas Sanahuja, Dirk Schreckenberg, Rudolf Schuemer, Mariola Sliwinska-Kowalska, Kamil Rafal Zaborowski, Irene Van Kamp and Elise van Kempen (see Annex 1 Table A1.3 for affiliations).

The project's External Review Group had the following members: Gunn Marit Aasvang, Bernard Berry, Dick Botteldooren, Stephen Conaty, Yvonne de Kluizenaar, Ulrike Gehring, Truls Gjestland, Mireille Guay, Ayse Güven, Anna Hansell, Stelios Kephalopoulos, David Michaud, Arnaud Norena, Enembe Okokon, Dieter Schwela, Daniel Shepherd, Mette Sörensen, Rupert Thornley-Taylor and David Welch (see Annex 1 Table A1.4 for affiliations).

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Abbreviations

%HA	percentage of the population “highly annoyed”
%HSD	percentage of the population “highly sleep-disturbed”
BMI	body mass index
CI	confidence interval
CNG	WHO guidelines for community noise
DALY	disability-adjusted life-year
dB	decibel
DW	disability weight
EC	European Commission
EEA	European Environment Agency
END	European Union Directive 2002/49/EC relating to the assessment and management of environmental noise (Environmental Noise Directive)
ERF	exposure–response function
EU	European Union
GDG	Guideline Development Group
GRADE	Grading of Recommendations Assessment Development and Evaluation
ICBEN	International Commission on Biological Effects of Noise
IHD	ischaemic heart disease
JRC	Joint Research Centre [of the European Commission]
mmHg	milimeters of mercury
NNG	WHO night noise guidelines for Europe
OR	odds ratio
PECCOS	population, exposure, comparator, confounder, outcome and study [framework]
PICOS	population, intervention, comparator, outcome and study [framework]
PLD	personal listening device
RANCH	Road traffic and aircraft noise exposure and children’s cognition and health [study]
RCT	randomized control trial
RR	relative risk
SCENIHR	Scientific Committee on Emerging and Newly Identified Hazards and Risk

Glossary of acoustic terms

A-weighting	A frequency-dependent correction that is applied to a measured or calculated sound of moderate intensity to mimic the varying sensitivity of the ear to sound for different frequencies
C-weighting	A frequency-dependent correction that is applied to a measured or calculated sound of moderate intensity to mimic the varying sensitivity of the ear to sound for different frequencies – C-weighting is usually used for peak measurements
FAST	Fast response has a time constant of 125 milliseconds on a sound level meter
$L_{Aeq,T}$	A-weighted, equivalent continuous sound pressure level during a stated time interval starting at t_1 and ending at t_2, expressed in decibels (dB), at a given point in space[1]
$L_{A,max}$	Maximum time-weighted and A-weighted sound pressure level within a stated time interval starting at t_1 and ending at t_2, expressed in dB[1]
L_{AF}	A-weighted sound pressure level with FAST time constant as specified in IEC 61672-1[1]
$L_{AF,max}$	Maximum time-weighted and A-weighted sound pressure level with FAST time constant within a stated time interval starting at t_1 and ending at t_2, expressed in dB
$L_{AS,max}$	Maximum time-weighted and A-weighted sound pressure level with SLOW time constant within a stated time interval starting at t_1 and ending at t_2, expressed in dB
L_E	Sound energy density level is the logarithmic ratio of the time-averaged sound energy per unit volume to the reference sound energy density Eo = 10-12 J/m^3.
$L_{ex,8h}$	L_{eq} (equivalent continuous sound level) corrected for the length of the working shift, in this case 8 hours
L_{day}	Equivalent continuous sound pressure level when the reference time interval is the day[1]
L_{den}	Day-evening-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:2016[1]
L_{dn}	Day-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:2016[1]
$L_{evening}$	Equivalent continuous sound pressure level when the reference time interval is the evening[1]

[1] *Source*: ISO (2016).

L_{night}	Equivalent continuous sound pressure level when the reference time interval is the night[1]
$L_{peak,C}$	Level of peak sound pressure with C-weighting, within a specified time interval
$L_{peak,lin}$	Level of peak sound pressure with linear frequency weighting, within a specified time interval
Sound pressure level	the logarithm of the ratio of a given sound pressure to the reference sound pressure in dB is 20 times the logarithm to the base ten of the ratio.
SLOW	Slow response has a time constant of 10 000 milliseconds on a sound level meter

Executive summary

Environmental noise is an important public health issue, featuring among the top environmental risks to health. It has negative impacts on human health and well-being and is a growing concern among both the general public and policy-makers in Europe.

At the Fifth Ministerial Conference on Environment and Health in Parma, Italy, in 2010, WHO was requested by the Member States in the European Region to produce noise guidelines that included not only transportation noise sources but also personal electronic devices, toys and wind turbines, which had not yet been considered in existing guidelines. Furthermore, European Union Directive 2002/49/EC relating to the assessment and management of environmental noise (END) and related technical guidance from the European Environment Agency both elaborated on the issue of environmental noise and the importance of up-to-date noise guidelines.

The WHO Regional Office for Europe has therefore developed environmental noise guidelines for the European Region, proposing an updated set of public health recommendations on exposure to environmental noise.

Objectives

The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. Leisure noise in this context refers to all noise sources that people are exposed to due to leisure activities, such as attending nightclubs, pubs, fitness classes, live sporting events, concerts or live music venues and listening to loud music through personal listening devices. The guidelines focus on the WHO European Region and provide policy guidance to Member States that is compatible with the noise indicators used in the European Union's END.

The following two key questions identify the issues addressed by the guidelines.

- In the general population exposed to environmental noise, what is the exposure–response relationship between exposure to environmental noise (reported as various indicators) and the proportion of people with a validated measure of health outcome, when adjusted for confounders?
- In the general population exposed to environmental noise, are interventions effective in reducing exposure to and/or health outcomes from environmental noise?

In light of these questions, the guidelines set out to define recommended exposure levels for environmental noise in order to protect population health.

Methods used to develop the guidelines

The process of developing the WHO guidelines followed a rigorous methodology involving several groups with separate roles and responsibilities. Throughout the process, the Grading of

Recommendations Assessment, Development and Evaluation (GRADE) approach was followed. In particular, the different steps in the development of the guidelines included:

- formulation of the scope and key questions of the guidelines;
- review of the pertinent literature;
- selection of priority health outcome measures;
- a systematic review of the evidence;
- assessment of certainty of the bodies of evidence resulting from systematic reviews;
- identification of guideline exposure levels; and
- setting of the strength of recommendations.

Based on the defined scope and key questions, these guidelines reviewed the pertinent literature in order to incorporate significant research undertaken in the area of environmental noise and health since the community noise guidelines and night noise guidelines for Europe were issued (WHO, 1999; WHO Regional Office for Europe, 2009). In total, eight systematic reviews of evidence were conducted to assess the relationship between environmental noise and the following health outcomes: cardiovascular and metabolic effects; annoyance; effects on sleep; cognitive impairment; hearing impairment and tinnitus; adverse birth outcomes; and quality of life, mental health and well-being. A separate systematic review of evidence was conducted to assess the effectiveness of environmental noise interventions in reducing exposure and associated impacts on health.[2] Once identified and synthesized, the quality of the evidence of the systematic reviews was assessed by the Systematic Review Team. Subsequently, the Guideline Development Group (GDG) formulated recommendations, guided by the Systematic Review Team's assessment and informed by of a number of additional contextual parameters. To facilitate the formulation of recommendations, the GDG first defined priority health outcomes and then selected the most relevant health outcome measures for the outcomes. Consecutively, a process was developed to identify the guideline exposure levels with the help of the exposure–response functions provided by the systematic reviews. To reflect the nature of the research (observational studies) underpinning the relationship between environmental noise and health, the GRADE procedures were adapted to the requirements of environmental exposure studies where needed.

Noise indicators

From a scientific point of view, the best noise indicator is the one that performs best in predicting the effect of interest. There are, however, a number of additional criteria that may influence the choice of indicator. For example, various indicators might be suitable for different health end-points. Some considerations of a more political nature can be found in the European Commision's Position paper on EU noise indicators (EC, 2000).

[2] All systematic reviews are publicly available online in the *International Journal of Environmental Research and Public Health*. A detailed list of links to the individual reviews is provided in section 2.3.2 and in Annex 2 of these guidelines.

The current guidelines are intended to be suitable for policy-making in the WHO European Region. They therefore focus on the most used noise indicators L_{den} and/or L_{night} (see the glossary of acoustic terms for further details). They can be constructed using their components (L_{day}, $L_{evening}$, L_{night} and the duration in hours of L_{night}), and are provided for exposure at the most exposed façade, outdoors. The L_{den} and L_{night} indicators are those generally reported by authorities and are widely used for exposure assessment in health effect studies.

Recommendations

Specific recommendations have been formulated for road traffic noise, railway noise, aircraft noise, wind turbine noise and leisure noise. Recommendations are rated as either strong or conditional.

Strength of recommendation

- A **strong** recommendation can be adopted as policy in most situations. The guideline is based on the confidence that the desirable effects of adherence to the recommendation outweigh the undesirable consequences. The quality of evidence for a net benefit – combined with information about the values, preferences and resources – inform this recommendation, which should be implemented in most circumstances.
- A **conditional** recommendation requires a policy-making process with substantial debate and involvement of various stakeholders. There is less certainty of its efficacy owing to lower quality of evidence of a net benefit, opposing values and preferences of individuals and populations affected or the high resource implications of the recommendation, meaning there may be circumstances or settings in which it will not apply.

Alongside specific recommendations, several guiding principles were developed to provide generic advice and support for the incorporation of recommendations into a policy framework. They apply to the implementation of all of the specific recommendations.

Guiding principles: reduce, promote, coordinate and involve

- Reduce exposure to noise, while conserving quiet areas.
- Promote interventions to reduce exposure to noise and improve health.
- Coordinate approaches to control noise sources and other environmental health risks.
- Inform and involve communities potentially affected by a change in noise exposure.

The recommendations, source by source, are as follows.

Road traffic noise

Recommendation	Strength
For average noise exposure, the GDG strongly recommends reducing noise levels produced by road traffic below **53 decibels (dB)** L_{den}, as road traffic noise above this level is associated with adverse health effects.	Strong
For night noise exposure, the GDG strongly recommends reducing noise levels produced by road traffic during night time below **45 dB** L_{night}, as night-time road traffic noise above this level is associated with adverse effects on sleep.	Strong
To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from road traffic in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions, the GDG recommends reducing noise both at the source and on the route between the source and the affected population by changes in infrastructure.	Strong

Railway noise

Recommendation	Strength
For average noise exposure, the GDG strongly recommends reducing noise levels produced by railway traffic below **54 dB** L_{den}, as railway noise above this level is associated with adverse health effects.	Strong
For night noise exposure, the GDG strongly recommends reducing noise levels produced by railway traffic during night time below **44 dB** L_{night}, as night-time railway noise above this level is associated with adverse effects on sleep.	Strong
To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from railways in the population exposed to levels above the guideline values for average and night noise exposure. There is, however, insufficient evidence to recommend one type of intervention over another.	Strong

Aircraft noise

Recommendation	Strength
For average noise exposure, the GDG strongly recommends reducing noise levels produced by aircraft below **45 dB** L_{den}, as aircraft noise above this level is associated with adverse health effects.	Strong
For night noise exposure, the GDG strongly recommends reducing noise levels produced by aircraft during night time below **40 dB** L_{night}, as night-time aircraft noise above this level is associated with adverse effects on sleep.	Strong
To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from aircraft in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions the GDG recommends implementing suitable changes in infrastructure.	Strong

Wind turbine noise

Recommendation	Strength
For average noise exposure, the GDG conditionally recommends reducing noise levels produced by wind turbines below **45 dB** L_{den}, as wind turbine noise above this level is associated with adverse health effects.	Conditional
No recommendation is made for average night noise exposure L_{night} of wind turbines. The quality of evidence of night-time exposure to wind turbine noise is too low to allow a recommendation.	
To reduce health effects, the GDG conditionally recommends that policy-makers implement suitable measures to reduce noise exposure from wind turbines in the population exposed to levels above the guideline values for average noise exposure. No evidence is available, however, to facilitate the recommendation of one particular type of intervention over another.	Conditional

Leisure noise

Recommendation	Strength
For average noise exposure, the GDG conditionally recommends reducing the yearly average from all leisure noise sources combined to **70 dB** $L_{Aeq,24h}$ as leisure noise above this level is associated with adverse health effects. The equal energy principle[3] can be used to derive exposure limits for other time averages, which might be more practical in regulatory processes.	Conditional
For single-event and impulse noise exposures, the GDG conditionally recommends following existing guidelines and legal regulations to limit the risk of increases in hearing impairment from leisure noise in both children and adults.	Conditional
Following a precautionary approach, to reduce possible health effects, the GDG strongly recommends that policy-makers take action to prevent exposure above the guideline values for average noise and single-event and impulse noise exposures. This is particularly relevant as a large number of people may be exposed to and at risk of hearing impairment through the use of personal listening devices. There is insufficient evidence, however, to recommend one type of intervention over another.	Strong

Target audience

The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience, as a large body of the evidence underpinning the recommendations was derived not only from European noise effect studies but also from research in other parts of the world – mainly in America, Asia and Australia.

[3] The equal energy principle states that the total effect of sound is proportional to the total amount of sound energy received by the ear, irrespective of the distribution of that energy in time (WHO, 1999).

1. Introduction

Environmental noise features among the top environmental risks to physical and mental health and well-being, with a substantial associated burden of disease in Europe (WHO Regional Office for Europe & JRC, 2011; Hänninen et al., 2014). It has negative impacts on human health and well-being and is a growing concern among both the general public and policy-makers in Europe.

WHO published community noise guidelines (CNG) and night noise guidelines (NNG) for Europe in 1999 and 2009, respectively (WHO, 1999; WHO Regional Office for Europe, 2009). Since then, significant new evidence has accumulated on the health effects of environmental noise.

The need for updated health-based guidelines originates in part from commitments made at the Fifth Ministerial Conference on Environment and Health in Parma, Italy, in 2010, where Member States asked WHO to produce appropriate noise guidelines that would include additional noise sources such as personal electronic devices, toys and wind turbines (WHO Regional Office for Europe, 2010). Furthermore, European Union (EU) Directive 2002/49/EC relating to the assessment and management of environmental noise (the END – EC, 2002a) and related technical guidance from the European Environment Agency (EEA) both elaborated on the issue of environmental noise and the importance of up-to-date noise guidelines (EEA, 2010).

The WHO Regional Office for Europe has therefore developed environmental noise guidelines for the European Region, proposing an updated set of public health recommendations on exposure to environmental noise. The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. The guidelines focus on the WHO European Region and provide policy guidance to Member States that is compatible with the noise indicators used in the EU's END.

The following two key questions identify the issues addressed by the guidelines.

- In the general population exposed to environmental noise, what is the exposure–response relationship between exposure to environmental noise (reported as various indicators) and the proportion of people with a validated measure of health outcome, when adjusted for confounders?
- In the general population exposed to environmental noise, are interventions effective in reducing exposure to and/or health outcomes from environmental noise?

1.1 The public health burden from environmental noise

Exposure to noise can lead to auditory and nonauditory effects on health. Through direct injury to the auditory system, noise leads to auditory effects such as hearing loss and tinnitus. Noise is also a nonspecific stressor that has been shown to have an adverse effect on human health, especially following long-term exposure. These effects are the result of psychological and physiological distress, as well as a disturbance of the organism's homeostasis and increasing allostatic load (Basner et al., 2014). This is further outlined in the WHO narrative review of the biological mechanisms of nonauditory effects (Eriksson et al., 2018).

The evidence of the association between noise exposure and health effects is based on experimental work regarding biological plausibility and, in observational studies, consistency among study results, presence of an exposure–response relationship and the magnitude of the effect. Environmental noise risk assessment and risk management relies on established exposure–response relationships (Babisch, 2014).

In 2011 the WHO Regional Office for Europe and the European Commission (EC) Joint Research Centre (JRC) published a report on the burden of disease from environmental noise that quantified the healthy years of life lost in western Europeam countries as a result of environmental noise (WHO Regional Office for Europe & JRC, 2011). The burden of disease is calculated, in a single measure of disability-adjusted life-years (DALYs), as the sum of the years of life lost from premature mortality and the years lived with disability for people living with the disease or health condition or its consequences in the general population (WHO, 2014a).

Sufficient information was deemed available to quantify the burden of disease from environmental noise for cardiovascular disease, cognitive impairment in children, sleep disturbance, tinnitus and annoyance. The report, based on a limited set of data, estimated that DALYs lost from environmental noise in western European countries are equivalent to 61 000 years for ischaemic heart disease (IHD), 45 000 years for cognitive impairment in children, 903 000 years for sleep disturbance, 22 000 years for tinnitus and 654 000 years for annoyance (WHO Regional Office for Europe & JRC, 2011). These results indicate that at least one million healthy years of life are lost every year from traffic-related environmental noise in western Europe. Sleep disturbance and annoyance, mostly related to road traffic noise, constitute the bulk of this burden. Available assessments place the burden of disease from environmental noise as the second highest after air pollution (WHO Regional Office for Europe & JRC, 2011; Hänninen et al., 2014; WHO 2014b). However, a lack of noise exposure data in the central and eastern parts of the WHO European Region means that it is not possible to assess the burden of disease from environmental noise for the whole Region.

1.2 The environmental noise policy context in the EU

The EU has been working to develop a harmonized noise policy for more than two decades. 1993 saw the start of the EC's Fifth Environment Action Programme, which stated that "no person should be exposed to noise levels which endanger health and quality of life" (EC, 1993). This was followed by a Green Paper on future noise policy (EC, 1996), which reinforced the importance of noise as one of the main environmental problems in Europe and proposed a new framework for noise policy development.

The Sixth Environment Action Programme had as one of its objectives: "to achieve a quality of environment where the levels of man-made contaminants do not give rise to significant impacts on, or risks to, human health" (EC, 2002b). This paved the way for the Commission to adopt and implement the END in 2002 (EC, 2002a). The main aim of the Directive is "to define a common approach intended to avoid, prevent or reduce on a prioritized basis the harmful effects, including annoyance, due to exposure to environmental noise".

The END obliges the EC to adapt its Annexes I–III (I on noise indicators in addition to L_{den}[4] and L_{night}[5], II on noise assessment methods and III on methods for assessing harmful effects of noise) to technical and scientific progress. While work on revising Annex II was finalized in 2015 and common noise assessment methods were introduced (EC, 2015), revisions of Annex III to establish methods to assess the harmful effects of noise only started in 2015. Annex III would primarily define what exposure–response relationships should be used to assess the effect of noise on populations. EU Member States have already expressed the view that the recommendations from these environmental noise guidelines for the WHO European Region will guide the revision of Annex III. Beside this main directive, few other legislative documents cover different noise sources and other related issues in the EU (EEA, 2014: Annex I).

The Seventh Environment Action Programme, which guides European environment policy until 2020 (EC, 2014a), is committed to safeguarding the EU's citizens from environment-related risks to health by ensuring that by 2020 "noise pollution in the Union has significantly decreased, moving closer to WHO-recommended levels". A particular requirement for achieving this is "implementing an updated EU noise policy aligned with the latest scientific knowledge, and measures to reduce noise at source, and including improvements in city design".

In addition to the EU's END, several national governments also have legislation and/or limit values that apply at national and/or regional levels (WHO Regional Office for Europe, 2012). The EEA, through its European Topic Centre on Land Use and Spatial Information, gathers noise exposure data and maintains the Noise Observation and Information Service for Europe, based on strategic noise maps provided by Member States (EEA, 2018). A total of 33 EEA countries, in addition to six cooperating countries in south-eastern Europe, report information on noise exposure to the EEA, following the requirements of the END. The quality and availability of noise exposure assessment differs between EU and non-EU Member States where, even if noise legislation has been harmonized with the Directive, noise mapping and action plans are still at the planning stage (EEA, 2014; 2017a; WHO Regional Office for Europe, 2012).

1.2.1 Definition of indicators in the END

The END specifies a number of noise indicators to be applied by Member States in noise mapping and action planning. The most important are L_{den} and L_{night}.

The L_{den} indicator is an average sound pressure level over all days, evenings and nights in a year (EEA, 2010). This compound indicator was adopted by the EU in the END (EC, 2002a). The L_{den} in decibels (dB) is defined by a specific formula, where:

- L_{day} is the A-weighted long-term average sound level as defined in ISO 1996-1: 2016, determined over all the day periods of a year;
- $L_{evening}$ is the A-weighted long-term average sound level as defined in ISO 1996-1: 2016, determined over all the evening periods of a year; and
- L_{night} is the A-weighted long-term average sound level as defined in ISO 1996-1: 2016, determined over all the night periods of a year (ISO, 2016).

[4] Day-evening-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:20161 (ISO, 2016).
[5] Equivalent continuous sound pressure level when the reference time interval is the night.

The L_{night}, according to the definition in the END, is an equivalent outdoor sound pressure level, measured at the most exposed façade, associated with a particular type of noise source during night time (at least eight hours), calculated over a period of a year (WHO Regional Office for Europe, 2009).

Annex I of the END gives technical definitions for L_{den} and L_{night}, as well as supplementary noise indicators, which might be useful for monitoring special noise situations. For example, in the case of noisy but short-lived noise like shooting noise or noise emitted by trains, $L_{A,max}$ is often used. This is a measure of the maximum sound pressure reached during a defined measurement period. It is used to set noise limits and is sometimes considered in studies to determine certain health effects (such as awakening reactions).

1.3 Perceptions of environmental noise in the WHO European Region

1.3.1 Trends at the regional level

The general population greatly values the benefits of clean and quiet environments. In Europe, people perceive noise as an important issue that affects human health and well-being (EC, 2008; 2014b). In recent years, several Europe-wide surveys have examined the perception of noise as an issue among the population. Overall, these surveys ask about generic noise, referring to "neighbourhood noise" or "noise from the street". This type of noise differs significantly in its definition from what is considered "environmental noise" in these guidelines. Nevertheless, in the absence of specific large surveys on perceptions of environmental noise as defined in these guidelines, the results provide insight into the public perception of this issue.

The European quality-of-life surveys, carried out every four years, are unique, pan-European surveys examining both the objective circumstances of lives of European citizens and how they feel about those circumstances and their lives in general. The last (fourth) survey was conducted in 2016–2017, involving nearly 37 000 citizens from all EU Member States and the five candidate countries (Albania, Montenegro, Serbia, the former Yugoslav Republic of Macedonia and Turkey). Respondents were asked whether they had major, moderate or no problems with noise in the immediate neighbourhood of their home. Almost one third (32%) reported problems with noise (ranging from 14% to 51% in individual countries), mainly in cities or city suburbs (49%) (Eurofound, 2017).

A 2010 survey of the then 27 countries in the EU, requested by the EC, showed that 80% of respondents (n = 26 602) believed that noise affects their health, either to some or to a great extent (EC, 2010).

A Eurobarometer report on attitudes of European citizens towards the environment (EC, 2014b) compiled opinions on various environmental risks from almost 28 000 respondents in 28 EU countries. Results showed that for 15% of respondents, noise pollution is one of the top five environmental issues they are worried about. Furthermore, 17% of respondents said that they lack information about noise pollution.

1.3.2 Trends at the national level

Data on perception of specific sources of environmental noise as a problem are not available for the entire WHO European Region. Nevertheless, some countries – including France, Germany, the Netherlands, Slovakia and the United Kingdom – conduct national surveys on noise annoyance, either regularly or on demand (Sobotova et al., 2006; Lambert & Philipps-Bertin, 2008; van Poll et al., 2011; Centraal Bureau voor de Statistiek, 2012; Notley et al., 2014; Umweltbundesamt, 2017).

According to these large-scale surveys, road traffic noise is the most important source of annoyance, generally followed closely by neighbour noise. Aircraft noise can also be a substantial source of annoyance. Railway noise and industrial noise are enumerated less frequently. Only limited data are available on the population's perception of newer sources of noise, such as wind turbines.

While perception surveys do not provide information on actual quantitative relationships between noise exposure and health outcomes, it is important to note that the results of such surveys represent people's preferences and values regarding environmental noise. Despite limitations and an incomplete picture, the available data on perception of environmental noise as a public health problem show concern in Europe. People are not always aware of the health impacts of noise, especially of those related to long-term noise exposure at lower levels. Greater awareness of the issue may further increase positive values and preferences.

1.4 Target audience

The environmental noise guidelines for the European Region serve as a reference for an audience made up of different groups, with varied areas of expertise including decision-making, research and advocacy. More specifically, this covers:

- various technical experts and decision-makers at the local, national or international levels, with responsibility for developing and implementing regulations and standards for noise control, urban planning and housing, and other relevant environment and health domains;
- health impact assessment and environmental impact assessment practitioners and researchers;
- national and local authorities responsible for developing and implementing relevant measures and for risk communication;
- nongovernmental organizations and other advocacy groups involved in risk communication and general awareness-raising.

These guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience, as a large body of the evidence underpinning the recommendations was derived not only from European noise effect studies but also from research in other parts of the world – mainly in America, Asia and Australia.

2. Development of the guidelines

2.1 Overview

The process of developing WHO guidelines follows a rigorous methodology and involves several groups with well defined roles and responsibilities (WHO, 2014c). These include: formulation of the scope and key questions of the guidelines; review of the pertinent literature; selection of priority health outcome measures; a systematic review of the evidence; an assessment of certainty of the bodies of evidence resulting from systematic reviews; identification of guideline exposure levels; and setting of the strength of recommendations. Throughout the process, the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was followed (Morgan et al., 2016).

The development of environmental noise guidelines started in 2013. Following WHO's procedures, the WHO Regional Office for Europe, through its European Centre for Environment and Health in Bonn, Germany, obtained planning approval and established a Steering Group and a Guideline Development Group (GDG). The former was primarily involved in initiating, structuring and executing the guideline development process; the latter was composed of leading experts and end-users, responsible for the process of scoping the guidelines and developing the evidence-based recommendations. During the initiation meeting in October 2013 in Bonn, the GDG members defined the scope of the guidelines, decided on the key questions to be addressed, prioritized health outcomes and set a timeline for completion of the work. Furthermore, authors were appointed for background papers, systematic reviews and different guideline background chapters.

In October 2014 a main evidence review meeting was held between the GDG and the Systematic Review Team in Bern, Switzerland, to discuss the evidence review drafts. In October 2014 and May 2015 the GDG met in Bern and Bonn, respectively, to refine the scope and draft recommendations. The revision and finalization of the systematic reviews of evidence was completed in early 2017. Through a series of remote meetings and teleconferences, the GDG discussed and addressed the remaining outstanding issues and feedback from the peer review of the draft guidelines, and decided on the final formulation of the recommendations. The following sections describe the steps of the guideline development process in detail.

2.2 Scope of the guidelines

Defining the scope of the guidelines included the selection of noise sources to be considered, as well as situations in which people are exposed, and noise indicators used for the formulation of recommendations. These guidelines separately consider outdoor exposure to environmental noise from road traffic, railway traffic, aircraft, wind turbines as well as outdoor and indoor exposure during leisure activities (such as attending nightclubs, pubs, fitness classes, live sporting events, concerts or live music venues and listening to loud music through personal listening devices). The guidelines are source specific and not environment specific. They therefore cover all settings where people spend a significant portion of their time, such as residences, educational institutions, workplaces and public venues, although hospital noise is exempted from the list of public institutions owing to the unique characteristics of the population involved.

The GDG agreed not to develop specific recommendations for occupational and industrial noise. Industrial noise can affect both people working at an industrial site and those living in its vicinity. The guidelines do not consider workers' exposure to noise in industrial environments, as these are regulated by workplace standards and may, in some cases, require the wearing of protective equipment or application of other preventive and protective measures. Further, the guidelines do not explicitly consider industrial noise as an environmental noise source, affecting people living in the vicinities of industrial sites. This is mainly due to the large heterogeneity and specific features of industrial noise, and the fact that exposure to industrial noise has a very localized character in the urban population.

Likewise, the current guidelines do not provide specific recommendations for the prevention of health effects linked to neighbourhood noise. Neighbourhood noise may stem from various potential sources of noise (such as ventilation systems; church bells; animals; neighbours; commercial, recreational and occupational activities; or shooting/military). As the sources may be located in close proximity to where people live, they can cause considerable concern even at low levels (Omlin et al., 2011). Several of these sources can also produce low-frequency noise, and as such, require indoor measurements for proper exposure assessment. In general, little scientific research is available on exposure and health outcomes related to neighbourhood noise.

Moreover, the guidelines do not include recommendations about any kind of multiple exposures. In everyday life people are often exposed to noise from several sources at the same time. In Germany, for example, 44% of the population are annoyed by at least two and up to five sources of noise (Umweltbundesamt, 2015). For some health outcomes, such as obesity, new evidence indicates that combined exposure to noise from several means of transportation is particularly harmful (Pyko et al., 2015; 2017).

Research indicates that, alongside exposure to more than one source of noise, combined exposure to different factors – for example, noise and vibration or noise and air pollution – has gained increasing relevance in recent years (Sörensen et al., 2017). The EC estimates that the social cost of noise and air pollution is up to €1 trillion every year (EC, 2016a). WHO acknowledges the need to develop comprehensive models to quantify the effects of multiple exposures on human health. As the main body of evidence on environmental noise still focuses on source-specific impacts of noise on health outcomes and does not incorporate combined exposure effects of multiple noise sources or other pollutants, however, the current guidelines provide recommendations for each source of noise specifically. No attempt has been made to combine noise from multiple sources for any particular health outcome.

2.2.1 Key questions

The environmental noise guidelines for the WHO European Region seek to address two main questions, which define the issues addressed by the guideline recommendations.

- In the general population exposed to environmental noise, what is the exposure–response relationship between exposure to environmental noise (reported as various indicators) and the proportion of people with a validated measure of health outcome, when adjusted for confounders?
- In the general population exposed to environmental noise, are interventions effective in reducing exposure to and/or health outcomes from environmental noise?

2.2.2 Environmental noise indicators used in the guidelines

From a scientific point of view, the best noise indicator is the one that performs best in predicting the effect of interest. There are, however, a number of additional criteria that may influence the choice of indicator because, for example, various indicators might be suitable for different health end-points and some indicators are more practical to use or easier to calculate than others. Some of these considerations are of a more political nature, as mentioned in the EC's Position paper on EU noise indicators (EC, 2000).

The current guidelines are intended to be suitable for policy-making primarily in the WHO European Region. They are therefore based on the most frequently used average noise indicators in Europe: L_{den} and L_{night}. These are often reported by authorities and are used widely for exposure assessment in health effect studies and noise impact assessments in the Region. The L_{den} (also referred to as "DENL") indicator can be calculated as the A-weighted average sound pressure level, measured over a 24-hour period, with a 10 dB penalty added to the average level in the night (23:00–07:00 or 22:00–06:00), a 5 dB penalty added to the evening (19:00–23:00 or 18:00–22:00) and no penalty added to the daytime period (07:00–19:00 or 06:00–18:00). The penalties are introduced to indicate people's extra sensitivity to noise during the evening and night. The L_{night} indicator is the A-weighted average sound pressure level, measured over an eight-hour period during night time, usually between 23:00 and 07:00 (EC, 2002a).

In these guidelines, L_{den} and L_{night} refer to a measurement or calculation of noise exposure at the most exposed façade, outdoors, reflecting the long-term average exposure. Thus, L_{den} and L_{night} represent all the single noise events due to a specific noise source that occur over a longer period of time, such as during a year. Moreover, most health outcomes considered in these guidelines are expected to occur as a result of long-term exposure. It is generally accepted that the most relevant parts of the whole day or night, which especially account for the time when a person is at home, are correctly attributed when using average indicators like L_{den} or L_{night}.

The majority of studies that form the body of evidence for the recommendations in these guidelines – among them large-scale epidemiological studies and socioacoustic surveys on annoyance and self-reported sleep disturbance – refer to noise exposure measured outdoors, usually at the most exposed façade of dwellings. Virtually all noise exposure prediction models in use today estimate free-field exposure levels outdoors, and most noise abatement regulations refer to outdoor levels as well. These are the practical reasons why the GDG decided not to recommend any guideline values for noise indoors. Nevertheless, in certain cases it could be helpful to estimate indoor levels based on outdoor values. The differences between indoor and outdoor levels are usually estimated at around 10 dB for open, 15 dB for tilted or half-open and about 25 dB for closed windows. When considering more accurate estimation of indoor levels, using a range of different predictors, the relevant scientific literature can be consulted (Locher et al., 2018).

The GDG was aware of the fact that many countries outside the EU are not bound by the terms of the END (EC, 2002a) and/or use noise indicators other than L_{den} or L_{night} in their noise regulations. They still can make use of these guidelines, however, because energy-based average noise indicators are usually highly correlated and "rule of thumb" transformations from one indicator to another are possible with acceptable uncertainty, as long as the conversion accounts for the long-term average

of populations, rather than individual exposure situations. Empirically derived generic conversion terms between a wide range of different noise indicators (including L_{den}, L_{dn}, L_{day}, L_{night} and $L_{Aeq,24h}$; see the glossary of acoustic terms for further details), with their uncertainty estimates, were published recently (Brink et al., 2018). The GDG encourages the use of these conversions, should the need arise.

In many situations, average noise levels like the L_{den} or L_{night} indicators may not be the best to explain a particular noise effect. Single-event noise indicators – such as the maximum sound pressure level ($L_{A,max}$)[6] and its frequency distribution – are warranted in specific situations, such as in the context of night-time railway or aircraft noise events that can clearly elicit awakenings and other physiological reactions that are mostly determined by $L_{A,max}$. Nevertheless, the assessment of the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative. The guidelines therefore make no recommendations for single-event noise indicators.

Different noise sources – for example, road traffic noise and railway noise – can be characterized by different spectra, different noise level rise times of noise events, different temporal distributions of noise events and different frequency distributions of maximum levels. Because of the extensive differences in the characteristics of individual noise sources, these guidelines only consider source-specific exposure–response functions (ERFs) and, therefore, formulate only source-specific recommendations.

2.3 Evidence base

Based on the overall scope and key questions the current guidelines review the relevant literature in the area of environmental noise and health in order to incorporate significant research undertaken since the publication of previous guidelines. The process of evidence search and retrieval involved several steps. These include the identification, retrieval and synthesis of the evidence, followed by a systematic review and assessment (described in section 2.4).

2.3.1 Identification, retrieval and synthesis of evidence

As a first step, the GDG identified key health outcomes associated with environmental noise. Next, it rated the relevance of these health outcomes according to the following three categories:

- critical for assessing environmental noise issues
- important, but not critical for assessing environmental noise issues
- unimportant.

The GDG rated the relevance based on the seriousness and prevalence of the outcomes and the anticipated availability of evidence for an association with noise exposure. The following health outcomes were selected as either critical or important for developing recommendations on the health impacts of environmental noise.

[6] $L_{A,max}$ is the maximum time-weighted and A-weighted sound pressure level within a stated time interval starting at t1 and ending at t2, expressed in dB.

Critical health outcome	Important health outcome
Cardiovascular disease	Adverse birth outcomes
Annoyance[7]	Quality of life, well-being and mental health
Effects on sleep	Metabolic outcomes
Cognitive impairment	
Hearing impairment and tinnitus	

The GDG noted that research into the relationship between noise exposure and its effects on humans brings into focus several questions concerning the definition of health and the boundary between normal social reaction to noise and noise-induced ill health. As stated in WHO's Constitution: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). Accordingly, documenting physical health does not present a complete picture of general health; and being undisturbed by noise in all activities, including sleep, constitutes an asset worthy of protection. Therefore, in accordance with the above definition, the GDG regarded (long-term) annoyance and impaired well-being, as well as self-reported sleep disturbance due to noise, as health outcomes.

Regarding sleep disturbance, the health outcome measures considered in these guidelines largely disregard "objective" indicators of sleep disturbance, such as the probability of awakening reactions or other polysomnography parameters. The main reason for this is the nature of the body of evidence on acute, objectively measured effects of noise during sleep. Studies of physiological effects of sleep and especially polysomnographic investigations are complex and resource-demanding; they therefore include only a small number of participants, who are often healthy young volunteers not representative of the general population. For these reasons, the majority of such studies do not meet the requirements for inclusion in the GRADE framework and full-scale meta-analysis, including adjustment for confounders. Furthermore, it is currently unclear how acute physiological reactions that affect the microstructure of sleep but are less well correlated with global sleep parameters, such as total sleep time, are related to long-term health impediments, especially considering the large interindividual differences in susceptibility to noise (Basner et al., 2011).

As sleeping satisfies a basic need and the absence of undisturbed sleep can have serious effects on human health (WHO Regional Office for Europe, 2009), the GDG set self-reported sleep disturbance, in line with the WHO definition of health, as a primary health outcome. Even though self-reported sleep disturbance might differ considerably from objectively measured parameters of sleep physiology, it constitutes a valid indicator in its own right, as it reflects the effects on sleep perceived by an individual over a longer period of time (WHO Regional Office for Europe & JRC, 2011). The importance of considering both annoyance and self-reported sleep disturbance as health outcomes is further supported by evidence indicating that they may be part of the causal pathway of noise-induced cardiovascular and metabolic diseases. This is further elaborated in the narrative review on biological mechanisms (Eriksson et al., 2018).

[7] Noise annoyance is defined as a feeling of displeasure, nuisance, disturbance or irritation caused by a specific sound (Ouis, 2001). In the current guidelines, "annoyance" refers to long-term noise annoyance.

The second step in the evidence retrieval process constituted formulation of the key questions for the critical and important health outcomes and identification of the areas of evidence to be reviewed, following the PICOS/PECCOS approach defined in the WHO handbook for guideline development (WHO, 2014c). PICOS/PECCOS is an evidence-based technique that frames health care-related questions to facilitate the search for suitable studies that can provide answers to the questions at hand (Huang et al., 2006). The PICOS approach divides intervention questions into five elements: population, intervention, comparator, outcome and study design. In exposure studies, PICOS becomes PECCOS, which stands for population, exposure, comparator, confounder, outcome and study design. The specification of the elements of PICOS/PECCOS serves to construct the body of evidence that underpins each recommendation. Due to the complex nature of environmental noise, several distinct areas of evidence were defined to address each of the scoping questions comprehensively.

For each of the critical and important health outcomes a systematic review was conducted (see also section 2.3.2). Health outcomes regarded as important were given less weight in the decision-making process than critical ones. Inclusion and exclusion criteria to be regarded in the systematic evidence reviews were defined in accordance with the PICOS/PECCOS framework for the evaluation of evidence (see Table 1). All evidence that met the inclusion criteria was included in the systematic reviewing process. A detailed description of the types of measure for each of the health outcomes under consideration is provided in the protocol for conducting the systematic reviews (Héroux & Verbeek, 2018a). See Annex 2 for details of all background documents and systematic reviews used in preparation of these guidelines.

Table 1. Inclusion and exclusion criteria for evidence reviews of health effects of environmental noise

Category	Inclusion criteria	Exclusion criteria
Populations	• Members of the general population • Specific segments of the population particularly at risk (children or vulnerable groups) • People exposed to noise in occupational settings (if relevant with combined exposure to environmental noise)	• Does not meet inclusion criteria
Exposure	• Noise exposure levels, either measured or calculated and expressed in dB values • Representative of the individual exposure of study participants (for most observational studies the dwelling location or home) • Calculated levels for transportation noise (road, rail, air) based on traffic data reflecting the use of roads, railway lines and in- and outbound flight routes at airports	• Does not meet inclusion criteria; in particular: - studies using hearing loss or hearing impairment as a proxy for (previous) noise exposure - surveys assessing noise exposure or number of listening hours based on subjective ratings given by subjects in a questionnaire
Confounders	• No inclusion criteria applied since the relationship between exposure to noise and a health outcome can be confounded by other risk factors; however, possible confounders taken into account were assessed for every study	• No exclusion criteria applied; however, possible confounders taken into account were assessed for every study

Table 1. contd.

Category	Inclusion criteria	Exclusion criteria
Outcomes	• Adverse birth outcomes • Annoyance • Cardiovascular disease • Cognitive impairment • Effects on sleep • Hearing impairment and tinnitus • Metabolic outcomes • Quality of life, mental health and well-being	• Does not meet inclusion criteria
Study types	• Cohort studies • Case-control studies • Cross-sectional studies • Ecological studies (only for cardiovascular disease)	• Does not meet inclusion criteria

Alongside the systematic reviews of the critical and important health outcomes, the GDG decided to review the evidence on health effects from noise mitigation measures and interventions to reduce noise levels in order to inform and complement the recommendations.

Interventions on environmental noise were defined according to five broad categories based on the available intervention literature and the experience of decades of environmental noise management (see Table 2 and Brown & van Kamp, 2017).

Table 2. Types of noise intervention

Intervention type	Intervention category	Intervention subcategory
A	Source intervention	• change in emission levels of sources • time restrictions on source operations
B	Path intervention	• change in the path between source and receiver • path control through insulation of receiver/receiver's dwelling
C	New/closed infrastructure	• opening of a new infrastructure noise source • closure of an existing one • planning controls between (new) receivers and sources
D	Other physical intervention	• change in other physical dimensions of dwelling/neighbourhood
E	Behaviour change intervention	• change in individual behaviour to reduce exposure • avoidance or duration of exposure • community education, communication

The GDG recognized that nonacoustic factors are an important possible confounder in both ERFs between noise levels and critical health effects and the effects of acoustic interventions on health outcomes. Whereas the inclusion criteria for confounders were not specified in PECCOS for the systematic reviews of evidence, they were considered at the stage of assessing the quality of

evidence, using the GRADE approach. Depending on the health effect under investigation, possible nonacoustic factors may include:

- gender
- age
- education
- subjective noise sensitivity
- extroversion/introversion
- general stress score
- co-morbidity
- length of residence
- duration of stay at dwelling in the day
- window orientation of a bedroom or living room towards the street
- personal evaluation of the source
- attitudes towards the noise source
- coping capacity with respect to noise
- perception of malfeasance by the authorities responsible
- body mass index
- smoking habits.

In noise annoyance studies nonacoustic factors may explain up to 33% of the variance (Guski, 1999). The higher the quality of evidence, the lower confounding effects of nonacoustic factors may be expected. Nevertheless, as with measurement errors, confounding cannot be avoided.

Based on the retrieval and evaluation of the pertinent literature, the GDG decided to address the association of environmental noise from different sources and health outcomes separately and individually for each source of noise, and for critical and important health outcomes.

In addition to the systematic reviews of the health effects of environmental noise, a narrative review of biological mechanisms of nonauditory effects was conducted (Eriksson et al., 2018). This covers literature related to pathways for nonauditory effects and provides supporting evidence on the association between environmental noise and health outcomes in humans, especially related to cardiovascular and metabolic diseases.

2.3.2 Systematic reviewing process

After the retrieval of the evidence based on the PICOS/PECCOS approach, systematic reviews were conducted for all critical and important health outcomes. To meet the demands of the diverse and broad nature of the evidence, it was agreed that systematic reviews could vary in type. For some areas of evidence, a novel and fully fledged systematic reviewing process was needed to summarize the existing evidence; for others, the reviewing process could build upon existing (and mostly published) systematic reviews and summaries of evidence. Thus, the process consisted of two phases.

First, a comprehensive search was conducted for available systematic reviews and meta-analyses on environmental noise effects published after 2000. Each of the reviews was assessed for both relevance and quality. To be included in the evidence review process, studies from these reviews were required to meet a high quality standard, judged according to high scores of the AMSTAR checklist.[8] In cases where quality criteria were met but the review was older than two years (published before 2012), the search of the systematic review was updated to include new papers. If no good quality systematic reviews were available, a new search for original papers was conducted. The Systematic Review Team decided how the results would affect the search strategy for individual studies as part of the second phase. This was based on the assessment of the quality of the systematic reviews and on the coherence between the main research questions of the systematic reviews and the scope of the work of the guidelines.

In the second phase a search for individual papers was conducted, with the search strategy adapted according to the outcome of the first phase. As availability of systematic reviews and meta-analyses differed for the various health outcomes considered in the guidelines, this process varied for each evidence review. The search included cohort studies, case-control studies and cross-sectional studies of people exposed to environmental noise. Where relevant – for example, for the health outcome cardiovascular disease – the search also included ecological studies.

Due to the individualized retrieval of evidence for each of the systematic reviews, the time frames of the literature included varied. An indication of the temporal coverage of the studies included in different systematic review is provided in the relevant tables in Chapter 4.

A detailed description of the methodology used to conduct the systematic evidence reviews, including individual protocols for the reviews of health effects resulting from environmental noise and from noise interventions, is available (Héroux & Verbeek, 2018b). Furthermore, all systematic reviews conducted in the guideline development process are publicly available in the open-access journal *International Journal of Environmental Research and Public Health*:

- systematic review of transport noise interventions and their impacts on health (Brown & van Kamp, 2017);
- systematic review on environmental noise and adverse birth outcomes (Nieuwenhuijsen et al, 2017);
- systematic review on environmental noise and annoyance (Guski et al., 2017);
- systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018);
- systematic review on environmental noise and cognition (Clark & Paunovic, 2018);
- systematic review on environmental noise and effects on sleep (Basner & McGuire, 2018);
- systematic review on environmental noise and permanent hearing loss and tinnitus (Śliwińska-Kowalska & Zaborowski, 2017);
- systematic review on mental health and well-being (Clark & Paunovic, in press).

[8] AMSTAR is an instrument used to assess quality of evidence; it stands for “A MeaSurement Tool to Assess systematic Reviews” (Shea et al., 2007).

2.4 From evidence to recommendations

Once the evidence had been identified and synthesized, the Systematic Review Team assessed its quality. Subsequently, the GDG formulated recommendations, guided by this assessment and consideration of a number of other factors recognized as important. To facilitate the formulation of recommendations, it first prioritized the health outcome measures of the critical and important outcomes. A process was developed to identify the guideline exposure levels from each of the ERFs provided by the systematic reviews of evidence.

The following sections describe the assessment of the overall quality of the evidence based on the GRADE approach, selection of priority health outcome measurements, identification of guideline exposure levels and setting the strength of recommendations.

2.4.1 Assessment of overall quality of a body of evidence: the GRADE approach

As set out in the WHO handbook for guideline development (WHO, 2014c), the main framework for producing evidence-informed recommendations is the GRADE approach (Guyatt et al., 2008). This is used to assess the quality of a body of evidence synthesized in a systematic review. The assessment facilitates judgements about the certainty of effect estimates, which increases with the quality of the body of evidence. The quality can be rated high, moderate, low or very low (see Box 1).

Box 1 GRADE interpretations of quality of evidence

- **High quality:** further research is very unlikely to change the certainty of the effect estimate
- **Moderate quality:** further research is likely to have an important impact on the certainty of the effect estimate and may change the estimate
- **Low quality:** further research is very likely to have an important impact on the certainty of the effect estimate and is likely to change the estimate
- **Very low quality:** any effect estimate is uncertain

The original GRADE approach was developed specifically to rate the body of evidence resulting from a review of intervention studies. The initial quality level is set by study design: randomized control trials (RCTs) are considered high quality, whereas observational (nonrandomized) study designs are low quality. Then five factors are considered for downgrading the quality of the body of evidence resulting from RCTs or observational studies, and three factors are considered for upgrading the body of evidence resulting from observational studies alone.

The following five factors are used for downgrading the quality of evidence by one or two levels:

- study limitations or risk of bias in all studies that make up the body of evidence
- inconsistency of results between studies
- indirectness of evidence in the studies
- imprecision of the pooled effect estimate
- publication bias detected in a body of evidence.

The following three factors are used for upgrading the quality of evidence:

- high magnitude of the pooled effect
- direction of residual confounding and biases opposes an effect (i.e. when all plausible confounders are anticipated to reduce the estimated effect and there is still a significant effect)
- exposure–response gradient.

The GRADE approach was originally developed for application in the field of clinical medicine, where the majority of studies are randomized trials. However, to assess health effects resulting from an exposure such as environmental noise, randomized controlled trials are not applicable, as it would be unethical to expose participants deliberately to possibly harmful risk factors. The limitations of the application of GRADE to environmental health have been recognized and discussed in the literature (Morgan et al., 2016). Other types of study design dominate the evidence base in the domain of environmental noise research, so it was necessary to adapt the original GRADE approach to the subject of the current guidelines, as follows.

Instead of using the RCT study design as the starting-point for the quality rating, the study design most applicable and available for the field of research at hand was used. Thus, for evidence on the association between noise exposure and clinical health outcome measures, the rating of an evidence base consisting of cohort and case-control studies[9] was initially rated high quality. Cross-sectional studies and ecological studies were rated low quality and very low quality, respectively. This initial point of departure was only adapted for the evidence of the association between noise exposure and annoyance and sleep disturbance. Here, cross-sectional studies were rated high quality because annoyance and sleep disturbance are regarded as an immediate effect of exposure to environmental noise. Finally, in accordance with the original GRADE approach, the starting-point for evidence on the effect of interventions was rated low quality for observational studies. After determining the point of departure, the evidence base was rated down or up whenever one or more of the criteria for downgrading or upgrading (described above) were met. Each of the systematic reviews commissioned for these guidelines includes a detailed report on the assessment of the quality of the evidence.

A detailed discussion of the adaptations of GRADE is provided in the separate methodology publication (Héroux & Verbeek, 2018b).

2.4.2 Selection of priority health outcomes

In line with the WHO handbook for guideline development (WHO, 2014c), the GDG selected the key health outcomes associated with environmental noise at the beginning of the evidence retrieval process, and the systematic reviews were commissioned accordingly. The selection of health outcomes was based on the available evidence for the association between environmental noise and the specific outcome, as well as public concern about the health outcome resulting from noise exposure. The following health outcomes were rated critical: cardiovascular disease, annoyance,

[9] In the context of the current guidelines, “cohort studies” refer to longitudinal studies in which the occurrence of the outcome of interest in an exposed group is compared to the occurrence of that outcome in a reference group with no or lower exposure over time.

effects on sleep, cognitive impairment and hearing impairment and tinnitus. Adverse birth outcomes, quality of life, well-being and mental health, and metabolic outcomes were rated important (see also section 2.3.1).

Since all these health outcomes can be measured in various ways, the GDG evaluated each individually and prioritized different outcome measures for each in terms of their representativeness and validity. These measures were used to derive the guideline exposure levels; their prioritization was based on the impact of the disease and the disability weights (DWs) associated with the health outcome measure.[10]

The critical health outcomes, priority outcome measures identified and justifications for their selection are listed in Table 3.

Table 3. Critical health outcomes, outcome measures identified and justifications for selection

Critical health outcome	Critical health outcome measures (priority measures marked in bold)	Justification for selection
Cardiovascular disease (L_{den})	Self-reported or measured prevalence, **incidence**, hospital admission or mortality due to: • **ischaemic heart disease (IHD) (including angina pectoris and/or myocardial infarction)** • **hypertension** • stroke	Except for self-reports, these are objective measures of the outcome, affect a large proportion of the population, have important health consequences and can lead to more severe diseases and/or mortality. DW for IHD: 0.405. DW for hypertension: 0.117.
Effects on sleep (L_{night})	• **percentage of the population highly sleep-disturbed (%HSD)**, self-reported, assessed with a standardized scale • polysomnography measured outcomes (probability of additional awakenings) • cardiac and blood pressure outcome measures during sleep • motility measured sleep outcomes in adults • sleep disturbance in children	This is the most meaningful, policy-relevant measure of this health outcome. Self-reported sleep disturbances are a very common problem in the general population: they affect quality of life directly and may also lead to subsequent health impediments. Effects on sleep may be in the causal pathway to cardiovascular disease. This measure is not a proxy for physiological sleep quality parameters but is an important outcome in its own right. DW for %HSD: 0.07.
Annoyance (L_{den})	• **percentage of the population highly annoyed (%HA), assessed with standardized scale** • percentage annoyed, preferably assessed with standardized scale	This is the most objective measure of this health outcome. Large proportions of the population are affected by noise annoyance, even at relatively low exposure levels. Annoyance may be in the causal pathway to cardiovascular disease. DW for %HA: 0.02.

[10] DWs are ratings that vary between 0 and 1, in which 0 indicates no disability and 1 indicates the maximum amount of disability. The rates are derived from large population surveys in which people are asked to rank a specific disease for its impact on several abilities. The DWs have been proven useful in calculating the burden of disease.

Table 3. contd.

Critical health outcome	Critical health outcome measures (priority measures marked in bold)	Justification for selection
Cognitive impairment (L_{den})	• **reading and oral comprehension, assessed with tests** • impairment assessed with standardized tests • short and long-term memory deficit • attention deficit • executive function deficit (working memory capacity)	This outcome measure is the most meaningful: it can affect vulnerable individuals (children) and have a significant impact later in life. DW for impaired reading and oral comprehension: 0.006.
Hearing impairment and tinnitus (L_{Aeq}[11] and $L_{AF,max}$[12])	• **permanent hearing impairment, measured by audiometry** • permanent tinnitus	This outcome measure can affect vulnerable individuals (children) and have a significant impact later in life. It is the most objective measure for which there is an ISO standard (ISO, 2013), specifying how to estimate noise-induced hearing loss. DW for mild severity level (threshold at 25 dB) for childhood onset: 0.0150.

Table 4 provides a list of the important health outcomes along with the corresponding health outcome measures included in the systematic reviews. There was no prioritization of health outcome measures leading to justification of selection, since important health outcomes had less impact on the development of recommendations.

Table 4. Important health outcomes and health outcome measures reviewed

Important health outcome	Health outcome measures reviewed
Adverse birth outcomes (L_{den})	• pre-term delivery • low birth weight • congenital anomalies
Quality of life, well-being and mental health (L_{den})	• self-reported health and quality of life • medication intake for depression and anxiety • self-reported depression, anxiety and psychological distress • interviewer-assessed depressive and anxiety disorders • emotional and conduct disorders in children • children's hyperactivity • other mental health outcomes
Metabolic outcomes (L_{den})	prevalence, incidence, hospital admission or mortality due to: • type 2 diabetes • obesity

[11] L_{Aeq} is an A-weighted, equivalent continuous sound pressure level during a stated time interval starting at t1 and ending at t2, expressed in dB, of a noise at a given point in space.

[12] $L_{AF,max}$ is the maximum time-weighted and A-weighted sound pressure level with FAST time constant within a stated time interval starting at t1 and ending at t2, expressed in dB.

2.4.3 Identification of guideline exposure levels for each noise source

The GDG agreed to set guideline exposure levels based on the definition: "noise exposure levels above which the GDG is confident that there is an increased risk of adverse health effects". The identification of guideline values for each of the specific noise sources involved five distinct steps:

1. assessment of the validity of ERFs resulting from the systematic reviews of the effects of noise on each of the critical and important health outcomes;
2. assessment of the lowest noise level measured in the studies included in each of the corresponding systematic reviews;
3. assessment of the smallest risk or relative risk (RR) increase for each of the adverse health outcomes considered relevant;
4. determination of the guideline exposure level based on the ERF, starting from the lowest level measured (see step 2) and associated with the smallest relevant risk increase for adverse health outcomes (see step 3);
5. comparison of the guideline exposure levels calculated for each of the critical health outcomes of one source (for example, incidence of IHD, incidence of hypertension, %HA, permanent hearing impairment and reading and oral comprehension for road traffic noise): selection of the guideline exposure level for each noise source was based on the priority health outcome measure with the lowest exposure level for that source.

To define an "increased risk" to set the guideline exposure level, the GDG made a judgement about the smallest risk or RR of the adverse health effect it considered relevant for each of the priority health outcome measures. It is important to note that the relevant risk increases are benchmark values. The GDG agreed to set them in accordance with the guiding principles it had developed, to provide guideline values that illustrate an increased risk of adverse health effects. It used expert judgements for the determination of the benchmark values; these are elaborated further in section 2.4.3.2.

The guideline exposure levels presented are therefore not meant to identify effect thresholds (the lowest observed adverse effect levels for different health outcomes). This is a difference in approach from prior WHO guidelines, like the night noise guidelines for Europe (WHO Regional Office for Europe, 2009), which explicitly aimed to define levels indicating no adverse health effects. The approach to making choices about relevant risk increases is outlined below and summarized in Table 5.

For IHD and hypertension, RR increases were considered; for annoyance and sleep disturbance, absolute risks of %HA and %HSD were considered; and for reading and oral comprehension an average delay of reading age was defined. For the cardiovascular outcomes, incidence measures were prioritized, although much of the epidemiological evidence was based on prevalence data – particularly for hypertension – where almost no longitudinal studies were available. Prevalence data are generally derived from cross-sectional studies, where the temporal aspects are difficult to determine.

Table 5. Priority health outcomes and relevant risk increases for setting guideline levels

Priority health outcome measure (associated DW)	Relevant risk increase considered for setting of guideline level
Incidence of IHD (DW: 0.405)	5% RR increase
Incidence of hypertension (DW: 0.117)	10% RR increase
%HA (DW: 0.02)	10% absolute risk
%HSD (DW: 0.07)	3% absolute risk
Permanent hearing impairment (DW: 0.0150)	No risk increase due to environmental noise
Reading and oral comprehension (DW: 0.006)	One-month delay in terms of reading age

The DWs used to rank the priority critical health outcomes measures were retrieved from the relevant literature. For cardiovascular disease as a group and for hypertension, the burden of disease from environmental noise values (WHO Regional Office for Europe & JRC, 2011) were not considered applicable by the GDG for these guidelines. Thus, for cardiovascular disease, the DW value (DW: 0.405) specifically applied to acute myocardial infarction in the publication outlining the data sources, methods and results of the global burden of disease in 2002 (Mathers et al., 2003) was retained. Since hypertension is mainly viewed as an important risk factor and not as a health outcome, no general DW has been developed. The only other available DW value available is the DW of 0.117 for hypertensive episodes in pregnancy (Mathers et al., 1999). In the absence of any general DW, the GDG agreed on a conservative approach and decided to use this value.

The DWs for high sleep disturbance (DW: 0.07), high annoyance (DW: 0.02) and impaired reading and oral comprehension (DW: 0.006) were developed in the context of calculating the burden of disease from environmental noise (WHO Regional Office for Europe & JRC, 2011). The DW for hearing impairment was not included in that publication, but it was available from the technical paper on the burden of disease from environmental noise (WHO, 2013); the DW for permanent hearing impairment ranged from 0.0031 to 0.3342, depending on severity level. Environmental noise (leisure noise) contributes to the cumulative total noise exposure throughout the life-course, which may lead to permanent hearing impairment and cause more severe disability in the later years of life. As a result, the GDG selected a DW of 0.0150 for moderate severity level ("has difficulty following a conversation in a noisy environment, but no other hearing problems"). For cognitive impairment, the DW was derived from the estimates of the burden of disease from environmental noise (WHO Regional Office for Europe & JRC, 2011). This was at a very conservative value (DW: 0.006) for noise-related impairment of children's cognition, equivalent to a DW for contemporaneous cognitive deficit in the context of a range of cognitive impairments in children ranging from 0.468 for Japanese encephalitis to 0.024 for iron deficiency anaemia (Lopez et al., 2006).

2.4.3.1 Development of ERFs

The systematic reviews of evidence provided either an ERF or other noise exposure value/metric that could be related to a risk increase of the health outcome measure. These ERFs were used to develop guideline exposure levels; however, only those functions where noise exposure demonstrated a statistically significant effect were used.

To obtain the starting level of the ERFs derived in the systematic reviews, a weighted average of the lowest exposure values measured in the individual studies included in the meta-analyses was

calculated. The weighting used the inverse of the variance of the effect estimate of the study. Thus, the lowest exposure value of studies with a small variance (usually with the largest sample size) contributed the most to the assumed onset of the ERF.

2.4.3.2 Relevant risk increase of adverse health effects

The following sections describe in detail the rationale for the selection of the relevant relative risk (RR) increase percentage for each of the priority health outcome measures considered.

Cardiovascular disease: IHD and hypertension

High-quality epidemiological evidence described in the systematic review on cardiovascular and metabolic effects of environmental noise indicates that exposure to road traffic noise increases the risk of IHD (van Kempen et al., 2018). The GDG was confident that health risks result from exposure at an RR increase in the order of 5–10% in the incidence of IHD. This is similar to the reasoning in the WHO air quality guidelines for fine particulate matter ($PM_{2.5}$) (WHO, 2006). To determine a relevant risk increase for IHD, the GDG took as a starting-point the RR increase of 5% measured in epidemiological studies of environmental noise or air pollution. Taking into account the incidence of IHD and the seriousness of the disease, it considered lowering the RR increase for IHD to 1%, as a 5% RR increase might imply a comparatively high absolute risk from a population perspective. To decide on the final benchmark value for IHD, several aspects were considered: the number of people in a population affected by IHD; whether health risks caused by noise would make up a large part of the incidence of the disease; other examples of health risks of similar magnitude leading to preventive action. For IHD, in an average EU country with 20 million inhabitants, an RR increase of 5% for IHD would lead to several thousand extra cases attributable to noise yearly. This corresponds to a proportion of cases of IHD attributable to noise exposure of less than 10%, which is still relatively small. After extensive discussion at the very end of the guideline development process, the GDG decided to adhere to 5% as the relevant risk increase.

Hypertension is a common condition and is an important risk indicator for IHD and other cardiovascular diseases. Thus, the hypertension risk increase can be transformed into a risk increase for cardiovascular disease. To derive a relevant risk increase, the GDG focused on the incidence of hypertension, owing to the nature and quality of epidemiological evidence. Since hypertension is less serious than IHD, and not all people with hypertension will progress to cardiovascular disease, the relevant risk increase in the incidence of hypertension needed to be higher than that for IHD. Therefore, the GDG agreed on an RR increase of 10% for hypertension.

Self-reported sleep disturbance and annoyance

The GDG initially considered 5%HSD and 10%HA due to noise as relevant absolute risks, not be exceeded at the guideline level. After discussion, however, members agreed that these absolute risks were too large, since a considerable proportion of the population would still be affected; they decided to lower the relevant risk from 5% being highly sleep-disturbed to 3%. In doing so, the GDG referred to the WHO night noise guidelines (WHO, 2009), which concluded that while there was insufficient evidence that physiological effects at noise levels below 40 dB L_{night} are harmful to health, there were observed adverse health effects at levels starting from 40 dB L_{night}. At 40 dB, about 3–4%

(depending on the noise source) of the population still reported being highly sleep-disturbed due to noise, which was considered relevant to health. The GDG considered it important that this level is consistent with the previous health-based approach adopted by the WHO night noise guidelines, and agreed that the absolute risk associated with the guideline value selected should not exceed 3%HSD to be health protective.

For annoyance, which is considered a less serious health effect than self-reported sleep disturbance (as indicated by the respective DWs), the relevant risk remained at 10%HA. This means the absolute risk associated with the guideline value selected should be closest to, but not above 10%HA, to be health protective.

Cognitive impairment: reading and oral comprehension

Acquiring skills in reading and oral comprehension at a young age is important for further development: a delay in acquiring these skills can have an impact later in life (Wilson & Lonigan, 2010). This impact cannot be predicted very accurately, but the GDG considered a delay of one month a relevant absolute risk.

Permanent hearing impairment

The literature on hearing impairment as a result of occupational noise exposure is extensive. A noise exposure level beyond 80 dB during 40 years of working a 40 hour work week can give rise to permanent hearing impairment. Given that environmental exposure to noise is much lower than these levels and that noise-related hearing impairments are not reversible, the GDG considered that there should be no risk of hearing impairment due to environmental noise and considered any increased risk of hearing impairment relevant.

2.4.4 Strength of the recommendations

Finally, having determined the guideline exposure levels based on the ranking of prioritized health outcome measures, setting the strength of the recommendation was set as the final step of the guideline development process. This was also guided by the GRADE methodology (Alonso-Coello et al., 2016a; 2016b). According to this approach, strength of recommendation can be set as either strong or conditional (WHO, 2014c).

- A **strong** recommendation can be adopted as policy in most situations. The guideline is based on the confidence that the desirable effects of adherence to the recommendation outweigh the undesirable consequences. The quality of evidence for a net benefit – combined with information about the values, preferences and resources – inform this recommendation, which should be implemented in most circumstances.
- A **conditional** recommendation requires a policy-making process with substantial debate and involvement of various stakeholders. There is less certainty of its efficacy owing to lower quality of evidence of a net benefit, opposing values and preferences of individuals and populations affected or the high resource implications of the recommendation, meaning there may be circumstances or settings in which it will not apply.

The GRADE approach defines a number of parameters that should be assessed to determine the strength of recommendations: quality of evidence, balance of benefits and harms, values and preference related to the outcomes of interventions to exposure, resources implications, priority of the problem, equity and human rights, acceptability and feasibility (Box 2; Morgan et al., 2016).

Box 2 Parameters determining the strength of a recommendation

Quality of evidence further represents the confidence in the estimates of effect of the evaluated evidence, across outcomes critical and important to decision-making. The higher the quality of evidence, the greater the likelihood of a strong recommendation.

Balance of benefits and harms requires an evaluation of the absolute effects of both benefits and harms (or downsides) of the intervention or exposure and their importance. The greater net benefit or net harm associated with an intervention or an exposure, the greater the likelihood of a strong recommendation in favour or against an intervention or exposure.

Values and preferences related to the outcomes of an intervention or exposure set out the relative importance assigned to health outcomes by those affected by them; how such importance varies within and across populations; and whether this importance or variability is surrounded by uncertainty. The less uncertainty or variability there is about the values and preferences of people experiencing the critical or important outcomes, the greater the likelihood of a strong recommendation.

Resource implications take into consideration how resource-intensive and how cost-effective and substantially beneficial an intervention or exposure is. The more advantageous or clearly disadvantageous the resource implications are, the greater the likelihood of a strong recommendation either for or against the intervention or exposure.

The priority of the problem is determined by its importance and frequency (the burden of disease, disease prevalence or baseline risk). The greater the importance of the problem, the greater the likelihood of a strong recommendation.

Equity and human rights considerations are an important aspect of the process. The greater the likelihood that the intervention will reduce inequities, improve equity or contribute to the realization of one or several human rights as defined under the international legal framework, the greater the likelihood of a strong recommendation.

Acceptability plays a prominent role: the greater the acceptability of an option to all or most stakeholders, the greater the likelihood of a strong recommendation.

Feasibility overlaps with values and preferences, resource considerations, existing infrastructures, equity, cultural norms, legal frameworks and many other considerations. The greater the feasibility of an option from the standpoint of all or most stakeholders, the greater the likelihood of a strong recommendation.

The GDG evaluated the strength of the recommendations based on these parameters, following a two-step procedure. Initially, the strength of each recommendation was set as strong or conditional based on an assessment of the quality of evidence. The GDG then identified and assessed contextual

parameters that might have a contributory role (see Box 2 above). Based on this qualitative evaluation, the initial recommendation strength was either adapted or confirmed. It is important to note that while the initial parameter "quality of evidence" was informed by comprehensive systematic reviewing processes, the remaining contextual parameters were assessed by the informed qualitative expert judgement of the GDG.

Furthermore, the GDG agreed to decision-making rules, applied when formulating the recommendations. An evidence rating of low quality or very low quality would lead only to a conditional recommendation. Setting a strong recommendation was only considered if the evidence was at least moderate quality. The final recommendations were formulated based on the consideration of all the parameters and decision rules adopted by the GDG. A detailed exploration of all the recommendations is set out in Chapter 3.

2.5 Individuals and partners involved in the guideline development process

The process of WHO guideline development is conducted by several groups with clearly defined roles and responsibilities. Comprising WHO staff members, experts and stakeholders, these are the Steering Group, the GDG, the Systematic Review Team and the External Review Group.

The **Steering Group** includes WHO staff members with different affiliations but whose work experience is relevant to the topic of environmental noise and associated health outcomes. It is involved at all stages of planning, selecting members of the GDG and External Review Group, reviewing evidence and developing potential recommendations at the main expert meetings, as well as ongoing consultation on revisions following peer review. Details of the members of the Steering Group are listed in Table A1.1 in Annex 1.

The **GDG** consists of a group of content experts gathered to investigate all aspects of evidence contributing to the recommendations, including expertise in evidence-based guideline development. This Group defined the key questions and priorities of the research, chose and ranked outcomes and provided advice on any modifications of the scope as established by the Steering Group. The members also outlined the systematic review methods; appraised the evidence used to inform the guidelines; and advised on the interpretation of this evidence, with explicit consideration of the overall balance of benefits and harms. Ultimately the GDG formulated the final recommendations, taking into account the diverse values and preferences of individuals and populations affected. It also determined the strength of the results and responded to external peer reviews. The complete list of GDG members and their specific roles, affiliations and areas of expertise are listed in Table A1.2 in Annex 1.

The **Systematic Review Team** includes experts in the field of environmental health, commissioned by WHO staff to undertake systematic reviews of evidence. The GDG recommended a number of authors to conduct the evidence reviews and summary chapters, based on their expertise. Details of the members of the Systtematic Review Team are included in Table A1.3 in Annex 1.

The **External Review Group** is composed of technical content experts and end-users as well as stakeholders, and is balanced geographically and by gender. The experts and end-users were selected for their expertise in the field, and the Group also included representatives of professional groups and industry associations, who will be implementing the guidelines. Members were asked to

review the material at different stages of the development process. The list of technical experts and stakeholders is provided in Tables A1.4 and A1.5, respectively, in Annex 1.

Management of conflict of interest is an integral part of WHO's guideline development procedure. All members of the GDG and authors of the evidence reviews completed WHO declaration of interest forms. These were reviewed by the WHO Secretariat for potential conflicts of interest. A number of conflicts of interest were declared in the forms, but following a standardized management review it was not found necessary to exclude any members of the GDG or authors from their respective roles. Members of the External Review Group (technical experts only) were also asked to complete the form when invited to participate.

In addition, at the start of the meeting of the GDG all members of the GDG received a briefing about the nature of all types of conflict of interest (financial, academic/intellectual and nonacademic) and were asked to declare to the meeting any conflicts they might have. No member of the GDG or the Systematic Review Team was excluded from his/her respective role. A summary of the conflict of interest management is presented in Annex 3.

The GDG set its own rules on how it would work and how contentious issues should be resolved – for instance, by means of a vote. The main decision-making mechanism involved reaching consensus; if a vote was required, the experts involved in developing the underlying evidence for the specific recommendation were excluded from voting, and an agreement was reached via a two thirds majority of the rest of the group.

2.6 Previously published WHO guidelines on environmental noise

Prior to this publication, WHO published community noise guidelines (CNG) in 1999 (WHO, 1999) and night noise guidelines for Europe (NNG) in 2009 (WHO Regional Office for Europe, 2009).

2.6.1 CNG

The scope of WHO's efforts to develop the CNG in 1999 was similar to that for the current guidelines. The objective was then formulated as: "to consolidate scientific knowledge of the time on the health impacts of community noise and to provide guidance to environmental health authorities and professionals trying to protect people from the harmful effects of noise in nonindustrial environments" (WHO, 1999). The guidelines were based on studies carried out up to 1995 and a few meta-analyses from some years later.

The health risk to humans from exposure to environmental noise was evaluated and guideline values derived. At that time WHO had not yet developed its guideline development process, on which the current guidelines are based (WHO, 2014c). The main differences in content are that the previous guidelines were expert-based and provided more global coverage and applicability, such as issues of noise assessment and control that were addressed in detail. They included a discussion on noise sources and measurement, including the basic aspects of source characteristics, sound propagation and transmission. Adverse health effects of noise were characterized, and combined noise sources and their effects were considered. Furthermore, the guidelines included discussions of strategies and priorities in the management of indoor noise levels, noise policies and legislation, environmental

noise impact and enforcement of regulatory standards; although there were no chapters on wind turbine noise and leisure noise.

2.6.2 NNG

In 2009 the WHO Regional Office for Europe published the NNG to provide scientifically based advice to Member States for the development of future legislation and policy action in the area of assessment and control of night noise exposure.

The NNG complement the previous CNG, incorporating the advancement of research on noise and sleep disturbance up to 2006. The working group of experts reviewed available scientific evidence on the health effects of night noise and derived health-based guideline values. Again, WHO had not yet introduced its evidence-based recommendations policy and the NNG were mainly expert-based. They considered the scientific evidence on the threshold of night noise exposure indicated by L_{night} as defined in the END (EC, 2002a), and the experts concluded that a L_{night} value of 40 dB should be the target of the NNG (for all sources) to protect the public, including the most vulnerable groups such as children, chronically ill and elderly people. Further, an L_{night} value of 55 dB was recommended as an interim target for countries that could not follow the guidelines in the short term for various reasons or where policy-makers chose to adopt a stepwise approach.

2.6.3 Differences from the prior noise guidelines

The current guidelines differ from the older ones, recommending levels of exposure unlike those previously outlined (especially by the NNG). The following major differences between the previous and current guidelines explain the novel set of recommended values.

- The development process for the current guidelines adhered to a new, rigorous, evidence-based methodology, as outlined in the WHO handbook for guideline development (WHO, 2014c). WHO adopted these internationally recognized standards to ensure high methodological quality and a transparent, evidence-based decision-making process in the guideline development.
- The current guidelines consider cardiovascular disease a critical health outcome measure.
- They also consider a broader set of health outcomes, including adverse birth outcomes, diabetes, obesity and mental well-being. Wherever applicable, incidence, prevalence and mortality were considered separately.
- The current guidelines cover two new noise sources: wind turbines and leisure noise.
- Critical and important health outcomes are considered separately for each of the noise sources.
- The guideline development process included the health effects of intervention measures to mitigate noise exposure from different noise sources for the first time.
- The style of recommendations differs: the current guidelines include an exact exposure value for every health outcome regarded as critical, for each noise source. Guideline recommendation values were set for each of the noise sources separately, based on the exact exposure values and a prioritization scheme, developed with the help of DWs.
- The current guidelines apply a 1 dB increment scheme, whereas prior guidelines (CNG and NNG) formulated or presented recommendations in 5 dB steps.

- In comparison to the 1999 CNG, which defined environment-specific exposure levels, the current guidelines are source specific. They recommend values for outdoor exposure to road traffic, railway, aircraft and wind turbine noise, and indoor as well as outdoor exposure levels for leisure noise.
- Except for leisure noise, all exposure levels recommended in the current guidelines are average sound pressure levels for outdoor exposure.
- The current guidelines make use of the noise indices defined in the END: L_{den} and L_{night}.

The definition of "community noise" used in the CNG in 1999 was also adapted. The GDG agreed to use the term "environmental noise" instead, and offered an operational definition of: "noise emitted from all sources except sources of occupational noise exposure in workplaces".

The current environmental noise guidelines for the European Region supersede the CNG from 1999. Nevertheless, the GDG recommends that all CNG indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid.

Furthermore, the current guidelines complement the NNG from 2009. Two main aspects of the NNG constitute this complementarity: the different guiding principles and the comprehensive investigation of the immediate physiological effects of environmental noise on sleep. As guiding principles the NNG defined effect thresholds or "lowest observed adverse health effect levels" for both immediate physiological reactions during sleep (i.e. awakening reactions or body movements during sleep) and long-term adverse health effects (i.e. self-reported sleep disturbance). These guideline exposure levels defined a level below which no effects were expected to occur (corresponding to 30 dB L_{night}) and proceeded to define the level where adverse effects start to occur (corresponding to 40 dB L_{night}), with the aim of protecting the whole population, including – to some extent – vulnerable groups. The development of the NNG values relied on evidence-based expert judgement. In contrast, the current guidelines formulate recommendations more strictly based on the available evidence and following the guiding principle to identify exposure values based on a relevant risk increase of adverse health effects. Thus, the recommended guideline values might not lead to full protection of the population, including all vulnerable groups. The GDG stresses that the aim of the current guidelines is to define an exposure level at which effects certainly begin.

Secondly, the NNG comprehensively investigate the immediate short-term effects of environmental noise during sleep, including physiological reactions such as awakening reactions and body movements. They also provided threshold information about single-event noise indicators (such as the $L_{A,max}$). In contrast, the current guideline values for the night time are only based on the prevalence of self-reported sleep disturbance and do not take physiological effects into account. The causal link between immediate physiological reactions and long-term adverse health effects is complex and difficult to prove. Thus, the current guidelines are restricted to long-term health effects during night time and therefore only include recommendations about average noise indicators: L_{night}. Nevertheless, the evidence review on noise and sleep (Basner & McGuire, 2018) includes an overview of single-event exposure–effect relationships.

3. Recommendations

This chapter presents specific recommendations on guideline exposure levels and/or interventions to reduce exposure and/or improve health for individual sources of noise: road traffic, railway, aircraft, wind turbines and leisure noise. The strength of each recommendation is provided (strong or conditional) and a short rationale for how each of the guideline levels was achieved is given.

The GDG discussed extensively the best way to present guideline exposure levels – either as the exact values or in 5 dB steps – and the approach to rounding the values to the nearest integer. The 5 dB increment, rounded down from the exact exposure value to the nearest 5 dB level, was initially chosen as being commonly applied in noise legislation and used in prior guidelines (WHO, 1999; EC, 2002a; WHO Regional Office for Europe, 2009). It was also used to meet the principle of precaution, since imprecision in the exposure assessment in the field of epidemiology tends to attenuate the actual effects in the population.

Use of 5 dB increments resulted in uneven magnitude of rounding down, however, raising concerns of arbitrariness. It became apparent that inclusion of both exact values and the 5 dB rounded-down values might be confusing and could affect the applicability of the guidelines. Hence, the GDG ultimately decided that formulating recommendations based on the exact calculated values, rounded only to the nearest integer, would ensure more clarity and transparency. Furthermore, it noted that adhering to a 5 dB roster might not reflect the progress in the precision of exposure assessment methods in recent decades, which would justify application of a 1 dB step.

The GDG acknowledged that the recommendations might be presented as the exact guideline exposure levels only, leaving the use of 5 dB bands to the potential policy decisions to formulate or revise noise legislation, which are beyond the scope of this publication. The WHO guideline values are public health-oriented recommendations, based on scientific evidence on health effects and on an assessment of achievable noise levels. They are strongly recommended and as such should serve as the basis for a policy-making process in which policy options are quantified and discussed. It should be recognized that in that process additional considerations of costs, feasibility, values and preferences should also feature in decision-making when choosing reference values such as noise limits for a possible standard or legislation.

In addition to the source-specific recommendations in the following sections, a short rationale for the decision-making process by the GDG for developing a particular recommendation is provided, as well as an overview of the evidence considered. This includes a recapitulation of the specific PICOS/PECCOS question (see section 2.3.1), along with a summary of evidence for each of the critical and important health effects from exposure to each of the noise sources, and for the effectiveness of interventions.

Furthermore, a description is provided of the other factors considered according to the GRADE dimensions for the assessment of the strength of recommendations (see section 2.4.4). While the quality of evidence is central to determining this, the process of moving from evidence to recommendations involves several other considerations. These include values and preferences, balance of benefits and harms, consideration of the priority of the problem, resource implications, equity and human rights aspects, acceptability and feasibility (WHO, 2014c).

3.1 Road traffic noise

Recommendations

For average noise exposure, the GDG **strongly** recommends reducing noise levels produced by road traffic below **53 dB** L_{den}, as road traffic noise above this level is associated with adverse health effects.

For night noise exposure, the GDG **strongly** recommends reducing noise levels produced by road traffic during night time below **45 dB** L_{night}, as road traffic noise above this level is associated with adverse effects on sleep.

To reduce health effects, the GDG **strongly** recommends that policy-makers implement suitable measures to reduce noise exposure from road traffic in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions, the GDG recommends reducing noise both at the source and on the route between the source and the affected population by changes in infrastructure.

3.1.1 Rationale for the guideline levels for road traffic noise

The exposure levels were derived in accordance with the prioritization process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to road traffic noise, the process can be summarized as follows (Table 6).

Table 6. Average exposure levels (L_{den}) for priority health outcomes from road traffic noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD The 5% relevant risk increase occurs at a noise exposure level of 59.3 dB L_{den}. The weighted average of the lowest noise levels measured in the studies was 53 dB L_{den} and the RR increase per 10 dB is 1.08.	5% increase of RR	High quality
Incidence of hypertension One study met the inclusion criteria. There was no significant increase of risk associated with increased noise exposure in this study.	10% increase of RR	Low quality
Prevalence of highly annoyed population There was an absolute risk of 10% at a noise exposure level of 53.3 dB $L_{den.}$	10% absolute risk	Moderate quality
Permanent hearing impairment	No increase	No studies met the inclusion criteria
Reading skills and oral comprehension in children	One-month delay	Very low quality

In accordance with the prioritization process (see section 2.4.3), the GDG set a guideline exposure level of 53.3 dB L_{den} for average exposure, based on the relevant increase of the absolute %HA. It was confident that there was an increased risk for annoyance below this noise exposure level, but probably no increased risk for other priority health outcomes. In accordance with the defined rounding procedure, the value was rounded to 53 dB L_{den}. As the evidence on the adverse effects of road traffic noise was rated moderate quality, the GDG made the recommendation strong.

Next, the GDG assessed the evidence for night noise exposure and its effect on sleep disturbance (Table 7).

Table 7. Night-time exposure levels (L_{night}) for priority health outcomes from road traffic noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance 3% of the participants in studies were highly sleep-disturbed at a noise level of **45.4 dB** L_{night}	3% absolute risk	Moderate quality

Based on the evidence of the adverse effects of road traffic noise on sleep disturbance, the GDG defined a guideline exposure level of 45.4 dB L_{night}. The exact exposure value was rounded to 45 dB L_{night}. As the evidence was rated moderate quality, the GDG made the recommendation strong.

The GDG also considered the evidence for the effectiveness of interventions. The results showed that:

- addressing the source by improving the choice of appropriate tyres, road surface, truck restrictions or by lowering traffic flow can reduce noise exposure;
- path interventions such as insulation and barrier construction reduce noise exposure, annoyance and sleep disturbance;
- changes in infrastructure such as construction of road tunnels lower noise exposure, annoyance and sleep disturbance;
- other physical interventions such as the availability of a quiet side of the residence reduce noise exposure, annoyance and sleep disturbance.

Given that it is possible to reduce noise exposure and that best practices already exist for the management of noise from road traffic, the GDG made a strong recommendation.

3.1.1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on road traffic noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes (the incidence of stroke and diabetes) were considered. Ultimately, the assessment of all these factors did not lead to a change in the strength of the recommendations. Further details are provided in section 3.1.2.3.

3.1.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on road traffic noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.1.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to road traffic noise, what is the exposure–response relationship between exposure to road traffic noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied (see section 2.3.1) and the main findings is set out in Tables 8 and 9.

Table 8. PICOS/PECCOS scheme of critical health outcomes for exposure to road traffic noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by road traffic (average/night time)	
Comparison	Exposure to lower levels of noise produced by road traffic (average/night time)	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 9. Summary of findings for health effects from exposure to road traffic noise (L_{den})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	RR = 1.08 (95% confidence interval (CI): 1.01–1.15) per 10 dB increase	53 dB	67 224 (7)	High (upgraded for dose-response)
L_{den}	Incidence of hypertension	RR = 0.97 (95% CI: 0.90–1.05) per 10 dB increase	N/A	32 635 (1)	Low (downgraded for risk of bias and because only one study was available)
Annoyance					
L_{den}	%HA	Odds ratio (OR) = 3.03 (95% CI: 2.59–3.55) per 10 dB increase	40 dB	34 112 (25)	Moderate (downgraded for inconsistency)
Cognitive impairment					
L_{den}	Reading and oral comprehension	Not estimated	N/A	Over 2844 (1)	Very low (downgraded for inconsistency)
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

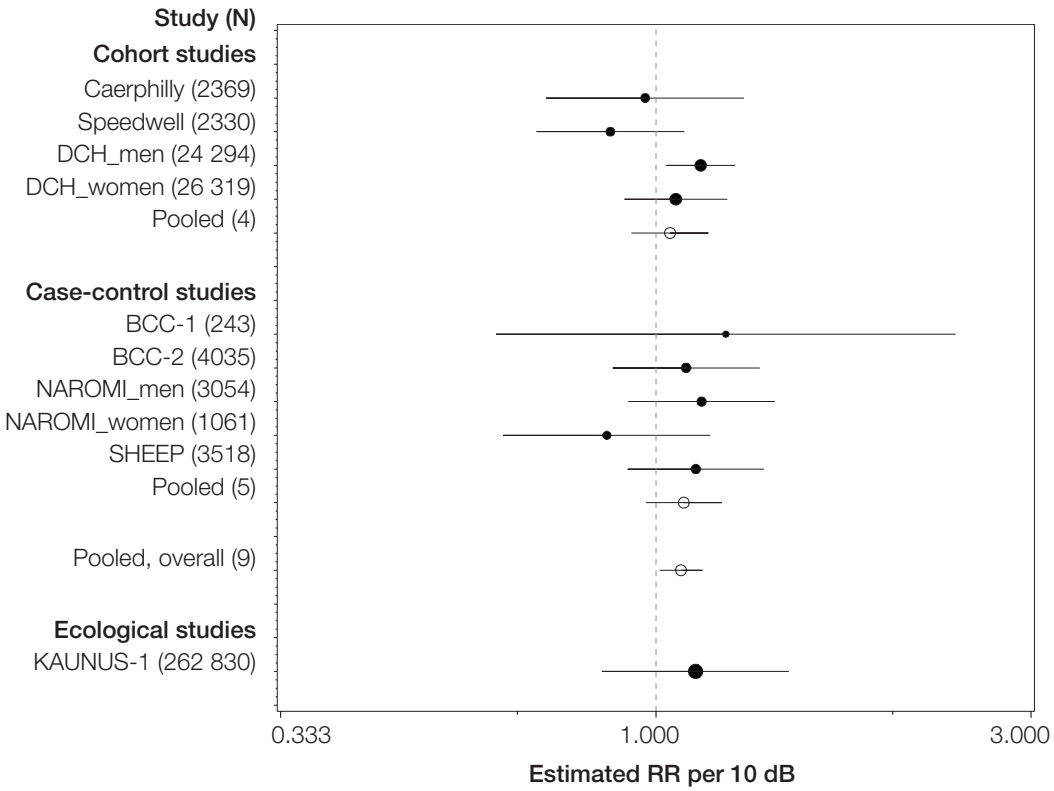
Cardiovascular disease

IHD

A total of three cohort (Babisch & Gallacher, 1990; Babisch et al., 1988; 1993a; 1993b; 1999; 2003; Caerphilly and Speedwell Collaborative Group, 1984; Sörensen et al., 2012a; 2012c) and four case-control studies (Babisch, 2004; Babisch et al., 1992; 1994; 2005a; Selander et al., 2009; Wiens, 1995) investigated the relationship between road traffic noise and the incidence of IHD. These involved a total of 67 224 participants, including 7033 cases. As identified in Fig. 1, the overall RR derived from the meta-analysis was 1.08 (95% CI: 1.01–1.15) per 10 dB L_{den} increase in noise levels, across a noise range of 40 dB to 80 dB. This evidence was rated high quality.

The data were supported by one ecological study conducted with 262 830 participants, including 418 cases, which also reported a statistically significant estimate (Grazuleviciene et al., 2004; Lekaviciute, 2007). In this study, a positive but nonsignificant association was found: RR of 1.12 (95% CI: 0.85–1.48) per 10 dB L_{den} increase in noise. This evidence was rated very low quality.

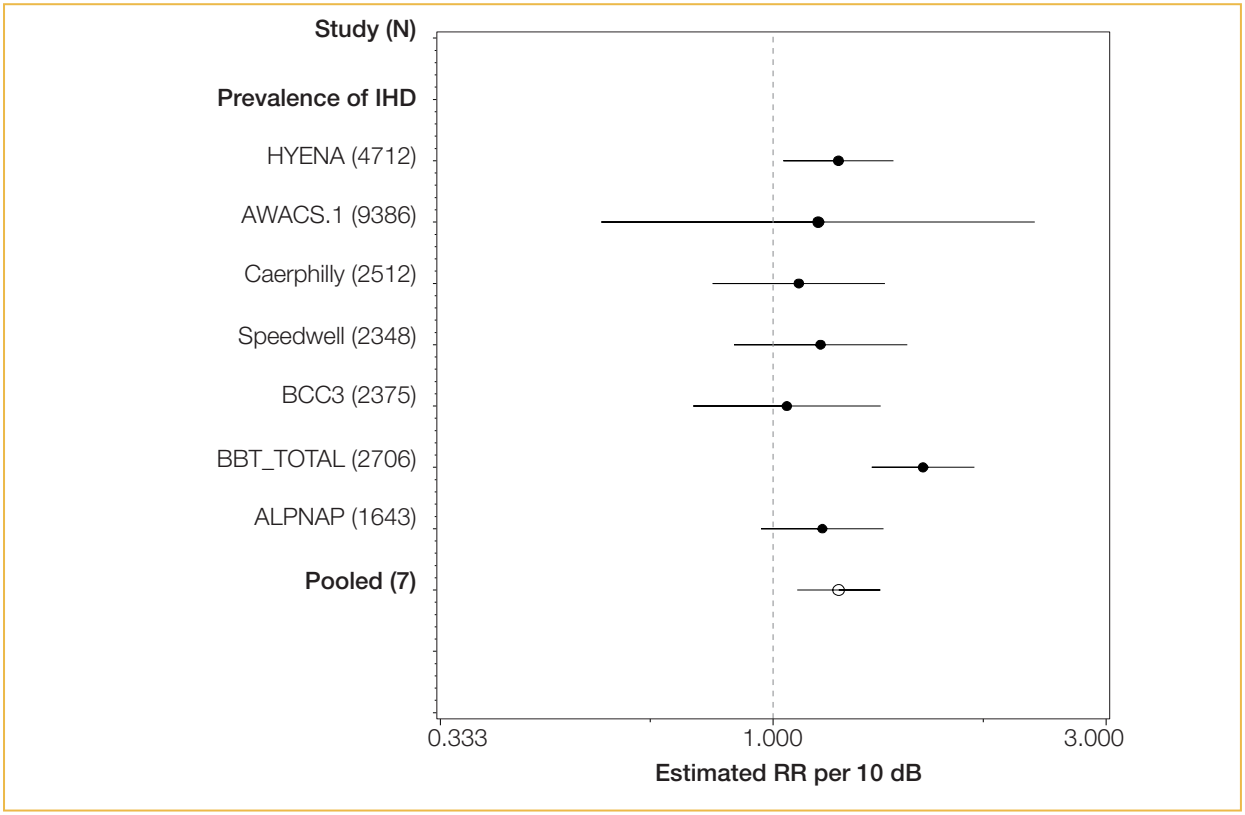
Fig. 1. The association between exposure to road traffic noise (L_{den}) and incidence of IHD



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Furthermore, additional evidence was available from eight cross-sectional studies that investigated the relationship between road traffic noise and prevalence of IHD (Babisch & Gallacher, 1990; Babisch et al., 1988; 1992; 1993a; 1993b; 1994; 1999; 2003; 2005a; 2008; 2012a; 2012b; Caerphilly and Speedwell Collaborative Group, 1984; Floud et al., 2011; 2013a; 2013b; Heimann et al., 2007; Jarup et al., 2005; 2008; Lercher et al., 2008; 2011; van Poll et al., 2014; Wiens, 1995). These studies involved a total of 25 682 participants, including 1614 cases. The overall RR was 1.24 (95% CI: 1.08–1.42) per 10 dB L_{den} increase in road traffic noise levels. The range in noise levels in the studies under evaluation was 30–80 dB. The results of the meta-analysis are presented in Fig. 2. This evidence was rated low quality.

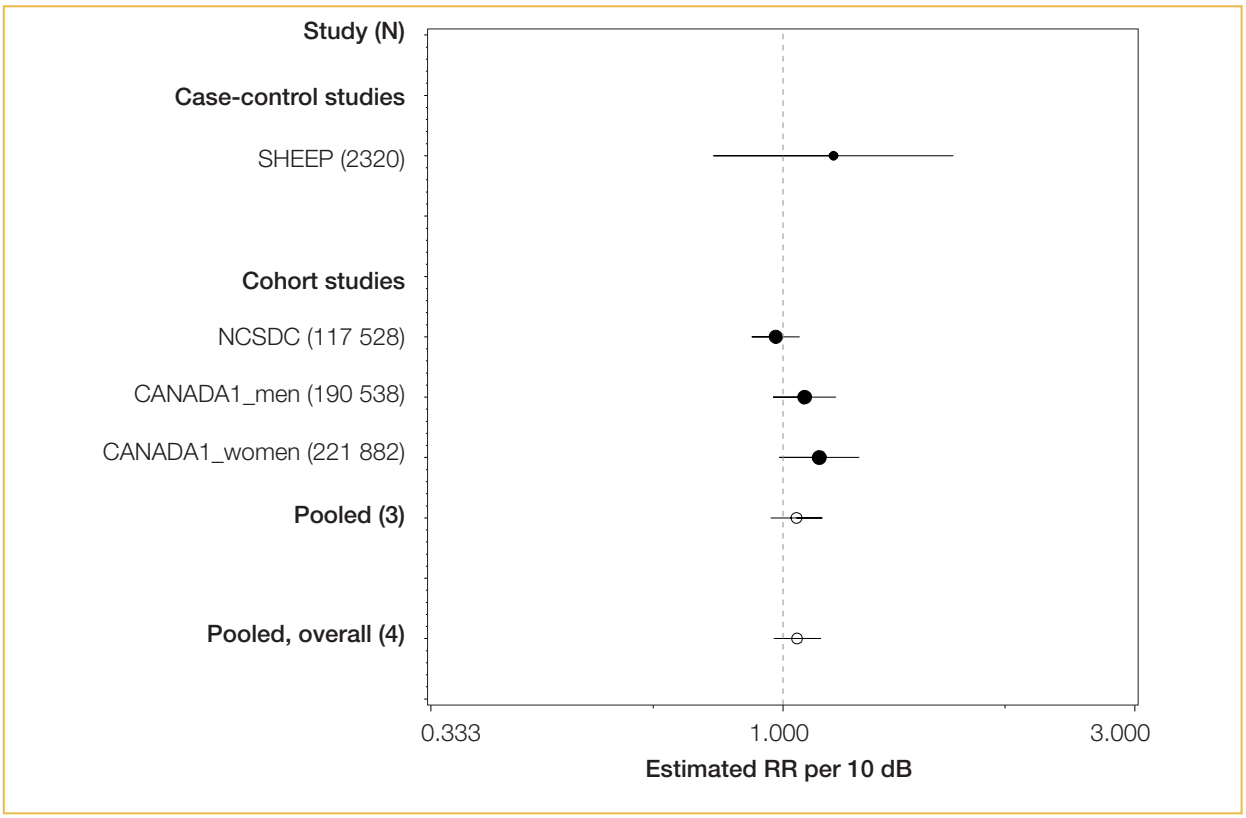
Fig. 2. The association between exposure to road traffic noise (L_{den}) and prevalence of IHD



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Mortality from IHD was also investigated in one case-control (Selander et al., 2009) and two cohort studies (Beelen et al., 2009; Gan et al., 2012), which involved 532 268 participants, including 6884 cases. The quantitative relationship between road traffic noise and mortality from IHD was RR = 1.05 (95% CI: 0.97–1.13) per 10 dB L_{den} increase in noise levels (see Fig. 3). This evidence was rated moderate quality.

Fig. 3. The association between exposure to road traffic noise (L_{den}) and mortality from IHD



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Hypertension

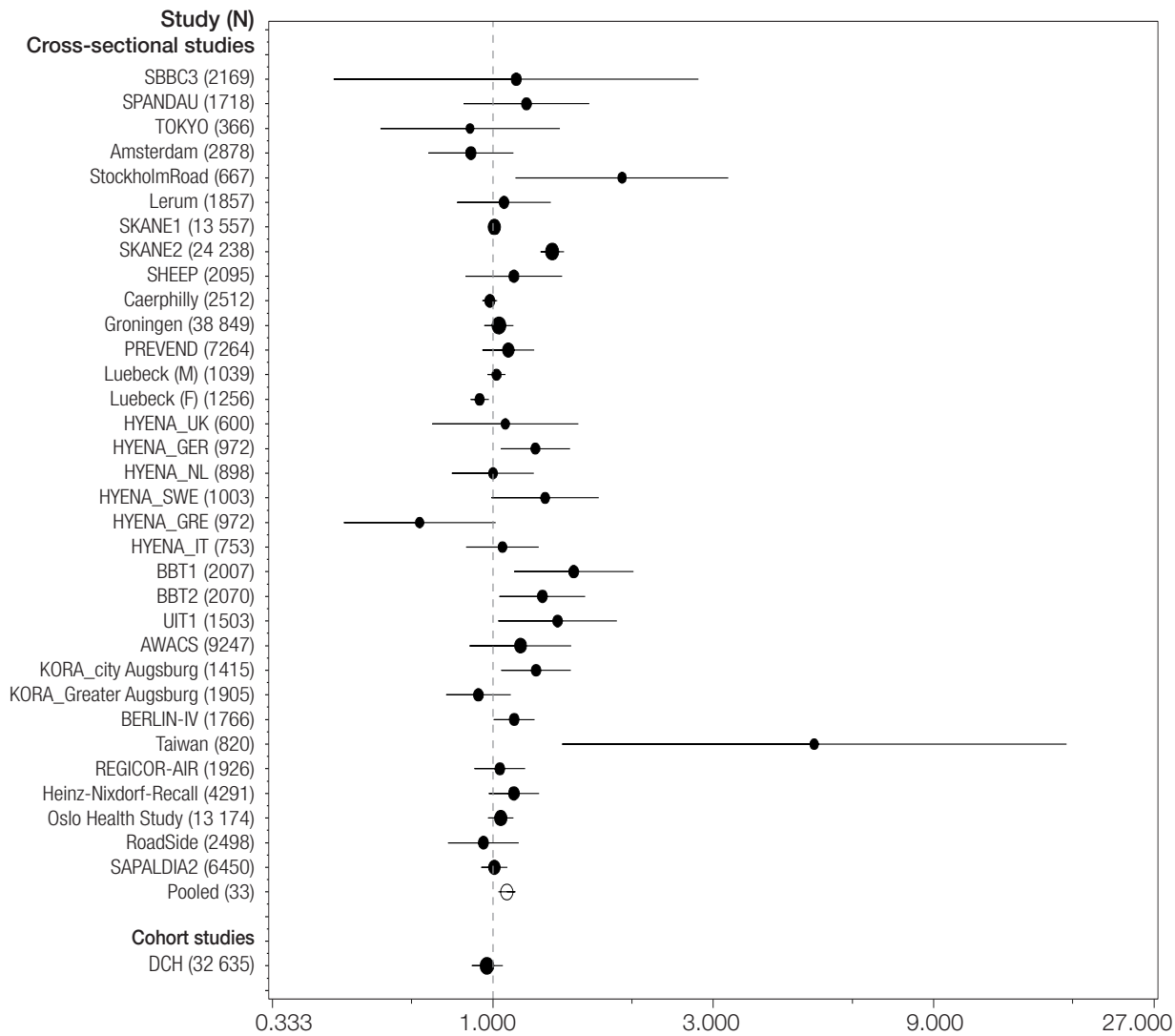
One cohort study into the relationship between road traffic noise and incidence of hypertension was identified; it involved 32 635 participants, including 3145 cases (Sörensen et al., 2011; 2012c). The study found a nonsignificant effect size of 0.97 (95% CI: 0.90–1.05) per 10 dB L_{den} increase in noise levels, which does not support an increased risk of hypertension due to exposure to road traffic noise. Because of the risk of bias and the availability of only one study, this evidence was rated low quality.

In addition, 26 cross-sectional studies were identified that looked at the association between road traffic noise and prevalence of hypertension (Babisch et al., 1988; 1992; 1994; 2005a; 2008; 2012a; 2012b; 2013a; 2013b; 2014b; 2014c; Barregard et al., 2009; Bjork et al., 2006; Bluhm et al., 2007; Bodin et al., 2009; Caerphilly and Speedwell Collaborative Group, 1984; Chang et al., 2011; 2014; de Kluizenaar et al., 2007a; 2007b; Dratva et al., 2012; Eriksson et al., 2012; Foraster et al., 2011; 2012; 2013; 2014a; 2014b; Fuks et al., 2011; Hense et al., 1989; Herbold et al., 1989; Jarup et al., 2005; 2008; Knipschild et al., 1984; Lercher et al., 2008; 2011; Maschke, 2003; Maschke & Hecht,

2005; Maschke et al., 2003; Oftedal et al., 2011; 2014; Selander et al., 2009; van Poll et al., 2014; Wiens, 1995; Yoshida et al., 1997). In total, these studies involved 154 398 participants, including 18 957 cases. The overall RR for prevalence of hypertension was 1.05 (95% CI: 1.02–1.08) per 10 dB L_{den} increase in noise levels. The noise range of the studies under evaluation was 20–85 dB. The overall evidence was rated very low quality.

Fig. 4 shows the association between road traffic noise and incidence and prevalence of hypertension.

Fig. 4. The association between exposure to road traffic noise (L_{den}) and hypertension



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the summary estimate and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Stroke

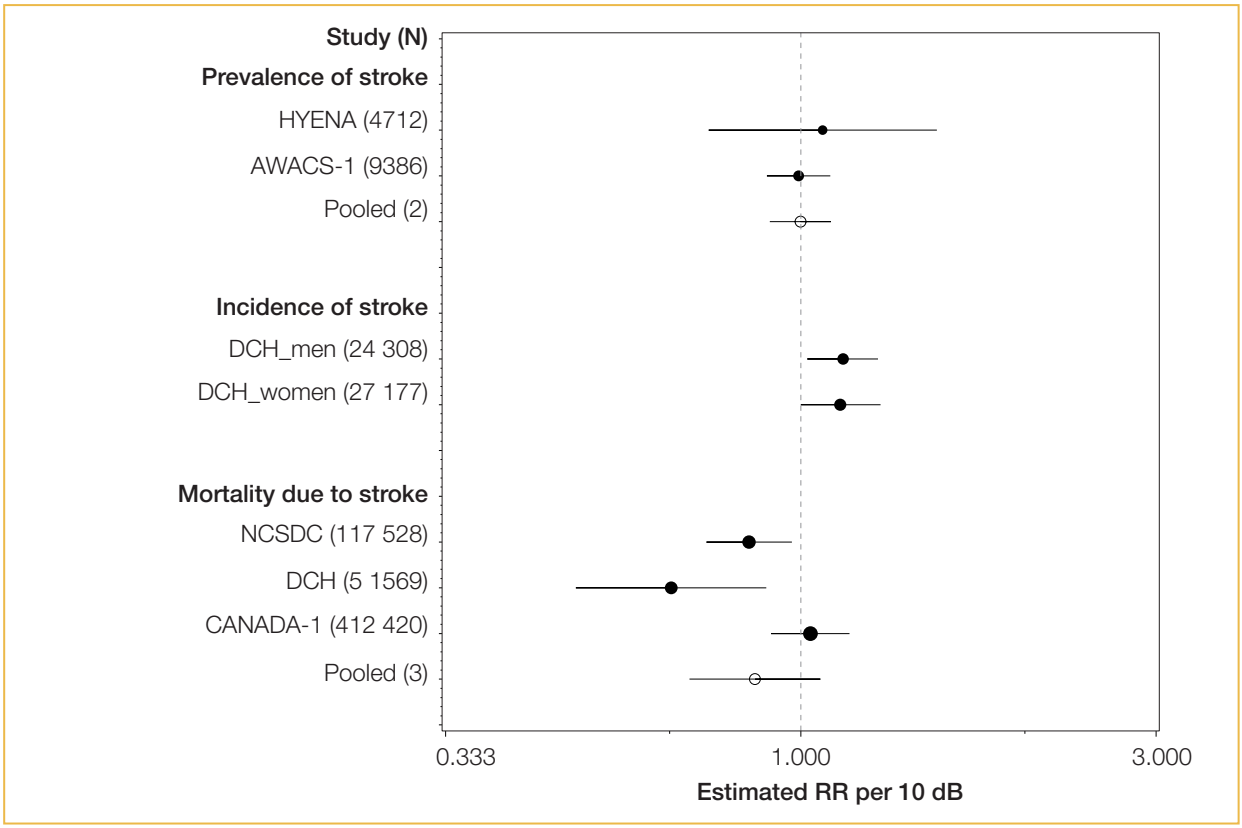
One cohort study into the relationship between road traffic noise and incidence of stroke was identified (Sörensen et al., 2011; 2012b; 2014). It involved 51 485 participants, including 1881 cases, and found an RR of 1.14 (95% CI: 1.03–1.25) per 10 dB L_{den} increase in noise levels, across a range of around 50–70 dB. The evidence was rated moderate quality.

Two cross-sectional studies on road traffic noise and prevalence of stroke involved 14 098 participants, including 151 cases (Babisch et al., 2005a; 2008; 2012a; 2012b; 2013a; Floud et al., 2011; 2013a; 2013b; Jarup et al., 2005; 2008; van Poll et al., 2014) yielded an estimated RR of 1.00 (95% CI: 0.91–1.10) per 10 dB L_{den} increase in noise levels. This evidence was rated very low quality.

Furthermore, three cohort studies investigated the relationship between road traffic noise and mortality due to stroke (Beelen et al., 2009; Gan et al., 2012; Sörensen et al., 2011; 2012b; 2014). These involved 581 517 participants, including 2634 cases, and their pooled estimate was a statistically nonsignificant RR = 0.87 (95% CI: 0.71–1.06) per 10 dB L_{den} increase in road traffic noise levels. This evidence was rated moderate quality.

Fig. 5 presents the results of the meta-analysis for road traffic noise and measures of stroke.

Fig. 5. The association between exposure to road traffic noise (L_{den}) and stroke



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the summary estimate and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Children's blood pressure

Six cross-sectional studies investigated the change in systolic and diastolic blood pressure in children exposed to road traffic noise in residential settings (Belojevic & Evans, 2011; 2012; Bilenko et al., 2013; Liu et al., 2013; 2014; Regecova & Kellerova, 1995; van Kempen et al., 2006). In total, 4197 children were included in these studies; the number of cases was not reported. For each increase in 10 dB L_{den} in noise levels, there was a statistically nonsignificant increase in systolic and in diastolic blood pressure of 0.08 mmHg (95% CI: –0.48–0.64) and 0.47 mmHg (95% CI: –0.30–1.24), respectively. The overall evidence was rated very low quality.

Furthermore, five cross-sectional studies investigated the association between systolic and diastolic blood pressure in children and exposure to road traffic noise in educational settings (Belojevic & Evans, 2011; 2012; Bilenko et al., 2013; Clark et al., 2012; Paunovic et al., 2013; Regecova & Kellerova, 1995; van Kempen et al., 2006). In total, 4520 children were included in these studies; the number of cases was not reported. Systolic blood pressure decreased statistically nonsignificantly, at –0.60 mm (95% CI: –1.51–0.30) per 10 dB L_{den} increase in road traffic noise levels. Diastolic blood pressure increased statistically nonsignificantly, at 0.46 mm (95% CI: –0.60–1.53) per 10 dB L_{den} increase in road traffic noise levels. For both relationships, the evidence was rated very low quality.

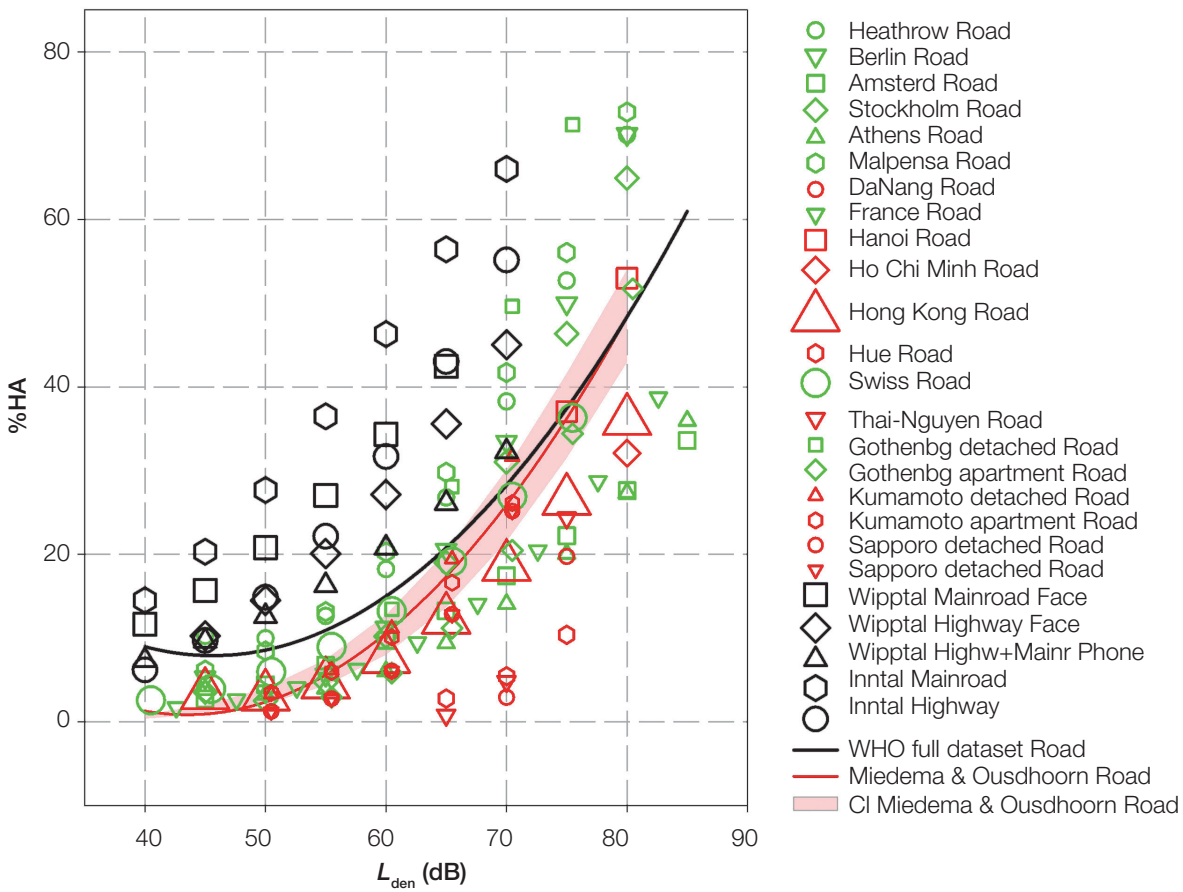
Annoyance

A vast amount of research proves the association between road traffic noise and annoyance. In total, 17 road traffic noise studies were identified that were used to model ERFs of the relationship between L_{den} and %HA (Babisch et al., 2009; Brink, 2013; Brink et al., 2016; Brown et al., 2014; 2015; Champelovier et al., 2003; Heimann et al., 2007; Lercher et al., 2007; Medizinische Universitaet Innsbruck, 2008; Nguyen et al., 2012a; Pierette et al., 2012; Sato et al., 2002; Shimoyama et al., 2014). These incorporated data from 34 112 study participants. The estimated data points of each of the studies are plotted in Fig. 6, alongside an aggregated ERF including the data from all the individual studies (see the black line for "WHO full dataset"). The lowest category of noise exposure considered in any of the studies, and hence included in the systematic review, is 40 dB, corresponding to approximately 9%HA. The benchmark level of 10%HA is reached at 53.3 dB L_{den} (see Fig 6).

Table 10 shows the %HA in relation to exposure to road traffic noise. The calculations are based on the regression equation $\%HA = 78.9270–3.1162 \times L_{den} + 0.0342 \times L_{den}^2$ derived from the systematic review (Guski et al., 2017). Even though there is a large evidence base substantiating the association of average road traffic noise and noise annoyance, the overall evidence had to be rated low quality. The main reasons for downgrading included limitations regarding the acoustical data provided, the nature of study design (most of the studies in the realm of annoyance research follow a cross-sectional approach), the inconsistency of results and the variety in the questions asked.

Nevertheless, the general quality of the evidence was substantiated with the help of additional statistical analyses that apply classic health outcome measures to estimate noise annoyance. When comparing road traffic noise exposure at 50 dB and 60 dB, the analyses revealed evidence rated moderate quality for an association between road traffic noise and %HA for an increase per 10 dB (OR = 2.74; 95% CI: 1.88–4.00). Moreover, there was evidence rated high quality for the increase of %HA per 10 dB increase in sound exposure, when data on all sound classes were included (OR = 3.03; 95% CI: 2.59–3.55).

Fig. 6.Scatterplot and quadratic regression of the relationship between road traffic noise (L_{den}) and annoyance (%HA)



Notes: The ERF by Miedema & Oudshoorn (2001) is added in red for comparison.
The size of the data points corresponds to the number of participants in the respective study (size = SQRT(N)/10).
If two results from different studies fall on the same data point, the last point plotted may mask the former one.
The black curve is derived from aggregated secondary data, while the red one is derived from individual data.
There is no indication of 95% CIs of the WHO full dataset, as a weighting based on the total number of participants for each 5 dB L_{den} sound class could not be calculated; weighting based on all participants of all sound classes proved to be unsuitable. The range of data included is illustrated by the distribution of data points.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Table 10. The association between exposure to road traffic noise (L_{den}) and annoyance (%HA)

L_{den} (dB)	%HA
40	9.0
45	8.0
50	8.6
55	11.0
60	15.1
65	20.9
70	28.4
75	37.6
80	48.5

Cognitive impairment

Evidence rated very low quality was available for the association between road traffic noise and reading and oral comprehension, assessed by tests. The review identified two papers that reported the results of the cross-sectional road traffic and aircraft noise exposure and children's cognition and health (RANCH) study, which examined exposure–effect relationships (Clark et al., 2006; Stansfeld et al., 2005). The study of over 2000 children aged 9–10 years, attending 89 schools around three major airports in the Netherlands, Spain and the United Kingdom did not find an exposure–effect relationship between road traffic noise exposure at primary school, which ranged from 31 to 71 dB $L_{Aeq,16h}$, and children's reading comprehension.

Few studies have investigated other health outcome measures related to cognition. Evidence rated low quality was available for an association between road traffic noise and cognitive impairment assessed through standardized tests (Cohen et al., 1973; Lukas et al., 1981; Pujol et al., 2014; Shield & Dockrell, 2008). There was evidence rated very low quality for an association between road traffic noise and long-term memory (Matheson et al., 2010; Stansfeld et al., 2005). No studies examined effects on short-term memory.

There was evidence rated very low quality, however, that road traffic noise does not have a considerable effect on children's attention (Cohen et al., 1973; Stansfeld et al., 2005). Further, there was evidence rated low quality that road traffic noise does not have a substantial effect on executive function (working memory), with studies consistently reporting no association (Clark et al., 2012; Matheson et al., 2010; Stansfeld et al., 2005; van Kempen et al., 2010; 2012).

Hearing impairment and tinnitus

No studies were found, and therefore no evidence was available for the association between road traffic noise and hearing impairment and tinnitus.

Sleep disturbance

For road traffic noise and self-reported sleep outcomes (awakenings from sleep, the process of falling asleep and sleep disturbance), 12 studies were identified that included a total of 20 120

participants (Bodin et al., 2015; Brown et al., 2015; Hong et al., 2010; Phan et al., 2010; Ristovska et al., 2009; Sato et al., 2002; Shimoyama et al., 2014); these were cross-sectional studies, conducted in healthy adults. The health outcome was measured by self-reporting via general health and noise surveys that included questions about sleep in general, and other questions about how noise affects sleep (see Table 11).

Table 11. Summary of findings for health effects from exposure to road traffic noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	OR: 2.13 (95% CI: 1.82–2.48) per 10 dB increase	43 dB	20 120 (12)	Moderate (downgraded for study limitations, inconsistency; upgraded for dose-response, magnitude of effect)

The model in the systematic review (Basner & McGuire, 2018) was based on outdoor L_{night} levels between 40 dB and 65 dB only; 40 dB was chosen as the lower limit because of possible inaccuracies of predicting lower noise levels. The range of noise exposure reported in the studies reviewed was 37.5–77.5 dB L_{night}. About 2% (95% CI: 0.90–3.15) of the population was characterized as highly sleep-disturbed at L_{night} levels of 40 dB. The %HSD at other, higher levels of road traffic noise is presented in Table 12. The association between road traffic noise and the probability of being highly sleep-disturbed was OR: 2.13 (95% CI: 1.82–2.48) per 10 dB increase in noise. This evidence was rated moderate quality.

Table 12. The association between exposure to road traffic noise (L_{night}) and sleep disturbance (%HSD)

L_{night} (dB)	%HSD	95% CI
40	2.0	0.9–3.15
45	2.9	1.40–4.44
50	4.2	2.14–6.27
55	6.0	3.19–8.84
60	8.5	4.64–12.43
65	12.0	6.59–17.36

Additional analyses were conducted for other health outcome measures related to sleep, which provided supporting evidence on the overall relationship between road traffic noise and sleep disturbance. When the noise source was not specified in the question, the relationship between road traffic noise and self-reported sleep outcomes was still positive but no longer statistically significant, with an OR of 1.09 (95% CI: 0.94–1.27) per 10 dB increase (Bodin et al., 2015; Brink, 2011; Frei et al., 2014; Halonen et al., 2012). This evidence was rated very low quality.

There was evidence rated moderate quality for an association between road traffic noise and sleep outcomes measured with polysomnography (probability of additional awakenings) with an OR of 1.36 (95% CI: 1.19–1.55) per 10 dB increase in indoor $L_{AS,max}$ [13] (Basner et al., 2006; Elmenhorst et al., 2012). Further, evidence rated low quality showed an association between road traffic noise and sleep outcomes measured as motility in adults (Frei et al., 2014; Griefahn et al., 2000; Oehrstroem et al., 2006a; Passchier-Vermeer et al., 2007; Pirrera et al., 2014). Finally, there was evidence rated very low quality for an association between road traffic noise and both self-reported and motility-measured sleep disturbance in children (Ising & Ising, 2002; Lercher et al., 2013; Oehrstroem et al., 2006a; Tiesler et al., 2013).

3.1.2.2 Evidence on interventions

This section summarizes the evidence underlying the recommendation on the effectiveness of interventions for road traffic noise exposure. The key question posed was: in the general population exposed to road traffic noise, are interventions effective in reducing exposure to and/or health outcomes from road traffic noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 13 and 14.

Table 13. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to road traffic noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as:	
	(a) a measures that aim to change noise exposure and associated health effects;	
	(b) a measures that aim to change noise exposure, with no particular evaluation of the impact on health; or	
	(c) a measures designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure:	For night noise exposure:
	1. cardiovascular disease	1. effects on sleep
	2. annoyance	
	3. cognitive impairment	
	4. hearing impairment and tinnitus	
	5. adverse birth outcomes	
	6. quality of life, well-being and mental health	
	7. metabolic outcomes	

[13] $L_{AS,max}$ is the maximum time-weighted and A-weighted sound pressure level with SLOW time constant within a stated time interval starting at t1 and ending at t2, expressed in dB.

Table 14. Summary of findings for road traffic noise interventions by health outcome

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Annoyance			
Type A – source interventions (change in traffic flow rate, improved road resurfacing, truck restriction strategy, complex set of barriers, road surfaces and other measures)	6096[a] (9)	• Changes in noise level ranged from around –15 dB to +15.5 dB (various noise metrics). • Most studies found that the intervention resulted in a change in annoyance.	Moderate (downgraded for study limitations; upgraded for dose-response)
Type B – path interventions (dwelling insulation, barrier construction, building intervention)	2970 (7)	• Changes in noise level ranged from –3 dB to –13 dB (various noise metrics). • All studies found that the intervention resulted in a change in annoyance, as estimated by an ERF.	Moderate (downgraded for study limitations; upgraded for dose-response)
Type C – changes in infrastructure (new road tunnel infrastructure)	1211 (2)	• Noise levels reduced by an average of –12 dB ($L_{Aeq,24h}$). • Both studies found lower annoyance responses post intervention, with no change in the controls.	Moderate (downgraded for study limitations; upgraded for dose-response)
Type D – other physical interventions (availability of quiet side to the dwelling, existence of nearby green space)	26 786 (6)	• Because of large variability in noise levels between most and least exposed façade (quiet side), access to quiet side and/or green space resulted in less annoyance.	Very low (downgraded for study limitations)
Sleep disturbance			
Type B – path interventions (1: façade insulation; 2: enlargement of motorway lanes but with dwelling insulation, barriers and quiet pavement)	1158 (2)	• 1: façade insulation resulted in a reduction of 7 dB for indoor noise level. • 2: enlargement led to reduction in the extent of population exposure at higher noise levels (55–65 dB) with an increase in lower levels (45–55 dB) • Both path interventions resulted in changes in sleep outcomes	Moderate (downgraded for study limitations)
Type C – changes in infrastructure (new road tunnel infrastructure)	166 (2)	• Noise levels reduced by an average of –12 dB ($L_{Aeq,24h}$). • Both studies found lower sleep disturbance indicators/ improvement in sleep post intervention, with no change in the controls.	Moderate (downgraded for study limitations)
Type D – other physical interventions (availability of quiet side to the dwelling)	100 (1)	• An absence of quiet façade resulted in increased reporting of difficulty in falling asleep.	Very low (downgraded for study limitations, inconsistency)
Cardiovascular disease			
Type D – other physical interventions (availability of quiet side to the dwelling)	9203 (4)	• Three studies found changes (including in self-reported hypertension) with and without a quiet side. One study found no change.	Very low (downgraded for study limitations)

Note: [a] This figure does not include number of participants from the studies by Langdon & Griffiths (1982) and Baughan & Huddart (1993), as the exact number of respondents was not reported.

Type A – source interventions

Most of the nine source intervention studies – Baughan & Huddart (1993), Brown (1987; 2015), Brown et al. (1985), Griffiths & Raw (1987; 1989), Kastka (1981), Langdon & Griffiths (1982), Pedersen et al. (2013; 2014), Stansfeld et al. (2009b) – showed an effect in annoyance due to changes in road traffic flow rates. In some cases these were combined with other measures like improved road resurfacing, truck restrictions or complex control measures, including barriers or road surfaces. A majority of the changes resulted in reductions of noise levels.

Regarding the strength of association between exposure and annoyance outcome, all intervention studies demonstrated that the response was of at least the magnitude estimated by a steady-state ERF. The limited available evidence on long-term effects shows that this excess response undergoes some attenuation but is largely maintained over several years. In spite of the high risk of bias in all studies, the evidence in the systematic review was initially assessed as high quality, due to an upgrade because of the dose-response effect. However, the GDG decided to downgrade this assessment in an effort to maximize consistency with the grading approach of the remaining systematic reviews. It was therefore rated moderate quality.

Type B – path interventions

Seven path intervention studies – Amundsen et al. (2011; 2013), Bendtsen et al. (2011), Gidloef-Gunnarsson et al. (2010), Kastka et al. (1995), Nilsson & Berglund (2006), Vincent & Champelovier (1993) – explored the effects on annoyance by interventions related to dwelling insulation, barrier constructions and a combination of both, as well as a full-scale building intervention. With the help of pre/post designs, the studies assessed changes in noise exposure achieved by the interventions over different periods of time. In six studies the path intervention was associated with a change in annoyance outcomes. Four of these showed that the annoyance response to the change was in the same direction and of at least the same magnitude estimated by the ERF. In spite of the high risk of bias in all studies, the evidence in the systematic review was initially assessed as high quality, due to an upgrade because of the dose-response effect. However, the GDG decided to downgrade this assessment in an effort to maximize consistency with the grading approach of the remaining systematic reviews. The evidence was therefore rated moderate quality.

Two of the studies (Amundsen et al., 2013; Bendtsen et al., 2011) assessed path interventions and sleep disturbance. The results showed a reduction in the %HSD after the interventions were conducted. One of the studies included a two-year follow-up, revealing the persistence of the effect. Risk of bias was assessed as high in both studies. The evidence was rated moderate quality.

Type C – new/closed infrastructure interventions

Two infrastructural intervention studies (Gidloef-Gunnarsson et al., 2013; Oehrstroem, 2004; Oehrstroem & Skanberg, 2000) evaluated the impact on annoyance of major reductions in road traffic flows, combined with other environmental improvements. One was a new road tunnel infrastructure, resulting in substantial traffic and noise levels reductions for residents near the previously heavy-traffic road. Both studies were pre/post designs using repeated measures of annoyance outcomes. Following the reduction in noise levels (around –12 dB $L_{Aeq,24h}$), both studies demonstrated a statistically significant lower degree of annoyance, while there was no change in

the control group. Both also reported that the after-scores in the studies matched those estimated by the ERF, but both reported excess response, meaning that the response to change was in the direction estimated by the ERF but much steeper. In spite of the high risk of bias in all studies, the quality of the evidence in the systematic review was initially assessed as high, due to an upgrade because of the dose-response effect. However, the GDG decided to downgrade this assessment in an effort to maximize consistency with the grading approach of the remaining systematic reviews. The evidence was therefore rated moderate quality.

Two studies investigated the impact of new tunnels that removed traffic flow from surface roads on sleep disturbance (Oehrstroem, 2004; Oehrstroem & Skanberg, 2000; 2004). Subjective and objective measures of sleep quality were assessed before and after the intervention. Both studies demonstrated a statistically significant lower reporting of various sleep disturbance indicators post intervention. One study reported statistically significantly reduced time spent in bed after the intervention, which, according to the authors, could suggest increased sleep efficiency. Risk of bias was assessed as high, so this evidence was rated moderate quality.

Type D – other physical infrastructure interventions

No intervention studies were available to assess impacts on annoyance of other physical interventions. The only relevant studies (Babisch et al., 2012; de Kluizenaar et al, 2011; 2013; Gidloef-Gunnarsson & Oehrstroem 2007; van Renterghem & Botteldooren, 2012; 2010) did not provide direct evidence of an intervention. Instead, they provided indirect evidence on the magnitude of the likely effect of certain interventions (e.g. using the quiet side of the dwelling, green space in the neighbourhood) by comparing responses from groups with and without the intervention/feature of interest. All studies found an effect of the presence of the dimension investigated; in all but one, the effect was statistically significant. Risk of bias was assessed as high in all studies, so the evidence was rated very low quality.

One study investigated a subjective assessment of difficulty in falling asleep (van Renterghem & Botteldooren, 2012), before and after the intervention. The difference in the proportion of participants reporting difficulty falling asleep “at least sometimes” between homes with and without a quiet side was statistically significant. Absence of a quiet façade resulted in increased reporting of this sleep parameter. Confounding was adjusted for in the analyses of the ERFs, including noise sensitivity, window-closing behaviour and front-façade L_{den}. Risk of bias was assessed as high, so the evidence was rated very low quality.

Four studies that assessed the effect of other physical interventions on cardiovascular disease were identified (Babisch et al., 2012; 2014a; Bluhm et al., 2007; Lercher et al., 2011). Three of these found changes, including self-reported hypertension, with and without a quiet side of the dwelling; in two the difference was statistically significant. The risk of bias in these studies was generally high, so the evidence was rated very low quality.

3.1.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, ample evidence about the adverse health effects of long-term exposure to road traffic noise exists. Based on the quality of the available evidence, the GDG set the strength of the recommendation on road traffic noise at strong. As a second step, it qualitatively

assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, equity, and resource use and implementation.

When assessing the balance of harms and benefits of interventions to reduce exposure to road traffic noise, the GDG initially noted that road traffic is the most widespread source of noise pollution, measured in terms of the number of affected people both within and outside urban areas. The EEA estimates that more than 100 million people in Europe are exposed to L_{den} levels above 55 dB; for night-time road traffic noise, over 72 million Europeans are exposed to L_{night} levels above 50 dB (Blanes et al., 2017).[14] The amount of road traffic noise emitted is unlikely to decrease significantly: both transport demand, including for passenger cars (EC, 2016b), and the number of city inhabitants (Eurostat, 2016) are expected to increase. Considering the significant burden of disease attributable to exposure to road traffic noise (WHO Regional Office for Europe & JRC, 2011), the GDG expects substantial health benefits to evolve from implementing the recommendations to reduce population exposure to road traffic noise. Depending on the intervention measures used (such as restrictions of traffic), possible harms could include effects on the transportation of goods and on individual mobility of the population. Both can have impacts on local, national and international economies. Overall, the GDG estimated that the benefits gained from minimizing adverse health effects due to road traffic noise exposure outweigh the possible (economic) harms.

Considering values and preferences, it has been established that people appreciate quiet areas as beneficial for their health and well-being, especially in urban areas (Shepherd et al., 2013; Gidloef-Gunnarsson & Oehrstroem, 2007; Oehrstroem et al., 2006b). Nevertheless, the GDG recognized that the convenience of individual mobility with the help of passenger cars is valued overall by large parts of the population in the EU, as illustrated by the sustained high volume of passenger kilometres driven in Europe (EEA, 2016a; 2017a). In general, values and preferences are expected to vary throughout society, as exposure to environmental noise and continuous road traffic noise is not equally distributed: those of individuals directly affected by long-term road traffic exposure are likely to differ from those that are not affected. Individuals with a higher average sound pressure level of road traffic noise are, for example, more willing to pay to reduce their noise exposure (Bristow et al., 2014).

In light of the dimension of equity, the GDG highlighted the fact that the risk of exposure to road traffic noise is not equally distributed throughout society. People with lower socioeconomic status and other disadvantaged groups often live in more polluted and louder areas, including in proximity to busy roads (EC, 2016a). Moreover, socioeconomic factors are not only related to differences in exposure to environmental factors such as noise but are also associated with increased vulnerability and poorer coping capacities (Karpati et al., 2002).

With resource use and implementation considerations, the GDG recognized that no comprehensive cost–benefit analysis for the WHO European Region yet exists, so this assessment is based on informed expert judgement regarding the feasibility of implementing the recommendation for the majority of the population. As the systematic review of environmental noise interventions and their

[14] These are gap-filled figures based on the reported data and including the situation both within and outside cities, as defined by the END.

associated impact on health shows, various effective measures exist to reduce noise exposure from road traffic and improve health (Brown & van Kamp, 2017). The resources needed to implement these measures vary as they rely on the type of intervention and the context. The GDG pointed out the following four major solutions, which are known to be cost-effective: choice of appropriate tyres, use of low-noise road surfaces, building of noise barriers and installation of soundproof windows (CSES et al., 2016). Other types of intervention include limitations of speed or type of traffic allowed on roads.

Regarding feasibility of implementation, the GDG was convinced that many of the solutions can be planned as part of regular maintenance processes and accelerated fleet and road modernization. In particular, appropriate tyres and road surfaces are only slightly more expensive than existing products, and various countries have already considered or adopted similar interventions to reduce noise levels (Ohiduzzaman et al., 2016; Sirin, 2016). This indicates that solutions to achieve recommended noise levels can be implemented and carry a reasonable cost on a societal level. The GDG noted, however, that the feasibility of implementing measures can be hindered by the fact that costs and benefits are not evenly distributed. In most cases, the health benefits gained by interventions that reduce long-term road traffic exposure accrue to citizens, whereas the costs are borne by road users, private companies and public authorities. Furthermore, the GDG expects challenges in the implementation of all long-term measures that include changes in behaviour of the population, such as increased use of car-sharing or public transport. Even though the overall costs are expected to be significant, because of the large number of people affected, the benefit of implementation of the recommendation to minimize the risk of adverse health effects due to road traffic noise for a majority of the population exceeds the resources needed.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains strong.

Other nonpriority adverse health outcomes

As an additional consideration, although not priority health outcomes and coming from a single study, the GDG noted the evidence rated moderate quality for an association between road traffic noise and the prevalence of diabetes (van Kempen et al., 2018). The noise levels in the study identified ranged from around 50 dB to 70 dB L_{den}, so the recommendation proposed is thought to be protective enough for this health outcome. Thus, it did not lead to a change in the recommendation.

Additional considerations or uncertainties

Individual noise annoyance judgements of residents are to a large extent moderated by personal variables (such as noise sensitivity and coping capacity). However, further situational factors that apply to many residents should be taken into account when analysing noise annoyance from road traffic noise, as they may moderate the relationship. These include the type(s) of road being considered (highways, urban main roads, secondary roads and so on) and the related traffic composition (share of cars, motorcycles and heavy and loud trucks) and pattern (fluctuation, frequency, intermittency). Moreover, the location of settlements and/or individual dwellings, proximity to the road, and location and availability of a quiet façade can also influence the relationship when predicting health outcomes such as annoyance.

3.1.3 Summary of the assessment of the strength of the recommendations

Table 15 provides a comprehensive summary of the different dimensions for the assessment of the strength of the road traffic noise recommendations.

Table 15. Summary of the assessment of the strength of the road traffic noise recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure** (L_{den}) *Health effects* • Evidence for a relevant RR increase for incidence of IHD at **59 dB** L_{den} was rated **high quality**. • Evidence for the incidence of hypertension was rated **low quality**. • Evidence for a relevant absolute risk of annoyance at **53 dB** L_{den} was rated **moderate quality**. • Evidence for a relevant RR increase for reading and oral comprehension was rated **very low quality**. *Interventions* • Evidence on effectiveness of interventions to reduce noise exposure and/or health outcomes from road traffic noise is of varying quality. **Night-time exposure** (L_{night}) *Health effects* • Evidence for a relevant absolute risk of sleep disturbance related to night noise exposure from road traffic at **45 dB** L_{night} was rated **moderate quality**. *Interventions* • Evidence on effectiveness of interventions to reduce noise exposure and/or sleep disturbance from road traffic noise is of varying quality.
Balance of benefits versus harms and burdens	Health benefits can be gained from markedly reducing exposure of the population to road traffic noise; benefits outweigh the harms of interventions to reduce continuous road traffic noise.
Values and preferences	Quiet areas are valued by the population, especially by those affected by continuous noise exposure. Some variability is possible between those who benefit from interventions to reduce road traffic noise and those who finance the interventions.
Equity	Risk of exposure to road traffic noise is not equally distributed.
Resource use and implications	No comprehensive cost–effectiveness analysis data are available; nevertheless, a wide range of solutions exists and several are being implemented, showing that effective interventions are both feasible and economically reasonable.
Decisions on recommendation strength	• **Strong** for guideline level for average noise exposure (L_{den}) • **Strong** for guideline value for average night noise exposure (L_{night}) • **Strong** for specific interventions to reduce noise exposure

3.2 Railway noise

Recommendations

For average noise exposure, the GDG **strongly** recommends reducing noise levels produced by railway traffic below **54 dB** L_{den}, as railway noise above this level is associated with adverse health effects.

For night noise exposure, the GDG **strongly** recommends reducing noise levels produced by railway traffic during night time below **44 dB** L_{night}, as railway noise above this level is associated with adverse effects on sleep.

To reduce health effects, the GDG **strongly** recommends that policy-makers implement suitable measures to reduce noise exposure from railways in the population exposed to levels above the guideline values for average and night noise exposure. There is, however, insufficient evidence to recommend one type of intervention over another.

3.2.1 Rationale for the guideline levels for railway noise

The exposure levels were derived in accordance with the prioritizing process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to railway noise, the process can be summarized as follows (Table 16).

Table 16. Average exposure levels (L_{den}) for priority health outcomes from railway noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD No studies were available and therefore incidence of IHD could not be used to assess the exposure level.	5% increase of RR	No studies met the inclusion criteria/no studies available
Incidence of hypertension One study met the inclusion criteria. There was no significant increase of risk associated with increased noise exposure in this study.	10% increase of RR	Low quality
Prevalence of highly annoyed population There was an absolute risk of 10% at a noise exposure level of 53.7 dB $L_{den.}$	10% absolute risk	Moderate quality
Permanent hearing impairment	No increase	No studies met the inclusion criteria/no studies available
Reading skills and oral comprehension in children	One-month delay	No studies met the inclusion criteria/no studies available

In accordance with the prioritization process (see section 2.4.3), the GDG set a guideline exposure level of 53.7 dB L_{den} for average exposure, based on the relevant increase of the absolute %HA. In accordance with the defined rounding procedure, the value was rounded to 54 dB L_{den}. As the evidence on the adverse effects of railway noise was rated moderate quality, the GDG made the recommendation strong.

Next, the GDG assessed the evidence for night noise exposure and its effect on sleep disturbance (Table 17).

Table 17. Night-time exposure levels (L_{night}) for priority health outcomes from railway noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance 3% of the participants in studies were highly sleep-disturbed at a noise level of **43.7 dB** L_{night}	3% absolute risk	Moderate quality

Based on the evidence of the adverse effects of railway noise on sleep disturbance, the GDG defined a guideline exposure level of 43.7 dB L_{night}. The exact exposure value was rounded to 44 dB L_{night}. As the evidence was rated moderate quality, the GDG made the recommendation strong.

The GDG also considered the evidence for the effectiveness of interventions. The results showed that:

- intervening at the source by applying rail grinding procedures can reduce noise annoyance;
- behavioural interventions such as informing the community about noise interventions can reduce noise annoyance.

In light of the strong evidence about the adverse health effects, the GDG followed a precautionary approach and made a strong recommendation for interventions on railway noise, as it was confident that interventions are realizable and that best practices already exist for the management of noise from railways. Since the empirical evidence on the effectiveness of different types of intervention was rated either low or very low quality, the GDG felt that no recommendation could be made on the preferred type of intervention, and agreed not to recommend any specific type of intervention over another.

3.2.1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on railway noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes were considered. The assessment of all these factors – especially the values and preferences involved in railway noise – did not lead to a change in the strength of the recommendations. Further details are provided in Section 3.2.2.3.

3.2.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on railway noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.2.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to railway noise, what is the exposure–response relationship between exposure to railway noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 18 and 19.

Table 18. PICOS/PECCOS scheme of critical health outcomes for exposure to railway noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by railway traffic (average/night time)	
Comparison	Exposure to lower levels of noise produced by railway traffic (average/night time)	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 19. Summary of findings for health effects from exposure to railway noise (L_{den})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)[a]	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	–	–	–	–
L_{den}	Incidence of hypertension	RR = 0.96 (95% CI: 0.88–1.04) per 10 dB increase	N/A	7249 (1)	Low (downgraded for risk of bias and availability of only one study)
Annoyance					
L_{den}	%HA	OR = 3.53 (95% CI: 2.83–4.39) per 10 dB increase	34	10 970 (10)	Moderate (downgraded for inconsistency, directness; upgraded for dose-response)
Cognitive impairment					
L_{den}	Reading and oral comprehension	–	–	–	–
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

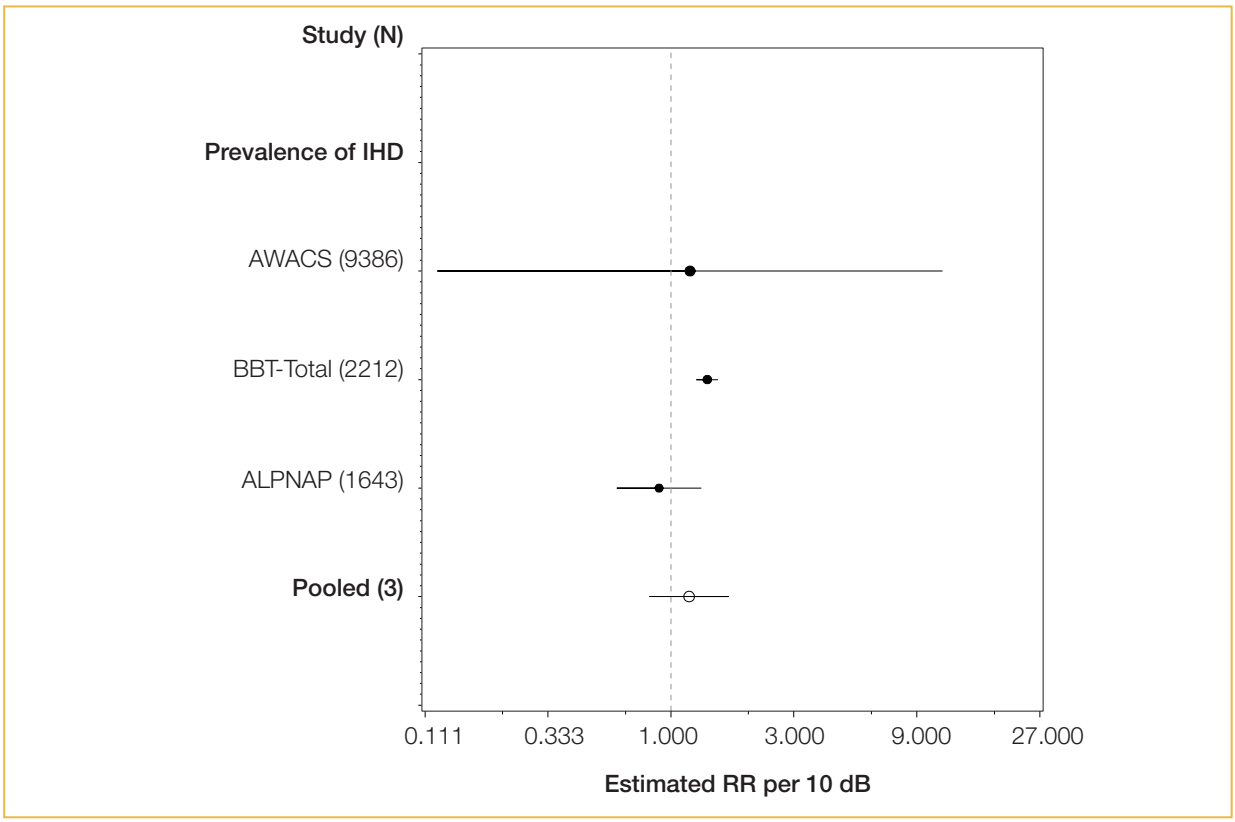
Note: [a] Results are partly derived from population-based studies.

Cardiovascular disease

IHD

No evidence was available on the relationship between railway noise and the incidence of or mortality from IHD. Four cross-sectional studies were identified, however, that assessed the prevalence of IHD in a total of 13 241 participants, including 283 cases (Heimann et al., 2007; Lercher et al., 2008; 2011; van Poll et al., 2014). The overall risk was not statistically significantly increased: the RR was 1.18 (95% CI: 0.82–1.68) per 10 dB L_{den} increase, with inconsistency across studies (see Fig. 7). The evidence was rated very low quality.

Fig. 7. The association between exposure to railway noise (L_{den}) and prevalence of IHD



Notes: The dotted vertical line corresponds to no effect of exposure to railway noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

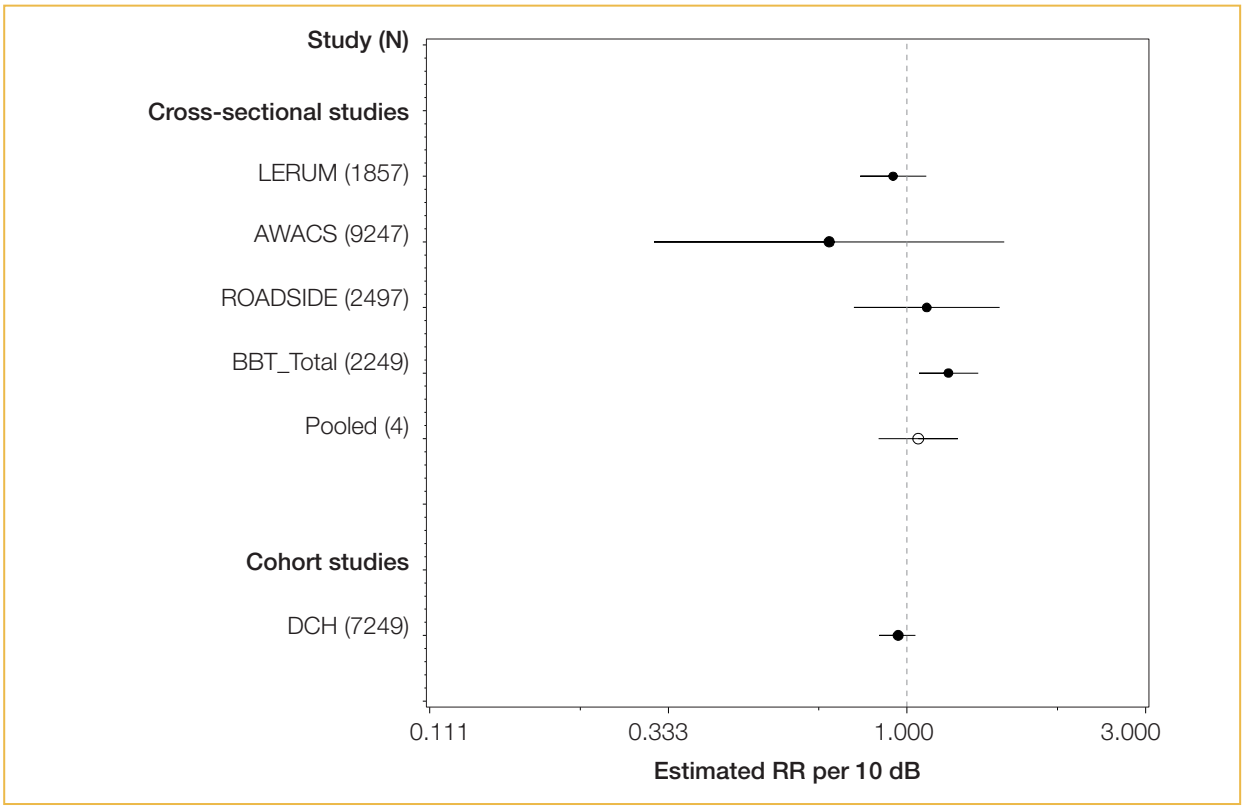
Hypertension

One cohort study on the relationship between railway noise and hypertension was identified; it assessed the incidence among people living in Denmark (Sörensen et al., 2011; 2012a). The study involved 7249 participants, including 3145 cases. The authors did not find an association between railway noise exposure and incidence of hypertension, with RR = 0.96 (95% CI: 0.88–1.04) per 10 dB L_{den} increase. This evidence was rated low quality.

In addition, five cross-sectional studies assessed the prevalence of hypertension in 15 850 participants, including 2059 cases (Barregard et al., 2009; Eriksson et al., 2012; Lercher et al., 2008; 2011; van Poll et al., 2014). The overall RR increase was not statistically significant, at 1.05 (95% CI: 0.88–1.26) per 10 dB L_{den} increase. Moreover, there was inconsistency among the results across studies. The evidence was rated very low quality.

Fig. 8 presents the studies investigating the relationship between railway noise and different measures of hypertension.

Fig. 8. The association between exposure to railway noise (L_{den}) and hypertension



Notes: The dotted vertical line corresponds to no effect of exposure to railway noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the summary estimate and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Stroke

As for IHD, no evidence was available on the relationship between railway noise and incidence of or mortality from stroke. However, one cross-sectional study was identified that assessed the prevalence of stroke in 9365 participants, including 89 cases (van Poll et al., 2014). The overall risk was not statistically significantly increased, with RR = 1.07 (95% CI: 0.92–1.25) per 10 dB L_{den} increase. The evidence was rated very low quality.

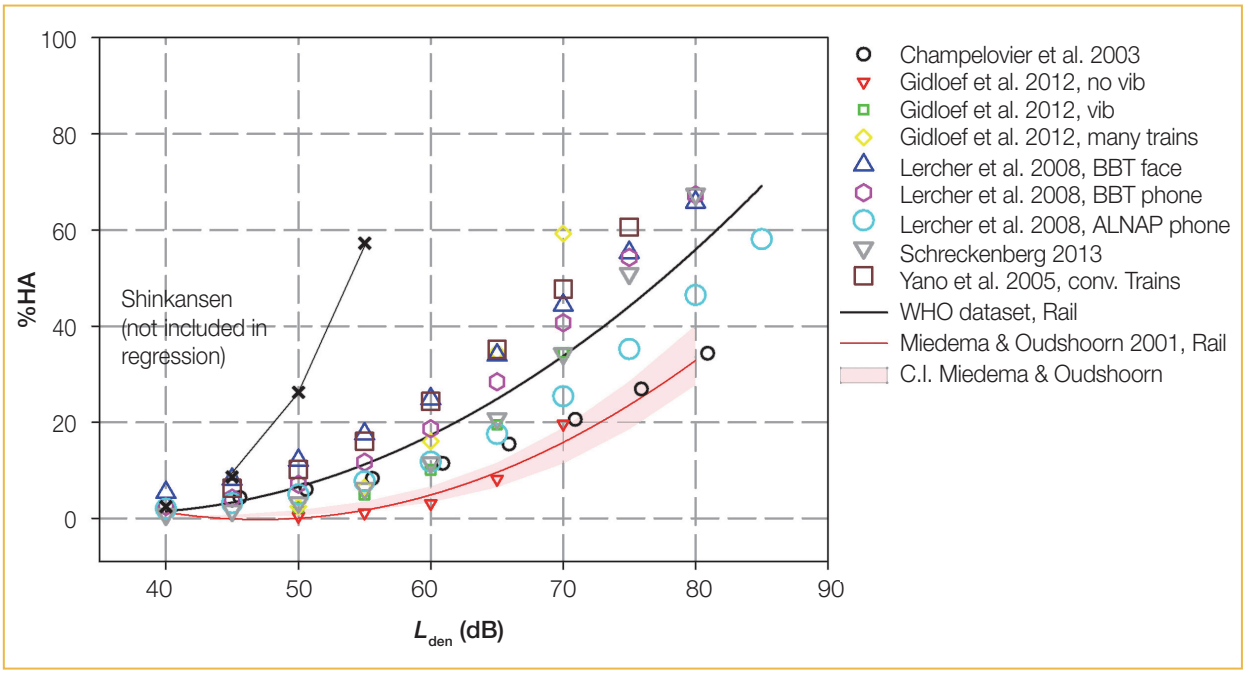
Children's blood pressure

No evidence was available for the association between railway noise and the systolic and/or diastolic blood pressure of children in residential and/or educational settings.

Annoyance

In total, 10 studies with ERFs on the association between railway noise and annoyance were included in analyses (Champelovier et al., 2003; Gidloef-Gunnarsson et al., 2012; Lercher et al., 2007; 2008; Sato et al., 2004; Schreckenberg, 2013; Yano et al., 2005; Yokoshima et al., 2008). The studies incorporated individual data from 10 970 participants. The estimated data points of each of these studies are plotted in Fig. 9, alongside an aggregated ERF including the data from all the individual studies (see the black line for "WHO dataset, Rail"). The lowest category of noise exposure considered in any of the studies, and hence included in the systematic review is 40 dB, corresponding to approximately 1.5%HA. The 10% benchmark for %HA is reached at 53.7 dB L_{den} (see Fig. 9).

Fig. 9. Scatterplot and quadratic regression of the relationship between railway noise (L_{den}) and annoyance (%HA)



Notes: The ERF by Miedema & Oudshoorn (2001) is added in red for comparison.
There is no indication of 95% CIs of the WHO dataset curve, as a weighting based on the total number of participants for each 5 dB L_{den} sound class could not be calculated; weighting based on all participants of all sound classes proved to be unsuitable. The range of data included is illustrated by the distribution of data points.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Table 20 shows the %HA for railway noise exposure. The calculations are based on the regression equation %HA = 38.1596–2.05538 × L_{den} + 0.0285 × L_{den}^2 derived from the systematic review (Guski et al., 2017). The overall evidence was rated moderate quality. Additional statistical analyses of annoyance outcomes supported these findings. When comparing railway noise exposure at 50 dB and 60 dB, the analyses revealed evidence rated moderate quality for an association between railway noise and %HA for an increase per 10 dB (OR = 3.40; 95% CI: 2.05–5.62). Moreover, evidence rated high quality was available for the increase in %HA per 10 dB increase in sound exposure, when data on all sound classes were included (OR = 3.53; 95% CI: 2.83–4.39).

Table 20. The association between exposure to railway noise (L_{den}) and annoyance (%HA)

L_{den} (dB)	%HA
40	1.5
45	3.4
50	6.6
55	11.3
60	17.4
65	25.0
70	33.9
75	44.3
80	56.1

Cognitive impairment

Studies of railway noise on children's reading and oral comprehension were lacking. Nevertheless, other measures of cognition yielded evidence rated very low quality for an association between railway noise and children with poorer performance on standardized assessment tests (Bronzaft, 1981; Bronzaft & McCarthy, 1975). Evidence for the association between railway noise and children having poorer long-term memory (Lercher et al., 2003) was rated very low quality. No studies examined effects on short-term memory.

There was no clear relation between railway noise and attention in children (Lercher et al., 2003), and this evidence was rated very low quality.

Hearing impairment and tinnitus

No studies were found, and therefore no evidence was available on the association between railway noise and hearing impairment and tinnitus.

Sleep disturbance

For railway noise and self-reported sleep outcomes (awakenings from sleep, the process of falling asleep and sleep disturbance), five studies were identified that included a total of 7133 participants (Bodin et al., 2015; Hong et al., 2010; Sato et al., 2004; Schreckenberg, 2013). The studies were cross-sectional and conducted on healthy adults. The health outcome was measured by self-reporting via general health surveys and noise surveys that included questions about sleep in general, and other questions about how noise affects sleep (Table 21).

Table 21. Summary of findings for health effects from exposure to railway noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	OR: 3.06 (95% CI: 2.38–3.93) per 10 dB increase	33 dB	7133 (5)	Moderate (downgraded for study limitations, inconsistency; upgraded for dose-response, magnitude of effect)

The model in the systematic review (Basner & McGuire, 2018) was based on outdoor L_{night} levels between 40 dB and 65 dB only; 40 dB was chosen as the lower limit because of possible inaccuracies in predicting lower noise levels. The range of noise exposure reported in the studies was 27.5–82.5 dB L_{night}. About 2% (95% CI: 0.79–3.48) of the population was characterized as highly sleep-disturbed for L_{night} levels of 40 dB. The %HSD at other, higher levels of railway noise is presented in Table 17. The association between railway noise and the probability of being sleep-disturbed was OR: 3.1 (95% CI: 2.4–3.9) per 10 dB increase in noise. This evidence was rated moderate quality.

Table 22. The association between exposure to railway noise (L_{night}) and sleep disturbance (%HSD)

L_{night} (dB)	%HSD	95% CI
40	2.1	0.79–3.48
45	3.7	1.63–5.71
50	6.3	3.12–9.37
55	10.4	5.61–15.26
60	17.0	9.48–24.37
65	26.3	15.20–37.33

Additional analyses were conducted for sleep quality measures, which provided supporting evidence on the overall relationship between railway noise and sleep. When the noise source was not specified in the question, the relationship between railway noise and self-reported sleep outcomes was still positive but no longer statistically significant, with an OR of 1.27 (95% CI: 0.89–1.81) per 10 dB increase (Bodin et al., 2015; Brink, 2011; Frei et al., 2014). This evidence was rated very low quality.

There was evidence rated moderate quality for an association between railway noise and the probability of additional awakenings, measured with polysomnography, with an OR of 1.35 (95% CI: 1.21–1.52) per 10 dB increase in indoor $L_{AS,max}$ (Elmenhorst et al., 2012). Finally, evidence rated low quality was available for an association between railway noise and sleep outcomes measured as motility in adults (Griefahn et al., 2000; Hong et al., 2006; Lercher et al., 2010; Passchier-Vermeer et al., 2007), and rated very low quality for an association between railway noise and both self-reported and motility-measured sleep disturbance in children (Ising & Ising, 2002; Lercher et al., 2013; Tiesler et al., 2013).

3.2.2.2 Evidence on interventions

This section summarizes the evidence underlying the recommendation on the effectiveness of interventions for railway noise exposure (Tables 23 and 24). The key question posed was: in the

general population exposed to railway noise, are interventions effective in reducing exposure to and/or health outcomes from railway noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 23 and 24.

Table 23. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to railway noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 24. Summary of findings for railway noise interventions by health outcome

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Annoyance			
Type A – source interventions (rail grinding)	81 (1)	• Changes in noise level as a consequence of the intervention ranged from around –7dB to –8 dB. • Most studies found changes in annoyance outcomes, persisting more than 12 months after the intervention.	Very low (downgraded for study limitations, inconsistency, imprecision)
Type C – changes in infrastructure (new rail infrastructure)	6000[a] (1)	• A very small increase in total noise exposure was found (most had <+1 dB change; some had +2–4 dB change). • Original noise from road traffic overwhelmed the train noise for effectively all participants.	Very low (downgraded for study limitations, inconsistency, imprecision)
Type E – behaviour change interventions (informing the community about a noise intervention)	411 (1)	• Exposure levels were not reported; emission levels reduced by 1–2 dB. • A reduction in annoyance of the community as a result of the intervention was reported.	Very low (downgraded for study limitations, inconsistency, imprecision)

Note: [a] According to Lam & Au (2008), this records the number of invitation letters sent; the response rate was not reported.

Three studies on railway noise interventions met the criteria to be included in the evidence base. All studies consisted of a pre/post design and reported annoyance outcomes at people's dwellings (Lam & Au, 2008; Moehler et al., 1997; Schreckenberg et al., 2013). They could be categorized as a source intervention, a new/closed infrastructure intervention and a communication intervention. In two of the studies, the changes in exposure after the intervention were only small, although there were significant effects on noise annoyance. The study on source interventions and annoyance revealed that a change of –10 dB in noise exposure led to a significant reduction in annoyance, which persisted over a period of 12 months after the intervention. As confounding was not addressed, and railway noise was not the dominant sound source in the studies, the evidence was rated very low quality.

3.2.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, sufficient evidence about the adverse health effects of long-term exposure to railway noise exists. Based on the quality of the available evidence, the GDG set the strength of recommendation on railway noise at strong. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These contextual considerations mainly concerned the balance of harms and benefits, values and preferences, and resource use and implementation.

When assessing the balance of harms and benefits of interventions to reduce exposure to railway noise and minimize noise-associated adverse health effects, the GDG recognized that railway transportation is the second most dominant source of environmental noise in Europe. Based on EEA estimates, the number of people exposed to L_{den} above 55 dB and L_{night} above 50 dB from railway noise is 17 million and 15 million, respectively (Blanes et al., 2017).[15] In light of the burden of disease from environmental noise, and railway noise in particular, the GDG agreed that the health benefits from a reduction of long-term railway noise exposure (especially during night time) to the recommended values would be significant. Considering possible harms related to adaptation of the recommended values, the GDG noted that reliance on railway transportation has increased in recent years in Europe and is expected to increase further, as an important component of the shift towards a greener economy. At a societal level, an environmental and economic benefit from the use of rail transportation is expected: trains contribute to lower environmental pollution and carbon emission than road transportation. Therefore, there is a need to balance the expected health benefits from reduced continuous railway noise exposure and the overall positive effects on the health of the population from increased reliance on the comparatively environmentally friendly mode of railway transportation. Overall, the GDG agreed that even though fewer people are exposed to railway noise than road traffic noise, it remains a major source of localized noise pollution; therefore, considerable benefits are gained by reducing exposure to railway noise.

When exploring values and preferences, the GDG acknowledged that, in general, people value rail as an alternative and more sustainable transportation method than air or road traffic (EEA, 2016a; 2016b; 2017b). Furthermore, the values and preferences in relation to implementation of the recommendation are expected to vary: those of individuals living in the vicinity of railway tracks are expected to differ from those of the rest of the population not exposed to railway noise on a long-term basis. Economic depreciation of housing and fear of adverse health effects were assumed

[15] These are gap-filled figures based on the reported data and including the situation both within and outside cities, as defined by the END.

to be two main aspects influencing the evaluation of affected individuals. This especially applies to areas where new railway tracks are being built, as this results in considerable change for local inhabitants. Moreover, the GDG acknowledged that preferences might also vary in the policy-making domain across different countries as the implementation of the recommendations would mean a renunciation of the so-called "railway bonus".[16]

On resource use and implementation considerations, the GDG pointed out that no comprehensive cost–benefit analysis for the WHO European Region has yet been conducted, so this assessment is based on informed qualitative expert judgement regarding the feasibility of implementing the recommendation for the majority of the population. The systematic review of environmental noise interventions and their associated impact on health shows that various measures to reduce continuous noise from railway traffic exist, although knowledge about their effectiveness remains limited (Brown & van Kamp, 2017). The GDG noted that the resources needed to implement different measures may vary considerably, as they depend on the situation and the type of intervention required. Implementation of some measures is expected to be most feasible during the development of new railway tracks; such as rail pads, bi-bloc sleepers, small noise barriers and – in extreme cases – tunnels, cuttings or earthwork barriers. Other interventions include acoustic rail grinding, noise barriers built alongside the tracks, construction of quieter locomotives and wagons and replacement of brakes on freight trains. The GDG assumed that most of these solutions could be planned as part of regular maintenance or, for instance, by speeding up fleet modernization and track modernization. Even though not broadly implemented, the solutions mentioned above have already been considered or adopted to reduce noise levels from railway noise exposure. Some EU countries (such as Germany), have programmes to replace old brake blocks from freight trains with newer, quieter ones and to ban all freight trains with old brake blocks from 2020 (Umweltbundesamt, 2017). This illustrates that solutions to achieve recommended noise levels can be implemented at a reasonable cost. Overall, the GDG agreed that the benefit of implementation of the recommendation to minimize the risk of adverse health effects due to railway noise for a majority of the population exceeds the (monetary) resources needed.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains strong.

Additional considerations or uncertainties

The GDG acknowledged that the main body of evidence for the recommendations on railway noise for average exposure was based on annoyance studies, conducted mainly in Asia and Europe. Studies are few for other priority health outcomes, and the evidence was generally rated low/very low quality. There is therefore uncertainty about the effects on health outcomes. Nevertheless, as a precautionary approach, a strong recommendation is made for average exposure to L_{den}, as a broad evidence base exists for health effects from exposure to other sources of transportation noise. However, the GDG stressed the importance of further research into health effects due to long-term exposure to railway noise.

Moreover, situational factors should be taken into account when analysing annoyance from railway noise. In particular, ground-borne vibrations are sometimes an additional exposure variable in railway

[16] The "railway bonus" is a correction factor commonly applied in the noise abatement policy domain in recent decades. It subsidizes the noise rating level for railway transportation by a predefined factor (Schuemer & Schuemer-Kohrs, 1991).

noise situations – especially in the case of annoyance – which may be difficult to separate from noise effects. In the set of 11 studies included in the systematic review on railway noise and annoyance, only two explicitly mentioned ground-borne vibrations as an additional source of annoyance.

Overall, the low-carbon, low-polluting nature of railway transport, especially using electric trains, means that rail is favoured over road and air traffic. However, night-time railway traffic on busy lines, including freight traffic, can be a significant source of sleep disturbance. Thus, guideline values should be set to encourage the development of rail traffic in Europe while at the same time giving adequate protection to residents from sleep disturbance.

3.2.3 Summary of the assessment of the strength of the recommendations

Table 25 provides a comprehensive summary of the different dimensions for the assessment of the strength of the railway noise recommendations.

Table 25. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure** (L_{den}) *Health effects* • Evidence for a relevant absolute risk of annoyance at **54 dB** L_{den} was rated **moderate quality.** • Evidence for a relevant RR increase of the incidence of hypertension was rated **low quality**. One study met the inclusion criteria but did not find a significant increase. *Interventions* • Evidence that different types of intervention reduce noise annoyance from railways was rated **very low quality**. **Night-time exposure** (L_{night}) *Health effects* • Evidence for a relevant absolute risk of sleep disturbance related to night noise exposure from railways at **44 dB** L_{night} was rated **moderate quality**. *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or sleep disturbance from railway noise.
Balance of benefits versus harms and burdens	Railway noise is a major source of localized pollution. The health benefits of adapting the recommendation outweigh the harms. Nevertheless, it is important to consider the relevance of railways as an environmentally friendly mode of transportation.
Values and preferences	Quiet areas are valued by the population; especially by those affected by continuous noise exposure. Some variability is expected among those directly affected by railway noise and those not affected.
Resource implications	No comprehensive cost–effectiveness-analysis data are available, although a wide range of interventions exists, indicating that measures are both feasible and economically reasonable.
Decisions on recommendation strength	• **Strong** for guideline value for average noise exposure (L_{den}). • **Strong** for guideline value for night noise exposure (L_{night}). • **Strong** for specific interventions to reduce noise exposure.

3.3 Aircraft noise

Recommendations

For average noise exposure, the GDG **strongly** recommends reducing noise levels produced by aircraft below **45 dB** L_{den}, as aircraft noise above this level is associated with adverse health effects.

For night noise exposure, the GDG **strongly** recommends reducing noise levels produced by aircraft during night time below **40 dB** L_{night}, as aircraft noise above this level is associated with adverse effects on sleep.

To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from aircraft in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions the GDG recommends implementing suitable changes in infrastructure.

3.3.1 Rationale for the guideline levels for aircraft noise

The exposure levels were derived in accordance with the prioritization process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to aircraft noise, the process can be summarized as follows (Table 26).

Table 26. Average exposure levels (L_{den}) for priority health outcomes from aircraft noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD A relevant risk increase from exposure to aircraft noise occurs at 52.6 dB L_{den}. The weighted average of the lowest noise levels measured in the studies was 47 dB L_{den} and the corresponding RR in the meta-analysis was 1.09 per 10 dB.	5% increase of RR	Very low quality
Incidence of hypertension One study met the inclusion criteria. There was no significant increase of risk associated with increased noise exposure in this study.	10% increase of RR	Low quality
Prevalence of highly annoyed population There was an absolute risk of 10% at a noise exposure level of 45.4 dB L_{den}.	10% absolute risk	Moderate quality
Permanent hearing impairment	No increase	No studies met the inclusion criteria
Reading skills and oral comprehension in children A relevant risk increase was found at 55 dB L_{den}.	One-month delay	Moderate quality

Based on the evaluation of evidence on relevant risk increases from the prioritized health outcomes, the GDG set a guideline exposure level of 45.4 dB L_{den} for average exposure to aircraft noise, based on the absolute %HA. It was confident that there was an increased risk for annoyance below this exposure level, but probably no relevant risk increase for other priority health outcomes. In accordance with the defined rounding procedure, the value was rounded to 45 dB L_{den}. As the evidence on the adverse effects of aircraft noise was rated moderate quality, the GDG made the recommendation strong.

Next, the GDG considered the evidence for night noise exposure and its effect on sleep disturbance (Table 27).

Table 27. Night-time exposure levels (L_{night}) for priority health outcomes from aircraft noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance	3% absolute risk	Moderate quality
11% of participants were highly sleep-disturbed at a noise level of 40 dB L_{night}.		

Based on the evidence of the adverse effects of aircraft noise on sleep disturbance, the GDG defined a guideline exposure level of 40.0 dB L_{night}. It should be stressed that this recommendation for average aircraft noise levels at night far exceeds the benchmark of 3%HSD defined as relevant risk increase, but since no reliable acoustic data below this level were available, the GDG decided not to lower the guideline exposure level further, as an extrapolation of the exposure–response relationship to achieve these values would have been unavoidable. As the evidence was rated moderate quality, the GDG made the recommendation strong.

The GDG also considered the evidence for the effectiveness of interventions. The results showed that changes in infrastructure (opening and/or closing of runways, or flight path rearrangements) can lead to a reduction in aircraft noise exposure, as well as a decline in cognitive impairment in children and a reduction in annoyance. Moreover, examples of best practice already exist for the management of noise from aircraft, so the GDG made a strong recommendation.

3.3.1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on aircraft traffic noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes were considered. Ultimately, the assessment of all these factors did not lead to a change in the strength of the recommendations. Further details are provided in section 3.3.2.3.

3.3.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on aircraft noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.3.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to aircraft noise, what is the exposure–response relationship between exposure to aircraft noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 28 and 29.

Table 28. PICOS/PECCOS scheme of critical health outcomes for exposure to aircraft noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by aircraft traffic (average/night time)	
Comparison	Exposure to lower levels of noise produced by aircraft traffic (average/night time)	
Outcome(s)	For average noise exposure:	For night noise exposure:
	1. cardiovascular disease	1. effects on sleep
	2. annoyance	
	3. cognitive impairment	
	4. hearing impairment and tinnitus	
	5. adverse birth outcomes	
	6. quality of life, well-being and mental health	
	7. metabolic outcomes	

Table 29 .Summary of findings for health effects from exposure to aircraft noise (L_{den})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)[a]	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	RR = 1.09 (95% CI: 1.04–1.15) per 10 dB increase	47 dB	9 619 082[a] (2)	Very low (downgraded for risk of bias; upgraded for dose-response)
L_{den}	Incidence of hypertension	RR = 1.00 (95% CI: 0.77–1.30) per 10 dB increase	N/A	4712 (1)	Low (downgraded for risk of bias and because only one study available)
Annoyance					
L_{den}	%HA	OR = 4.78 (95% CI: 2.27–10.05) per 10 dB increase	33 dB	17 094 (12)	Moderate (downgraded for inconsistency)
Cognitive impairment					
L_{den}	Reading and oral comprehension	1–2-month delay per 5 dB increase	Around 55 dB	(4)	Moderate (downgraded for inconsistency)
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

Note: [a] Results are partly derived from population-based studies.

Cardiovascular disease

IHD

No cohort or case-control studies on the relationship between aircraft noise and IHD are available. However, two ecological studies were identified that provide information on the relationship between aircraft noise and incidence (hospital admission) of IHD (Correia et al., 2013; Hansell et al., 2013). These involved a total of 9 619 082 participants, including 158 977 cases. The RR was 1.09 (95% CI: 1.04–1.15) per 10 dB L_{den} increase, and the lowest exposure range was ≤51 dB and <45 dB. Given the weights in the meta-analysis of these two studies, the weighted average starting level was calculated as 47 dB. The evidence was rated very low quality.

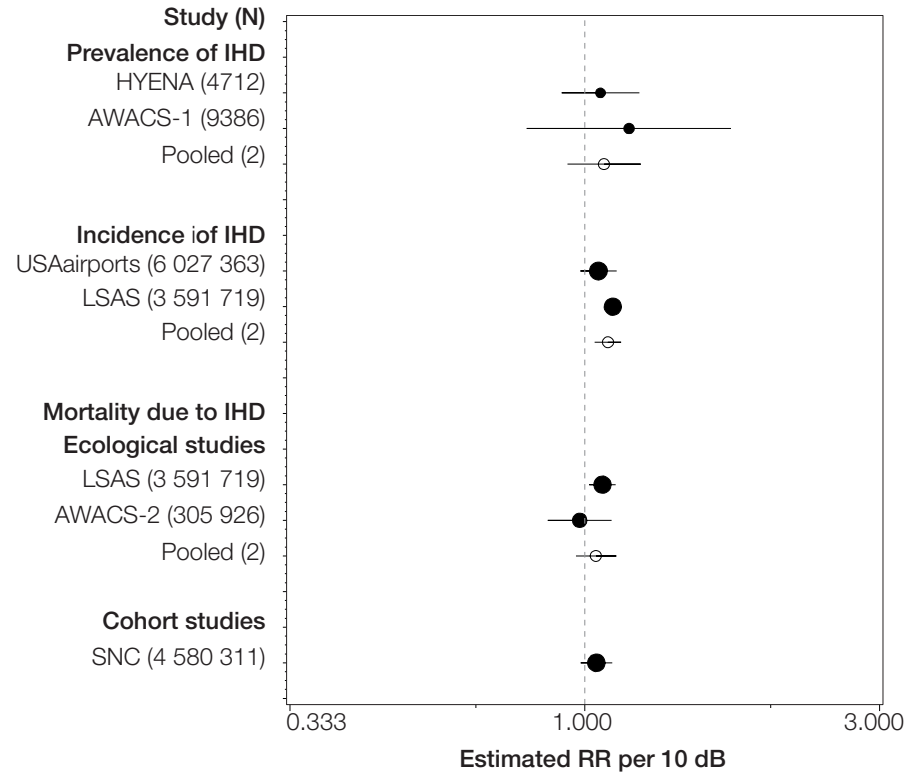
Two cross-sectional studies were identified that assessed the prevalence of IHD in people living in cities located around airports in Europe. The studies involved 14 098 participants, including 340 cases (Babisch et al., 2005b; 2008; 2012a; 2012b; 2013a; Floud et al., 2011; 2013a; 2013b; Jarup et al., 2005; 2008; van Poll et al., 2014). The overall risk was RR = 1.07 (95% CI: 0.94–1.23) per 10 dB L_{den} increase. The evidence was rated low quality.

With regard to the relationship between aircraft noise and mortality due to IHD, one cohort study (Huss et al., 2010) and two ecological studies (Hansell et al., 2013; van Poll et al., 2014) were identified. The cohort study identified 4 580 311 participants, including 15 532 cases, living in Switzerland, and the authors found an RR of 1.04 (95% CI: 0.98–1.11) per 10 dB L_{den} increase in noise. The evidence was rated low quality. The two ecological studies identified a total of 3 897 645

participants, including 26 066 cases in the Netherlands and the United Kingdom. The overall RR was 1.04 (95% CI: 0.97–1.12) per 10 dB L_{den} increase in noise, and the evidence was rated very low quality.

Fig. 10 summarizes the results for the relationship between aircraft noise and different measures of IHD.

Fig. 10. The association between exposure to aircraft noise (L_{den}) and IHD



Notes: The dotted vertical line corresponds to no effect of exposure to aircraft noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Hypertension

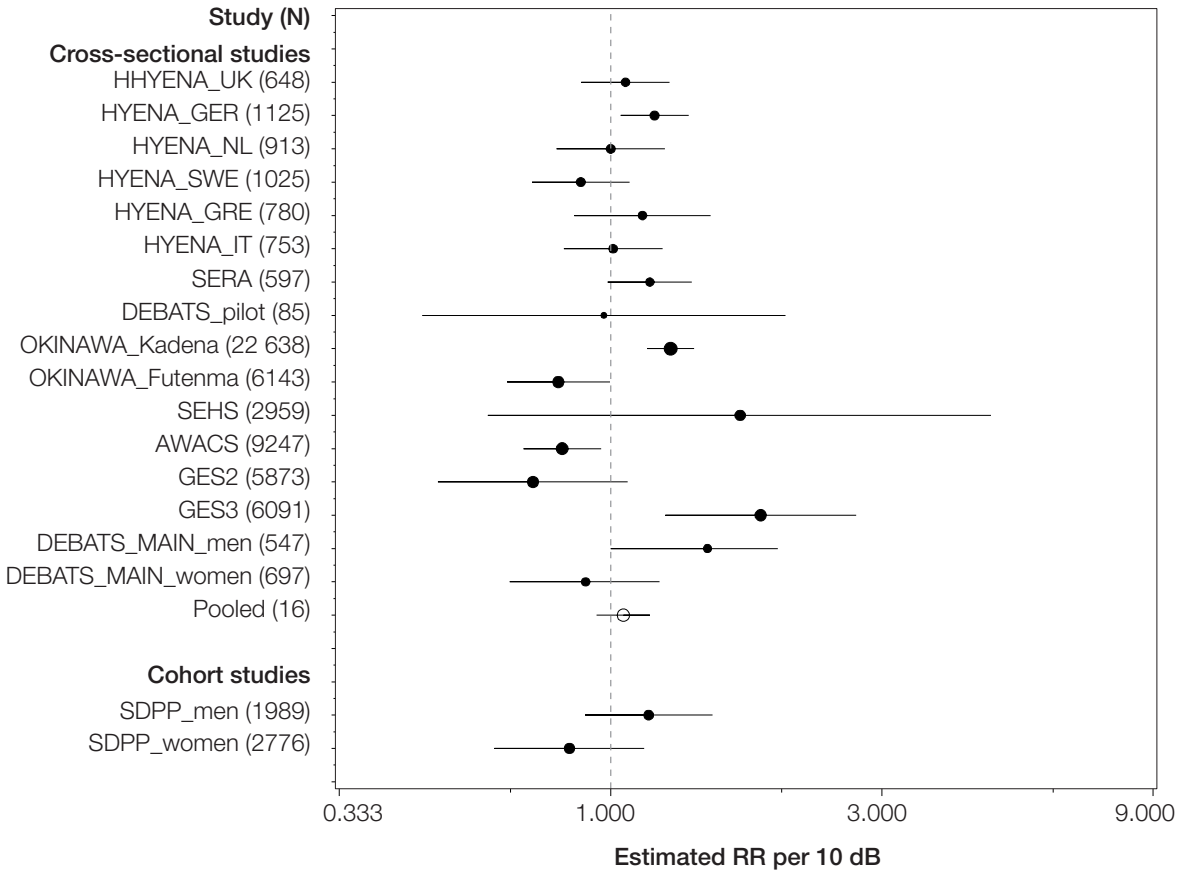
One cohort study was identified that assessed the relationship between aircraft noise and hypertension in people living in Sweden (Bluhm et al., 2004; 2009; Eriksson et al., 2007; 2010). The study involved 4712 participants, including 1346 cases. The authors found a nonstatistically significant effect size of RR = 1.00 (95% CI: 0.77–1.30) per 10 dB L_{den} increase. This evidence was rated moderate quality.

Furthermore, nine cross-sectional studies assessed the prevalence of hypertension in 60 121 participants, including 9487 cases (Ancona et al., 2010; Babisch et al., 2005b; 2008; 2012a; 2012b; 2013a; Breugelmans et al., 2004; Evrard et al., 2013; 2015; Houthuijs & van Wiechen, 2006; Jarup

et al., 2005; 2008; Matsui, 2013; Matsui et al., 2001; 2004; Rosenlund et al., 2001; van Kamp et al., 2006; van Poll et al., 2014). The overall RR was 1.05 (95% CI: 0.95–1.17) per 10 dB L_{den} increase, with inconsistency across studies. The evidence was rated low quality.

Fig. 11 summarizes the results for both prevalence and incidence of hypertension.

Fig. 11. The association between exposure to aircraft noise (L_{den}) and hypertension in cross-sectional and cohort studies



Notes: The dotted vertical line corresponds to no effect of aircraft noise exposure. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the pooled summary estimate and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Stroke

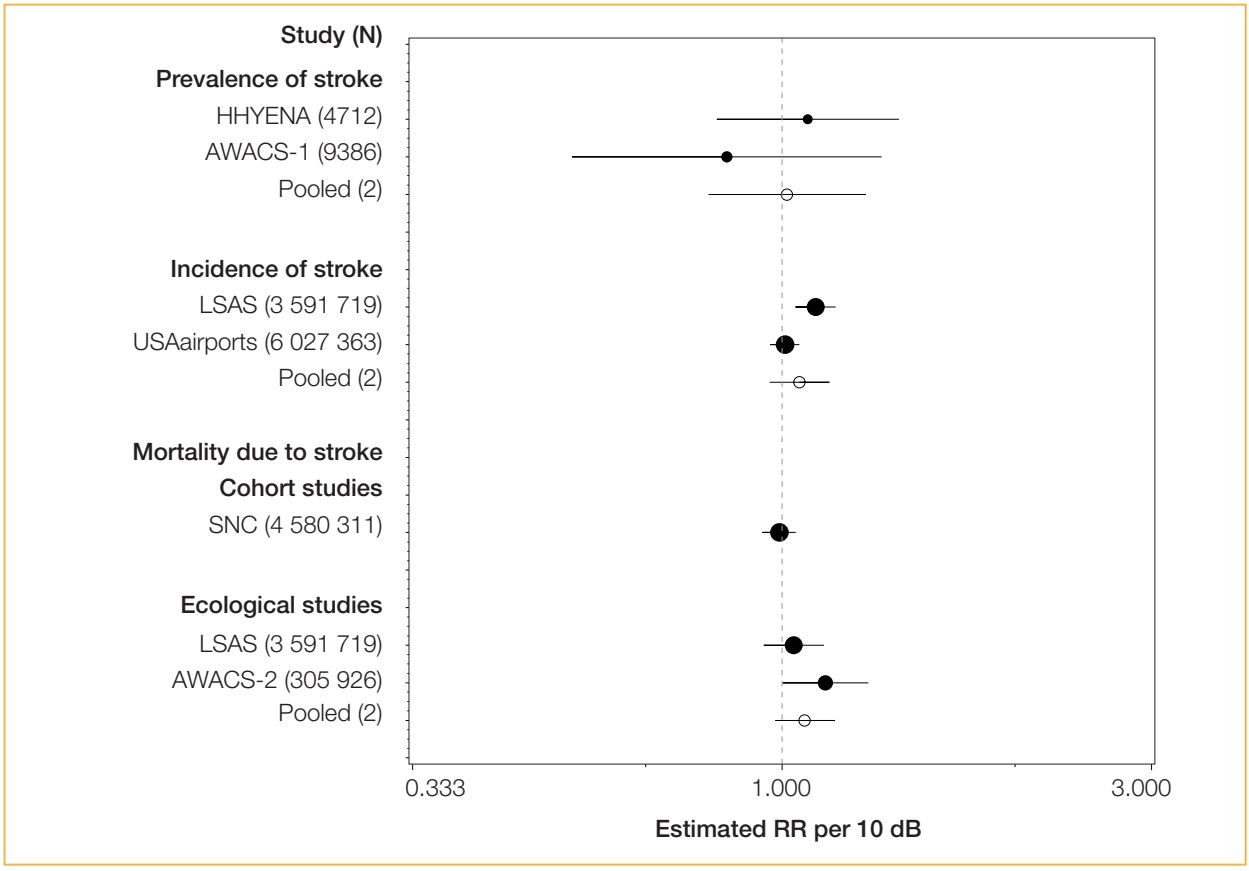
No cohort or case-control studies on the relationship between aircraft noise and incidence (hospital admission) of stroke were available, but two ecological studies were conducted in cities around airports in the United Kingdom and United States of America, involving 9 619 082 participants, including 97 949 cases (Correia et al., 2013; Hansell et al., 2013). An overall RR of 1.05 (95% CI: 0.96–1.15) per 10 dB L_{den} increase in noise was found. The evidence was rated very low quality.

Two cross-sectional studies were identified that assessed the prevalence of stroke in 14 098 participants, including 151 cases (Babisch et al., 2005b; 2008; 2012a; 2012b; 2013a; Floud et al., 2011; 2013a; 2013b; Jarup et al., 2005; 2008; van Poll et al., 2014). The overall RR was 1.02 (95% CI: 0.80–1.28) per 10 dB L_{den} increase. The evidence was rated very low quality.

On the relationship between aircraft noise and mortality due to stroke, one cohort study (Huss et al., 2010) and two ecological studies (Hansell et al., 2013; van Poll et al., 2014) were identified. The cohort study identified 4 580 311 participants, including 25 231 cases, living in Switzerland; the authors found an RR of 0.99 (95% CI: 0.94–1.04) per 10 dB L_{den} increase in noise. The overall evidence was rated moderate quality. The two ecological studies identified a total of 3 897 645 participants, including 12 086 cases, in the Netherlands and the United Kingdom. The overall RR was 1.07 (95% CI: 0.98–1.17) per 10 dB L_{den} increase in noise. The evidence was rated very low quality.

Fig. 12 summarizes the results for the relationship between aircraft noise and different measures of stroke.

Fig. 12. The association between exposure to aircraft noise (L_{den}) and stroke



Notes: The dotted vertical line corresponds to no effect of exposure to aircraft noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the summary estimate and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

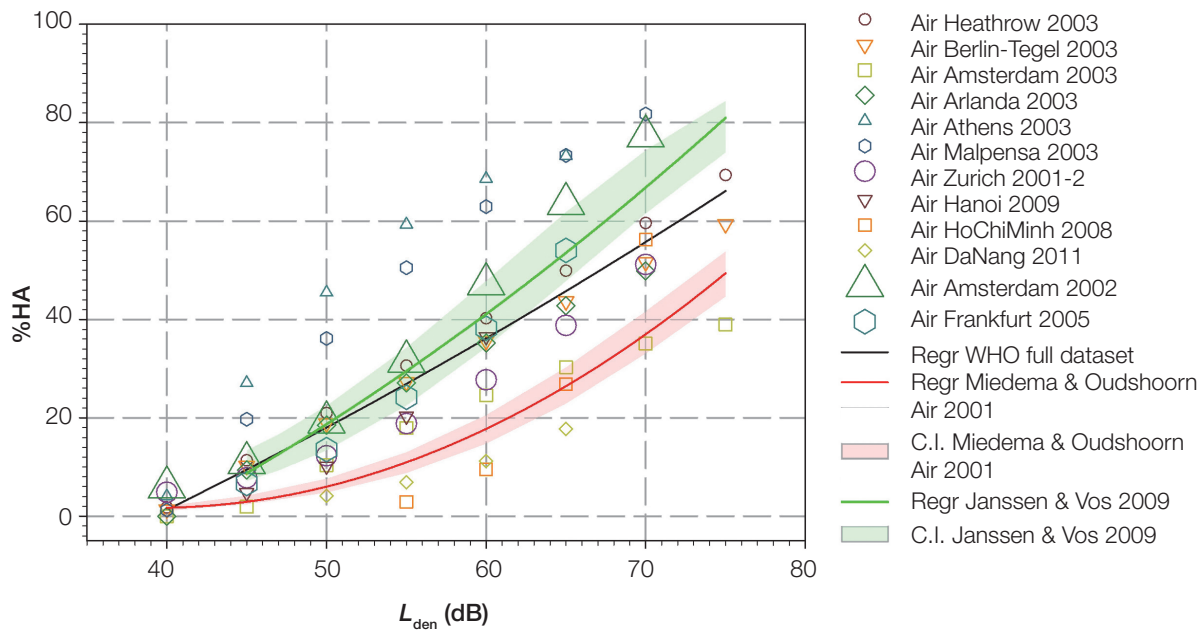
Children's blood pressure

For the association between aircraft noise and blood pressure in children, two cross-sectional studies were conducted in Australia, the Netherlands and the United Kingdom, including a total of 2013 participants (Clark et al., 2012; Morrell et al., 1998; 2000; van Kempen et al., 2006). The change in both systolic and diastolic blood pressure was assessed, in residential and/or educational settings. There was serious inconsistency in the results and therefore no overall estimate of the effect was developed. The evidence was rated very low quality.

Annoyance

A vast amount of evidence proves the association between aircraft noise and annoyance. In total, 12 aircraft noise studies were identified that were used to model ERFs of the relationship between L_{den} and %HA (Babisch et al., 2009; Bartels et al., 2013; Breugelmans et al., 2004; Brink et al., 2008; Gelderblom et al., 2014; Nguyen et al., 2011; 2012a; 2012b; Sato & Yano, 2011; Schreckenberg & Meis, 2007). These include data from 17 094 study participants. The estimated data points of each of the studies are plotted in Fig. 13, alongside an aggregated ERF including the data from all the individual studies (see the black line for "Regr WHO full dataset"). The lowest category of noise exposure considered in any of the studies, and hence included in the systematic review, is 40 dB, corresponding to approximately 1.2%HA. The benchmark level of 10%HA is reached at approximately 45 dB L_{den} (see Fig. 13).

Fig. 13. Scatterplot and quadratic regression of the relationship between aircraft noise (L_{den}) and annoyance (%HA)



Notes: ERFs by Miedema & Oudshoorn (2001, red), and Janssen & Vos (2009, green) are added for comparison. There is no indication of 95% CIs of the WHO dataset curve, as a weighting based on the total number of participants for each 5 dB L_{den} sound class could not be calculated; weighting based on all participants of all sound classes proved to be unsuitable. The range of data included is illustrated by the distribution of data points. For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Table 30 shows the %HA in relation to exposure to aircraft traffic noise. It is based on the regression equation %HA = –50.9693 + 1.0168 × L_{den} + 0.0072 × L_{den}^2 derived from the systematic review (Guski et al., 2017). As the majority of the studies are cross-sectional, the evidence was rated moderate quality.

The general quality of the evidence was further substantiated with the help of additional statistical analyses that apply classical health outcome measures to estimate noise annoyance. When comparing aircraft noise exposure at 50 dB and 60 dB, the analyses revealed evidence rated high quality for an association between aircraft noise and %HA for an increase per 10 dB (OR = 3.40; 95% CI: 2.42–4.80). Moreover, there was evidence rated high quality for the increase of %HA per 10 dB increase in sound exposure, when data on all sound classes were included (OR = 4.78; 95% CI: 2.27–10.05).

Table 30. The association between exposure to aircraft noise (L_{den}) and annoyance (%HA)

L_{den} (dB)	%HA
40	1.2
45	9.4
50	17.9
55	26.7
60	36.0
65	45.5
70	55.5

Cognitive impairment

Evidence rated moderate quality was available for an association between aircraft noise and reading and oral comprehension, assessed by standardized tests. This is based on a narrative review of 14 studies that examined aircraft noise exposure effects on reading and oral comprehension (Clark et al., 2006; 2012; 2013; Evans & Maxwell, 1997; Haines et al., 2001a; 2001b; 2001c; Hygge et al., 2002; Klatte et al., 2014; Matsui et al., 2004; Seabi et al., 2012; 2013; Stansfeld et al., 2005; 2010). Of these studies, 10 were cross-sectional, and only four had a longitudinal and/or intervention design (Clark et al., 2013; Haines et al., 2001c; Hygge et al., 2002; Seabi et al., 2013). Most of the studies (10 of 14) demonstrated a statistically significant association or at least demonstrated a trend between higher aircraft noise exposure and poorer reading comprehension.

This relationship is supported by evidence on other health outcome measures related to cognition. Evidence rated moderate quality was available for an association between aircraft noise and children with poorer performance on standardized assessment tests (Eagan et al., 2004; FICAN, 2007; Green et al., 1982; Sharp et al., 2014). There was also evidence rated moderate quality on aircraft noise being associated with children having poorer long-term memory (Haines et al., 2001b). No studies examined the effects on short-term memory.

However, there was no substantial effect (evidence rated low quality) of aircraft noise on children's attention (Haines et al., 2001a; Hygge et al., 2002; Matsui et al., 2004; Stansfeld et al., 2005; 2010), or on executive function (working memory) (evidence rated very low quality), with studies consistently suggesting no association for aircraft noise (Clark et al., 2012; Haines et al., 2001a;

Haines et al., 2001b; Klatte et al., 2014; Matheson et al., 2010; Stansfeld et al., 2005; 2010; van Kempen et al., 2010; 2012).

Hearing impairment and tinnitus

No studies were found, and therefore no evidence was available on the association between aircraft noise and hearing impairment and tinnitus.

Sleep disturbance

For aircraft noise and self-reported sleep outcomes, six studies were identified that included a total of 6371 participants (Nguyen et al., 2009; 2010; 2011; 2012c; 2015; Schreckenberg et al., 2009; Yano et al., 2015). The majority of studies were cross-sectional by design and were conducted in otherwise healthy adults. The model was based on outdoor L_{night} levels between 40 dB and 65 dB only; the lower limit of 40 dB was set because of inaccuracies in predicting lower noise levels (Table 31).

Table 31. Summary of findings for health effects from exposure to aircraft noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	OR: 1.94 (95% CI: 1.61–2.33) per 10 dB increase	35 dB	6371 (6)	Moderate (downgraded for study limitations, inconsistency; upgraded for dose-response, magnitude of effect)

The range of noise exposure reported in studies was 37.5–62.5 dB. Over 11% (95% CI: 4.72–17.81) of the population was characterized as highly sleep-disturbed at L_{night} levels of 40 dB. The %HSD at other, higher levels of aircraft noise is presented in Table 27. The table is derived from the regression model in the systematic review specified as $\%HSD = 16.79 - 0.9293 \times L_{night} + 0.0198 \times L_{night}^2$. The health outcome was measured in the studies by self-reporting, focusing on questions asking about awakenings from sleep, the process of falling asleep and/or sleep disturbance, where the question referred specifically to how noise affects sleep. The same relationship between aircraft noise and reporting being sleep-disturbed (all questions combined) can also be expressed as an OR of 1.94 (95% CI: 1.61–2.33) per 10 dB increase in noise. This evidence was rated moderate quality.

Table 32. The association between exposure to aircraft noise (L_{night}) and sleep disturbance (%HSD)

L_{night}	%HSD	95% CI
40	11.3	4.72–17.81
45	15.0	6.95–23.08
50	19.7	9.87–29.60
55	25.5	13.57–37.41
60	32.3	18.15–46.36
65	40.0	23.65–56.05

Additional analyses were included in the systematic review and provided supporting evidence on the association between aircraft noise and sleep. When the noise source was not specified in the survey question, the relationship between aircraft noise and self-reported sleep outcomes was still positive, although no longer statistically significant (OR: 1.17 (95% CI: 0.54–2.53) per 10 dB increase) (Brink, 2011). This evidence was rated very low quality.

Further, there was evidence rated moderate quality for an association between aircraft noise and polysomnography-measured outcomes (probability of additional awakenings), with an OR of 1.35 (95% CI: 1.22–1.50) per 10 dB increase in indoor $L_{AS,max}$ (Basner et al., 2006). Evidence rated low quality was also available for an association between aircraft noise and motility-measured sleep outcomes in adults (Passchier-Vermeer et al., 2002).

3.3.2.2 Evidence on interventions

The following section summarizes the evidence underlying the recommendation on the effectiveness of interventions for aircraft noise exposure. The key question posed was: in the general population exposed to aircraft noise, are interventions effective in reducing exposure to and/or health outcomes from aircraft noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 33 and 34.

Seven studies examining different types of interventions on aircraft noise met the inclusion criteria to become part of the evidence base of the systematic review. Six of these investigated infrastructure interventions (Breugelmans et al., 2007; Brink et al., 2008; Fidell et al., 2002; Hygge et al., 2002), and one assessed a path intervention (Asensio et al., 2014). The majority of studies focused on annoyance as a health outcome, but two also included effects on sleep and one investigated the effects of path interventions on cognitive development in children.

Table 33. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to aircraft noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 34. Summary of findings for aircraft noise interventions by health outcome

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Annoyance			
Type B – path interventions (retrofitting dwellings close to airports with acoustic insulation)	689 (1)	• Change in noise levels was not reported. • The study found a drop in annoyance following the insulation intervention	Very low (downgraded for study limitations, inconsistency, precision)
Type C – changes in infrastructure (opening and/or closing of runways, or flight path rearrangements)	2101 (3)	• There was a wide range of changes in noise levels (from –12 dB to +13.7 dB; most between ±1 dB and 2 dB; different noise indicators used). • All studies found changes in annoyance outcomes as a result of the intervention.	Moderate (downgraded for study limitations; upgraded for dose-response)
Sleep disturbance			
Type C – changes in infrastructure (flight path changes)	1707 (2)	• Changes in noise levels were mostly between ±1 dB and 2 dB. • Both studies found changes in sleep disturbance outcomes as a result of the intervention.	Low (downgraded for study limitations)
Cognitive development of children			
Type C – changes in infrastructure (opening and/or closing of runways, or flight path rearrangements)	326 (1)	• Changes in noise levels of +9 dB at the new airport and of –14 dB at the old airport were reported. • The study found various cognitive effects on children (for both the reduction and the increase in exposure). Effects disappeared when the old airport closed, emerging after the new airport opened.	Moderate (downgraded for inconsistency)

The largest body of research concentrated on the opening and closing of runways, leading to subsequent changes in flight paths (Breugelmans et al., 2007; Brink et al., 2008; Fidell et al., 2002). It showed that changes in noise exposure as a consequence of rearrangement of flight paths, step changes or increase or removal of over-flights resulted in statistically significant changes of the annoyance ratings of residents living in the vicinity of airports. The studies investigated both increases and reductions in exposure. Moreover, all the studies provided evidence that the change in response to noise exposure was an excess response to the intervention. As all the studies either adjusted for confounding or ruled out confounding by design, and the risk of bias was high in two studies but low in one, the evidence was rated moderate quality.

Two of these studies also investigated the effects of interventions on sleep disturbance. The results indicated that the percentage of sleep disturbance changed in association with the change in noise exposure caused by flight path adaptations (Breugelmans et al., 2007; Fidell et al., 2002). Both studies adjusted for confounding, but the risk of bias was assessed as high. Thus, the evidence was rated low quality.

One study examined the impact of rearranging flight paths on the cognitive effects on children (Hygge et al., 2002), showing various effects (for both the reduction and the increase in exposure).

The study ruled out confounding by study design and the risk of bias was assessed as low. The evidence was therefore rated moderate quality.

Alongside infrastructure interventions, a Spanish study presented evidence on path interventions (Asensio et al., 2014), showing a drop in annoyance following an insulation intervention. The study did not control for confounding and the risk of bias was assessed as high. The evidence was therefore rated very low quality.

3.3.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, substantial evidence about the adverse health effects of long-term exposure to aircraft noise exists. Based on the quality of the available evidence, the GDG set the strength of the recommendation of aircraft noise at strong. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, equity, and resource use and implementation.

When assessing the balance of harms and benefits from implementing the recommendations on aircraft exposure, the GDG acknowledged that the number of people affected was lower than for road traffic or railway noise, since aircraft noise only affects the areas surrounding airports and under flight paths. Data from the EEA show that the estimated number of people in Europe exposed to L_{den} levels above 55 dB and L_{night} levels above 50 dB is 3 million and 1.2 million, respectively (Blanes et al., 2017).[17] Nevertheless, it remains a major source of localized noise pollution and has been predicted to increase (EASA et al., 2016). Furthermore, aircraft noise is regarded as more annoying than the other sources of transportation noise (Schreckenberg et al., 2015; Miedema & Oudshoorn, 2001); it is therefore associated with a significant burden on public health, and the GDG expects substantial health benefits for the population to evolve from implementing the recommendations to reduce exposure to aircraft traffic noise. Furthermore, the GDG noted that, depending on the intervention measure implemented (such as a night flight ban), additional health benefits could evolve, resulting from a simultaneous reduction in air pollution (EC, 2016a). The GDG also acknowledged that intervention measures like night flight bans might also reduce carbon emission, thereby positively influencing the shift towards a greener and more sustainable economy. Possible harms in relation to the applied noise abatement strategy, on the other hand, could include effects on the transportation of goods, as well as individual mobility of the population. Both could have impacts on local, national and international economies. Overall, the GDG estimated that the benefits gained from minimizing adverse health effects due to aircraft noise exposure outweigh the possible (economic) harms.

Considering values and preferences, the GDG noted that negative attitudes towards aircraft noise are especially prevalent in affected individuals who can see and hear aircraft from their house, or who fear that living in proximity of airports will have an impact on their health (Schreckenberg et al., 2015) or property value (economic loss) (Bristow et al., 2014). A lack of trust in the airport and government authorities can enhance these negative attitudes towards airports and aircraft noise (Borsky, 1979; Schreckenberg, 2017). Furthermore, the GDG recognized that values and preferences of individuals living in the vicinity of different airports may vary, as the infrastructural characteristics

[17] These are gap-filled figures based on the reported data and including the situation both within and outside cities, as defined by the END.

of airports have a significant effect on the evaluation of residents. Airports with a stable number of aircraft movements in the near past and no intention to change the number in the future can give rise to a different evaluation of values and preferences than airports with relatively sustained increases in the number of aircraft movements. This can result from the fact that opening new runways or increasing the number of flights usually means considerable change in the environment for inhabitants of the affected area. It has been postulated that the change of exposure itself may be an annoying factor, and this may explain why aircraft noise annoyance is generally higher than that for other sources of transportation noise at a comparable noise level (Brown & van Kamp, 2009). The GDG acknowledged that, in general, air travel is an important means of transportation relevant for businesses, the public and the economy. In Europe, aviation is projected to be the fastest-growing sector from passenger transport demand, by 2050 (EEA, 2016a). The general population tends to value the convenience of travel by air. Moreover, the GDG pointed out that exposure to aircraft noise is not equally distributed throughout society. The preferences of people living in the vicinity of airports are expected to differ from those of the general population that does not experience the same noise burden. This might facilitate variance in the values and preference of the population, as those benefiting from the services and revenues generated by an airport may regard noise reduction measures as an additional, unnecessary extra cost, while those living around an airport and affected by aircraft noise may be in favour of noise reductions, since this concerns their health and well-being. Despite these differences, however, the GDG was confident that a majority of the population would value the minimization of adverse health effects and therefor welcome the implementation of the recommendations.

Regarding the dimension of equity, the GDG highlighted that the risk of exposure to aircraft noise is not equally distributed throughout society. Members of society with a lower socioeconomic status and other disadvantaged groups often live in more polluted and louder areas, including in close proximity to airports (EC, 2016a). In addition to the increased risk of exposure to environmental noise, socioeconomic factors are also associated with increased vulnerability and poorer coping capacities (Karpati et al., 2002).

With resource use and implementation considerations, the GDG acknowledged that the economic evaluation of the health impacts of environmental noise is most elaborate and extensive for aircraft noise (Berry & Sanchez, 2014). Nevertheless, no comprehensive cost–benefit analysis for the WHO European Region yet exists, so this assessment is based on informed qualitative expert judgement regarding the feasibility of implementing the recommendation for the majority of the population. The systematic review of interventions and their associated impact on environmental noise and health shows that various measures to reduce continuous noise from aircraft exist. Moreover, the quality of the evidence was judged to be moderate (Brown & van Kamp, 2017). The GDG noted that the resources needed to implement different intervention measures may vary considerably, because they depend on the situation and the type of intervention required. The distribution of costs also differs from that for other modes of transportation, since exposure to aircraft noise is localized in a more agglomerated way, and overall the population affected is smaller compared to other modes of transportation. The GDG furthermore recognized that multiple cost-effective intervention strategies exist (EC, 2016b). Prohibition or discouragement strategies against citizens moving to the direct proximity of airports, for example, can be implemented in the context of urban planning. Likewise, diverting flight paths above less-populated areas can lead to a reduction in exposure. In principle,

such intervention measures do not involve any direct costs, although safety concerns may limit the feasibility of these strategies. Passive noise abatement measures like the installation of soundproof windows at the dwelling were also regarded as feasible and economically reasonable by the GDG, as these are implemented at several airports already. In relation to active abatement measures, the GDG acknowledged the "balanced approach" elaborated by International Civil Aviation Organization, which states that noise reduction should take place first at the source. As indicated by the Clean Sky Programme, this could, for example, entail shifting towards the introduction of new aircraft. This broad European research programme estimates that, depending on type, the shift to newly produced aircraft could lead to a reduction of approximately 55–79% of the area affected by aircraft noise, and consequently the population exposed. As this solution has been put forward by the aviation sector, it is considered feasible. Overall, this indicates that solutions to achieve recommended noise levels can be implemented and at reasonable costs. The GDG agreed that implementation of the recommendation to minimize the risk of adverse health effects due to aircraft noise for a majority of the population would require a reasonable amount of (monetary) resources. It noted, however, that the feasibility of implementing the measures could be hindered by the fact that costs and benefits are not equally distributed. In most cases, the health benefits citizens gain from interventions that reduce aircraft exposure are borne by private companies and public authorities.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains strong.

Other nonpriority adverse health outcomes

Although not a priority health outcome and coming from a single study, the GDG noted the evidence rated moderate quality for the statistically significant association between aircraft noise and the change in waist circumference (Eriksson et al., 2014). The range of noise levels in the study identified was 48 to 65 dB L_{den}, and therefore the recommendation would also be protective enough for this health outcome.

In the context of aircraft noise, when considering the impacts of exposure on cognitive impairment in children, these guideline recommendations also apply particularly to the school setting. Noise exposure at primary school and at home is often highly correlated; however, the evidence base considered comes mainly from studies designed around sampling at school and not residences.

Additional considerations or uncertainties

There is additional uncertainty when characterizing exposure using the acoustical description of aircraft noise by means of L_{den} or L_{night}. Use of these average noise indicators may limit the ability to observe associations between exposure to aircraft noise and some health outcomes (such as awakening reactions); as such, noise indicators based on the number of events (such as the frequency distribution of $L_{A,max}$) may be better suited. However, such indicators are not widely used.

The GDG acknowledged that the guideline recommendation for L_{night} may not be fully protective of health, as it implies that around 11% (95% CI: 4.72–17.81) of the population may be characterized as highly sleep-disturbed at the recommended L_{night} level. This is higher than the 3% absolute risk considered for setting the guideline level. However, the high calculation uncertainty in predicting noise levels lower than 40 dB prevented the GDG from recommending a lower level. Furthermore,

lower levels would probably require a ban on night or early morning flights altogether, which is not feasible in many situations, given that the general population tends to value the convenience of air travel.

3.3.3 Summary of the assessment of the strength of recommendation

Table 35 provides a comprehensive summary of the different dimensions for the assessment of the strength of the aircraft noise recommendations.

Table 35. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure (L_{den})** *Health effects* • Evidence for a relevant RR increase of the incidence of IHD at **52 dB** L_{den} was rated **very low quality.** • Evidence for a relevant RR increase of the incidence of hypertension was rated **low quality**. • Evidence for a relevant absolute risk of annoyance at **45 dB** L_{den} was rated **moderate quality**. • Evidence for a relevant RR increase of impaired reading and oral comprehension at **55 dB** L_{den} was rated **moderate quality**. *Interventions* • Evidence on effectiveness of interventions to reduce noise exposure and/or health outcomes from aircraft noise was of varying quality. **Night-time exposure (L_{night})** *Health effects* • Evidence for a relevant absolute risk of sleep disturbance related to night noise exposure from aircraft at **40 dB** L_{night} was rated **moderate quality**. *Interventions* • Evidence on effectiveness of changes in infrastructure (flight path changes) to reduce sleep disturbance from aircraft noise was rated **low quality**.
Balance of benefits versus harms and burdens	Aircraft noise is a major source of localized noise pollution. The health benefits of adapting the recommendations are expected to outweigh the harms.
Values and preferences	Quiet areas are valued by the population, especially by those affected by continuous aircraft noise exposure. Some variability is expected among those directly affected by aircraft noise and those not affected.
Equity	Risk of exposure to aircraft noise is not equally distributed.
Resource implications	No comprehensive cost–effectiveness analysis data are available; nevertheless, a wide variety of interventions exist (some at very low cost), indicating that measures are both feasible and economically reasonable.
Decisions on recommendation strength	• **Strong** for guideline value for average noise exposure (L_{den}) • **Strong** for guideline value for night noise exposure (L_{night}) • **Strong** for specific interventions to reduce noise exposure

3.4 Wind turbine noise

Recommendations

For average noise exposure, the GDG **conditionally** recommends reducing noise levels produced by wind turbines below **45 dB** L_{den}, as wind turbine noise above this level is associated with adverse health effects.

To reduce health effects, the GDG **conditionally** recommends that policy-makers implement suitable measures to reduce noise exposure from wind turbines in the population exposed to levels above the guideline values for average noise exposure. No evidence is available, however, to facilitate the recommendation of one particular type of intervention over another.

3.4.1 Rationale for the guideline levels for wind turbine noise

The exposure levels were derived in accordance with the prioritizing process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to wind turbine noise, the process can be summarized as follows (Table 36).

Table 36. Average exposure levels (L_{den}) for priority health outcomes from wind turbine noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD Incidence of IHD could not be used to assess the exposure level.	5% increase of RR	No studies were available
Incidence of hypertension Incidence of hypertension could not be used to assess the exposure level.	10% increase of RR	No studies were available
Prevalence of highly annoyed population Four studies were available. An exposure–response curve of the four studies revealed an absolute risk of 10%HA (outdoors) at a noise exposure level of 45 dB L_{den}.	10% absolute risk	Low quality
Permanent hearing impairment	No increase	No studies were available
Reading skills and oral comprehension in children	One-month delay	No studies were available

In accordance with the prioritization process, the GDG set a guideline exposure level of 45.0 dB L_{den} for average exposure, based on the relevant increase of the absolute %HA. The GDG stressed that there might be an increased risk for annoyance below this noise exposure level, but it could not state whether there was an increased risk for the other health outcomes below this level owing to a lack of evidence. As the evidence on the adverse effects of wind turbine noise was rated low quality, the GDG made the recommendation conditional.

Next, the GDG considered the evidence for night noise exposure to wind turbine noise and its effect on sleep disturbance (Table 37).

Table 37. Night-time exposure levels (L_{night}) for priority health outcomes from wind turbine noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance Six studies were available; they did not reveal consistent results about effects of wind turbine noise on sleep.	3% absolute risk	Low quality

Based on the low quantity and heterogeneous nature of the evidence, the GDG was not able to formulate a recommendation addressing sleep disturbance due to wind turbine noise at night time.

The GDG also looked for evidence about the effectiveness of interventions for wind turbine noise exposure. Owing to a lack of research, however, no studies were available on existing interventions and associated costs to reduce wind turbine noise.

Based on this assessment, the GDG therefore provided a conditional recommendation for average noise exposure (L_{den}) to wind turbines and a conditional recommendation for the implementation of suitable measures to reduce noise exposure. No recommendation about a preferred type of intervention could be formulated; nor could a recommendation be made for an exposure level for night noise exposure (L_{night}), as studies were not consistent and in general did not provide evidence for an effect on sleep.

3.4.1.1 Other factors influencing the strength of recommendation

Other factors considered in the context of recommendations on wind turbine noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility. Ultimately, the assessment of all these factors did not lead to a change in the strength of recommendation, although it informed the development of a conditional recommendation on the intervention measures. Further details are provided in section 3.4.2.3.

3.4.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on wind turbine noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of intervention is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

It should be noted that, due to the time stamp of the systematic reviews, some more recent studies were not included in the analysis. This relates in particular to several findings of the Wind Turbine Noise and Health Study conducted by Health Canada (Michaud, 2015). Further, some studies were omitted, as they did not meet the inclusion criteria, including, for instance, studies using distance to the wind turbine instead of noise exposure to investigate health effects. The justification for including and excluding studies is given in the systematic reviews (Basner & McGuire, 2018; Brown et al.,

2017; Clark & Paunovic, 2018; in press; Guski et al., 2017; Niewenhuijsen et al.,2017; Śliwińska-Kowalska & Zaborowski, 2017; van Kempen et al., 2018; see Annex 2 for further details).

3.4.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to wind turbine noise, what is the exposure–response relationship between exposure to wind turbine noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 38 and 39.

Table 38. PICOS/PECCOS scheme of critical health outcomes for exposure to wind turbine noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by wind turbines (average/night time)	
Comparison	Exposure to lower levels of noise produced by wind turbines (average/night time)	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 39. Summary of findings for health effects from exposure to wind turbine noise (L_{den})

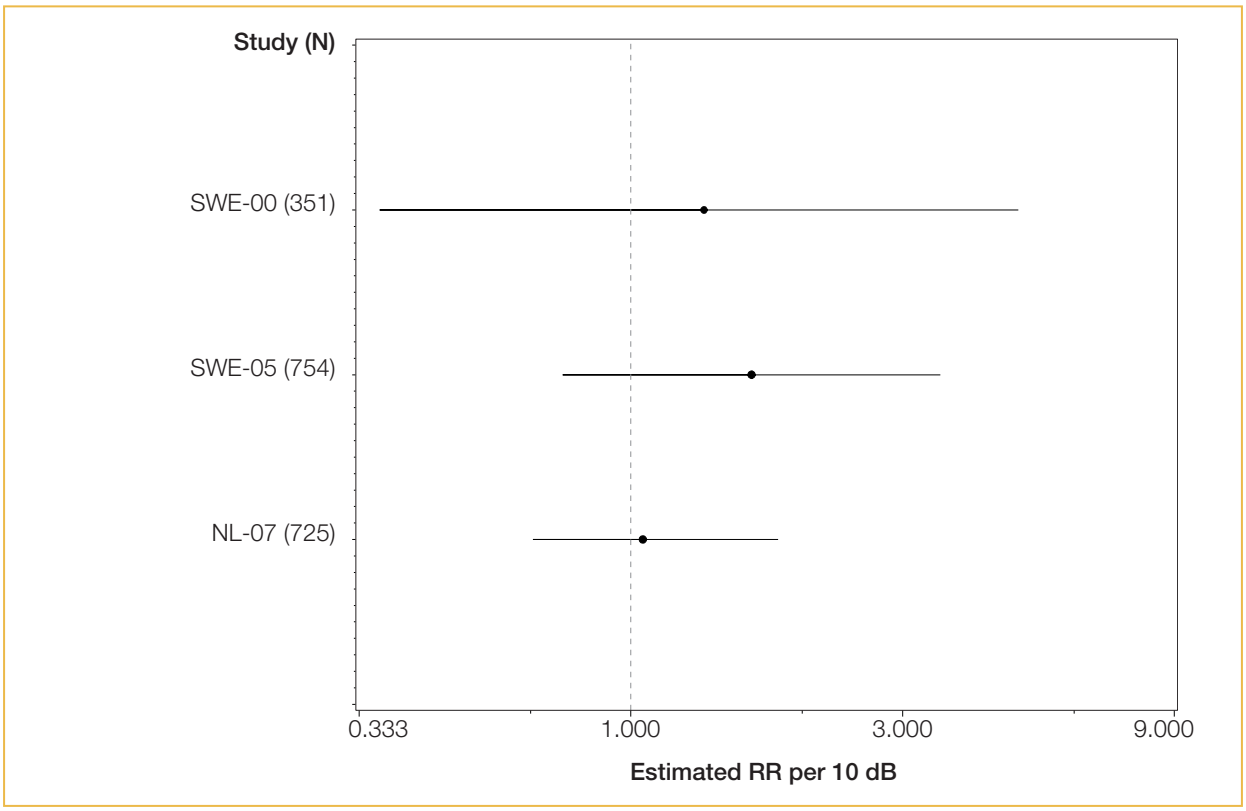
Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	–	–	–	–
L_{den}	Incidence of hypertension	–	–	–	–
Annoyance					
L_{den}	%HA	Not able to pool because of heterogeneity	30 dB	2481 (4)	Low (downgraded for inconsistency and imprecision)
Cognitive impairment					
L_{den}	Reading and oral comprehension	–	–	–	–
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

Cardiovascular disease

For the relationship between wind turbine noise and prevalence of hypertension, three cross-sectional studies were identified, with a total of 1830 participants (van den Berg et al., 2008; Pedersen, 2011; Pedersen & Larsman, 2008; Pedersen & Persson Waye, 2004; 2007). The number of cases was not reported. All studies found a positive association between exposure to wind turbine noise and the prevalence of hypertension, but none was statistically significant. The lowest levels in studies were either <30 or <32.5 L_{den}. No meta-analysis was performed, since too many parameters were unknown and/or unclear. Due to very serious risk of bias and imprecision in the results, this evidence was rated very low quality (see Fig. 14).

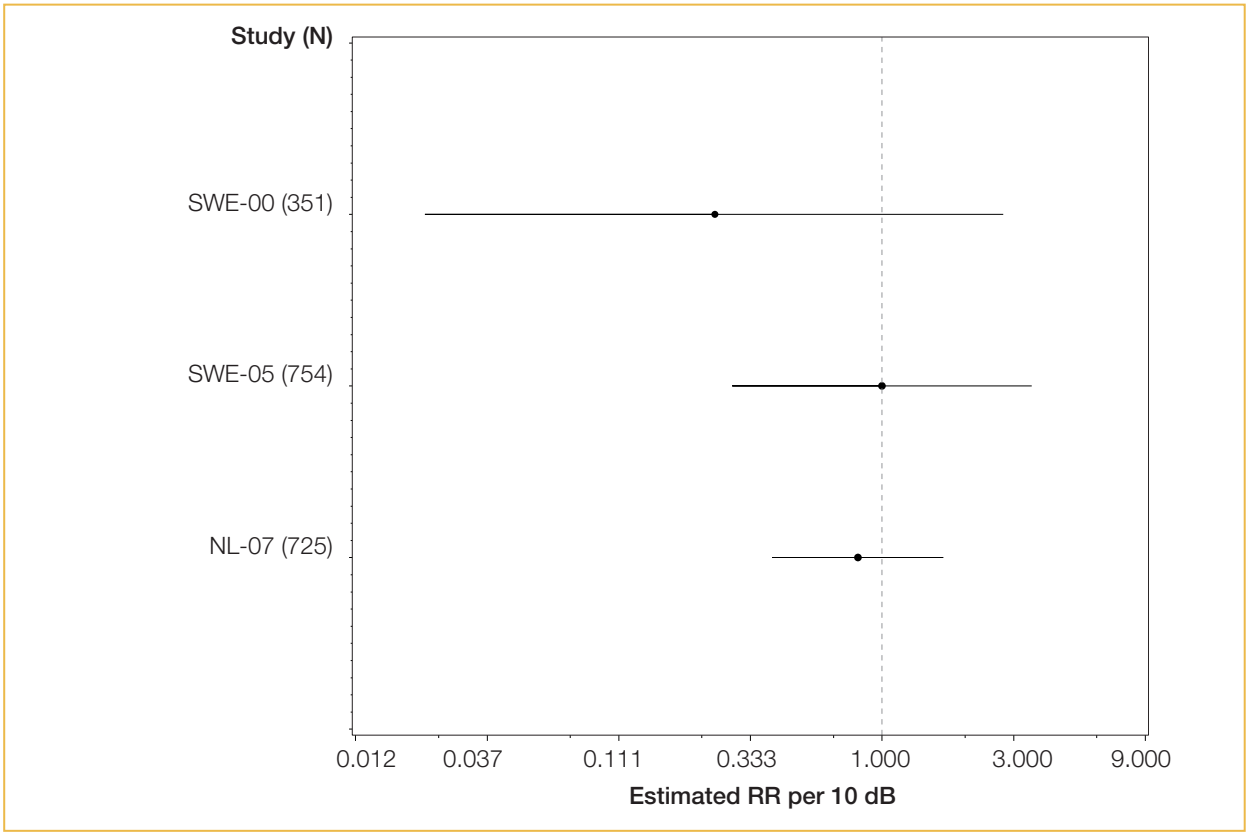
The same studies also looked at exposure to wind turbine noise and self-reported cardiovascular disease, but none found an association. No evidence was available for other measures of cardiovascular disease. As a result, only evidence rated very low quality was available for no considerable effect of audible noise (greater than 20 Hz) from wind turbines or wind farms on self-reported cardiovascular disease (see Fig. 15).

Fig. 14. The association between exposure to wind turbine noise (sound pressure level in dB) and hypertension



Notes: The dotted vertical line corresponds to no effect of exposure to wind turbine noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Fig. 15. The association between exposure to wind turbine noise (sound pressure level) and self-reported cardiovascular disease



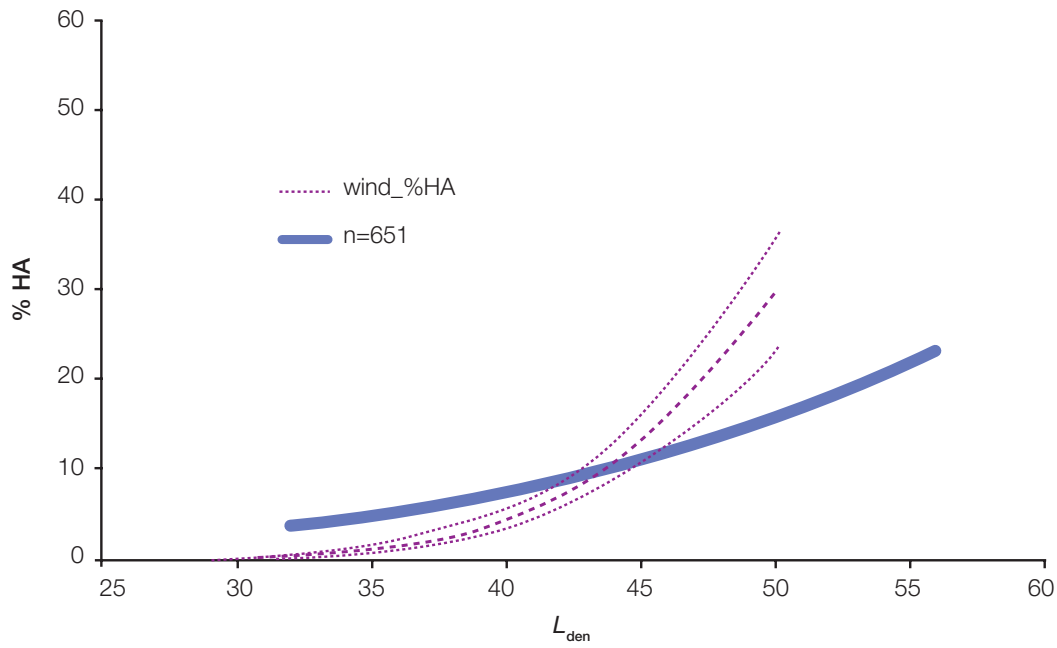
Notes: The dotted vertical line corresponds to no effect of exposure to wind turbine noise.The black circles correspond to the estimated RR per 10 dB (sound pressure level) and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Annoyance

Two publications containing descriptions of four individual studies were retrieved (Janssen et al., 2011; Kuwano et al., 2014). All four studies used measurements in the vicinity of the respondents' addresses; the noise exposure metrics used in the three original studies (Pedersen, 2011; Pedersen & Persson Waye, 2004; 2007) included in Janssen et al. (2011) were recalculated into L_{den}. The noise levels in the studies ranged from 29 dB to 56 dB. Different scales were used to assess annoyance, with slightly different definitions of "highly annoyed" and explicit reference to outdoor annoyance in the data used for the Janssen et al. (2011) curve. Construction of the ERFs provided in the two publications differed and they were therefore not further combined in a meta-analysis. Fig. 16 shows the %HA from the two publications. The 10% criterion for %HA is reached at around 45 dB L_{den} (where the two curves coincide). There was a wide variability in %HA between studies, with a range of 3–13%HA at 42.5 dB and 0–32%HA at 47.5 dB. The %HA in the sample is comparatively high, given the relatively low noise levels. There is evidence rated low quality for an association between wind turbine noise and annoyance, but this mainly applies to the association between wind turbine noise and annoyance and not to the shape of the quantitative relationship.

Further statistical analyses of annoyance yield evidence rated low quality for an association between wind turbine noise and %HA when comparing an exposure at 42.5 dB and 47.5 dB, with a mean difference in %HA of 4.5 (indoors) and 6.4 (outdoors). There is also evidence rated moderate quality for a correlation between individual noise exposure and annoyance raw scores (r = 0.28).

Fig. 16. Overlay of the two wind turbine annoyance graphs



Notes: Overlay of the two wind turbine outdoor annoyance graphs adapted from Janssen et al. (2011, red) and Kuwano et al. (2014, blue). The Kuwano et al. curve is based on L_{dn}; no correction for L_{den} has been applied.[18]
For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Cognitive impairment, hearing impairment and tinnitus, adverse birth outcomes

No studies were found, and therefore no evidence was available on the relationship between wind turbine noise and measures of cognitive impairment; hearing impairment and tinnitus; and adverse birth outcomes.

Sleep disturbance

Six cross-sectional studies on wind turbine noise and self-reported sleep disturbance were identified (Bakker et al., 2012; Kuwano et al., 2014; Michaud, 2015; Pawlaczyk-Luszczynska et al., 2014; Pedersen & Persson Waye, 2004; 2007). Noise levels were calculated using different methods, and different noise metrics were reported. Three of the studies asked how noise affects sleep; the other three evaluated the effect of wind turbine noise on sleep using questions that explicitly referred to noise (Table 40).

[18] L_{dn} is the day-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:2016.

Table 40. Summary of findings for health effects from exposure to wind turbine noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of effects in studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	1.60 (95% CI: 0.86–2.94) per 10 dB increase	31 dB	3971 (6)	Low (downgraded for study limitations, inconsistency, precision)

The risk of bias was assessed as high for all six studies, as effects on sleep were measured by self-reported data. There were a limited number of subjects at higher exposure levels. A meta-analysis was conducted for five of the six studies, based on the OR for high sleep disturbance for a 10 dB increase in outdoor predicted sound pressure level. The pooled OR was 1.60 (95% CI: 0.86–2.94). The evidence was rated low quality.

3.4.2.2 Evidence on interventions

This section summarizes the evidence underlying the recommendation on the effectiveness of interventions for wind turbine noise exposure. The key question posed was: in the general population exposed to wind turbine noise, are interventions effective in reducing exposure to and/or health outcomes from wind turbine noise? A summary of the PICOS/PECCOS scheme applied is set out in Table 41.

Table 41. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to wind turbine noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

No studies were found, and therefore no evidence was available on the effectiveness of interventions to reduce noise exposure from wind turbines.

3.4.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, very little evidence is available about the adverse health effects of continuous exposure to wind turbine noise. Based on the quality of evidence available, the GDG set the strength of the recommendation on wind turbine noise to conditional. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, and resource use and implementation.

Regarding the balance of harms and benefits, the GDG would expect a general health benefit from a marked reduction in any kind of long-term environmental noise exposure. Health effects of individuals living in the vicinity of wind turbines can theoretically be related not only to long-term noise exposure from the wind turbines but also to disruption caused during the construction phase. The GDG pointed out, however, that evidence on health effects from wind turbine noise (apart from annoyance) is either absent or rated low/very low quality (McCunney et al., 2014). Moreover, effects related to attitudes towards wind turbines are hard to discern from those related to noise and may be partly responsible for the associations (Knopper & Ollson, 2011). Furthermore, the number of people exposed is far lower than for many other sources of noise (such as road traffic). Therefore, the GDG estimated the burden on health from exposure to wind turbine noise at the population level to be low, concluding that any benefit from specifically reducing population exposure to wind turbine noise in all situations remains unclear. Nevertheless, proper public involvement, communication and consultation of affected citizens living in the vicinity of wind turbines during the planning stage of future installations is expected to be beneficial as part of health and environmental impact assessments. In relation to possible harms associated with the implementation of the recommendation, the GDG underlined the importance of wind energy for the development of renewable energy policies.

The GDG noticed that the values and preferences of the population towards reducing long-term noise exposure to wind turbine noise vary. Whereas the general population tends to value wind energy as an alternative, environmentally sustainable and low-carbon energy source, people living in the vicinity of wind turbines may evaluate them negatively. Wind turbines are not a recent phenomenon, but their quantity, size and type have increased significantly over recent years. As they are often built in the middle of otherwise quiet and natural areas, they can adversely affect the integrity of a site. Furthermore, residents living in these areas may have greater expectations of the quietness of their surroundings and therefore be more aware of noise disturbance. Negative attitudes especially occur in individuals who can see wind turbines from their houses but do not gain economically from the installations (Kuwano et al., 2014; Pedersen & Persson Waye, 2007; van den Berg et al., 2008). These situational variables and the values and preferences of the population may differ between wind turbines and other noise sources, as well as between wind turbine installations, which makes assessment of the relationship between wind turbine noise exposure and health outcomes particularly challenging.

Assessing resource use and implementation considerations, the GDG noted that reduction of noise exposure from environmental sources is generally possible through simple measures like insulating windows or building barriers. With wind turbines, however, noise reduction interventions are more

complicated than for other noise sources due to the height of the source and because outdoor disturbance is a particularly large factor. As generally fewer people are affected (compared to transportation noise), the expected costs are lower than for other environmental sources of noise. The GDG was not aware of any existing interventions (and associated costs) to reduce harms from wind turbine noise, or specific consequences of having regulations on wind turbine noise. Therefore, it could not assess feasibility, or discern whether any beneficial effects of noise reduction would outweigh the costs of intervention. In particular, there is no clear evidence on an acceptable and uniform distance between wind turbines and residential areas, as the sound propagation depends on many aspects of the wind turbine construction and installation.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation for wind turbine noise exposure remains conditional.

Additional considerations or uncertainties

Assessment of population exposure to noise from a particular source is essential for setting health-based guideline values. Wind turbine noise is characterized by a variety of potential moderators, which can be challenging to assess and have not necessarily been addressed in detail in health studies. As a result, there are serious issues with noise exposure assessment related to wind turbines.

Noise levels from outdoor sources are generally lower indoors because of noise attenuation from the building structure, closing of windows and similar. Nevertheless, noise exposure is generally estimated outside, at the most exposed façade. As levels of wind turbine noise are generally much lower than those of transportation noise, the audibility of wind turbines in bedrooms, particularly when windows are closed, is unknown.

In many instances, the distance from a wind farm has been used as a proxy to determine audible noise exposure. However, in addition to the distance, other variables – such as type, size and number of wind turbines, wind direction and speed, location of the residence up- or downwind from wind farms and so on – can contribute to the resulting noise level assessed at a residence. Thus, using distance to a wind farm as a proxy for noise from wind turbines in health studies is associated with high uncertainty.

Wind turbines can generate infrasound or lower frequencies of sound than traffic sources. However, few studies relating exposure to such noise from wind turbines to health effects are available. It is also unknown whether lower frequencies of sound generated outdoors are audible indoors, particularly when windows are closed.

The noise emitted from wind turbines has other characteristics, including the repetitive nature of the sound of the rotating blades and atmospheric influence leading to a variability of amplitude modulation, which can be a source of above average annoyance (Schäffer et al., 2016). This differentiates it from noise from other sources and has not always been properly characterized. Standard methods of measuring sound, most commonly including A-weighting, may not capture the low-frequency sound and amplitude modulation characteristic of wind turbine noise (Council of Canadian Academies, 2015).

Even though correlations between noise indicators tend to be high (especially between L_{Aeq}-like indicators) and conversions between indicators do not normally influence the correlations between the noise indicator and a particular health effect, important assumptions remain when exposure to

wind turbine noise in L_{den} is converted from original sound pressure level values. The conversion requires, as variable, the statistical distribution of annual wind speed at a particular height, which depends on the type of wind turbine and meteorological conditions at a particular geographical location. Such input variables may not be directly applicable for use in other sites. They are sometimes used without specific validation for a particular area, however, because of practical limitations or lack of data and resources. This can lead to increased uncertainty in the assessment of the relationship between wind turbine noise exposure and health outcomes.

Based on all these factors, it may be concluded that the acoustical description of wind turbine noise by means of L_{den} or L_{night} may be a poor characterization of wind turbine noise and may limit the ability to observe associations between wind turbine noise and health outcomes.

3.4.3 Summary of the assessment of the strength of recommendations

Table 42 provides a comprehensive summary of the different dimensions for the assessment of the strength of the wind turbine recommendations.

Table 42. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure (L_{den})** *Health effects* • Evidence for a relevant absolute risk of annoyance at **45 dB L_{den}** was rated **low quality.** *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or health outcomes from wind turbines. **Night-time exposure (L_{night})** *Health effects* • No statistically significant evidence was available for sleep disturbance related to exposure from wind turbine noise at night. *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or sleep disturbance from wind turbines.
Balance of benefits versus harms and burdens	Further work is required to assess fully the benefits and harms of exposure to environmental noise from wind turbines and to clarify whether the potential benefits associated with reducing exposure to environmental noise for individuals living in the vicinity of wind turbines outweigh the impact on the development of renewable energy policies in the WHO European Region.
Values and preferences	There is wide variability in the values and preferences of the population, with particularly strong negative attitudes in populations living in the vicinity of wind turbines.
Resource implications	Information on existing interventions (and associated costs) to reduce harms from wind turbine noise is not available.
Additional considerations or uncertainties	There are serious issues with noise exposure assessment related to wind turbines.
Decisions on recommendation strength	• **Conditional** for guideline value for average noise exposure (L_{den}) • **Conditional** for the effectiveness of interventions (L_{night})

3.5 Leisure noise

Recommendations

For average noise exposure, the GDG **conditionally** recommends reducing the yearly average from all leisure noise sources combined to **70 dB** $L_{Aeq,24h}$, as leisure noise above this level is associated with adverse health effects. The equal energy principle[19] can be used to derive exposure limits for other time averages, which might be more practical in regulatory processes.

For single-event and impulse noise exposures, the GDG **conditionally** recommends following existing guidelines and legal regulations to limit the risk of increases in hearing impairment from leisure noise in both children and adults.

Following a precautionary approach, to reduce possible health effects, the GDG **strongly** recommends that policy-makers take action to prevent exposure above the guideline values for average noise and single-event and impulse noise exposures. This is particularly relevant as a large number of people may be exposed to and at risk of hearing impairment through the use of personal listening devices (PLDs). There is insufficient evidence, however, to recommend one type of intervention over another.

3.5.1 Rationale for the guideline levels for leisure noise

As specific evidence for the relationship between leisure noise and hearing loss is of insufficient quality, the GDG decided to follow a different approach for this noise source, based on knowledge regarding prevention of hearing loss in the workplace and on the CNG (WHO, 1999). There is sufficient evidence that the nature of the noise matters little in causing hearing loss, so using the existing guidelines is a justified step to prevent permanent hearing loss from leisure noise.

In accordance with the procedures for the other noise sources, the GDG would have considered evidence on exposure–response relationships for the prioritized health outcomes. However, no such ERFs could be established in the systematic reviews for any of the health outcomes (Table 43).

Table 43. Average exposure levels ($L_{Aeq,24h}$) for priority health outcomes from leisure noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD **Incidence of hypertension** **Prevalence of highly annoyed population** **Reading skills and oral comprehension in children**		No evidence was available
Permanent hearing impairment There is an indication that PLDs have an effect on hearing impairment and tinnitus. There was no evidence (because no studies were found) for an effect of other sources of leisure noise on hearing impairment or tinnitus. The results of the studies could not be synthesized because of heterogeneity of outcome measurement.	No increase	Very low quality/no evidence

[19] The equal energy principle states that the total effect of sound is proportional to the total amount of sound energy received by the ear, irrespective of the distribution of that energy in time (WHO, 1999).

In accordance with the evidence on the effects of PLDs on permanent hearing loss from leisure noise, the GDG recommended a guideline exposure level of 70 dB $L_{Aeq,24h}$ yearly average from all leisure noise sources combined. It was confident that there was no relevant risk increase for permanent hearing impairment below this exposure level of average leisure noise. The GDG recognized that a conversion to alternative time averages for exposure to leisure noise might be helpful for regulatory purposes; thus, a detailed table converting hourly and weekly exposure into yearly averages is provided in the subsection on additional considerations or uncertainties in section 3.5.2.3, Table 49. Furthermore, the GDG recommended sticking to the CNG recommendations for single events to limit the risk of hearing impairment from leisure noise increases for both children and adults (WHO, 1999).[20] Due to the nature and limited amount of available evidence, the GDG made the recommendation conditional.

Next, the GDG assessed the evidence for night noise exposure and its effect on sleep disturbance (Table 44).

Table 44. Night-time exposure levels (L_{night}) for priority health outcomes from leisure noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance	3% absolute risk	No evidence was available

Because of a lack of evidence, the GDG was not able to formulate a recommendation addressing sleep disturbance due to leisure noise at night time.

The GDG also looked for evidence about the effectiveness of interventions for leisure noise exposure. Owing to a lack of research, however, no studies were available on existing interventions and associated costs to reduce leisure noise. As no evidence was available, it was not possible to develop a recommendation on any specific type of intervention measure. However, following a precautionary approach, to reduce possible health effects, the GDG made a strong recommendation that policy-makers take action to prevent exposures above the guideline values for average noise and single-event and impulse noise exposures. This is particularly relevant as a large number of people may be exposed to and at risk of hearing impairment through the use of PLDs. There is insufficient evidence, however, to recommend one type of intervention over another.

3.5. 1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on leisure noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes were considered. Ultimately, the assessment of all these factors did not lead to a change in the strength of recommendation. Further details are provided in section 3.5.2.3.

[20] The GDG acknowledged the scarcity of cohort study-based evidence to define a threshold for hearing damage due to single loud exposures. It initially decided to propose $L_{AF,max}$ = 110, but after much discussion it appeared that the conversion of relevant standing limits (expressed in $L_{peak,C}$ and others) lacked sufficient basis.

3.5.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on leisure noise. As noted above, however, only limited evidence was available for several of the prioritized health outcomes, so it is presented and summarized for all critical and important health outcomes where possible, along with indications of the GDG's judgement of the quality of evidence. Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.5.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to leisure noise, what is the exposure–response relationship between exposure to leisure noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 45 and 46.

Table 45. PICOS/PECCOS scheme of critical health outcomes for exposure to leisure noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by leisure activities (average/night time)	
Comparison	Exposure to lower levels of noise produced by leisure activities (average/night time)	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 46. Summary of findings for health effects from exposure to leisure noise ($L_{Aeq,24h}$)

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies[a]	Number of participants (studies)	Quality of evidence
Cardiovascular disease					
$L_{Aeq,24}$	Incidence of IHD	–	–	–	–
$L_{Aeq,24}$	Incidence of hypertension	–	–	–	–
Annoyance					
$L_{Aeq,24}$	%HA	–	–	–	–
Cognitive impairment					
$L_{Aeq,24}$	Reading and oral comprehension	–	–	–	–
Hearing impairment and tinnitus					
$L_{Aeq,24}$	Permanent hearing impairment	Not estimated	–	484 (3)	Very low (downgraded for study limitations, precision)

Hearing impairment and tinnitus

Several types of leisure activity are accompanied by loud sounds, such as attending nightclubs, pubs and fitness classes; live sporting events; concerts or live music venues; listening to loud music through PLDs. This recommendation is informed by a systematic review that assessed the evidence on permanent hearing loss and tinnitus due to exposure to leisure noise (Śliwińska-Kowalska & Zaborowski, 2017). The review identified two existing systematic reviews that summarized recent estimates of the risk of developing permanent hearing loss from the use of PLDs. It did not identify any studies with objective measurement of exposure to any other type of leisure noise.

The Scientific Committee on Emerging and Newly Identified Hazards and Risk (SCENIHR) (EC, 2008b) report concluded that prolonged exposure to sounds from PLDs may result in temporary hearing threshold shift, permanent hearing threshold shift and tinnitus, as well as poor speech communication in noisy conditions. However, based on the data available, there was no direct evidence for an effect of repeated, regular daily exposure to music through PLDs on development of permanent noise-induced hearing loss. Data on tinnitus were inadequate and therefore inconclusive. No meta-analysis was provided for any of the hearing effects; nor were the exposure–effect curves reported. The SCENIHR report was based on a narrative review of 30 original papers with over 2000 participants and exposure to music sounds that covered a range of 60–120 dB. Studies included in the review were carried out between 1982 and 2007.

In 2014 a second systematic review was published by Vasconcellos et al. (2014). Although the objective of this publication was to determine threshold levels of personally modifiable risk factors for hearing loss in the paediatric population, specific thresholds analyses were limited. Based on the descriptive overview of original papers, the authors identified exposure to loud music (including use of PLDs) and working on a mechanized farm as the main risk factors for hearing loss in children

and teenagers. Thresholds of exposure to music, significantly associated with hearing loss in youth, were:

- more than four hours per week or more than five years of personal headphone usage;
- more than four visits per month to a discotheque.

The evidence review identified five new cross-sectional studies on noise from PLDs since the publication of the SCENIHR report (Feder et al., 2013; Levesque et al., 2010; Sulaiman et al., 2013; 2014; Vogel et al., 2014). Direct measurement of hearing thresholds with pure tone audiometry was performed only in three studies – by Feder et al. (2013) and Sulaiman et al. (2013 and 2014). In total, audiometric data from 484 subjects were analysed; among them, 449 were exposed and 35 were not exposed to PLD music. Two other studies by Levesque et al. (2010) and Vogel et al. (2014) did not perform audiometric measurement but reported on tinnitus in a total of 1067 participants.

Noise from PLDs was estimated based on direct measurement of equivalent sound pressure levels (in dB) in four studies (Feder, 2013; Levesque et al., 2010; Sulaiman et al., 2013; 2014) and based on converting volume-control setting levels of PLD into dB levels in one study (Vogel et al., 2014). The resulting exposure levels (L_{Aeq} values) had a mean of between 72 dB and 91 dB, although in two studies these data were not provided. In all studies, individual $L_{Aeq,8h}$ value was calculated based on an estimated level of music and the number of hours a day listening to the music through the PLD declared by an individual in the questionnaire. Resulting $L_{Aeq,8h}$ mean values were between 62 dB and 83 dB when provided.

Potential confounding was controlled by excluding the subjects with exposure to other sources of high-level noise or prior ear problems (Sulaiman et al., 2013), by excluding those with these factors and ototoxic drug intake (Sulaiman et al., 2014) or by controlling for these confounders by accounting for them in the statistical models. The confounders comprised socioeconomic status, demographic factors, tubes in the ear and leisure exposures in one study (Feder, 2013), and age and sex in one study (Vogel et al., 2014). One of the studies did not adjust for confounding factors (Levesque et al., 2010).

Data on permanent hearing loss were taken from audiometric measurements (Feder, 2013; Sulaiman et al., 2013; 2014), while data about permanent tinnitus were taken from self-reported responses to questionnaires (Levesque et al., 2010; Vogel et al., 2014). In one case, the outcome was defined as “permanent hearing-related symptoms”, but it is not clear what proportion of subjects experienced permanent tinnitus (Vogel et al., 2014).

For permanent hearing loss, there is no pooled effect size, because the authors of the original studies either did not report data or reported in different formats. However, these studies indicate a harmful effect of listening to PLDs. For permanent tinnitus, there is no pooled effect size because the effects of noise from PLDs on permanent tinnitus were contradictory. These results are generally consistent with previous reviews by SCENIHR (EC, 2008b) and Vasconcellos et al. (2014).

The risk of bias was assessed as high for all five studies. The overall evidence for an effect of PLDs on hearing impairment and tinnitus was rated very low quality.

3.5.2.2 Evidence on interventions

The following section summarizes the evidence underlying the recommendation on the effectiveness of interventions for leisure noise exposure. The key question posed was: in the general population exposed to leisure noise, are interventions effective in reducing exposure to and/or health outcomes from leisure noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 47 and 48.

Table 47. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to leisure noise

PICO	Description	
Population	General population	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	No intervention	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 48. Summary of findings for interventions for leisure noise

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Hearing impairment			
Type E – behaviour change interventions (education programme/campaign)	4151 (7)	None of the studies involved measurement or estimation of exposure levels or health outcomes. Most studies found a significant effect of change in knowledge or behaviour.	–

Seven individual studies on PLDs, attendance at music venues and participation in other recreational activities where there was risk of hearing damage and/or tinnitus were included in the systematic review (Dell & Holmes, 2012; Gilles & Van de Heyning, 2014; Kotowski et al., 2011; Martin et al., 2013; Taljaard et al., 2013; Weichbold & Zorowka, 2003; 2007). All studies examined interventions directed at changes in knowledge or behaviour and hearing impairment.

The studies all sought evidence on the effectiveness of some form of educational programme or campaign aimed at children, adolescents or college students. These addressed perceptions and

knowledge of the risk of high levels of noise – generally, but not exclusively, from PLD sources or from attendance at music events – and actual or intended changes to hearing damage risk behaviours, including avoidance, frequency or duration of exposure, regeneration periods when in high noise, or playback levels.

The outcome assessed in all intervention studies was the change in knowledge and behaviours towards hearing damage risk. The health outcome measures varied widely and included measurements on the youth attitude towards noise scale, participants' knowledge about hearing damage, participants' PLD usage patterns, participants' attitudes to wearing hearing protection (some in general; some at discotheques) and frequency of discotheque attendance. A majority of the studies found a significant effect of change in knowledge or behaviour. No indication on the persistence of knowledge and behavioural change was given, though.

None of the studies included objectively measured outcomes or a measured change in noise level exposure; thus, the effectiveness of the interventions could not be assessed, and the quality of the evidence was not rated according to GRADE.

3.5.2.3 Consideration of additional contextual factors

Based on the quality of the available evidence discussed in the foregoing overview, the GDG set the strength of recommendation of leisure noise to conditional. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, and resource use and implementation.

When assessing the balance of benefits and harms, the GDG recognized that exposure to leisure noise is widespread and frequent. In particular, as many as 88–90% of teenagers and young adults report listening to music through PLDs earphones (Pellegrino et al., 2013; Vogel et al., 2011). In 2015 WHO estimated that 1.1 billion young people worldwide could be at risk of hearing loss due to unsafe listening practices (WHO, 2015a). Furthermore, among young people aged 12–35 years in middle- and high-income countries, nearly 50% listen to unsafe levels of sound through personal audio devices (mp3 players, smartphones and others), and around 40% are exposed to potentially damaging levels of sound at nightclubs, bars and sporting events. Noise-induced hearing loss can be prevented by following safe listening practices, so the GDG concluded that health benefits can be gained from markedly reducing population exposure to leisure noise, including through actions to promote safe listening practices. A reduction of leisure noise is also assumed to reduce nuisance that can be caused to other people than those who enjoy leisure activities, such as neighbours. Furthermore, specifically for PLDs, it can reasonably be expected that a reduction of noise exposure could also lead to a reduction in accidents, injuries and other potential safety risks. In relation to possible harms and burdens, the GDG could not identify any harms (except economic costs, which are addressed in the paragraph on resource use and implementation) arising from implementation of the recommended guideline values.

Considering values and preferences, the GDG recognized that listening to music with the help of a PLD, going to concerts and attending sport events are activities regarded as enjoyable and therefore assumed to be valued by the overall population. Furthermore, it is expected that values and preferences might vary in particular with respect to the use of PLDs and embracing leisure activities

involving loud noise, like concerts, and that some population groups – especially younger individuals – might voluntarily expose themselves to high levels of sound during these activities. Despite this, the GDG was confident that recommendations to lower noise levels for the prevention of hearing damage from leisure noise would be welcome by a majority of the population. Recommendations are expected to be particularly welcome when it comes to protecting the hearing of young children and teenagers, as these vulnerable groups often do not have control over their environment and the noise levels to which they are exposed, such as from noisy toys or at school.

With resource use and implementation, the GDG noted that interventions exist to reduce exposure to leisure noise from PLDs, attendance at music venues and participation in recreational activities, as aggregated by the systematic review on environmental noise interventions and their associated impacts (Brown & van Kamp, 2017). As most of these relate to implementation of a behaviour change, the reduction of exposure to leisure noise is expected to be technically feasible and cheap. None of the empirical investigations objectively measured outcomes or a measured change in noise level exposure, so the effectiveness of such measures cannot be assessed. Nevertheless, it is important to note that there is ample evidence from the occupational health field that high noise levels cause hearing damage, and that occupational interventions to reduce noise exposure are effective at lowering the risk of hearing problems or hearing damage (EC, 2003; Garcia et al., 2018; ISO, 2013; Maassen et al., 2001). In conclusion, resources needed to reduce exposure to leisure noise are not expected to be intensive, but implementation and long-term success of measures might be challenging, owing to cultural factors, as changes in behaviour are expected to be tricky to implement.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains conditional.

Additional considerations or uncertainties

The GDG considers the noise levels selected for this recommendation to be reasonable precautionary measures, in view of the rating of very low quality for the available evidence on an effect of leisure noise on permanent hearing impairment and tinnitus identified in the systematic review.

Extensive literature shows hearing impairment in populations exposed to specific types of nonoccupational environments, although these exposures are generally not well characterized. There are no studies with objective measurement of exposure to any other type of leisure noise (except PLDs) and permanent hearing impairment or tinnitus. Nevertheless, this recommendation generally applies to all leisure noise exposures, such as events in public venues (concerts halls, sports events, bars and discotheques) and educational facilities, and use of PLDs. The recommendation also applies to exposure to impulse sounds, such as those in shooting facilities or from the use of toys and firecrackers.

Hearing loss is the resultant value of combined exposures to different sources of leisure noise including, but not limited to, PLDs. Therefore, the recommendations apply to the combined noise levels from all sources.

Noise-induced hearing loss develops very slowly over years of exposure, giving rise to challenges in the assessment of the health impacts from prolonged use of PLDs and exposure to leisure noise. The induction period for the development of hearing impairment and tinnitus is long, and varying

exposure conditions and changing lifestyle habits (including confounding noise sources), particularly among young people, will have an impact. Therefore, recommendations regarding leisure noise have often been inferred from the occupational field, where exposure conditions are more stable over time.

Indeed, long-term exposure to noise, objectively assessed and at levels measured in occupational settings for various professions, can lead to permanent hearing loss and tinnitus. This evidence, while not reviewed systematically as part of the work related to these guidelines, can be used as supportive evidence and justification for the need to develop a recommendation for leisure noise, given that many people could be at risk of developing hearing loss and/or tinnitus from exposure to lower levels of environmental noise. Similar otobiological mechanisms must also be considered for environmental noise.

To date, no commonly accepted method for assessing the risk of hearing loss due to environmental exposure to noise has been developed. One of the main challenges is to conduct a long-term objective exposure assessment of environmental noise and relate this to the development of permanent hearing impairment and tinnitus. The GDG underlined the strong need for research to develop a comprehensive methodology. In the absence of a method, and as long as no other tools are available, the equal energy principle outlined in the ISO standard for the estimation of noise-induced hearing loss (WHO, 1999) can be used as a practical tool for protecting public health from exposure to leisure noise. As a result, the relationship between leisure noise exposure and auditory effects can be quantified for a variety of exposure levels, duration and frequency.

Several organizations have established regulations for the protection of workers from risks to their health and safety arising from exposure to noise, and in particular risk to hearing. Of particular relevance is EU Directive 2003/10/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) (EC, 2003). Based on the ISO 1999 standard (ISO, 2013), the Directive sets limits of exposure depending on equivalent noise level for an eight-hour working day and obliges the employer to take suitable steps if the limits are exceeded. It recommends three action levels for occupational settings, setting the lowest, most conservative value at $L_{ex,8hr}$ = 80 dB. According to the Directive, no consequences of exposure to occupational noise are expected at this level. While exposure patterns and certain characteristics of occupational and leisure noise exist, knowledge of the hearing impairment risks and preventive interventions can be used to assess health risks associated with leisure noise (Neitzel & Fligor, 2017).

The CNG recommend a limit of $L_{Aeq,24h}$ = 70 dB(A) for preventing hearing loss from industrial, commercial shopping and traffic areas, indoors and outdoors (WHO, 1999). Health and safety regulations are usually based on an exposure profile of a typical worker (eight hours per day, five days per week). Using the existing knowledge from the ISO standard and established health and safety regulations, it is possible to use the equal energy principle to derive the resulting noise exposure level for an exposure profile more appropriately suited for leisure noise. Converting 40 hours at 80 dB to a continuous exposure to noise (24 hours per day, seven days per week), this leads to a yearly average exposure of 71 dB for lifelong exposure.[21] This is the same value as the WHO recommendation of

[21] 71 dB = 80 dB (derived from ISO standard) – 6.2 dB (conversion of yearly average of 40 working hours divided by continuous exposure to noise: (10 log (2080hrs/8760 hrs)) – 3 dB (extrapolation of 40 working years to lifelong exposure).

70 dB (WHO, 1999). Table 49 presents the noise levels per hour for various time averages in order to keep within the recommended yearly average exposure, and assuming that exposure to other noise sources generally does not contribute significantly. For example, for specific events taking place for one-, two- or four-hour averages, once a week (such as visiting a discotheque or watching a loud movie), an hourly noise level of 85 dB would lead to an average yearly exposure of 63 dB, 66 dB and 69 dB, respectively. However, the same hourly exposure of 85 dB for an activity taking place for 14 hours per week (two hours per day, seven days a week) would lead to a yearly exposure of 74 dB, which exceeds the recommendations.

Table 49. Combination of hourly exposure and number of hours per week to arrive at a yearly average L_{Aeq}

Hours of exposure per week	One-hour exposure level (L_{Aeq})						
	70	75	80	85	90	95	100
1	48	53	58	63	68	73	78
2	51	56	61	66	71	76	81
4	54	59	64	69	74	79	84
14 (2 hours per day, 7 days per week)	59	64	69	74	79	84	89
28 (4 hours per day, 7 days per week)	62	67	72	77	82	87	92
40 (8 hours per day, 5 days per week)	64	69	74	79	84	89	94
168 (24 hours per day, 7 days per week)	70	75	80	85	90	95	100

Note: green = combinations of exposure/duration below current guideline level; red = combinations of exposure/duration above current guideline level; blue = input parameters.

The equal energy principle cannot be used to derive single-event limits because at high levels the ear starts to respond with nonlinear behaviour. The CNG provides several values, in different units: $L_{AF,max}$ = 110 dB for industrial noises (no distance stated), $L_{peak,lin}$ = 140 dB for adults and $L_{peak,lin}$ = 120 dB for children (measured at 100 mm) (WHO, 1999). EU Directive 2003/10/EC on the minimum health and safety requirements regarding the exposure of workers recommends a lower action level of $L_{peak,C}$ = 135 dB (at 100 mm). In a recent overview Hohmann (2015) provided an ERF for hearing damage caused by shooting noise, from which it appears that a safe level of L_E = 120 dB can be derived.

Although it is clear that high noise levels cause acute hearing damage, there is no agreement on a safe level. Further research is highly recommended. In the mean time, existing guidelines should be applied.

3.5.3 Summary of the assessment of the strength of recommendation

Table 50 provides a comprehensive summary of the different dimensions for the assessment of the strength of the leisure noise recommendations.

Table 50. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure ($L_{Aeq,24h}$)** *Health effects* • Evidence of an effect from PLDs on hearing impairment and tinnitus, in the absence of evidence for other health outcomes and absence of evidence on hearing impairment and tinnitus from other types of leisure noise besides PLDs, was rated **very low quality.** *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or health outcomes from leisure noise.
Balance of benefits versus harms and burdens	The general benefit from reduction of leisure noise outweighs any potential harms.
Values and preferences	There is variability in the values and preferences of the general population.
Resource implications	The resources needed to reduce exposure to leisure noise are not expected to be intensive, but implementation and the long-term success of measures may be challenging, mainly due to cultural factors.
Decision on strength of recommendation	• **Conditional** for guideline level for average noise exposure ($L_{Aeq,24h}$) • **Conditional** for single-event and impulse noise • **Strong** for interventions to reduce noise exposure

3.6 Interim targets

An interim target was proposed in the NNG (WHO Regional Office for Europe, 2009), "recommended in situations where the achievement of NNG is not feasible in the short run for various reasons". The NNG emphasized that an interim target is "not a health-based limit value by itself. Vulnerable groups cannot be protected at this level".

The GDG discussed whether to propose interim targets as part of the current guidelines, and if so, what process would be needed to derive those values. The current recommendations are health-based and already provide guideline values per noise source (for both L_{den} and L_{night}). They also include information on exposure–response relationships for various health outcomes, which can be used by policy-makers or other stakeholders to inform the selection of different values, if needed. Further, interim targets may work differently in different countries and for different noise sources, and it may not be optimal to propose them Europe-wide. As a result, there was consensus among members of the GDG not to provide interim targets.

4. Implications for research

The development of these environmental noise guidelines for the WHO European Region has made evident some key knowledge gaps and research needs. The main ones specific to the guideline recommendations are presented as implications for research in the sections that follow.

4.1 Implications for research on health impacts from transportation noise

For the assessment of health effects from the main sources of transportation noise (road traffic, railways and aircraft), the various evidence reviews show the following knowledge gap: there is a need for longitudinal studies on the health impacts from exposure to environmental noise, to inform future recommendations properly (Table 51).

Table 51. Implications for research on health impacts from transportation noise (air, rail, road)

Current state of the evidence	Limited evidence is available on health impacts from transportation noise from large-scale cohort and case-control studies, with objective measurement of both noise exposure and health outcomes.
Population of interest	Research is needed into effects of exposure on children and adults exposed to environmental noise from transportation sources.
Exposure of interest	Objective measurement or calculation of transportation noise exposure is required; in particular, from studies of health effects related to combined exposure to different noise sources.
Comparison of interest	The data should be compared to the effects of lower levels of transportation noise.
Outcomes of interest	Measures of the following health outcomes is required, assessed objectively and harmonized where possible – for example, according to common protocols: • annoyance • effects on sleep • cardiovascular and metabolic effects • adverse birth outcomes • cognitive impairment • mental health, quality of life and well-being • hearing impairment and tinnitus • any other relevant health outcome.
Time stamp	The systematic review included studies between October 2014 and December 2016.

4.1.1 Specific implications for annoyance

To predict absolute %HA at the full range of levels (and the corresponding CIs), an integrated analysis of the original raw data from all of individual studies would be necessary. The evidence review conducted as part of the guidelines focused only on secondary data handling and therefore does not replace a full meta-analysis of all individual data. The development of a generic exposure–response relationship (from a full meta-analysis based on all individual data) is suggested as a priority research recommendation (see Table 52).

Table 52. Recommendation for research addressing the exposure–response relationship

Current state of the evidence	The evidence review on annoyance conducted as part of the guidelines does not provide a generalized ERF but points to significant differences compared to the curves used in the past. It shows that the available generalized ERFs are in need of adjustment, preferably as a result of undertaking a full meta-analysis. This is especially the case for the sources aircraft and railway noise, which new data show are more annoying than previously documented.
Population of interest	Research is needed into effects of exposure on children and adults exposed to air, rail and/or road traffic noise.
Exposure of interest	Objective measurement of transportation noise exposure is required.
Comparison of interest	The data should be compared to the effects of lower levels of transportation noise.
Outcomes of interest	Measures of health outcomes are required, assessed objectively according to common protocols (such as the International Commission on Biological Effects of Noise (ICBEN) scale for annoyance).
Time stamp	The systematic review included studies up to October 2014.

4.2 Implications for research on health impacts from wind turbine noise

Further research into the health impacts from wind turbine noise is needed so that better-quality evidence can inform any future public health recommendations properly. For the assessment of health effects from wind turbines, the evidence was either unavailable or rated low/very low quality. Recommendations for research addressing this priority are proposed in Table 53.

Table 53. Implications for research on health impacts from wind turbine noise

Current state of the evidence	The current evidence on health outcomes related to wind turbine noise is unavailable or of low/very low quality and mainly comes from cross-sectional studies. Methodologically robust longitudinal studies with large samples investigating the quantitative relationship between noise from wind turbines and health effects are needed.
Population of interest	Research is needed into effects of exposure on children and adults exposed and living near sources of wind turbine noise. Studies should assess subgroup differences in effects for vulnerable groups such as children, elderly people and those with existing poor physical and mental health.
Exposure of interest	Exposure to noise at a wide range of levels and frequencies (including low-frequency noise), with information on noise levels measured outdoors and indoors (particularly relevant for effects on sleep) at the residence is needed. The noise exposure should be measured objectively and common protocols for exposure to wind turbine noise should be established, considering a variety of noise characteristics specific to wind turbine noise.
Comparison of interest	The data should be compared to the effects in similar areas without wind turbines. Pre/post studies of new wind turbine installations are needed, especially if “before measures” unbiased by the stress and knowledge of potential wind turbine farm development need to be developed.
Outcomes of interest	Measures of health outcomes are required, assessed objectively – for example, according to common protocols (ICBEN scale for annoyance and self-reported sleep disturbance). The studies should include the most important situational and personal confounding variables, such as negative attitudes towards wind turbines, visual impact, economic gain and other socioeconomic factors.
Time stamp	The systematic review included studies between October 2014 (review on annoyance) and December 2016 (review on cardiovascular disease).

Alongside the defined needs for research on wind turbine noise it should be noted that research regarding industrial noise in general is required. More specifically, there is a need to investigate stationary sources (including heat, ventilation and acclimatization devices) and their impacts on health. Studies on hearing disorders from impulse and/or intermittent sounds are also needed; these would enable assessment of adverse effects created by one or several sounds of short duration with a high maximum sound level or impulse sound level.

4.3 Implications for research on health impacts from leisure noise

For the assessment of effects from leisure noise, the evidence to make a recommendation on the ERF to use for health risk assessment, or of a threshold for effects, was either unavailable or rated very low quality. This is a research gap: longitudinal studies with longer follow-up are needed; these should measure noise objectively, not only from PLDs but also from other types of leisure noise.

There is uncertainty in the measurement of early hearing disorders among young people using the tonal audiometry commonly applied. Precise methods to identify early hearing impairment and other hearing disorders are needed. Owing to long induction periods, however, adequate research may be difficult to perform, particularly among young people who change their exposure in terms of sound level and frequency as they age (for example, changing their music listening habits and venue visits). As a result, the recommendations refer to the results derived from stationary noise sources in the occupational field, in conjunction with the equal energy principle (see Table 54).

Table 54. Implications for research on health impacts from leisure noise

Current state of the evidence	Currently, no evidence is available on hearing impairment and tinnitus from large-scale cohort and case-control studies, with objective measurement of noise exposure and using a suitable method to assess hearing impairment in young people.
Population of interest	Research is needed into effects of exposure on children and adults exposed to environmental noise from different sources and in different settings.
Exposure of interest	Objective measurement of leisure noise exposure is required.
Comparison of interest	The data should be compared to the effects of no leisure noise exposure from these sources.
Outcomes of interest	The primary outcomes identified are: • hearing loss measured by audiometry; • specific threshold analyses focused on stratifying the risk of permanent hearing loss according to clearly defined levels of exposure to leisure noise, such as music through PLDs; • concise methods to identify early hearing impairment and other hearing disorders; • temporary threshold shift after exposure to leisure noise, as it may be reasonably predictive of future permanent threshold shift; • age-related hearing loss progression depending on early-age exposure to leisure noise, such as to loud music; and • tinnitus, measured objectively and subjectively.
Time stamp	The systematic review included studies up to June 2015.

4.4 Implications for research on effectiveness of interventions to reduce exposure and/or improve public health

The quality of the evidence on the effectiveness of interventions to reduce exposure to and health outcomes from environmental noise was variable. Further studies directly linking noise interventions to health outcomes are required, particularly for sources other than road traffic noise, and for human health outcomes other than annoyance.

Most studies involved road traffic noise (63%), followed by aircraft noise (13%) and railway noise (6%). The remaining interventions were for leisure noise (13%) and noise in hospital settings (4%). No interventions were identified that either addressed wind turbine noise or focused on educational settings.

Exposure-related interventions were mainly associated with a reduction in environmental noise exposure. However, in five studies (four road traffic noise studies and one aircraft noise study) some or all of the participants experienced noise exposure increases.

There is no clear evidence with respect to thresholds, which are defined as:

- the smallest change in exposure levels that results in a change in outcome; and
- the minimum before-level, regarding changes in health outcomes as a result of interventions.

The limited evidence base on the health effects of environmental noise interventions is thinly spread across different noise source types, outcomes and intervention types. Diversity exists between studies even within intervention types in terms of study designs, methods of analysis, exposure levels and changes in exposure experienced as a result of the interventions. For these reasons, carrying out a meta-analysis across studies examining the association between changes in level and changes in outcome was not possible.

To remedy this main research gap, longitudinal studies assessing noise exposure and health outcomes objectively should be developed, taking into account the most relevant confounders. The establishment of common protocols for future research is warranted (see Table 55).

Authorities should include significant funding for the design and implementation of studies to evaluate the effectiveness of interventions to reduce noise and their impact on health.

Table 55. Implications for research on effectiveness of interventions to reduce exposure and/or improve public health

Current state of the evidence	The current evidence on effectiveness of interventions to reduce health outcomes is limited and of varying quality. Few longitudinal studies have been done that take into account the most relevant confounders and measure the noise exposure and the outcomes objectively.
Population of interest	Research is needed into effects of interventions on defined populations exposed to and/or living near sources of environmental noise.
Intervention of interest	Research into any noise intervention at various points along the system pathway between source and outcome, for a variety of noise sources, is required.
Comparison of interest	The data should be compared to: • a steady-state control group, in similar areas with various exposure gradients from environmental noise sources; • the noise exposure in the same population, through a series of sequential measurements assessing the change before and after the intervention, preferably with multiple after measurements.
Outcomes of interest	Future intervention studies should use validated and, where possible, harmonized measures of exposure and outcome, as well as of moderators and confounders. The studies should use measures of exposure including noise exposure at a wide range of levels and frequencies (including low-frequency noise), with information on noise levels outdoors and indoors (particularly relevant for effects on sleep). They should also use measures of health outcomes, including the following outcomes assessed objectively – for example, according to common protocols (ICBEN scale for annoyance) – with consideration that the change in human response for some health outcomes from a step change in exposure may have a different time course to that of the change in exposure: • annoyance • effects on sleep • cardiovascular and metabolic diseases • adverse birth outcomes • cognitive impairment • mental health, quality of life and well-being • hearing impairment and tinnitus • any other relevant health outcome. Further, they should use measures of moderators and confounders, including repeated measurements of situational and personal variables such as activity interference, potential confounders such as noise sensitivity, coping strategies and a range of other attitudinal variables.
Time stamp	The systematic review included studies up to October 2014.

5. Implementation of the guidelines

5.1 Introduction

These guidelines focus on the WHO European Region and provide guidance to Member States that is compatible with the noise indicators used in the EU's END (EC, 2002a). They provide information on the exposure–response relationships between exposure to environmental noise from different noise sources and the proportion of people affected by certain health outcomes, as well as interventions that are considered efficient in reducing exposure to environmental noise and related health outcomes.

The WHO guideline values are evidence-based public health-oriented recommendations. As such, they are recommended to serve as the basis for a policy-making process in which policy options are considered. In the policy decisions on reference values, such as noise limits for a possible standard or legislation, additional considerations – such as feasibility, costs, preferences and so on – feature in and can influence the ultimate value chosen as a noise limit. WHO acknowledges that implementing the guideline recommendations will require coordinated effort from ministries, public and private sectors and nongovernmental organizations, as well as possible input from international development and finance organizations. WHO will work with Member States and support the implementation process through its regional and country offices.

5.2 Guiding principles

Four guiding principles provide generic advice and support when incorporating the recommendations into a policy framework, and apply to the implementation of all the recommendations.

The **first principle** is to reduce exposure to noise, while conserving quiet areas. The recommendations focus on reduction of population exposure to environmental noise from a variety of sources, in different settings. The general population can be exposed regularly to more than one source of noise simultaneously (including, in some cases, occupational noise), as well as to other nonacoustic factors that can modify the response to noise (such as vibration from railways, air pollution from traffic or visual aspects of wind turbines). Thus, overall reduction of exposure from all sources should be promoted. Furthermore, noise exposure reduction in one area should not come at the expense of an increase in noise elsewhere; existing large quiet outdoor areas should be preserved.

The **second principle** is to promote interventions to reduce exposure to noise and improve health. The evidence from epidemiological studies on adverse health effects at certain noise levels, used as a basis to derive the guideline values proposed in the recommendations, supports the promotion of noise interventions. The potential health impacts from environmental noise are significant, especially when considering the widespread exposure to environmental noise across the population and the high baseline rates for various health outcomes associated with environmental noise.

There are challenges in assessment of the effectiveness of interventions to reduce noise exposure and/or improve health, as there is often a significant time lag between the intervention and a measurable change in exposure and related health benefits. The lack of – or limited direct evidence

for – quantifiable health benefits of some specific interventions does not imply that measures to achieve population exposure according to the proposed guidelines should be ignored.

Given the different factors that determine noise exposure, a single measure alone may not be sufficient to reduce exposure and/or improve health significantly, and a combination of methods may be warranted. Nevertheless, it is widely acknowledged that the most effective actions to reduce exposure tend to be those that reduce noise at the source. Such actions have the biggest potential, whereas other measures can be less effective or sustained over time, especially when they depend on behaviour change or noise reductions inside houses.

The **third principle** is to coordinate approaches to control noise sources and other environmental health risks. Considering the common transport-related sources of environmental noise and air pollution, and in particular the evidence of independent effects on the cardiovascular system, a coordinated approach to policy development in the sectors related to urban planning, transport, climate and energy should be adopted for policies with an impact on environmental noise, air quality and/or climate. Such an approach should yield multiple benefits through increased commitment and financial resources; increased attention to securing health considerations in all policies; and use of policy to control noise and other environmental risks such as air pollutants, including short-lived climate pollutants. There is wide consensus on the value of pursuing coordinated policies that can deliver health and other benefits, such as those associated with the local environment and economic development. Furthermore, coordinated policy-making is potentially cost-saving.

The **fourth principle** is to inform and involve communities that may be affected by a change in noise exposure. In planning new urban and/or rural developments (transport schemes, new infrastructures in less densely populated areas, noise abatement and mitigation strategies), bringing together planners, environmental professionals and public health experts with policy-makers and citizens is key to public acceptability and involvement and to the successful guidance of the decision-making proces. Potential health effects from environmental noise should be included as part of health impact assessments of future policies, plans and projects, and the communities potentially affected by a positive or negative change in noise exposure should be well informed and engaged from the outset to maximize potential benefits to health. Introducing measures incrementally may help with acceptance.

5.3 Assessment of national needs and capacity-building

National needs, including the need for capacity-building, differ between Member States in the WHO European Region. They depend on the existence and level of implementation of national and/or European and international noise policies; these are more likely to be implemented fully in EU countries thanks to the legally binding provisions of the EU's END (EC, 2002a). In most countries in the Region noise is perceived as a major and growing environmental health and public health problem. Noise mapping and action plans are carried out in accordance with the END in EU Member States, and in south-eastern European countries noise legislation has mainly been harmonized with the END. Nevertheless, significant differences still exist in the completeness and regular updating of noise exposure assessment between countries. Noise exposure assessment is a required input for noise health impact assessments, along with exposure–response relationships and population baseline data.

WHO has identified some common needs for knowledge transfer and capacity-building for health risk assessment of environment noise in the Member States that joined the EU after 2003, the newly independent states and south-eastern European countries (WHO Regional Office for Europe, 2012):

- implementation of the END and its annexes, especially in the preparation of strategic noise mapping and action plans;
- human resources development through education and training in health risk assessment and burden of diseases stemming from environmental noise;
- methodological guidance for health risk assessment of environmental noise.

These guidelines mostly recommend exposure–response relationships related to the exposure indicators L_{den} and L_{night}. They are therefore of particular relevance to EU countries and those applying the END. In countries that do not use these indicators, users of the guidelines need to convert their noise indicators into L_{den} and L_{night} before being able to apply the recommendations. Conversion between indicators is possible, using a certain set of assumptions (Brink et al., 2018).

5.4 Usefulness of guidelines for target audiences

The provision of guideline values as a practical tool for guiding exposure reduction and the design of effective measures and policies is widely seen as useful. The WHO guidelines equip policy-makers and other end-users with a range of different needs with the necessary evidence base to inform their decisions. As indicated in section 1.4, these guidelines serve as a reference for several target audiences, and for each group they can be useful in different ways.

- For technical experts and decision-makers, the guidelines can be used to provide exposure–response relationships that give insight into the consequences of certain regulations or standards on the associated health effects. They also can be useful at the national and international level when developing noise limits or standards, as they provide the scientific basis to identify the levels at which environmental noise causes a significant health impact. Based on these recommendations, national governments and international organizations can be better informed when introducing noise limits, to ensure protection of people's health.
- For health impact assessment and environmental impact assessment practitioners and researchers, these guidelines provide exposure–response relationships that give insight into the expected health effects at observed or expected noise exposure levels. They offer recommendations on the maximum admissible noise levels for some sources and provide important input to assit in deriving the health burden from noise; in that sense, they can be used when producing studies such as noise maps and action plans to obtain an evaluation of the magnitude of the health problem. The systematic reviews developed in support of these guidelines allow practitioners to raise awareness of the credibility of the issue of noise as a public health problem and to use the recommended exposure–response relationships uniformly. Researchers will also benefit from the guidelines as they clearly identify critical data gaps that need to be filled in the future to better protect the population from the harmful effects of noise.
- The guideline recommendations provide a useful tool for national and local authorities when deciding about noise reduction measures, as they provide data to estimate the health burden on the population and therefore allow comparison among different policy options. These options

can include measures to reduce the noise emitted by the sources, measures aimed at impeding the transmission of noise from the sources to people and measures aimed at better planning the location of houses (urban planning).

- The guideline recommendations can also be used by civil society, patients and other advocacy groups to raise awareness and encourage actions to protect the population, including vulnerable groups, from exposure to noise.

Regarding noise abatement and mitigation of noise sources, practical exposure–response relationships for various noise sources are useful quantitative input to determine the impact of noise on health. They can be valuable information to use in cost–effectiveness and cost–benefit analyses of various policies for noise abatement. In this respect, the guideline recommendations can be an integral part of the policy process for noise reduction by various institutions; they are of great value for communicating the health risks and potential cost-effective solutions to reduce noise.

National and local authorities and nongovernmental organizations responsible for risk communication and general awareness-raising can use these guidelines for promotion campaigns and appropriate risk communication. The guidelines provide scientific evidence on a range of health effects associated with noise and facilitate appropriate risk communication to specific vulnerable groups. They therefore need to be promoted broadly to citizens, national and local authorities and nongovernmental organizations responsible for risk communication.

5.5 Methodological guidance for health risk assessment of environmental noise

A health risk assessment is the scientific evaluation of potential adverse health effects resulting from human exposure to a particular hazard – in this case, environmental noise. The main purpose of the assessment is to estimate and communicate the health impact of exposure to noise or changes in noise in different socioeconomic, environmental and policy circumstances.

The guideline recommendations, along with the detailed information contained in the systematic evidence reviews, can be used to assess health impacts in order to answer a variety of policy questions on:

- the public health burden associated with current or projected levels of noise;
- the human health benefits associated with changing a noise policy or applying a more stringent noise standard;
- the impacts on human health of emissions from specific sources of noise for selected economic sectors (and the benefits of policies related to them); and
- the human health impacts of current policy or implemented action.

The results from a health risk assessment are usually reported as the number of attributable deaths, number of cases, years of life lost, years lost due to disability or DALYs.

The quantification of the impacts for one combination of noise source, noise exposure indicator and health outcome may to some extent include effects attributable to another. Consequently, for any particular set of combinations, consideration should be given to potential double counting.

It is also important to note the uncertainties in quantification of the health impacts. One set of uncertainties relates to the CIs associated with the recommended ERFs; these quantify the random

error and variability attributed to heterogeneity in the epidemiological studies used for health risk assessment. Other types of uncertainty include modelling/calculation of noise exposure, estimates of population background rates for morbidity and mortality, and transferability of ERFs from locations where studies were carried out or data were otherwise gathered to another location. This is especially true for noise annoyance, for which there is often considerable heterogeneity in effect sizes of studies because estimates vary between noise sources and are to some degree dependent on the situation and context. Furthermore, cultural differences around what is considered annoying are significant, even within Europe. It is therefore not possible to determine the "exact value" of %HA for each exposure level in any generalized situation. Instead, data and exposure–response curves derived in a local context should be applied whenever possible to assess the specific relationship between noise and annoyance in a given situation. If, however, local data are not available, general exposure–response relationships can be applied, assuming that the local annoyance follows the generalized average annoyance. Despite the challenges in applying a "generalized" ERF to specific local situations, the GDG believes that the percentage of high annoyance defined in section 2.4.3 is an acceptable estimate of the "average" %HA at a certain noise level – for example, in Europe.

When performing a health risk assessment of environmental noise, it is important to note several considerations. The selection of particular noise source(s), noise exposure indicator(s) and health outcome combinations to be used for estimation of the health impacts depends on the particular policies and/or measures being assessed. These guidelines propose recommendations for four types of noise source using noise indicators L_{den} and/or L_{night} (road traffic, railway noise, aircraft noise and wind turbine noise) and one recommendation using $L_{Aeq,24h}$ (leisure noise). Any population may be exposed to different noise sources associated with the same health outcome. Estimated impacts should not be added together without recognizing that addition will, in most practical circumstances, lead to some overestimation of the true impact. Impacts estimated for only one combination will, on the other hand, underestimate the true impact of the noise mixture, if other sources of noise also affect that same health outcome.

The scientific evidence reviewed and summarized in these guidelines implies that the following health outcomes can be quantified in a health risk assessment, and that their effects are cumulative:

- from road traffic noise – incidence of IHD, annoyance and sleep disturbance, and potentially incidence of stroke and diabetes;
- from railway noise – annoyance and sleep disturbance;
- from aircraft noise – annoyance, reading and oral comprehension in children, sleep disturbance and potentially change in waist circumference and incidence of IHD;
- from wind turbine noise: annoyance.

The DWs suggested in section 2.4.3 can be used to calculate DALYs.

Data on incidence and prevalence of some health outcomes related to noise (mainly cardiovascular disease) can be found at a national level in online databases available on the WHO Regional Office for Europe website (WHO Regional Office for Europe, 2017).

General principles of relevance for environmental factors when conducting health risk assessments and quantifying the burden of disease can be found elsewhere (European Centre for Health Policy, 1999; Murray, 1994; Murray & Acharya, 1997; Murray & Lopez, 2013; Quigley et al., 2006; WHO,

2014a; 2014b; WHO Regional Office for Europe, 2016). In particular, the WHO Regional Office for Europe and JRC jointly published the first estimates of the burden of disease from environmental noise in 2011 (WHO Regional Office for Europe & JRC, 2011). The publication includes guidance on the procedure for the health risk assessment of environmental noise, exemplary estimates of the burden of the health impacts of environmental noise and a discussion of the uncertainties and limitations of the procedure to calculate the environmental burden of disease. The reader is referred to this publication for more detailed explanations on quantitative risk assessment methods for environmental noise.

5.6 Route to implementation: policy, collaboration and the role of the health sector

Preventing noise and related health impacts relies on effective action across different sectors: health, environment, transport, urban planning and so on. The health sector needs to be engaged effectively in different sectors' policy processes at national, regional and international levels. It needs to provide authoritative advice about the health impacts of noise and policy options that will bring the greatest benefits to health.

In most countries in the WHO European Region, the commitment of the health sector to engage in action to address environmental noise issues needs to be improved and better coordinated. A more coherent overall response is needed, taking into account relevant linkages with existing health priorities and concerns. Thus, some actions can be seen as aspects of the role of the health sector:

- engaging in proper communication with relevant sectors about noise exposure from different sectors and sources (environmental, urban development, transport and so on) to ensure that health issues are adequately addressed as part of international, regional, national and/or local efforts to address environmental noise – the implementation approach may differ across sectors, depending on the level of awareness of noise as a public health problem;
- promoting the guideline recommendations to policy-makers from different sectors and organizing information campaigns and awareness-raising activities in collaboration with national health authorities and WHO country offices to inform citizens and health practitioners about the health risks of environmental noise;
- using decision support instruments such as health impact and health risk assessments to quantify health risks and potential benefits associated with policies and interventions aimed at addressing environmental noise, including presenting information about the severity of the health effects (for example, with cardiovascular disease) to convey the serious impacts of noise and to try to change attitudes and behaviours of policy-makers and the general public;
- promoting the guidelines to health practitioners and physicians, especially at the community level (through associations of physicians, cardiologists and so on as part of the stakeholder group);
- supporting the establishment of national health institutions capable of initiating and developing health promotion measures, and conducting research, monitoring and reporting on health impacts from environmental noise and its different sources;

- organizing capacity-building workshops and training to increase knowledge of the guidelines as well as creating tools, skills and resources for health risk assessment and developing intersectoral collaboration, particularly in non-EU countries;
- promoting relevant research initiatives and shaping the research agenda, in part based on critical research recommendations and gaps identified in the guidelines, as well as on the impact and effectiveness of interventions and experience with their implementation;
- developing and updating guidelines and policies that influence national, regional and international benchmarks and targets related to environmental noise, as well as advocating the inclusion of the guidelines in development and shaping of national, regional and international noise policies and standards;
- working with other sectors to strengthen noise level monitoring and evaluation, particularly in non-EU countries, to ensure proper conducting of health risk assessments of environmental noise.

5.7 Monitoring and evaluation: assessing the impact of the guidelines

Exposure–response relationships and other recommendations provided by these guidelines should be incorporated into national health policies and the main related policy documents. They should be used for health impact and health risk assessments to identify health risks and potential benefits associated with policies and interventions related to environmental noise.

Population noise exposure should be monitored and assessed at a national scale, at least in urban areas. Furthermore, information on trends in occurrence of noise-related health outcomes considered in these guidelines, such as annoyance or sleep disturbance, should be gathered. These monitoring activities should be performed on a regular basis to ensure proper health risk assessments of noise.

5.8 Updating the guidelines

The progress and pace of noise and health research has intensified over the last 10 years, including new studies published after the completion of the systematic reviews done for these guidelines. This is partly related to the growing car fleet and resulting traffic, the density of urbanization, demographic changes and shifts towards renewable energy, including wind turbines, which have caused an increase in public perception and political awareness of the environmental noise problem. Noise exposure assessment has also improved, due partly to European legislation, and this has provided useful data for epidemiological studies on the health effects of environmental noise. Considering this, the recommendations proposed in these guidelines are expected to remain valid for a period of about 10 years. WHO will monitor the development of the scientific advancements on noise and health research in order to inform any updated guidance on environmental noise.

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Annexes

Annex 1. Steering, advisory and external review groups

Tables A1.1–A1.5 give details of the various teams involved in the development of the WHO environmental noise guidelines for the European Region.

Table A1.1 WHO Steering Group

Name	Role	Affiliation
Shelly Chadha	Technical Officer, Office for Hearing Impairment	WHO headquarters, Geneva, Switzerland
Carlos Dora	Coordinator	WHO headquarters, Department of Public Health and Environment, Geneva, Switzerland
Marie-Eve Héroux	Technical Officer, Air Quality and Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Dorota Jarosinska	Programme Manager, Living and Working Environments	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Rokho Kim	Environmental Health Specialist, Team Leader	WHO Regional Office for the Western Pacific, Division of Noncommunicable Diseases and Health through the Life-Course, Manila, Philippines
Jurgita Lekaviciute	Consultant, Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Srdan Matic	Coordinator, Environment and Health	WHO Regional Office for Europe, Copenhagen, Denmark
Julia Nowacki	Technical Officer, Health Impact Assessment	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Elizabet Paunovic	Head of Office	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Poonum Wilkhu	Consultant, Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Jördis Wothge	Consultant, Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany

Table A1.2. Guideline Development Group

Area of expertise	Reference	Area of expertise	Reference
Noise sources and their measurement	1	Annoyance	6
Biological mechanisms of effects	2	Cognitive impairment, quality of life, mental health and well-being	7
Cardiovascular and metabolic diseases	3	Adverse birth outcomes	8
Sleep disturbance	4	Environmental noise interventions	9
Hearing impairment/tinnitus	5	Methodology and guideline development	10

Name	Position and affiliation	Area of expertise sought for guideline development (see reference numbers above)									
		1	2	3	4	5	6	7	8	9	10
Wolfgang Babisch	Senior Scientific Officer (retired) Federal Environment Agency Germany		X	X		X					
Goran Belojevic	Professor Institute of Hygiene and Medical Ecology Faculty of Medicine University of Belgrade Serbia			X			X				
Mark Brink	Senior Scientist Federal Office for the Environment Switzerland	X			X		X				
Sabine Janssen	Senior Scientist Department of Sustainable Urban Mobility and Safety Netherlands Organisation for Applied Scientific Research (TNO) Netherlands				X		X				
Peter Lercher (2013–2014)	Professor Medical University of Innsbruck Austria							X	X		
Marco Paviotti	Policy Officer Directorate-General for Environment European Commission Belgium	X								X	
Göran Pershagen	Professor Institute of Environmental Medicine Karolinska Institute Sweden		X	X					X		

Table A1.2. contd

Area of expertise	Reference	Area of expertise	Reference
Noise sources and their measurement	1	Annoyance	6
Biological mechanisms of effects	2	Cognitive impairment, quality of life, mental health and well-being	7
Cardiovascular and metabolic diseases	3	Adverse birth outcomes	8
Sleep disturbance	4	Environmental noise interventions	9
Hearing impairment/tinnitus	5	Methodology and guideline development	10

Name	Position and affiliation	Area of expertise sought for guideline development (see reference numbers above)									
		1	2	3	4	5	6	7	8	9	10
Kerstin Persson Waye	Professor Occupational and Environmental Medicine The Sahlgrenska Academy University of Gothenburg Sweden	X			X		X				
Anna Preis	Professor Institute of Acoustics Adam Michiewicz University Poland					X	X				
Stephen Stansfeld (Chair)	Professor/Head of the Centre for Psychiatry Barts and Queen Mary University of London United Kingdom							X			
Martin van den Berg	Senior Noise Expert Ministry of Infrastructure and Environment Netherlands	X									
GRADE methodologist											
Jos Verbeek	Senior Researcher Finnish Institute of Occupational Health Finland	X									

Table A1.3. Systematic Review Team

Systematic review topics	Experts involved	Affiliation
Cardiovascular and metabolic diseases	Elise van Kempen	National Institute of Public Health and the Environment (RIVM), Netherlands
	Göran Pershagen	Institute of Environmental Medicine, Karolinska Institute, Sweden
	Maribel Casas Sanahuja	Institute for Global Health (ISGlobal), Spain
	Maria Foraster	Barcelona Institute for Global Health (ISGlobal), Spain and Swiss Tropical and Public Health Institute, Switzerland
Sleep disturbance	Mathias Basner	Department of Psychiatry, Perelman School of Medicine at the University of Pennsylvania, United States of America
	Sarah McGuire	Department of Psychiatry, Perelman School of Medicine at the University of Pennsylvania, United States of America
Hearing impairment and tinnitus	Mariola Sliwinska-Kowalska	Nofer Institute of Occupational Medicine, Poland
	Kamil Rafal Zaborowski	Nofer Institute of Occupational Medicine, Poland
Annoyance	Rainer Guski	Department of Psychology, Ruhr-University, Germany
	Dirk Schreckenberg	ZEUS GmbH, Centre for Applied Psychology, Environmental and Social Research, Germany
	Rudolf Schuemer	Consultant for ZEUS GmbH, Centre for Applied Psychology, Environmental and Social Research, Germany
Cognitive impairment, mental health and well-being	Charlotte Clark	Ove Arup & Partners, United Kingdom
	Katarina Paunovic	Institute of Hygiene and Medical Ecology, Faculty of Medicine, University of Belgrade, Serbia
Adverse birth outcomes	Mark Nieuwenhuijsen	Institute for Global Health (ISGlobal), Spain
	Gordana Ristovska	Institute of Public Health of Republic of Macedonia, the former Yugoslav Republic of Macedonia
	Payam Dadvand	Institute for Global Health (ISGlobal), Spain
Interventions	Lex Brown	Griffith School of Environment/Urban Research Program, Griffith University, Australia
	Irene Van Kamp	National Institute of Public Health and the Environment (RIVM), Netherlands

Table A1.4. External Review Group

Area of expertise	Reference	Area of expertise	Reference
Cardiovascular and metabolic diseases	1	Cognitive impairment, mental health and well-being	5
Sleep disturbance	2	Adverse birth outcomes	6
Hearing impairment/ Tinnitus	3	Environmental noise interventions	7
Annoyance	4	Recommendations and implementation guidance	8

Name	Affiliation	Area of expertise sought for guideline development (see reference numbers above)							
		1	2	3	4	5	6	7	8
Gunn Marit Aasvang	Norwegian Institute of Public Health, Norway		X						
Bernard Berry	Berry Environmental Limited, United Kingdom							X	
Dick Botteldooren	Department of Information Technology, Ghent University, Belgium				X				
Stephen Conaty	South Western Sydney Local Health District, Australia								X
Ulrike Gehring	Institute for Risk Assessment Sciences, Utrecht University, Netherlands						X		
Truls Gjestland	SINTEF, Department of Acoustics, Norway				X				
Mireille Guay	Healthy Environments and Consumer Safety Branch, Health Canada/Government of Canada, Canada		X		X				
Ayse Güven	Audiology Department, Faculty of Heath Sciences, Baskent University, Turkey			X					
Anna Hansell	Centre for Environmental Health & Sustainability, George Davies Centre, University of Leicester, United Kingdom	X							X
Stylianos Kephalopoulos	European Commission, DG Joint Research Centre, Italy							X	X
Yvonne de Kluizenaar	The Netherlands Organization for applied scientific research (TNO), Netherlands							X	
David S. Michaud	Healthy Environments and Consumer Safety Branch, Health Canada/Government of Canada, Canada		X		X				
Arnaud Norena	Université Aix-Marseille, Fédération de Recherche, Laboratoire Cognitive Neuroscience, France			X					
Enembe Okokon	National Institute for Health and Welfare, Finland								X
Dieter Schwela	Stockholm Environment Institute, University of York, United Kingdom								X
Daniel Shepherd	AUT University, Auckland, New Zealand					X			
Mette Sörensen	Danish Cancer Society Research Centre, Denmark	X							X
Rupert Thornley-Taylor	Rupert Taylor Ltd, Noise and Vibration Consultants							X	X
David Welch	School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, New Zealand			X				X	

Table A1.5. Stakeholders and end users that participated in the stakeholder consultation

Area of expertise/interest	Reference	Area of expertise	Reference
Implementation of recommendations on railway noise	1	Implementation of recommendations on wind turbine noise	4
Implementation of recommendations on aircraft noise	2	Implementation of recommendations on leisure noise	5
Implementation of recommendations on road traffic noise	3	Implementation of overall recommendations	6

Organization	Area of expertise specifically sought for Guidelines (see reference number above)					
	1	2	3	4	5	6
Airlines for Europe		X				
Airports Council International Europe (ACI)		X				
Anderson Acoustics		X				
Bundesverband der Deutschen Luftverkehrswirtschaft e.V.		X				
European Automobile Manufacturers' Association (ACEA)			X			
European Aviation Safety Agency		X				
European Express Association	X					
European Noise Barrier Federation						X
Flughafenverband (ADV)		X				
International Air Transport Association (IATA)		X				
International Civil Aviation Organization (ICAO)		X				
International Union of Railways	X					
Landesamt fuer Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen						X
Public Health Agency of Sweden						X
Stephen Turner Acoustics					X	X
Union Européenne Contre les Nuisances Aeriennes		X				
Vie en.ro.se.						X

Note: in total 53 organizations and institutions had been approached to participate in the stakeholder consultation.

Annex 2. Systematic reviews and background documents used in preparation of the guidelines

Annex 2 provides a detailed list of all the supplementary documents accompanying the WHO environmental noise guidelines for the European Region.[22]

Systematic reviews

- Basner M, McGuire S (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and effects on sleep. Int J Environ Res Public Health. 15(3):pii: E519 (http://www.mdpi.com/1660-4601/15/3/519/htm).
- Brown AL, van Kamp I (2017). WHO environmental noise guidelines for the European Region: a systematic review of transport noise interventions and their impacts on health. Int J Environ Res Public Health. 14(8). pii: E873 (http://www.mdpi.com/1660-4601/14/8/873/htm).
- Clark C, Paunovic K (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and cognition. Int J Environ Res Public Health. 15(2). pii: E285 (http://www.mdpi.com/1660-4601/15/2/285/htm).
- Clark C, Paunovic K (in press). WHO Environmental noise guidelines for the European Region: a systematic review on environmental noise and quality of life, wellbeing and mental health. Int J Environ Res Public Health.
- Guski R, Schreckenberg D, Schuemer R (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and annoyance. Int J Environ Res Public Health. 14(12). pii:1539 (http://www.mdpi.com/1660-4601/14/12/1539/htm).
- Nieuwenhuijsen MJ, Ristovska G, Dadvand P (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and adverse birth outcomes. Int J Environ Res Public Health. 14(10). pii: E1252 (http://www.mdpi.com/1660-4601/14/10/1252/htm).
- Śliwińska-Kowalska M, Zaborowski K (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and permanent hearing loss and tinnitus. Int J Environ Res Public Health. 14(10). pii: E1139 (http://www.mdpi.com/1660-4601/14/10/1139/htm).
- van Kempen E, Casas M, Pershagen G, Foraster M (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and cardiovascular and metabolic effects: a summary. Int J Environ Res Public Health. 15(2). pii: E379 (http://www.mdpi.com/1660-4601/15/2/379/htm).

[22] All references were accessed on 27 June 2018.

Background documents

- Eriksson C, Pershagen G, Nilsson M (2018). Biological mechanisms related to cardiovascular and metabolic effects by environmental noise. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/biological-mechanisms-related-to-cardiovascular-and-metabolic-effects-by-environmental-noise).
- Héroux ME, Verbeek J (2018a). Results from the search for available systematic reviews and meta-analyses on environmental noise. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/results-search-for-available-systematic-reviews-environmental-noise).
- Héroux ME, Verbeek J (2018b). Methodology for systematic evidence reviews for the WHO environmental noise guidelines for the European Region. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/methodology-systematic-evidence-reviews-who-environmental-guidelines-for-the-european-region).

Annex 3. Summary of conflict of interest management

All external contributors to the guidelines, including members of the GDG, Systematic Review Team and External Review Group, completed WHO declaration of interest forms in accordance with WHO's policy for experts. Further, at the initial stage of the project WHO technical staff reviewed and accepted *curricula vitae* of the candidates for the GDG.

At the beginning of the GDG meetings, the participants declared any conflict of interest by submitting declaration of interest forms. Updated declarations of interest were also collected from the members of the GDG, Systematic Review Team and External Review Group at the final stage of the project.

The conflict of interest assessment was done according to WHO procedures. If a conflict was declared, an initial review was undertaken by the WHO Secretariat to assess its relevance and significance. A declared conflict of interest is insignificant or minimal if it is unlikely to affect or to be reasonably perceived to affect the expert's judgment. Insignificant or minimal interests are: unrelated or only tangentially related to the subject of the activity or work and its outcome; nominal in amount or inconsequential in importance; or expired and unlikely to affect current behaviour.

The WHO Secretariat reviewed and assessed the declarations. In one case the legal unit was consulted for advice; in another the potential conflict was reported in the updated declaration of interest at the final stage of the process and assessed unlikely to affect expert's performance; in a further case a member of the GDG was also a co-author of a systematic review owing to the need to support systematic review authors with additional expertise, but there was no remuneration for this activity.

No member of the GDG or the Systematic Review Team was excluded from his or her role in the guideline development process. The declared conflicts of interest of the External Review Group members were considered when interpreting comments during the external review process.

Annex 4. Detailed overview of the evidence of important health outcomes

As a first step of the evidence retrieval process, the GDG defined two categories of health outcome associated with environmental noise: those considered (i) critical or (ii) important, but not critical for decision-making in the guideline development process.

The GDG relied on the critical health outcomes to inform its decisions on priority health outcomes, so only these were used to inform the recommendations. Nevertheless, as the relevance of some of important health outcomes was difficult to estimate *a priori,* systematic reviews were conducted for both critical and important health outcomes.

This annex provides a detailed overview of the evidence of the important health outcomes – namely adverse birth outcomes, quality of life, well-being and mental health and metabolic outcomes – for each of the noise sources. A comprehensive discussion of all the evidence considered (both critical and important) is available in the published systematic reviews (see section 2.3.2 and Annex 2 for details).

1. Road traffic noise

1.1 Adverse birth outcomes

In total, the systematic review found five studies (two with more or less the same population) on road traffic noise and birth outcomes and three related studies on total ambient noise, likely to be mostly road traffic noise. Too few studies for each of the various measures related to adverse birth outcomes were available to undertake a quantitative meta-analysis. There was evidence rated low quality for a relationship between road traffic noise and low birth weight (Dadvand et al., 2014; Gehring et al., 2014; Hjortebjerg et al., 2016; Wu et al., 1996); however, the estimates were imprecise and in some cases not statistically significant. Further, there was no clear relation between exposure to road traffic noise and pre-term delivery, but there was a positive association between road traffic noise and small for gestational age (OR = 1.09; 95% CI: 1.06–1.12 per 6 dB increase). The evidence for both measures of adverse birth outcomes comes from the same publications and this evidence was rated low quality (Gehring et al., 2014; Hystad et al., 2014).

This evidence was supported by one ecological time-series study published recently looking at total ambient noise and various measures related to adverse birth outcomes (Arroyo et al., 2016a; 2016b; Diaz et al., 2016).

1.2 Quality of life, well-being and mental health

Evidence rated moderate quality was found for an effect of road traffic noise on emotional and conduct disorders in childhood (Belojevic et al., 2012; Crombie et al., 2011; Hjortebjerg et al., 2015; Ristovska et al., 2004; Stansfeld et al., 2005; 2009a; Tiesler et al., 2013) and evidence rated moderate quality for an association of road traffic noise with hyperactivity in children (Hjortebjerg et al., 2015; Tiesler et al., 2013).

There was no clear relationship, however, between road traffic noise exposure and self-reported quality of life (evidence rated low quality) (Barcelo Perez & Piñeiro, 2008; Brink, 2011; Clark et al., 2012; Honold et al., 2012; Roswall et al., 2015; Schreckenberg et al., 2010b; Stansfeld et al., 2005; 2009b; van Kempen et al., 2010); medication intake for depression and anxiety (evidence rated very low quality) (Floud et al., 2011; Halonen et al., 2014); depression, anxiety and psychological distress (evidence rated very low quality) (Honold et al., 2012; Stansfeld et al., 2009b); and interview measures of depression and anxiety (evidence rated very low quality) (Stansfeld et al., 2009b).

1.3 Metabolic outcomes

1.3.1 Diabetes

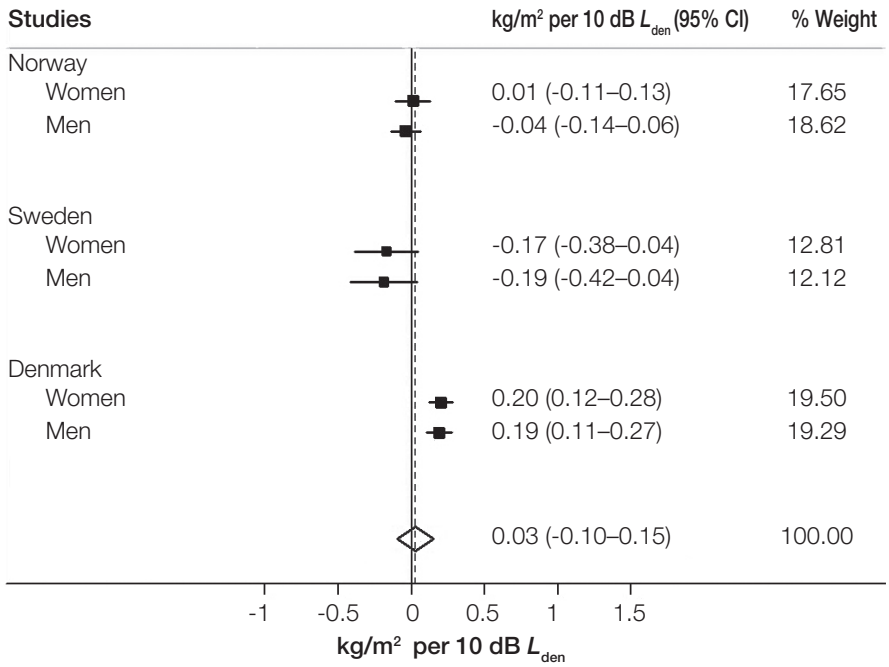
For the relationship between road traffic noise and the incidence of diabetes, one cohort study was identified, which included 57 053 participants and 2752 cases (Sörensen et al., 2013). The estimate of the effect was RR = 1.08 (95% CI: 1.02–1.14) per 10 dB L_{den} increase in noise across the range of 50–70 dB, and therefore the evidence was rated moderate quality.

Furthermore, two cross-sectional studies were identified that looked at the prevalence of diabetes (Selander et al., 2009; van Poll et al., 2014). The studies included 11 460 participants and 242 cases. Both studies reported a harmful effect of noise, and one showed a statistically significant association. However, the results were imprecise and with serious risk of bias, so the evidence was rated very low quality.

1.3.2 Obesity

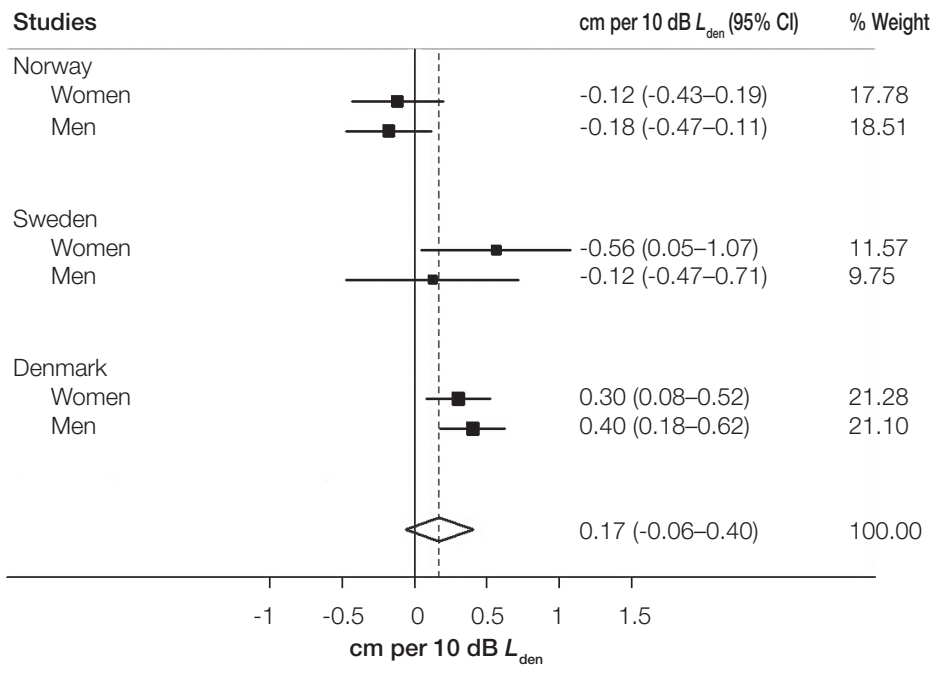
With regard to the association between road traffic noise and change in body mass index (BMI) and waist circumference, three cross-sectional studies were identified, with 71 431 participants (Christensen et al., 2016; Oftedal et al., 2014; 2015; Pyko et al., 2015). For each 10 dB increase in road traffic noise, there was a statistically nonsignificant increase in BMI of 0.03 kg/m^2 (95% CI: –0.10–0.15 kg/m^2) and in waist circumference of 0.17 cm (95% CI: –0.06–0.40 cm). There was inconsistency in the results between the studies; therefore, for both associations, the evidence was rated very low quality (Fig. A4.1 and Fig. A4.2).

Fig. A4.1 The association between exposure to road traffic noise (L_{den}) and BMI in three Nordic studies



Notes: The black vertical line corresponds to no effect of noise exposure. The black dots correspond to the estimated slope coefficients per 10 dB for each sex in each study, with 95% CIs. The diamond designates summary estimates and 95% CIs based on random effects models. The dashed red line corresponds to these summary estimates. Heterogeneity between studies: p = 0.000; heterogeneity between genders: p = 0.360; overall (I-squared = 84.4%, p = 0.000). Weights are from random effect analysis.

Fig. A4.2 The association between exposure to road traffic noise (L_{den}) and waist circumference in three Nordic studies



Notes: The black vertical line corresponds to no effect of noise exposure. The black dots correspond to the estimated slope coefficients per 10 dB for each sex in each study, with 95% CIs. The diamond designates summary estimates and 95% CIs based on random effects models. The dashed red line corresponds to these summary estimates. Heterogeneity between studies: p = 0.001; heterogeneity between genders: p = 0.842; overall (I-squared = 69.0%, p = 0.007). Weights are from random effect analysis.

2. Railway noise

2.1 Adverse birth outcomes

No studies were found, and therefore no evidence was available on the association between railway noise and adverse birth outcomes.

2.2 Quality of life, well-being and mental health

Evidence rated very low quality was found for a weak effect of railway noise exposure on self-reported quality of life or health, albeit from a limited number of studies (Roswall et al., 2015; Torre et al., 2007). There was evidence rated moderate quality for an effect of railway noise on emotional and conduct disorders in childhood (Hjortebjerg et al., 2015), but no clear relationship between railway noise and children's hyperactivity (Hjortebjerg et al., 2015); this evidence was rated moderate quality.

2.3 Metabolic outcomes

2.3.1 Diabetes

One cohort study was identified that looked at the relationship between railway noise and the incidence of diabetes (Sörensen et al., 2013). The cohort study of 57 053 participants, including 2752 cases, found evidence rated moderate quality that there was no considerable effect of railway noise on diabetes, with an RR of 0.97 (95% CI: 0.89–1.05) per 10 dB L_{den} increase in noise.

Furthermore, one cross-sectional study was identified that looked at the relationship between railway noise and the prevalence of diabetes (van Poll et al., 2014), including 9365 participants and 89 cases. An RR of 0.21 (95% CI: 0.05–0.82) per 10 dB L_{den} increase in noise was found, but the reasons for the beneficial effect were not immediately apparent. The evidence in the study was rated very low quality.

2.3.2 Obesity

Regarding the association between railway noise and change in BMI and waist circumference, two cross-sectional studies were identified, with 57 531 participants (Christensen et al., 2016; Pyko et al., 2015). Christensen and colleagues observed a statistically significant increase of 0.18 kg/m^2 (95% CI: 0.00–0.36 kg/m^2) per 10 dB for BMI and 0.62 cm (95% CI: 0.14–1.09 cm) per 10 dB for waist circumference in those exposed to railway noise, at levels above 60 dB L_{den}. Pyko and colleagues found a statistically significant increase in waist circumference of 0.92 cm (95% CI: 0.06–1.78 cm) per 10 dB L_{den}. The corresponding estimate for BMI was statistically nonsignificant, at 0.06 kg/m^2 (95% CI: –0.02–0.16 kg/m^2). The evidence was rated low/very low quality.

3. Aircraft noise

3.1 Adverse birth outcomes

Evidence rated very low quality was available for an association between aircraft noise and pre-term delivery, low birth weight and congenital anomalies, as evidenced by six studies included in the systematic review (Ando & Hattori, 1973; Edmonds et al., 1979; Jones & Tauscher, 1978; Knipschild et al., 1981; Matsui et al., 2003; Schell, 1981). The potential for risk of bias in these was high and the results tended to be inconsistent.

3.2 Quality of life, well-being and mental health

Evidence rated very low quality was available for an effect of aircraft noise on medication intake for depression and anxiety (Floud et al., 2011). There was evidence rated very low quality for an effect of aircraft noise exposure on interview measures of depression and anxiety (Hardoy et al., 2005) and rated low quality for an association of aircraft noise with hyperactivity in children (Clark et al., 2013; Crombie et al., 2011; Stansfeld et al., 2009a).

The evidence showed, however, no substantial effect of aircraft noise on self-reported quality of life or health (Clark et al., 2012; Schreckenberg et al., 2010a; 2010b; Stansfeld et al., 2005; van Kempen et al., 2010) or on emotional and conduct disorders in childhood (Clark et al., 2012; 2013; Crombie et al., 2011; Stansfeld et al., 2005; 2009a). This evidence was rated very low quality.

3.3 Metabolic outcomes

3.3.1 Diabetes

For the relationship between aircraft noise and incidence of diabetes one cohort study was identified, including 5156 participants and 1346 cases (Eriksson et al., 2014). The estimate of the effect was imprecise, with an RR of 0.99 (95% CI: 0.47–2.09) per 10 dB L_{den} increase in noise; the evidence was therefore rated very low quality.

Furthermore, one cross-sectional study was identified that looked at the prevalence of diabetes (van Poll et al., 2014), including 9365 participants and 89 cases. The RR was 1.01 (95% CI: 0.78–1.31) per 10 dB increase in aircraft noise. The evidence was rated very low quality.

3.3.2 Obesity

For the association between aircraft noise and change in BMI and waist circumference, one cohort study was identified, with 5156 participants (Eriksson et al., 2014). For each 10 dB increase in aircraft noise level, the increase in BMI was 0.14 kg/m^2 (95% CI: –0.18–0.45) (evidence rated low quality), and the increase in waist circumference was 3.46 cm (95% CI: 2.13–4.77) (evidence rated moderate quality). The range of noise levels in the study was 48–65 dB L_{den}. In the case of BMI, the change over the whole range in noise values was not statistically significant and was less than what could be considered clinically relevant (3–5% change in BMI); however, for waist circumference, the change was equivalent to an increase of 5.8 cm.

4. Wind turbine noise

4.1 Quality of life, well-being and mental health

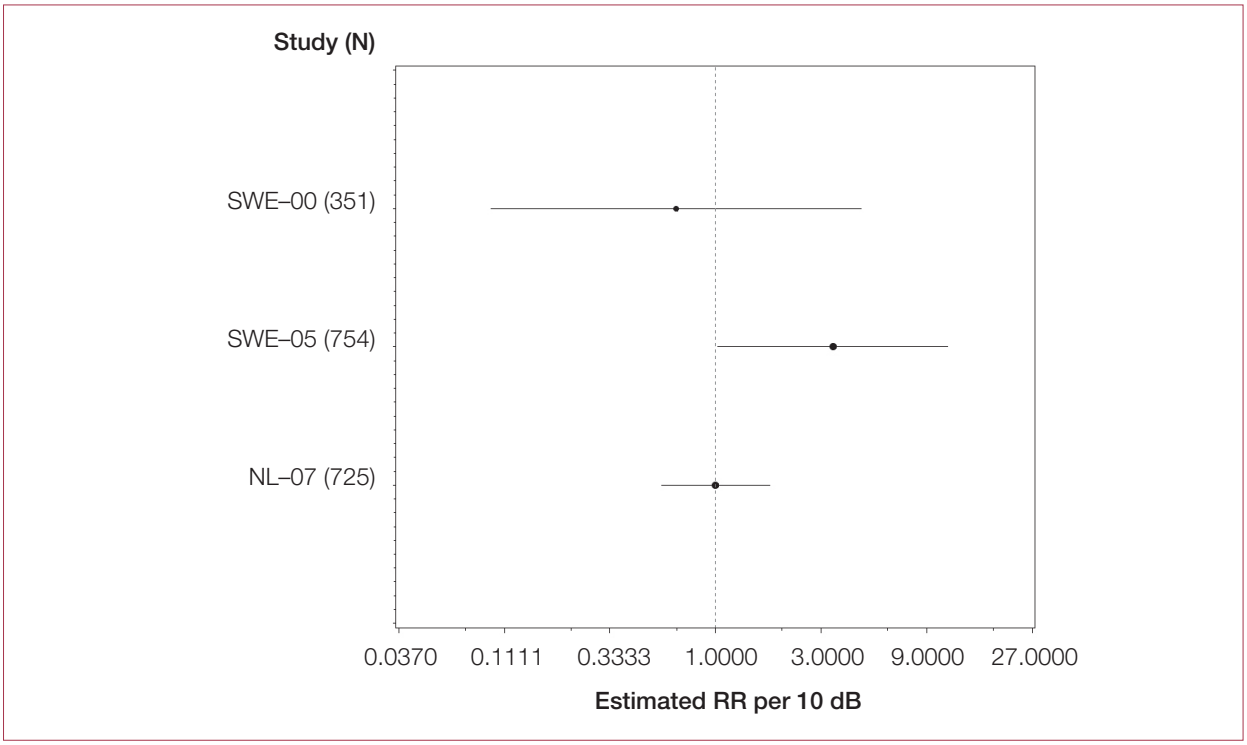
Five low-quality systematic reviews of wind turbine noise effects on mental health and well-being have been carried out (Ellenbogen et al., 2012; Kurpas et al., 2013; Merlin et al., 2013; Onakpoya et al., 2015; Schmidt & Klokker, 2014). These reviews differed in their conclusions and delivered inconsistent evidence that wind turbine noise exposure is associated with poorer quality of life, well-being and mental health. Therefore, the evidence for no substantial effect of wind turbine noise on quality of life, well-being or mental health was rated very low quality.

4.2 Metabolic outcomes

4.2.1 Diabetes

For the relationship between wind turbine noise and prevalence of diabetes, three cross-sectional studies were identified, with a total of 1830 participants (Bakker et al., 2012; Pedersen, 2011; Pedersen & Larsman, 2008; Pedersen & Persson Waye, 2004; 2007; Pedersen et al., 2009; van den Berg et al., 2008). The number of cases was not reported. The effect sizes varied across studies, and only one study found a positive association between exposure to wind turbine noise and the prevalence of diabetes; therefore, no meta-analysis was performed. Due to very serious risk of bias and imprecision in the results, this evidence was rated very low quality. As a result, there is no clear relationship between audible noise (greater than 20 Hz) from wind turbines or wind farms and prevalence of diabetes (Fig. A4.3).

Fig. A4.3 The association between exposure to wind turbine noise (sound pressure level) and self-reported diabetes



Note: The dotted vertical line corresponds to no effect of exposure to wind turbine noise. The black circles correspond to the estimated RR per 10 dB (sound pressure level) and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

5. Leisure noise

Owing to a lack of evidence meeting the critieria for systematic reviewing, no results for any of the important health outcomes can be given for exposure to leisure noise.

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The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Noise is an important public health issue. It has negative impacts on human health and well-being and is a growing concern. The WHO Regional Office for Europe has developed these guidelines, based on the growing understanding of these health impacts of exposure to environmental noise. The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. They provide robust public health advice underpinned by evidence, which is essential to drive policy action that will protect communities from the adverse effects of noise. The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience.

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16-01-2019 24

Høringssvar vedr. planforslaget 499 og 509

Jeg forstår ikke at ansvarlige politikere kan vedtage en lokalplan for et rekreativt område og næsten inden blækket er tørt komme med et nyt lokalplanforslag for det samme område. Området er udlagt som rekreativt område og er tillige vandindvindingsområde for en af vore drikkevandsforsyninger. Nogle af restriktionerne er, at der ikke må bruges salt som glatførebekæmpelse - der må ikke bruges sprøjtegift og der må ikke vaskes biler + sandsynligvis en række andre forbud. Hvordan vil man sikre sig at byggeriet udføres miljømæssig forsvarligt? Dertil kommer alle de andre problemer med trafik, støj, institutioner, skoler m.m.

Så vidt jeg ved har regeringen påpeget at byggeri i et beskyttet område KUN kan finde sted hvis det er absolut nødvendigt !!!

Hvad er den dybere mening med at der absolut skal bygges netop der, når der er tilstrækkeligt med byggegrunde andre steder i Viborg by og i kommunen i det hele taget. Politikerne har jo bebudet at man vil HELE kommunen, hvorfor så centrere det i Viborg by. Man slår hårdt på ORDENTLIGHED i kommunen - er dette ordentlighed ??

Poul G. Nielsen - Hald Ege

Indsendt af Poul G. Nielsen

16-01-2019 25

Lokalplans ændringer

Vedr. lokalplansændringer

Jeg undrer mig over den stigende tendens, der er vedr. ændringer af lokalplaner generelt.

Har vores borgervalgte politikere mon gennemtænkt konsekvenserne af deres beslutninger herunder lyttet til borgernes ønsker og argumenter?

Jeg mener, at ændringer kan være nødvendige, men de skal være vel begrundede og gennembearbejdede, inden man tager de enkelte beslutninger, som i mange tilfælde kan berøre borgere, som i god tro har investeret i deres bolig bla. pga. beliggenhed osv. Jeg oplever at der sker ændringer i lokalplanen, som kan få uheldige virkninger og ramme en familie ret så hårdt på økonomien, trafikale forhold osv.

Man kan vel dårlig begrunde ændringerne med byudvikling i al den stund, at der er mange byggegrunde til salg i kommunen (og fint med det). Der er endvidere et solidt udbud pt., og prognoserne viser et dalende tilflytterbehov.

Jeg er som sagt helt med på, at det kan være nødvendigt med lokalplansændringer, men de skal være velbegrundede og velbearbejdede. Det er en uskik, når man uden videre beslutter ændringer uden det er veldokumenteret.

Indsendt af Preben Overgaard

Lokalplan 509 & 499

Jeg kan på ingen måde bakke op om lokalplanforslag 509 og 499.

Alléen mellem Viborg og Hald Ege, vel en af de smukkeste strækninger, vil blive "amputeret" væsentligt.

Den trafikale belastning af Egeskovvej, som i forvejen er presset morgen og eftermiddag, vil alt andet lige belastes yderligere.

Jeg synes ikke det er det rigtige område at udstykke til boliger.

Jeg kan ydermere komme i tvivl om behovet for flere boliger er der, set i lyset af områderne, Banebyen, Arnbjerg og Taphede, sammenholdt med befolkningstilvæksten.

Indsendt af Janus Brink Strøh

16-01-2019 27

Indsigelse

Jeg vil gerne tilkendegive min indsigelse imod foreliggende planer om boligprojektet. Det giver ingen mening at ødelægge et så smukt naturområde til fordel for er byggeprojekt af boliger der strengt taget ikke er behov for. Udover i bygherres pengepung.

Indsendt af Maria

Lokalplansforslag nr. 509 og 499.

Jeg er meget i mod lokalplansforslag nr. 509 og 499.

Området er et enestående naturområde. Det er smukt at være i for borgere i området og forbipasserende. Alleen på Egeskovvej er enestående.

Hertil kommer, at den trafikale løsning, der er på bordet, den er helt til grin. Der kommer alt for meget trafik på Egeskovvej og belastningen i Hald Ege by bliver voldsom. Der er i forvejen for meget tung trafik. Det kan alle da se. Det er simpelthen så dårligt planlagt.

Tænk nu på, at der er også så mange sted i Viborg, hvor der kunne bygges boliger og bliver det – hvis der overhovedet er et behov for alle disse boliger?

Det kan ikke være rigtigt, at Viborg byråd vil ødelægge vores område. Tænk jer nu lidt om! Der så mange marker omkring Viborg, hvor der kan bygges mere.

Indsendt af Troels Roar Johannsen

Trafik på Egeskovvej

Vi bor ud til Egeskovvej. Trafik intensiteten er vokset meget gennem årene. Pendlere og kørsel af børn til skole og børnehaver skaber store trafikale problemer. Vigepligt og hastighedsgrænser lades der hånt om. Cykelister tvinges op på fortovet. Støj og os er en daglig chikane for os langs vejen. Med udsigt til endnu mere trafik fra de nye påtænkte udstykninger og konsekvensen af lukningen af kolbælvænget må vi protestere. Der er intet fremlagt fra kommunen der tager hånd om disse problemer. Et enkelt byrådsmedlem mener en jordvold vil løse støjproblemer men det er vist ikke langs Egeskovvej i Hald Ege han mener. Vi håber at disse ugennemtænkte udstykningsplaner skrottes så Hald Ege må forblive et godt sted at bo.

Indsendt af Olav Jensen

Centraliseringsfare

Jeg er alvorligt bekymret for at Viborg med den beregnede vækstrate (omend den er mere end optimistisk) alene tilgodeser byudvikling og helt og aldeles fjerner eksistensgrundlaget for mindre samfund, herunder så absolut mange andre end lige netop Hald Ege. Ved at tænke så meget i at man skal kunne bo så mange mennesker inden for den stadigt voksende bygrænse, er jeg bekymret for huspriser i landbyer, dera følgende centralisering i byerne og affolkning på landet....ensretning af kulturer, sprog, egnetraditioner og en stigmatisering og udkantsdanmark. Der er så mange "døde" byer i Viborg kommune, og her ville en indsats på byudvikling i landsbyzonerne tjene langt flere formål. Det er de tendenser vi sporer i hele landet ....tendensen til at folk med børn osv. gerne vil tilbage til landet....også helt fra København. Men gerne i et mindre samfund, hvor det lokale er mere end fire gårde. Byer med særegne virksomheder, kulturenheder, småbutikker. Samfund der er små nok til at være lokale, men store nok til at opretholde et moment og større frekvens af initiativer fra tiltrækkeligt mange forskellige mennesker til at kulturen lever.

Vi elsker Viborg.....men vi elsker også at Viborg er både by, landsby og land adskilt.

Det er bare et synspunkt.

Mvh Simon

Indsendt af Simon Strørup

Bebyggelse Egeskovvejb

Det vil være fuldstændig forrygt at bygge langs Egeskovvej. Det stykke ubeboet skov er med til at give ro og afstresse mærke at vi har natur og ikke kun boliger.

Hvis der virkelig er brug for boliger, hvilket jeg tvivler på, så find en mark at bygge på og ikke skov, og da sket ikke så tæt på fredet skov og gravhøje, og hvad med trafikken, den vil da blive helt håbløs gennem Hald Ege. Tænk jer om!!

Indsendt af Annette Jørgensen

Sammenhænge.....

Ud over de mange andre indlæg der allerede er kommet, kan man undre sig lidt over, om man politisk har glemt den POLITISK VEDTAGNE Natur- og Parkpolitik med den fine overskrift Grønne sammenhænge.

I forordet kan man bl.a. læse følgende:

Natur spiller en vigtig rolle for vores livskvalitet.

Natur giver og skaber rammer for oplevelser, og natur kan fremme et bedre miljø og menneskers sundhed.

Natur rummer også et vækstpotentiale i forbindelse med turisme, erhverv og bosætning.

En del af Byrådets vision er at skabe en sund og grøn kommune. Derfor vil vi værne om naturen og et rent miljø til gavn for befolkningens sundhed og rekreative udfoldelsesmuligheder for at fremme livskvaliteten og som forebyggelse af livsstilssygdomme.

I dette område vil det give ret god mening at skele til den.

Mvh

Jette

Indsendt af Jette

<u>Vedhæftet fil</u>

Grønne sammenhænge

Natur- og Parkpolitik for Viborg Kommune

Godkendt af Viborg Byråd den 25. september 2013

VIBORG KOMMUNE

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‹ *Digterparken i Viborg*

Forside:
Borgvold, Viborg
Undallslund, Viborg
Anlægget, Bjerringbro
Nordisk Park, Viborg

Forord

Viborg Kommune ligger i centrum af Jylland. Her er der en enestående natur. Med naturperler som Hald Sø, Dollerup Bakker og Kongenshus Hede og en variation af natur- og landskabstyper som fjorden, søer, heder, ådale, skove og andre oplevelsesrige landskaber.

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Natur- og Parkpolitikken supplerer og understøtter Byrådets øvrige politikker, f.eks. Landdistriktspolitikken, Forebyggelses- og sundhedsfremmepolitikken og Politik for boligområdet, der alle er rettet mod hele kommunen.

Viborg Kommune er i geografisk udstrækning landets næststørste. Jordbrugserhvervene spiller en stor rolle i kommunen, og har også en stor betydning for naturens udvikling. Nogle naturtyper er afhængige af drift, eksempelvis afgræsning, der sikrer åbne naturtyper. De grønne åndehuller i byerne er vigtige for både planter og dyr samt for borgernes og turisternes livskvalitet og oplevelsesmuligheder.

Med Natur- og Parkpolitikken vil Byrådet sætte fokus på, hvordan vi bedst forvalter naturen og parkerne i Viborg Kommune. Det er målet at skabe en bæredygtig sammenhæng og balance mellem biologisk mangfoldighed og bevarelse af naturens kvaliteter, den erhvervsmæssige og rekreative benyttelse og bosætning.

På den måde udvikles der spændende natur- og friluftsoplevelser, så det bliver endnu mere attraktivt at bo, arbejde i og besøge Viborg Kommune. Og det budskab skal selvfølgelig fortælles, formidles og markedsføres.

Jens Ravn
Formand for
Klima- og Miljøudvalget

Johannes F. Vesterby
Formand for
Teknisk Udvalg

Naturperlen Hald Sø med udsigt mod Viborg

Kig mod Nørresø fra Pilehaven

Indledning

Grønne sammenhænge

Med visionen for Viborg Kommune vil Byrådet blandt andet skabe en sund og grøn kommune.

Med Natur- og Parkpolitikken vil Byrådet styrke de grønne sammenhænge i kommunen: Det vil f.eks. sige linjerne og sammenhængen i kulturlandskabet og i naturområderne, såvel i det åbne land som i byerne. De grønne sammenhænge skal også forstås som sammenhænge og synergi mellem det grønne og andre emner som sundhed, udvikling, livskvalitet og klima.

Det grønne potentiale skal udvikles og komme både kommunens borgere og besøgende til gode. Det grønne er også en væsentlig ressource, der kan fremme kommunens udvikling.

Vi vil med en særlig indsats for formidling skabe overblik over de grønne muligheder for de, der gerne vil benytte og nyde den enestående natur på Viborg-egnen. Et mål med formidlingen er også at øge bevidstheden om og kendskabet til kommunens natur.

Naturen – vild eller tæmmet, bynær eller isoleret, benyttet eller beskyttet – er ikke en given ting. En fortsat udvikling og bibeholdelse af kvaliteten af skove, parker og naturområder kræver en fortløbende indsats.

Formål
Med formuleringen af en Natur- og Parkpolitik for Viborg Kommune ønsker Byrådet at skabe grønne sammenhænge mellem forskellige politikområder. Parkerne under Teknisk Udvalg og skove og fredede arealer under Klima- og Miljøudvalget er ikke isolerede øer. De skal ses og tænkes ind i en sammenhæng til gavn og glæde for folk, flora og fauna.

Natur- og Parkpolitikken skal også ses som et vigtigt redskab i Viborg Byråds fortsatte arbejde med at være en sund kommune, hvor der er gode rammer for borgernes fysiske og rekreative udfoldelsesmuligheder. Ligeledes skal politikken også synliggøre den store ressource, som naturen og kulturlandskabet er i en fortsat bæredygtig udvikling af kommunen – såvel økologisk som økonomisk.

Baggrund og proces
I marts 2012 besluttede Byrådet at udarbejde en Natur- og Parkpolitik for Viborg Kommune. Formålet var at få fastlagt overordnede mål, der kan danner rammen for de kommende års politiske prioriteringer for benyttelse, beskyttelse og udvikling af kommunens grønne arealer i byer og på landet.

Politikken er udviklet i en proces, der har indeholdt:
- Temadrøftelser i Teknisk Udvalg og Klima- og Miljøudvalget om kommunale skove og parker
- Dialogmøde med repræsentanter for relevante foreninger på området
- Bidrag fra fordebatten til Kommuneplan 2013.

Himmerlandsstien ›
Asmild Kloster Have, Viborg
Byhaven, Bjerringbro

Generelle udfordringer

Der er gennem mange år gjort en stor indsats og brugt betydelige ressourcer for at rette op på de skader, der tidligere er sket på naturen. Der er f.eks. genoprettet vandområder, forbedret spildevandsrensning, reduceret udledning af næringsstoffer fra landbruget og fjernet spærringer i vandløb. Alle tiltag, uden hvilke vor natur ville have været i en meget dårlig tilstand.

Der er dog stadig udfordringer.

Naturen belastes fortsat af en række kulturskabte faktorer. Resultatet er, at mange arter af planter og dyr forsvinder, og at det samlede antal arter falder. Udviklingen i landbruget går mod større enheder, og de små levesteder forsvinder. I andre områder opgives driften og f.eks. engarealer gror til. Klimaændringer fører til, at nye arter kommer til og udkonkurrerer vore oprindelige arter og forstyrrer den økologiske balance.

Befolkningens krav og ønsker til udviklingen af naturindsatsen og deres egne udfoldelsesmuligheder er støt stigende. Vi ser i stigende grad naturen som et tilbud i vores rekreation og for vores sundhed. I og nær byerne forventer vi områder, hvor vi kan finde ro. Og samtidigt ønsker vi områder tæt på vore boliger, hvor vi kan røre os.

Udfordringerne stiller krav om, at vi alle arbejder sammen. Borgere, lodsejere, erhverv og myndigheder har sammen og hver for sig en vigtig rolle at spille, når vi skal tage udfordringerne op.

Staten har igangsat en større proces for at implementere EU's såkaldte vand- og naturplaner. Her er der prioriteret midler til en stor indsats for naturen, men kun i de udpegede vandområder og Natura 2000-områder. Det er fortsat op til Byrådet at prioritere midler til indsatsen uden for de udpegede vand- og Natura 2000-områder.

Pilehaven i Viborg

Specifikke udfordringer

Udover at forholde sig til de generelle udfordringer skal Natur- og Parkpolitikken give grundlaget for at løse en række specifikke udfordringer:

- **Kommunalt ejerskab til arealer:** Skal Kommunen købe eller sælge arealer med natur, skov eller park for at understøtte målet om grønne sammenhænge?

- **Biodiversitet:** Skal Kommunen fremme indsatsen med hensyn til plante- og dyrarter, naturtyper og økologiske forbindelseslinjer og ny natur ud over det, som kræves via lovgivningen?

- **Befolkningens adgang:** I hvor stort omfang skal Kommunen prioritere at fremme befolkningens rekreative muligheder, for eksempel tilgængeligheden til natur-, skov og parkområder og langs søer og vandløb?

- **Beskyttelse contra benyttelse:** Hvordan skal forskellige publikumsgruppers adgang til og færdsel på naturarealerne prioriteres, f.eks. i forhold til hensynet til naturen som levested for arter?

- **Æstetik og naturindhold:** I hvor høj grad skal Kommunens parker se velplejede ud? Eller skal der være mere plads til "vild" natur i bybilledet?

- **Sundhed og forebyggelse:** Skal Kommunens park- og naturarealer i højere grad stimulere borgerne til fysisk aktivitet?

- **Klima:** Skal Kommunen øge antallet af skove og vejtræer pga. deres evne til blandt andet at binde CO_2? Skal natur- og parkområder anvendes til at håndtere regnvand ved ekstreme vejrforhold?

- **Biomasseproduktion:** I hvilket omfang kan kommunens arealer anvendes til produktion af biomasse set i lyset af rekreative og naturmæssige hensyn?

- **Borgerinddragelse, lokalt medejerskab og frivillighed:** I hvor høj grad skal Kommunen invitere til lokalt engagement i etablering og vedligeholdelse af kommunale parker og grønne områder, og til grønne partnerskabsprojekter?

- **Information og formidling:** I hvilket omfang skal Kommunen bruge ressourcer på at give borgerne overblik over tilbud i parker og natur, og i at udvikle dialogen på natur- og parkområdet mellem Kommune og borgere?

- **"Fyrtårnsprojekter":** Kan Kommunen i højere grad indrette natur- og parkområder til store events og udvikle og bruge kommunens landskaber, natur og parker i markedsføringssammenhæng?

Overordnede målsætninger

Viborg Kommune vil styrke og udbygge de grønne sammenhænge.

Med det udgangspunkt opstiller Viborg Byråd følgende overordnede målsætninger for udviklingen af de grønne områder i byer og det åbne land:

- Viborg Byråd vil bevare, beskytte, genoprette og udvikle den biologiske mangfoldighed i naturen, skovene, parkerne og de grønne områder.
- Borgerne skal sikres nem adgang i dagligdagen til rekreative oplevelser i parker, grønne områder, skove og naturarealer til gavn for den mentale og fysiske sundhed.
- Viborg Byråd vil inddrage aktive borgere i udvikling og drift af naturen, skovene, parkerne og de grønne områder.
- Borgere og besøgende i Viborg Kommune skal have bedre muligheder for og større kendskab til storslåede oplevelser i natur- og kulturlandskabet.

Disse fire overordnede målsætninger kan kort sammenfattes i fire centrale tværgående temaer:

- Mangfoldighed
- Livskvalitet
- Engagement
- Oplevelser

Får på Kongenshus Hede – naturpleje i et af kommunens store, fredede naturområder

Målsætninger og indsatsområder
I politikken opstilles for hvert tema en række målsætninger, som realiseres gennem virkemidler i nogle af følgende typer indsatsområder:

- Indsatser med registrering og kortlægning (hvis vi har brug for mere viden og overblik).
- Indsatser i form af planlægning (når vi vil finde ud af eller har fastlagt rammer for, hvad vi vil have hvor).
- Indsatser i form af ændringer i drift og pleje (hvordan vi fremover vil tilrettelægge vore driftsopgaver).
- Indsatser med formidling, kommunikation, dialog og markedsføring (de måder, vi fremover vil kommunikere på).

Politikken opstiller ikke mål i forhold til Kommunens myndighedsbehandling og sagsbehandling på natur- og parkområdet.

Realisering – Natur og Parkplan
Realiseringen af politikkens indsatsområder sker primært i to faser:

I første fase udarbejdes en Natur- og Parkplan – en arealanvendelsesplan. Planen skal indeholde en beskrivelse og en geografisk udmøntning af denne politik. Med andre ord skal planen fastlægge konkrete mål for karakteren, indholdet, faciliteter og driften i kommunens forskellige naturområder og parker i de kommende år. Planen skal godkendes af Teknisk Udvalg og Klima- og Miljøudvalget.

Anden fase består af løbende udarbejdelse af årlige handleplaner, der beskriver, hvilke af Natur- og Parkplanens indsatser, der skal realiseres hvor og hvornår.

Ved realiseringen tages der afsæt i de eksisterende budgetmæssige rammer, ligesom politikkens målsætninger også kan tænkes realiseret på andre måder end gennem Natur- og Parkplanen – se f.eks. side 21-23.

Senest i slutningen af byrådsperioden 2014 - 2018 vil det blive vurderet, om eller i hvilket omfang Natur- og Parkpolitikken skal revideres.

Mangfoldighed

Istidens gletsjere har udformet et - efter danske forhold - helt enestående landskab i Viborg Kommune. Rundt om den store gletsjerport ved Hald Sø skabte istiden grundlaget for en stor og mangfoldig naturlig variation i landskaber og natur: De markante bakker med skove, egekrat og overdrev. Hedesletten i den vestlige del af kommunen. De store ådale i den østlige del af kommunen. Det inderste af Limfjorden med kystnatur og strandenge.

Menneskets aktiviteter gennem tiderne har påvirket naturen og dermed skabt det varierede kulturlandskab, vi har i dag.

Den store variation i kulturlandskabet betyder, at der i kommunen er grundlag for en stor mangfoldighed af plante- og dyrearter, det vil sige en stor biodiversitet.

Samtidig er variationen i kulturlandskabet og dets mangfoldighed af planter og dyr et væsentligt grundlag for borgernes og turisternes rekreations- og oplevelsesmuligheder og dermed fysiske og mentale sundhed.

Dette skaber grundlag for at bevare og udvikle den helt unikke naturrigdom som en ressource i kommunens udvikling og vækst. En ressource, der skaber glæde, livskvalitet og variation for kommunens borgere i hverdagen og mulighed for både autentiske og store naturoplevelser for besøgende og turister i kommunen.

Opret Kobjælde – en af Viborg Kommunes såkaldte nationale ansvarsarter – blomstrer hvert år i titusindvis på den fredede Ulbjerg Klint ved Lovns Bredning

Det kræver en betydelig og aktiv indsats at bevare og udvikle den biologiske mangfoldighed og landskabsoplevelsen.

Viborg Kommune er stor og mangesidig, og der er plads til en stor variation. Mange steder skal hensynene til den eksisterende natur bevares, og driften skal indrettes derefter, f.eks. gennem pleje af naturen via ekstensive metoder. Andre steder kan der være plads at skabe "ny natur" i form af f.eks. nye skove, vildtremiser og vandhuller.

Viborg Kommune er også en stor landbrugskommune. Der er både intensivt dyrkede arealer, hvor erhvervets interesser kommer i første række, og mere ekstensivt drevne arealer, hvor hensynene til naturen har stor vægt.

Byerne er levested for mange forskellige planter og dyr. For at sikre en stor biodiversitet i byerne kræver det varierede grønne områder, gerne med en vis fysisk sammenhæng.

Nogle grønne områder i byerne kan fortsat have karakter af pæne velplejede parker, hvor det æstetiske indtryk betyder mest. Andre grønne områder kan have et mere naturnært indhold og udtryk via en mere ekstensiv pleje.

Målsætninger

Viborg Byråd vil

- bevare, beskytte, genoprette og udvikle biodiversiteten - den biologiske mangfoldighed – ud over, hvad lovgivningen kræver
- skabe mere natur, så der bliver et finmasket og sammenhængende net af naturområder i kommunen
- sikre, at der er plads til natur i landbrugslandet
- arbejde for, at vandområderne i kommunen sikres en god kvalitet og et rigt dyre- og planteliv.

Indsatsområder

Målene nås ved

- at udarbejde en Natur- og Parkplan, hvor de største eksisterende naturværdier i kommunen udpeges, registreres og kortlægges
- at udarbejde et kommuneplantillæg, hvor der planlægges for at sikre og udvikle de af kommuneplanens naturområder, potentielle naturområder og skovrejsningsområder, hvor naturhensynene skal gå forud for andre interesser
- gennem Natur- og Parkplanen at tilrettelægge rammerne for en mere naturnær drift og pleje både i og uden for byerne
- at skabe områder til ny natur via synergi mellem indsatserne i Natur- og Parkplanen og indsatserne i de kommunale vand- og naturplaner
- at fortsætte indsatsen med restaureringsprojekter i vandområder
- at formidle og kommunikere naturværdierne over for lodsejere, borgere og turister med de medier, der bedst egner sig til at skabe opmærksomhed, viden, forståelse og ansvarsfølelse over for naturen, f.eks. moderne digitale medier og naturvejledning.

Livskvalitet

Temaet "Livskvalitet" rummer de forhold, som naturen, de grønne områder og de blå vandområder beriger os med i hverdagen, og som har stor betydning for vores mentale og fysiske sundhed.

Undersøgelser viser, at mere end to tredjedele af Danmarks befolkning mener, at naturen er vigtig for deres dagligliv, og endnu flere oplever den som gavnlig for deres livskvalitet.

De grønne arealer og vandområder, der omgiver os, både i byerne og på landet, påvirker vores velbefindende, såvel fysisk som mentalt. Naturen med grønne områder, fjord, søer og vandløb er heldigvis en så integreret del af manges opfattelse af Viborg Kommune, at det kan synes som en selvfølge. Men et værdifuldt grønt miljø er ikke nødvendigvis givet på forhånd; det kræver ofte en indsats i form af planlægning og drift.

Det kræver bevidste valg at sikre gode adgangsmuligheder til rekreative områder for alle. Det kræver også prioriteringer at indtænke de grønne og de blå områder som en ressource i forhold til klimaspørgsmål.

Udbuddet, indholdet og kvaliteten i de grønne tilbud har betydning for borgernes billede af kommunen, og det har betydning for familiers valg af bosted.

Blomsterne studeres i staudehaven i Latinerhaven ved Domkirken i Viborg

Målsætninger

Viborg Byråd vil

- sikre borgerne muligheder for og nem adgang til autentiske og rekreative oplevelser i parker, grønne områder, skove og naturarealer til gavn for den mentale og fysiske sundhed
- arbejde for, at alle borgere i byerne har under 300 meter til et rekreativt grønt område
- sikre et varieret udbud af faciliteter, der understøtter borgeres rekreative muligheder
- sikre og udvikle aktivitetsfremmende tilbud, der kan motivere til et mere aktivt hverdagsliv
- arbejde for at forbedre de rekreative, blå tilbud, og dermed udnytte kommunens vandområder
- indtænke de grønne områder som en ressource, der kan medvirke til at afhjælpe generne ved klimaforandringerne og forbedre det lokale bymiljø
- signalere en tydelig prioritering af naturen og de grønne sammenhænge i kommunen, der kan tiltrække investeringer og gøre kommunen attraktiv for tilflytning.

Indsatsområder

Målene nås ved

- gennem Natur- og Parkplanen at planlægge køb og salg af kommunale arealer for at optimere deres beliggenhed, anvendelse, kvalitet og tilgængelighed
- at planlægge for de bynære landskaber, blandt andet for at fremme de rekreative kvaliteter
- gennem kommune- og lokalplanlægning at indarbejde attraktive grønne områder og stiforbindelser i planlægningen og realiseringen af nye boligområder
- gennem Natur- og Parkplanen at planlægge en videreudvikling af kommunens parker, så der fortsat er unikke anlæg med særlige temaer, f.eks. Bibelhaven, Nordisk Park og Asmild Klosterhave
- gennem Natur- og Parkplanen at imødekomme forskellige interessegruppers forskellige behov ved at tilpasse tilbud og faciliteter, f.eks. mountainbike-ruter og hundeskove
- at arbejde for, at Viborg Søerne kan få status som badesøer
- at arbejde for at etablere Naturpark Viborg omkring Viborg by
- gennem lokalplanlægning at indtænke f.eks. grønne tage, facader og vejtræer m.v. til at understøtte et rent bymiljø
- at etablere klimatilpassende anlæg til håndtering af regnvand ved ekstreme vejrforhold i natur- og parkarealer, så det indgår som en integreret del af den rekreative udformning
- at markedsføre mulighederne for gode natur- og friluftsoplevelser for borgerne i Viborg Kommune, især via hjemmesiden og elektroniske medier, f.eks. interaktive kort og QR-koder.

Engagement

Byrådet ønsker et stærkt og velfungerende lokalsamfund. Borgerinddragelse, lokal deltagelse og frivillighed er et middel til at nå dette.

Byrådet ser derfor en fælles indsats i form af samarbejde med borgere, lodsejere og organisationer som en vigtig forudsætning for, at målene i Natur- og Parkpolitikken nås.

Naturpleje, nye stier, genopretningsprojekter m.v. sker med fordel i samarbejde med lodsejerne. Lokal viden og deltagelse er nødvendig for at opnå et godt resultat. Lokal deltagelse betyder ejerskab og engagement, og gør det muligt at tilpasse projekter og initiativer til de lokale betingelser og behov.

Involvering af børn og unge i naturprojekter vil øge deres viden om og forståelse for naturen, og giver dem en højere grad af ansvarsfølelse for naturværdierne.

Bygning af shelter ved Rødding Sø – et lokalt samarbejdsprojekt

Målsætninger

Viborg Byråd vil

- understøtte medborgerskab gennem inddragelsen af aktive borgere i udvikling og drift af de grønne områder

- arbejde for, at borgere, lodsejere og organisationer – i dialog med kommunen – medvirker til at sikre og forbedre naturområder, landskaber og mulighederne for friluftsliv

- arbejde for, at flere opgaver løses af lokale frivillige

- arbejde for, at børn og unge gennem tidlig involvering får styrket deres viden om, forståelse for og ejerskab til naturværdier.

Indsatsområder

Målene nås ved

- at indgå partnerskabsaftaler om drift og pleje af grønne områder

- at udvikle et koncept for landsbypedeller

- at informere og vejlede borgerne om deres muligheder for at indgå i frivillige aftaler og partnerskaber, og for at finde finansieringsmuligheder, fundraising og puljer mv.

- at arbejde for, at naturen i højere grad bidrager til at skabe økonomisk værdi, i byer f.eks. omkring nærrekreative områder, og i lokalområder omkring lokale attraktioner, f.eks. Hærvejen og vore fiskevandløb

- at videreudvikle konkrete tiltag i samarbejde mellem naturforvaltere, daginstitutioner, skoler og Naturskolen.

- at arbejde for, at Viborg Kommune gennem borgernes og foreningernes hjælp bliver Danmarks Friluftskommune senest år 2017.

Oplevelser

Viborg Kommune rummer nogle af de af de største og mest kendte af Jyllands grønne seværdigheder. F.eks. Hald Sø og Dollerup Bakker, Gudenåen og Tange Sø, Karup Å og Kongenshus Hede, Nørreådalen og Ø Bakker, Simested Ådal og Borup Hede, Hjarbæk Fjord, Ulbjerg Klint, kalkmineområdet ved Daugbjerg og Mønsted samt Viborg Søerne med Borgvold i Viborg.

Natur- og parkområderne har et stærkt potentiale for unikke oplevelser - til glæde for såvel borgere, gæster og turister. Der findes allerede i dag et stort antal markerede ruter og muligheder for at komme tæt på naturen, såvel for aktive oplevelser som søsport, lystfiskeri, vandring m.v. som for udsigter, naturkendskab og mental ro.

Nogle områder kan endvidere, under hensyn til naturen, danne stemningsfulde rammer om store og små kulturtilbud, der skaber liv i bynære omgivelser, og nye måder at opleve naturen på. Det kan være koncerter, sceneoptræden, kunstudstillinger og animation, hvor Viborg Kommune er en foregangskommune.

Viborg Kommunes natur og parker gør kommunen til et godt sted at bo og drive virksomhed i, og til et attraktivt turistmål.

En piktogrampæl i Undallslund Skov - en af de mange afmærkede naturstier i Viborg Kommune

Målsætninger

Viborg Byråd vil

- fastholde og udvikle udvalgte naturområder og byparker som unikke tilbud for kommunens borgere, besøgende og tilflyttere
- skabe rammer for større arrangementer og events i velegnede områder i det fri
- fremme potentialet for oplevelsesøkonomi ved en innovativ og bæredygtig udvikling af de naturgivne ressourcer
- markedsføre og udvikle kommunens særegne naturområder ("naturperlerne") som attraktioner, der kan fremme turisme, bosætning og vækst.

Indsatsområder

Målene nås ved

- at udvikle Hærvejens potentiale som autentisk og unikt friluftsområde – Danmarks største motionsarena, f.eks. ved at understøtte Hærvejsløbet
- at udvikle Gudenåen og Karup Å som natur- og oplevelsesattraktioner, f.eks. som sportsfiskerturistmål
- at udvikle Sønæs i Viborg som et større bynært rekreativt natur- og friluftsområde
- at arbejde for et formidlingscenter for Viborg Middelalderby set i sammenhæng med projektet "De 5 Hald'er"
- at bidrage til realiseringen af projektet "De 5 Hald'er" i samarbejde med staten og lokale interesseorganisationer
- at arbejde for at etablere en naturpark omkring Viborg by
- gennem en aktiv fundraisingindsats at udvidemulighederne for at udvikle og etablere nye attraktioner og oplevelser
- gennem planlægning at udpege et eller flere områder, hvor der kan afholdes større arrangementer i det fri
- at indarbejde god tilgængelighed, når der udvikles nye faciliteter og formidles oplevelser
- at indgå i det nordiske netværk Green Space Award med fokus på at skabe, fremme og markedsføre parker og grønne områder af høj kvalitet
- at markedsføre mulighederne for unikke naturoplevelser i Viborg Kommune, især via hjemmesiden og elektroniske medier, f.eks. interaktive kort og QR-koder
- at arbejde for, at Viborg Kommune bliver Danmarks Friluftskommune senest år 2017.

Scan QR-koden og se mere på viborg.dk/naturoplevelser

Scan QR-koden og se mere på visitviborg.dk

Sammenhænge med andre politikker

En del af Visionen for Viborg Kommune lyder:

Viborg er en kommune, hvor borgerne trives, lever sundt og aktivt med adgang til en mangfoldighed af kultur-, fritids- og naturoplevelser.

Med visionen vil vi skabe en sund og grøn kommune. Det gør vi ved en øget indsats for at forebygge livsstilssygdomme og fremme livskvaliteten. Det skal ske gennem en klart defineret sundhedspolitik og en aktiv indsats overfor virksomheder og foreninger, der ønsker at prioritere sundhedsindsatsen. Vi vil værne om naturen og et rent miljø til gavn for befolkningens sundhed og rekreative udfoldelsesmuligheder.

Med afsæt i visionen har Byrådet vedtaget en række politikker og strategier. I disse dokumenter er opstillet målsætninger og forslag til indsatsområder, som på forskellig vis rækker ind over natur- og Parkpolitikken.

Nogle eksempler er (overskrifterne er klikbare links til politikkerne):

Udviklingsstrategi 2011
Et tema i Udviklingsstrategien er "Store oplevelser". En af målsætningerne lyder: Viborg Byråd vil skabe events, der giver autentiske oplevelser og opmærksomhed.

Forebyggelse- og sundhedsfremmepolitik (2011)
Borgerne i Viborg Kommune skal opleve, at der er mulighed for at træffe de sunde valg i hverdagen – både på arbejdspladsen, i fritiden og i de kommunale institutioner.

Landdistriktspolitik 2011-2015
Det er Byrådets mål at skabe en bæredygtig sammenhæng mellem bosætning, offentlig adgang til naturen, biologisk mangfoldighed og bevarelse af naturens kvaliteter, så der udvikles spændende natur- og friluftsoplevelser. Målene nås bl.a. ved at arbejde for et sammenhængende net af naturområder i kommunen; at værne om vandmiljøet og grundvandet samt vore værdifulde natur-, landskabs- og kulturmiljøer; og at forbedre mulighederne for natur- og friluftsoplevelser i landdistrikterne.

Handicappolitik (2009)
Borgere med handicap skal have mulighed for at bevæge sig i det offentlige rum samt adgang til relevant information. Det betyder bl.a., at der udarbejdes en oversigt over handicapegnede tilbud i naturen i Viborg Kommune.

Politik for boligområdet (2009)
Viborg Kommune har en række styrkepositioner i form af en varieret natur. I såvel eksisterende som nye boligområder er det vigtigt at udnytte, men også beskytte de landskabelige og naturmæssige kvaliteter. Det betyder bl.a., at der skal sikres bolignære rekreative områder samt adgang til rekreative områder.

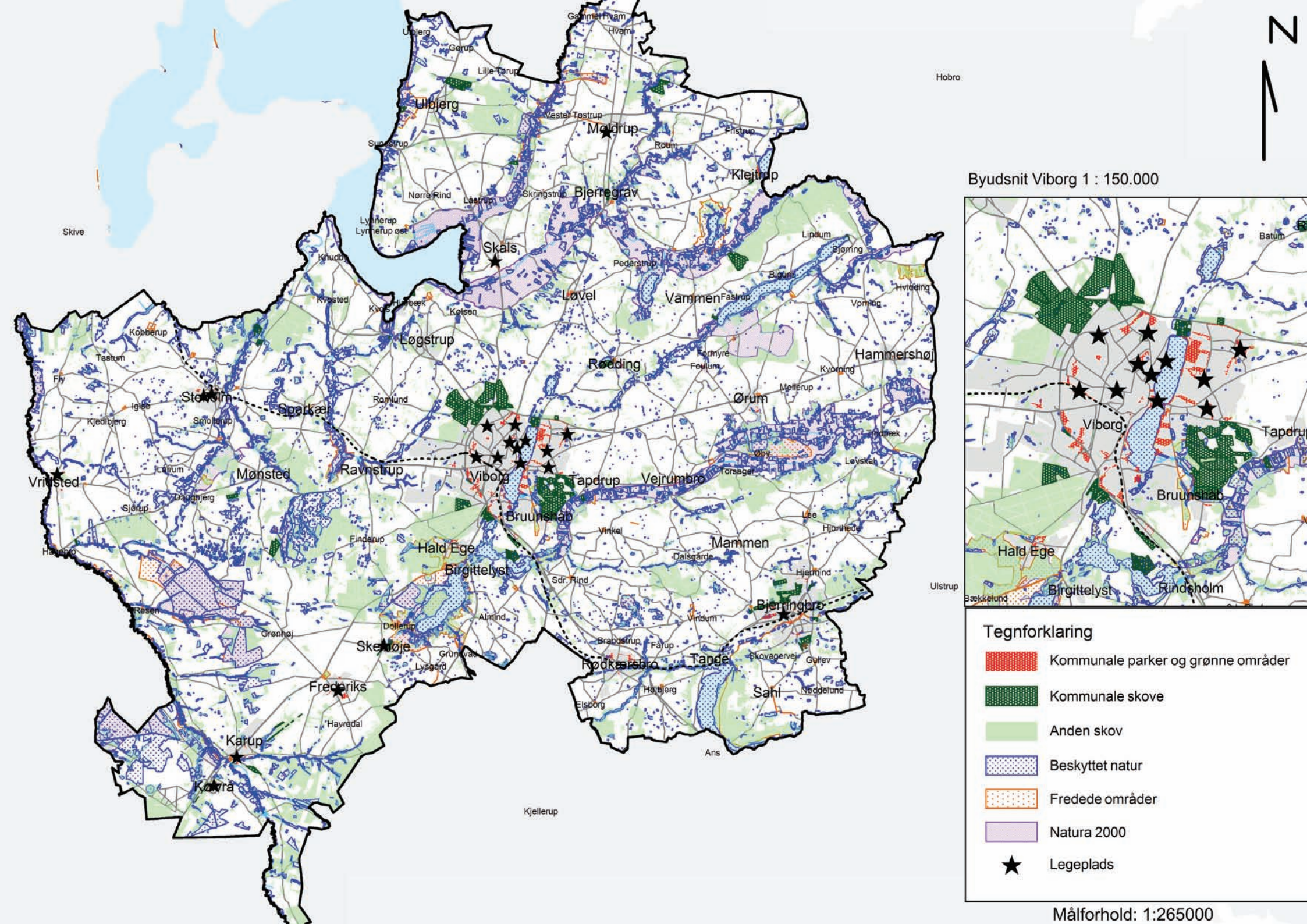
Idrætspolitik (2009)
Viborg Kommune vil gøre byrum og det åbne land tilgængeligt for det selvorganiserede idrætsliv.

Klimastrategi (2009)
Planlægning for grønne områder og lavbundsarealer til optag af overfladevand i tilfælde af ekstrem nedbør kan videreudvikles.

Markedsføringsstrategi (2008)
Den autentiske natur med en rig variation af landskabsformer giver kvalitetsoplevelser i naturen.

Frivillighedsstrategi (2012)
I Viborg Kommune involverer borgerne sig i hinandens liv, og derfor danner frivillighed en helt central ramme for en række af de aktiviteter, som finder sted i kommunen hver dag.

‹ *Islandsparken: Viborg Kommunes mange parker giver god mulighed for livskvalitet i hverdagen*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Byudsnit Viborg 1 : 150.000
Tegnforklaring
Kommunale parker og grønne områder
Kommunale skove
Anden skov
Beskyttet natur
Fredede områder
Natura 2000
Legeplads
Målforhold: 1:265000
Ulbjerg
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Vammen
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Ørum
Stovolm
Sparkær
Mønsted
Ravnstrup
Viborg
Tapdrup
Vejrumbro
Bruunshåb
Vridsted
Hald Ege
Birgittelyst
Mammen
Bjerringbro
Skemøje
Frederiks
Karup
Kølvrå
Rødkærsbro
Tange
Sahl
Hobro
Skive
Ulstrup
Ans
Kjellerup
Batum
Viborg
Tapdrup
Bruunshåb
Hald Ege
Birgittelyst
Rindsholm
Bækkelund

Status

Kommunens grønne arealer
Viborg Kommune ejer og vedligeholder en bred vifte af natur-, skov- og parkarealer. De er vidt forskellige i størrelse, karakter, kvaliteter og muligheder for anvendelse – se faktaboksen og oversigtskortet.

Fredede områder og beskyttet natur
Kommunen administrerer via naturbeskyttelsesloven de fredede områder, de naturbeskyttede arealer og de internationale naturbeskyttelsesområder (Natura 2000-områder).

Kommunen skal via sin administration varetage nogle særlige bindinger og hensyn, som gælder for disse arealer. Kommunen har også mulighed for at påvirke udviklingen af de grønne sammenhænge gennem sin administration af anden lovgivning samt planlægningen i det åbne land i øvrigt.

Kommuneplanlægning
I kommuneplanen fastlægger Byrådet rammerne for den fremtidige by- og erhvervsudvikling. Kommuneplanen indeholder retningslinjer for anvendelsen af det åbne land, herunder en afvejning mellem jordbrugs-, natur- og landskabsinteresser, infrastruktur, rekreative interesser og bosætning.

Byrådet reviderer kommuneplanen hvert fjerde år, og Byrådet har vedtaget en ny kommuneplan i maj 2013. Ved revisionen har der blandt andet været fokus på det åbne land, herunder den grønne struktur og bynære grønne områder.

Formidlingen og befolkningens brug af de grønne arealer
Viborg-egnens mangesidige natur er et stort aktiv for såvel kommunens borgere som turister. For en stor del af de vigtigste naturområder og de største grønne områder i byerne findes der en del trykte og digitale informationsmaterialer om områdernes værdier og oplevelsesmuligheder – se faktaboksen.

Mere information
Information om naturen og de grønne arealer
www.viborg.dk/natur-og-miljoe
www.visitviborg.dk

Danmarks Miljøportal (fredede områder, beskyttede arealer og Natura 2000-områder)
www.kort.arealinfo.dk

Fakta
Viborg Kommune er med ca. 1.409 km² (140.870 ha) Danmarks næststørste kommune.

Af væsentlig betydning for den grønne struktur ejer Viborg Kommune:
- 250 ha parker, grønne områder, legepladser og bynære skove (Teknisk Udvalg)
- 970 ha skov- og naturarealer (Klima- og Miljøudvalget)
- Grønne byrum, beplantninger og træer langs veje (Teknisk Udvalg)
- Idrætsanlæg (Kulturudvalget)

I Viborg Kommune findes der
- 5.100 ha fredede arealer tilhørende private og offentlige lodsejere *
- 15.000 ha beskyttet natur (såkaldte § 3-arealer) *
- 18.100 ha internationale naturområder (såkaldte Natura 2000-områder) *

* stort overlap mellem arealer.

Øvrige arealer i de grønne sammenhænge
- Statens skove og naturarealer
- Private skove
- Kirkegårde, grønne friarealer i boligområder samt søer og gadekær
- Det åbne land i øvrigt (landbrugsarealer m.m.)

VIBORG
KOMMUNE

Sammenhænge.....

Ud over de mange andre indlæg der allerede er kommet, kan man undre sig lidt over, om man politisk har glemt den POLITISK VEDTAGNE Natur- og Parkpolitik med den fine overskrift Grønne sammenhænge.

I forordet kan man bl.a. læse følgende:

Natur spiller en vigtig rolle for vores livskvalitet.

Natur giver og skaber rammer for oplevelser, og natur kan fremme et bedre miljø og menneskers sundhed. Natur rummer også et vækstpotentiale i forbindelse med turisme, erhverv og bosætning.

En del af Byrådets vision er at skabe en sund og grøn kommune. Derfor vil vi værne om naturen og et rent miljø til gavn for befolkningens sundhed og rekreative udfoldelsesmuligheder for at fremme livskvaliteten og som forebyggelse af livsstilssygdomme.

I dette område vil det give ret god mening at skele til den.

Mvh

Jette

Indsendt af Jette

<u>Vedhæftet fil</u>

Grønne sammenhænge

Natur- og Parkpolitik for Viborg Kommune

Godkendt af Viborg Byråd den 25. september 2013

VIBORG KOMMUNE

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‹ *Digterparken i Viborg*

Forside:
Borgvold, Viborg
Undallslund, Viborg
Anlægget, Bjerringbro
Nordisk Park, Viborg

Forord

Viborg Kommune ligger i centrum af Jylland. Her er der en enestående natur. Med naturperler som Hald Sø, Dollerup Bakker og Kongenshus Hede og en variation af natur- og landskabstyper som fjorden, søer, heder, ådale, skove og andre oplevelsesrige landskaber.

Natur spiller en vigtig rolle for vores livskvalitet. Natur giver og skaber rammer for oplevelser, og natur kan fremme et bedre miljø og menneskers sundhed. Natur rummer også et vækstpotentiale i forbindelse med turisme, erhverv og bosætning.

En del af Byrådets vision er at skabe en sund og grøn kommune. Derfor vil vi værne om naturen og et rent miljø til gavn for befolkningens sundhed og rekreative udfoldelsesmuligheder for at fremme livskvaliteten og som forebyggelse af livsstilssygdomme.

Natur- og Parkpolitikken supplerer og understøtter Byrådets øvrige politikker, f.eks. Landdistriktspolitikken, Forebyggelses- og sundhedsfremmepolitikken og Politik for boligområdet, der alle er rettet mod hele kommunen.

Viborg Kommune er i geografisk udstrækning landets næststørste. Jordbrugserhvervene spiller en stor rolle i kommunen, og har også en stor betydning for naturens udvikling. Nogle naturtyper er afhængige af drift, eksempelvis afgræsning, der sikrer åbne naturtyper. De grønne åndehuller i byerne er vigtige for både planter og dyr samt for borgernes og turisternes livskvalitet og oplevelsesmuligheder.

Med Natur- og Parkpolitikken vil Byrådet sætte fokus på, hvordan vi bedst forvalter naturen og parkerne i Viborg Kommune. Det er målet at skabe en bæredygtig sammenhæng og balance mellem biologisk mangfoldighed og bevarelse af naturens kvaliteter, den erhvervsmæssige og rekreative benyttelse og bosætning.

På den måde udvikles der spændende natur- og friluftsoplevelser, så det bliver endnu mere attraktivt at bo, arbejde i og besøge Viborg Kommune. Og det budskab skal selvfølgelig fortælles, formidles og markedsføres.

Jens Ravn
Formand for
Klima- og Miljøudvalget

Johannes F. Vesterby
Formand for
Teknisk Udvalg

Naturperlen Hald Sø med udsigt mod Viborg

Kig mod Nørresø fra Pilehaven

Indledning

Grønne sammenhænge

Med visionen for Viborg Kommune vil Byrådet blandt andet skabe en sund og grøn kommune.

Med Natur- og Parkpolitikken vil Byrådet styrke de grønne sammenhænge i kommunen: Det vil f.eks. sige linjerne og sammenhængen i kulturlandskabet og i naturområderne, såvel i det åbne land som i byerne. De grønne sammenhænge skal også forstås som sammenhænge og synergi mellem det grønne og andre emner som sundhed, udvikling, livskvalitet og klima.

Det grønne potentiale skal udvikles og komme både kommunens borgere og besøgende til gode. Det grønne er også en væsentlig ressource, der kan fremme kommunens udvikling.

Vi vil med en særlig indsats for formidling skabe overblik over de grønne muligheder for de, der gerne vil benytte og nyde den enestående natur på Viborg-egnen. Et mål med formidlingen er også at øge bevidstheden om og kendskabet til kommunens natur.

Naturen – vild eller tæmmet, bynær eller isoleret, benyttet eller beskyttet – er ikke en given ting. En fortsat udvikling og bibeholdelse af kvaliteten af skove, parker og naturområder kræver en fortløbende indsats.

Formål
Med formuleringen af en Natur- og Parkpolitik for Viborg Kommune ønsker Byrådet at skabe grønne sammenhænge mellem forskellige politikområder. Parkerne under Teknisk Udvalg og skove og fredede arealer under Klima- og Miljøudvalget er ikke isolerede øer. De skal ses og tænkes ind i en sammenhæng til gavn og glæde for folk, flora og fauna.

Natur- og Parkpolitikken skal også ses som et vigtigt redskab i Viborg Byråds fortsatte arbejde med at være en sund kommune, hvor der er gode rammer for borgernes fysiske og rekreative udfoldelsesmuligheder. Ligeledes skal politikken også synliggøre den store ressource, som naturen og kulturlandskabet er i en fortsat bæredygtig udvikling af kommunen – såvel økologisk som økonomisk.

Baggrund og proces
I marts 2012 besluttede Byrådet at udarbejde en Natur- og Parkpolitik for Viborg Kommune. Formålet var at få fastlagt overordnede mål, der kan danner rammen for de kommende års politiske prioriteringer for benyttelse, beskyttelse og udvikling af kommunens grønne arealer i byer og på landet.

Politikken er udviklet i en proces, der har indeholdt:
- Temadrøftelser i Teknisk Udvalg og Klima- og Miljøudvalget om kommunale skove og parker
- Dialogmøde med repræsentanter for relevante foreninger på området
- Bidrag fra fordebatten til Kommuneplan 2013.

Himmerlandsstien ›
Asmild Kloster Have, Viborg
Byhaven, Bjerringbro

Generelle udfordringer

Der er gennem mange år gjort en stor indsats og brugt betydelige ressourcer for at rette op på de skader, der tidligere er sket på naturen. Der er f.eks. genoprettet vandområder, forbedret spildevandsrensning, reduceret udledning af næringsstoffer fra landbruget og fjernet spærringer i vandløb. Alle tiltag, uden hvilke vor natur ville have været i en meget dårlig tilstand.

Der er dog stadig udfordringer.

Naturen belastes fortsat af en række kulturskabte faktorer. Resultatet er, at mange arter af planter og dyr forsvinder, og at det samlede antal arter falder. Udviklingen i landbruget går mod større enheder, og de små levesteder forsvinder. I andre områder opgives driften og f.eks. engarealer gror til. Klimaændringer fører til, at nye arter kommer til og udkonkurrerer vore oprindelige arter og forstyrrer den økologiske balance.

Befolkningens krav og ønsker til udviklingen af naturindsatsen og deres egne udfoldelsesmuligheder er støt stigende. Vi ser i stigende grad naturen som et tilbud i vores rekreation og for vores sundhed. I og nær byerne forventer vi områder, hvor vi kan finde ro. Og samtidigt ønsker vi områder tæt på vore boliger, hvor vi kan røre os.

Udfordringerne stiller krav om, at vi alle arbejder sammen. Borgere, lodsejere, erhverv og myndigheder har sammen og hver for sig en vigtig rolle at spille, når vi skal tage udfordringerne op.

Staten har igangsat en større proces for at implementere EU's såkaldte vand- og naturplaner. Her er der prioriteret midler til en stor indsats for naturen, men kun i de udpegede vandområder og Natura 2000-områder. Det er fortsat op til Byrådet at prioritere midler til indsatsen uden for de udpegede vand- og Natura 2000-områder.

Pilehaven i Viborg

Specifikke udfordringer

Udover at forholde sig til de generelle udfordringer skal Natur- og Parkpolitikken give grundlaget for at løse en række specifikke udfordringer:

- **Kommunalt ejerskab til arealer:** Skal Kommunen købe eller sælge arealer med natur, skov eller park for at understøtte målet om grønne sammenhænge?

- **Biodiversitet:** Skal Kommunen fremme indsatsen med hensyn til plante- og dyrarter, naturtyper og økologiske forbindelseslinjer og ny natur ud over det, som kræves via lovgivningen?

- **Befolkningens adgang:** I hvor stort omfang skal Kommunen prioritere at fremme befolkningens rekreative muligheder, for eksempel tilgængeligheden til natur-, skov og parkområder og langs søer og vandløb?

- **Beskyttelse contra benyttelse:** Hvordan skal forskellige publikumsgruppers adgang til og færdsel på naturarealerne prioriteres, f.eks. i forhold til hensynet til naturen som levested for arter?

- **Æstetik og naturindhold:** I hvor høj grad skal Kommunens parker se velplejede ud? Eller skal der være mere plads til "vild" natur i bybilledet?

- **Sundhed og forebyggelse:** Skal Kommunens park- og naturarealer i højere grad stimulere borgerne til fysisk aktivitet?

- **Klima:** Skal Kommunen øge antallet af skove og vejtræer pga. deres evne til blandt andet at binde CO_2? Skal natur- og parkområder anvendes til at håndtere regnvand ved ekstreme vejrforhold?

- **Biomasseproduktion:** I hvilket omfang kan kommunens arealer anvendes til produktion af biomasse set i lyset af rekreative og naturmæssige hensyn?

- **Borgerinddragelse, lokalt medejerskab og frivillighed:** I hvor høj grad skal Kommunen invitere til lokalt engagement i etablering og vedligeholdelse af kommunale parker og grønne områder, og til grønne partnerskabsprojekter?

- **Information og formidling:** I hvilket omfang skal Kommunen bruge ressourcer på at give borgerne overblik over tilbud i parker og natur, og i at udvikle dialogen på natur- og parkområdet mellem Kommune og borgere?

- **"Fyrtårnsprojekter":** Kan Kommunen i højere grad indrette natur- og parkområder til store events og udvikle og bruge kommunens landskaber, natur og parker i markedsføringssammenhæng?

Overordnede målsætninger

Viborg Kommune vil styrke og udbygge de grønne sammenhænge.

Med det udgangspunkt opstiller Viborg Byråd følgende overordnede målsætninger for udviklingen af de grønne områder i byer og det åbne land:

- Viborg Byråd vil bevare, beskytte, genoprette og udvikle den biologiske mangfoldighed i naturen, skovene, parkerne og de grønne områder.
- Borgerne skal sikres nem adgang i dagligdagen til rekreative oplevelser i parker, grønne områder, skove og naturarealer til gavn for den mentale og fysiske sundhed.
- Viborg Byråd vil inddrage aktive borgere i udvikling og drift af naturen, skovene, parkerne og de grønne områder.
- Borgere og besøgende i Viborg Kommune skal have bedre muligheder for og større kendskab til storslåede oplevelser i natur- og kulturlandskabet.

Disse fire overordnede målsætninger kan kort sammenfattes i fire centrale tværgående temaer:

- Mangfoldighed
- Livskvalitet
- Engagement
- Oplevelser

Får på Kongenshus Hede – naturpleje i et af kommunens store, fredede naturområder

Målsætninger og indsatsområder
I politikken opstilles for hvert tema en række målsætninger, som realiseres gennem virkemidler i nogle af følgende typer indsatsområder:

- Indsatser med registrering og kortlægning (hvis vi har brug for mere viden og overblik).
- Indsatser i form af planlægning (når vi vil finde ud af eller har fastlagt rammer for, hvad vi vil have hvor).
- Indsatser i form af ændringer i drift og pleje (hvordan vi fremover vil tilrettelægge vore driftsopgaver).
- Indsatser med formidling, kommunikation, dialog og markedsføring (de måder, vi fremover vil kommunikere på).

Politikken opstiller ikke mål i forhold til Kommunens myndighedsbehandling og sagsbehandling på natur- og parkområdet.

Realisering – Natur og Parkplan
Realiseringen af politikkens indsatsområder sker primært i to faser:

I første fase udarbejdes en Natur- og Parkplan – en arealanvendelsesplan. Planen skal indeholde en beskrivelse og en geografisk udmøntning af denne politik. Med andre ord skal planen fastlægge konkrete mål for karakteren, indholdet, faciliteter og driften i kommunens forskellige naturområder og parker i de kommende år. Planen skal godkendes af Teknisk Udvalg og Klima- og Miljøudvalget.

Anden fase består af løbende udarbejdelse af årlige handleplaner, der beskriver, hvilke af Natur- og Parkplanens indsatser, der skal realiseres hvor og hvornår.

Ved realiseringen tages der afsæt i de eksisterende budgetmæssige rammer, ligesom politikkens målsætninger også kan tænkes realiseret på andre måder end gennem Natur- og Parkplanen – se f.eks. side 21-23.

Senest i slutningen af byrådsperioden 2014 - 2018 vil det blive vurderet, om eller i hvilket omfang Natur- og Parkpolitikken skal revideres.

Mangfoldighed

Istidens gletsjere har udformet et - efter danske forhold - helt enestående landskab i Viborg Kommune. Rundt om den store gletsjerport ved Hald Sø skabte istiden grundlaget for en stor og mangfoldig naturlig variation i landskaber og natur: De markante bakker med skove, egekrat og overdrev. Hedesletten i den vestlige del af kommunen. De store ådale i den østlige del af kommunen. Det inderste af Limfjorden med kystnatur og strandenge.

Menneskets aktiviteter gennem tiderne har påvirket naturen og dermed skabt det varierede kulturlandskab, vi har i dag.

Den store variation i kulturlandskabet betyder, at der i kommunen er grundlag for en stor mangfoldighed af plante- og dyrearter, det vil sige en stor biodiversitet.

Samtidig er variationen i kulturlandskabet og dets mangfoldighed af planter og dyr et væsentligt grundlag for borgernes og turisternes rekreations- og oplevelsesmuligheder og dermed fysiske og mentale sundhed.

Dette skaber grundlag for at bevare og udvikle den helt unikke naturrigdom som en ressource i kommunens udvikling og vækst. En ressource, der skaber glæde, livskvalitet og variation for kommunens borgere i hverdagen og mulighed for både autentiske og store naturoplevelser for besøgende og turister i kommunen.

Opret Kobjælde – en af Viborg Kommunes såkaldte nationale ansvarsarter – blomstrer hvert år i titusindvis på den fredede Ulbjerg Klint ved Lovns Bredning

Det kræver en betydelig og aktiv indsats at bevare og udvikle den biologiske mangfoldighed og landskabsoplevelsen.

Viborg Kommune er stor og mangesidig, og der er plads til en stor variation. Mange steder skal hensynene til den eksisterende natur bevares, og driften skal indrettes derefter, f.eks. gennem pleje af naturen via ekstensive metoder. Andre steder kan der være plads at skabe "ny natur" i form af f.eks. nye skove, vildtremiser og vandhuller.

Viborg Kommune er også en stor landbrugskommune. Der er både intensivt dyrkede arealer, hvor erhvervets interesser kommer i første række, og mere ekstensivt drevne arealer, hvor hensynene til naturen har stor vægt.

Byerne er levested for mange forskellige planter og dyr. For at sikre en stor biodiversitet i byerne kræver det varierede grønne områder, gerne med en vis fysisk sammenhæng.

Nogle grønne områder i byerne kan fortsat have karakter af pæne velplejede parker, hvor det æstetiske indtryk betyder mest. Andre grønne områder kan have et mere naturnært indhold og udtryk via en mere ekstensiv pleje.

Målsætninger

Viborg Byråd vil

- bevare, beskytte, genoprette og udvikle biodiversiteten - den biologiske mangfoldighed – ud over, hvad lovgivningen kræver
- skabe mere natur, så der bliver et finmasket og sammenhængende net af naturområder i kommunen
- sikre, at der er plads til natur i landbrugslandet
- arbejde for, at vandområderne i kommunen sikres en god kvalitet og et rigt dyre- og planteliv.

Indsatsområder

Målene nås ved

- at udarbejde en Natur- og Parkplan, hvor de største eksisterende naturværdier i kommunen udpeges, registreres og kortlægges
- at udarbejde et kommuneplantillæg, hvor der planlægges for at sikre og udvikle de af kommuneplanens naturområder, potentielle naturområder og skovrejsningsområder, hvor naturhensynene skal gå forud for andre interesser
- gennem Natur- og Parkplanen at tilrettelægge rammerne for en mere naturnær drift og pleje både i og uden for byerne
- at skabe områder til ny natur via synergi mellem indsatserne i Natur- og Parkplanen og indsatserne i de kommunale vand- og naturplaner
- at fortsætte indsatsen med restaureringsprojekter i vandområder
- at formidle og kommunikere naturværdierne over for lodsejere, borgere og turister med de medier, der bedst egner sig til at skabe opmærksomhed, viden, forståelse og ansvarsfølelse over for naturen, f.eks. moderne digitale medier og naturvejledning.

Livskvalitet

Temaet "Livskvalitet" rummer de forhold, som naturen, de grønne områder og de blå vandområder beriger os med i hverdagen, og som har stor betydning for vores mentale og fysiske sundhed.

Undersøgelser viser, at mere end to tredjedele af Danmarks befolkning mener, at naturen er vigtig for deres dagligliv, og endnu flere oplever den som gavnlig for deres livskvalitet.

De grønne arealer og vandområder, der omgiver os, både i byerne og på landet, påvirker vores velbefindende, såvel fysisk som mentalt. Naturen med grønne områder, fjord, søer og vandløb er heldigvis en så integreret del af manges opfattelse af Viborg Kommune, at det kan synes som en selvfølge. Men et værdifuldt grønt miljø er ikke nødvendigvis givet på forhånd; det kræver ofte en indsats i form af planlægning og drift.

Det kræver bevidste valg at sikre gode adgangsmuligheder til rekreative områder for alle. Det kræver også prioriteringer at indtænke de grønne og de blå områder som en ressource i forhold til klimaspørgsmål.

Udbuddet, indholdet og kvaliteten i de grønne tilbud har betydning for borgernes billede af kommunen, og det har betydning for familiers valg af bosted.

Blomsterne studeres i staudehaven i Latinerhaven ved Domkirken i Viborg

Målsætninger

Viborg Byråd vil

- sikre borgerne muligheder for og nem adgang til autentiske og rekreative oplevelser i parker, grønne områder, skove og naturarealer til gavn for den mentale og fysiske sundhed
- arbejde for, at alle borgere i byerne har under 300 meter til et rekreativt grønt område
- sikre et varieret udbud af faciliteter, der understøtter borgeres rekreative muligheder
- sikre og udvikle aktivitetsfremmende tilbud, der kan motivere til et mere aktivt hverdagsliv
- arbejde for at forbedre de rekreative, blå tilbud, og dermed udnytte kommunens vandområder
- indtænke de grønne områder som en ressource, der kan medvirke til at afhjælpe generne ved klimaforandringerne og forbedre det lokale bymiljø
- signalere en tydelig prioritering af naturen og de grønne sammenhænge i kommunen, der kan tiltrække investeringer og gøre kommunen attraktiv for tilflytning.

Indsatsområder

Målene nås ved

- gennem Natur- og Parkplanen at planlægge køb og salg af kommunale arealer for at optimere deres beliggenhed, anvendelse, kvalitet og tilgængelighed
- at planlægge for de bynære landskaber, blandt andet for at fremme de rekreative kvaliteter
- gennem kommune- og lokalplanlægning at indarbejde attraktive grønne områder og stiforbindelser i planlægningen og realiseringen af nye boligområder
- gennem Natur- og Parkplanen at planlægge en videreudvikling af kommunens parker, så der fortsat er unikke anlæg med særlige temaer, f.eks. Bibelhaven, Nordisk Park og Asmild Klosterhave
- gennem Natur- og Parkplanen at imødekomme forskellige interessegruppers forskellige behov ved at tilpasse tilbud og faciliteter, f.eks. mountainbike-ruter og hundeskove
- at arbejde for, at Viborg Søerne kan få status som badesøer
- at arbejde for at etablere Naturpark Viborg omkring Viborg by
- gennem lokalplanlægning at indtænke f.eks. grønne tage, facader og vejtræer m.v. til at understøtte et rent bymiljø
- at etablere klimatilpassende anlæg til håndtering af regnvand ved ekstreme vejrforhold i natur- og parkarealer, så det indgår som en integreret del af den rekreative udformning
- at markedsføre mulighederne for gode natur- og friluftsoplevelser for borgerne i Viborg Kommune, især via hjemmesiden og elektroniske medier, f.eks. interaktive kort og QR-koder.

Engagement

Byrådet ønsker et stærkt og velfungerende lokalsamfund. Borgerinddragelse, lokal deltagelse og frivillighed er et middel til at nå dette.

Byrådet ser derfor en fælles indsats i form af samarbejde med borgere, lodsejere og organisationer som en vigtig forudsætning for, at målene i Natur- og Parkpolitikken nås.

Naturpleje, nye stier, genopretningsprojekter m.v. sker med fordel i samarbejde med lodsejerne. Lokal viden og deltagelse er nødvendig for at opnå et godt resultat. Lokal deltagelse betyder ejerskab og engagement, og gør det muligt at tilpasse projekter og initiativer til de lokale betingelser og behov.

Involvering af børn og unge i naturprojekter vil øge deres viden om og forståelse for naturen, og giver dem en højere grad af ansvarsfølelse for naturværdierne.

Bygning af shelter ved Rødding Sø – et lokalt samarbejdsprojekt

Målsætninger

Viborg Byråd vil

- understøtte medborgerskab gennem inddragelsen af aktive borgere i udvikling og drift af de grønne områder

- arbejde for, at borgere, lodsejere og organisationer – i dialog med kommunen – medvirker til at sikre og forbedre naturområder, landskaber og mulighederne for friluftsliv

- arbejde for, at flere opgaver løses af lokale frivillige

- arbejde for, at børn og unge gennem tidlig involvering får styrket deres viden om, forståelse for og ejerskab til naturværdier.

Indsatsområder

Målene nås ved

- at indgå partnerskabsaftaler om drift og pleje af grønne områder

- at udvikle et koncept for landsbypedeller

- at informere og vejlede borgerne om deres muligheder for at indgå i frivillige aftaler og partnerskaber, og for at finde finansieringsmuligheder, fundraising og puljer mv.

- at arbejde for, at naturen i højere grad bidrager til at skabe økonomisk værdi, i byer f.eks. omkring nærrekreative områder, og i lokalområder omkring lokale attraktioner, f.eks. Hærvejen og vore fiskevandløb

- at videreudvikle konkrete tiltag i samarbejde mellem naturforvaltere, daginstitutioner, skoler og Naturskolen.

- at arbejde for, at Viborg Kommune gennem borgernes og foreningernes hjælp bliver Danmarks Friluftskommune senest år 2017.

Oplevelser

Viborg Kommune rummer nogle af de af de største og mest kendte af Jyllands grønne seværdigheder. F.eks. Hald Sø og Dollerup Bakker, Gudenåen og Tange Sø, Karup Å og Kongenshus Hede, Nørreådalen og Ø Bakker, Simested Ådal og Borup Hede, Hjarbæk Fjord, Ulbjerg Klint, kalkmineområdet ved Daugbjerg og Mønsted samt Viborg Søerne med Borgvold i Viborg.

Natur- og parkområderne har et stærkt potentiale for unikke oplevelser - til glæde for såvel borgere, gæster og turister. Der findes allerede i dag et stort antal markerede ruter og muligheder for at komme tæt på naturen, såvel for aktive oplevelser som søsport, lystfiskeri, vandring m.v. som for udsigter, naturkendskab og mental ro.

Nogle områder kan endvidere, under hensyn til naturen, danne stemningsfulde rammer om store og små kulturtilbud, der skaber liv i bynære omgivelser, og nye måder at opleve naturen på. Det kan være koncerter, sceneoptræden, kunstudstillinger og animation, hvor Viborg Kommune er en foregangskommune.

Viborg Kommunes natur og parker gør kommunen til et godt sted at bo og drive virksomhed i, og til et attraktivt turistmål.

En piktogrampæl i Undallslund Skov - en af de mange afmærkede naturstier i Viborg Kommune

Målsætninger

Viborg Byråd vil

- fastholde og udvikle udvalgte naturområder og byparker som unikke tilbud for kommunens borgere, besøgende og tilflyttere
- skabe rammer for større arrangementer og events i velegnede områder i det fri
- fremme potentialet for oplevelsesøkonomi ved en innovativ og bæredygtig udvikling af de naturgivne ressourcer
- markedsføre og udvikle kommunens særegne naturområder ("naturperlerne") som attraktioner, der kan fremme turisme, bosætning og vækst.

Indsatsområder

Målene nås ved

- at udvikle Hærvejens potentiale som autentisk og unikt friluftsområde – Danmarks største motionsarena, f.eks. ved at understøtte Hærvejsløbet
- at udvikle Gudenåen og Karup Å som natur- og oplevelsesattraktioner, f.eks. som sportsfiskerturistmål
- at udvikle Sønæs i Viborg som et større bynært rekreativt natur- og friluftsområde
- at arbejde for et formidlingscenter for Viborg Middelalderby set i sammenhæng med projektet "De 5 Hald'er"
- at bidrage til realiseringen af projektet "De 5 Hald'er" i samarbejde med staten og lokale interesseorganisationer
- at arbejde for at etablere en naturpark omkring Viborg by
- gennem en aktiv fundraisingindsats at udvidemulighederne for at udvikle og etablere nye attraktioner og oplevelser
- gennem planlægning at udpege et eller flere områder, hvor der kan afholdes større arrangementer i det fri
- at indarbejde god tilgængelighed, når der udvikles nye faciliteter og formidles oplevelser
- at indgå i det nordiske netværk Green Space Award med fokus på at skabe, fremme og markedsføre parker og grønne områder af høj kvalitet
- at markedsføre mulighederne for unikke naturoplevelser i Viborg Kommune, især via hjemmesiden og elektroniske medier, f.eks. interaktive kort og QR-koder
- at arbejde for, at Viborg Kommune bliver Danmarks Friluftskommune senest år 2017.

Scan QR-koden og se mere på viborg.dk/naturoplevelser

Scan QR-koden og se mere på visitviborg.dk

Sammenhænge med andre politikker

En del af Visionen for Viborg Kommune lyder:

Viborg er en kommune, hvor borgerne trives, lever sundt og aktivt med adgang til en mangfoldighed af kultur-, fritids- og naturoplevelser.

Med visionen vil vi skabe en sund og grøn kommune. Det gør vi ved en øget indsats for at forebygge livsstilssygdomme og fremme livskvaliteten. Det skal ske gennem en klart defineret sundhedspolitik og en aktiv indsats overfor virksomheder og foreninger, der ønsker at prioritere sundhedsindsatsen. Vi vil værne om naturen og et rent miljø til gavn for befolkningens sundhed og rekreative udfoldelsesmuligheder.

Med afsæt i visionen har Byrådet vedtaget en række politikker og strategier. I disse dokumenter er opstillet målsætninger og forslag til indsatsområder, som på forskellig vis rækker ind over natur- og Parkpolitikken.

Nogle eksempler er (overskrifterne er klikbare links til politikkerne):

Udviklingsstrategi 2011
Et tema i Udviklingsstrategien er "Store oplevelser". En af målsætningerne lyder: Viborg Byråd vil skabe events, der giver autentiske oplevelser og opmærksomhed.

Forebyggelse- og sundhedsfremmepolitik (2011)
Borgerne i Viborg Kommune skal opleve, at der er mulighed for at træffe de sunde valg i hverdagen – både på arbejdspladsen, i fritiden og i de kommunale institutioner.

Landdistriktspolitik 2011-2015
Det er Byrådets mål at skabe en bæredygtig sammenhæng mellem bosætning, offentlig adgang til naturen, biologisk mangfoldighed og bevarelse af naturens kvaliteter, så der udvikles spændende natur- og friluftsoplevelser. Målene nås bl.a. ved at arbejde for et sammenhængende net af naturområder i kommunen; at værne om vandmiljøet og grundvandet samt vore værdifulde natur-, landskabs- og kulturmiljøer; og at forbedre mulighederne for natur- og friluftsoplevelser i landdistrikterne.

Handicappolitik (2009)
Borgere med handicap skal have mulighed for at bevæge sig i det offentlige rum samt adgang til relevant information. Det betyder bl.a., at der udarbejdes en oversigt over handicapegnede tilbud i naturen i Viborg Kommune.

Politik for boligområdet (2009)
Viborg Kommune har en række styrkepositioner i form af en varieret natur. I såvel eksisterende som nye boligområder er det vigtigt at udnytte, men også beskytte de landskabelige og naturmæssige kvaliteter. Det betyder bl.a., at der skal sikres bolignære rekreative områder samt adgang til rekreative områder.

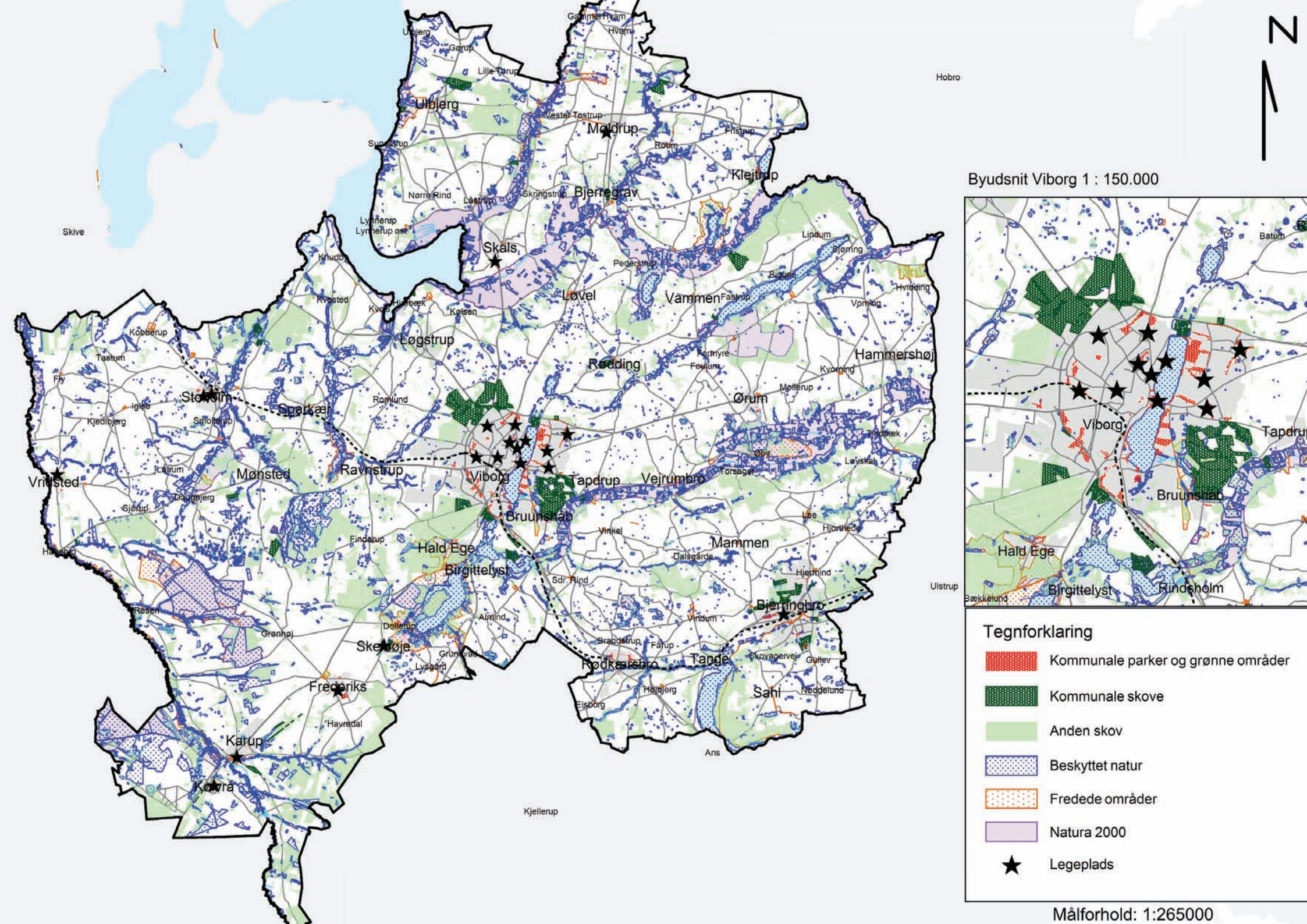
Idrætspolitik (2009)
Viborg Kommune vil gøre byrum og det åbne land tilgængeligt for det selvorganiserede idrætsliv.

Klimastrategi (2009)
Planlægning for grønne områder og lavbundsarealer til optag af overfladevand i tilfælde af ekstrem nedbør kan videreudvikles.

Markedsføringsstrategi (2008)
Den autentiske natur med en rig variation af landskabsformer giver kvalitetsoplevelser i naturen.

Frivillighedsstrategi (2012)
I Viborg Kommune involverer borgerne sig i hinandens liv, og derfor danner frivillighed en helt central ramme for en række af de aktiviteter, som finder sted i kommunen hver dag.

‹ *Islandsparken: Viborg Kommunes mange parker giver god mulighed for livskvalitet i hverdagen*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Byudsnit Viborg 1 : 150.000
Tegnforklaring
Kommunale parker og grønne områder
Kommunale skove
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Fredede områder
Natura 2000
Legeplads
Målforhold: 1:265000
Ulbjerg
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Klejtrup
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Stovolm
Sparkær
Mønsted
Ravnstrup
Viborg
Tapdrup
Vejrumbro
Bruunshåb
Vridsted
Hald Ege
Birgittelyst
Mammen
Bjerringbro
Skemøje
Frederiks
Karup
Kølvrå
Rødkærsbro
Tange
Sahl
Hobro
Skive
Ulstrup
Ans
Kjellerup
Batum
Viborg
Tapdrup
Bruunshåb
Hald Ege
Birgittelyst
Rindsholm
Bækkelund

Status

Kommunens grønne arealer
Viborg Kommune ejer og vedligeholder en bred vifte af natur-, skov- og parkarealer. De er vidt forskellige i størrelse, karakter, kvaliteter og muligheder for anvendelse – se faktaboksen og oversigtskortet.

Fredede områder og beskyttet natur
Kommunen administrerer via naturbeskyttelsesloven de fredede områder, de naturbeskyttede arealer og de internationale naturbeskyttelsesområder (Natura 2000-områder).

Kommunen skal via sin administration varetage nogle særlige bindinger og hensyn, som gælder for disse arealer. Kommunen har også mulighed for at påvirke udviklingen af de grønne sammenhænge gennem sin administration af anden lovgivning samt planlægningen i det åbne land i øvrigt.

Kommuneplanlægning
I kommuneplanen fastlægger Byrådet rammerne for den fremtidige by- og erhvervsudvikling. Kommuneplanen indeholder retningslinjer for anvendelsen af det åbne land, herunder en afvejning mellem jordbrugs-, natur- og landskabsinteresser, infrastruktur, rekreative interesser og bosætning.

Byrådet reviderer kommuneplanen hvert fjerde år, og Byrådet har vedtaget en ny kommuneplan i maj 2013. Ved revisionen har der blandt andet været fokus på det åbne land, herunder den grønne struktur og bynære grønne områder.

Formidlingen og befolkningens brug af de grønne arealer
Viborg-egnens mangesidige natur er et stort aktiv for såvel kommunens borgere som turister. For en stor del af de vigtigste naturområder og de største grønne områder i byerne findes der en del trykte og digitale informationsmaterialer om områdernes værdier og oplevelsesmuligheder – se faktaboksen.

Mere information
Information om naturen og de grønne arealer
www.viborg.dk/natur-og-miljoe
www.visitviborg.dk

Danmarks Miljøportal (fredede områder, beskyttede arealer og Natura 2000-områder)
www.kort.arealinfo.dk

Fakta
Viborg Kommune er med ca. 1.409 km² (140.870 ha) Danmarks næststørste kommune.

Af væsentlig betydning for den grønne struktur ejer Viborg Kommune:
- 250 ha parker, grønne områder, legepladser og bynære skove (Teknisk Udvalg)
- 970 ha skov- og naturarealer (Klima- og Miljøudvalget)
- Grønne byrum, beplantninger og træer langs veje (Teknisk Udvalg)
- Idrætsanlæg (Kulturudvalget)

I Viborg Kommune findes der
- 5.100 ha fredede arealer tilhørende private og offentlige lodsejere *
- 15.000 ha beskyttet natur (såkaldte § 3-arealer) *
- 18.100 ha internationale naturområder (såkaldte Natura 2000-områder) *

* stort overlap mellem arealer.

Øvrige arealer i de grønne sammenhænge
- Statens skove og naturarealer
- Private skove
- Kirkegårde, grønne friarealer i boligområder samt søer og gadekær
- Det åbne land i øvrigt (landbrugsarealer m.m.)

VIBORG
KOMMUNE

Lokalplan_509_Egeskovvej_delomr2

Det er med meget stor bekymring jeg læser "Lokalplan_509_Egeskovvej_delomr2". Lokalplanen vil skabe endnu større trafikbelastning på en af kommunens smukkeste vejstrækninger som Egeskovvej til Hald Ege er. Støj og øget trafik skader det unikke dyreliv omkring Egeskovvej. Vejen er iøvrigt også en "Margueritvejs"-strækning.

Indsendt af Jens Borved

Indsigelse mod nyt boligområde ved Egeskovvej

Jeg protesterer mod ændring i lokalplanen for området som er udlagt som grønt område i lokalplanen fra 2017.

Det vil være ren vandalisme at udnytte dette skønne område til boliger med den

smukke "indkørsel" til Hald Ege området med de smukke, gamle vejtræer og skovområde

og dejlige syn af hestene og dyrelivet.

1. Det vil give alt for stor øget trafikmængde på denne gamle, smalle vej

2. Trafikmængden gennem Hald Ege vil blive helt uoverskuelig

3. Der er slet ikke taget hensyn til nødvendig udbygning af Hald Ege Skole

4.Der er overhovedet ikke ført dokumentation for nødvendigheden af nybyggeri i området

Viborg har i forvejen gang i så meget byggeri, at behovet ikke synes at eksistere

5. Man bør tage hensyn til kolonihaverne, som bliver helt blotlagt fra nordsiden.

6. Hvis det er så let at få en ændring igennem en ny lokalplan bør Viborg Kommune helt holde op med at lave lokalplaner.

Indsendt af Thony Elbæk Pedersen

Bekymring for trafikbelastning

Jeg er især bekymret for den øget trafikbelastning der vil komme på Egeskovvej hvis dette føres ud i livet. Som beboer i Bækkelund er vi rigtig glade for cykelstien til skolen, men da man skal krydse Egeskovvej inden man når skolen er det ikke optimalt for børnene. I forvejen er det er sted med stor trafik, både i forbindelse med skolestart om morgenen men også om eftermiddagen når de skal hjem igen. Og der hvor man krydser vejen er udsigten ikke god, da det er lige i et sving. Men større trafikal belastning vil det blot gøre det endnu værre. At der samtidig ikke er så meget som én eneste fodgængerovergang i byen gør det ikke bedre.

Desuden vil den øgede trafik igennem Hald Ege gøre det noget nær umuligt at komme gennem byen om morgenen. I forvejen er der meget trafik til skolen og byen to børnehaver men hvis alle der skal bo i det nye område også skal igennem, så vil det kun blive meget værre.

Så kan man altid sige at vi som ikke bor i Hald Ege må finde en anden vej, men da vores børn går i skolen og børnehaven er dette ikke muligt.

Jeg håber virkelig man vil genoverveje dette, og hellere bruge pengene og energien på at få alle de huse der i dag er til salg attraktive for købere.

Indsendt af Annette Lyngsø

Boligområde Egeskoven

Det er med MEGET stor bekymring, jeg læser forslag til lokalplanen!

Egeskovvejen gennem Hald Ege bliver belastet af væsentlig trafik, der er ikke plads til cykelister (ingen cykelsti) og et fantastisk og enestående stykke natur forsvinder.

En del af Maguritruten går tabt.

Den smukke skovstrækning til og fra Hald Ege ødelægges for altid!

Vil på det kraftigste mane til besindighed og fornuft.

Mvh. Gitte Lyngsø

Indsendt af Gitte Lyngsø

Bekymring vedr. byggeri

Det er forbundet med stor bekymring at følge planer for byggeriet mellem Viborg og Hald Ege.

Området er et unikt stykke natur, som indeholder et rigt dyre- og planteliv, og også udgør vigtig faunapassage for dyreliv.

Desuden er området med til at sikre driften og muligheder for rideskolen, som giver liv og skaber mulighed for et aktivt og sundt liv til Viborgs borgere.

Vi ønsker, at Viborg Kommune i deres beslutninger omkring byggeriet viser hensyn til det omkringliggende natur og miljø. Samt at Viborg Kommune er lydhøre overfor deres borgeres tilbagemeldinger i denne høringsproces, og viser at en sådan høringsproces er meningsgivende.

Indsendt af Charlotte Agger og Dea Damsgaard

Lokalsamfund eller bydel i Viborg

Vi flyttede for snart 3 år siden fra Viborg til Hald Ege. Vi havde et ønske om, at bo og ikke mindst at vores børn skulle vokse op i et trygt og vel fungerende lokalsamfund. Vi forelskede os dengang i Hald Ege og især naturen rundt om Hald Ege var et stort plus for os.

Hald Ege viste sig, at være alt det vi havde drømt om og vi ser derfor med bekrymering på forslagene om udstykning ved Egeskovvej og Kolbækken. Vi sidder med en følelse af at Hald Ege vil blive det vi flyttede fra, nemmelig en bydel i Viborg i stedet for det lokalsamfund vi ønsker at bo i.

Naturen omkring Hald Ege betyder meget for os og jeg nyder turen igennem skoven hver dag når jeg kører til og fra arbejde og synes virkeligt det vil være en skam hvis denne fantastisk natur, som kommunen tidligere selv har udlagt til grøntområde, vil forsvinde.

Vi håber ikke at foreslagene om udstykningers bliver til nogen, men skulle det ske, håber jeg at kommunen vil tage for de udfordringerne som de mange nye boliger vil medfører, herunder hvor skal de mange nye børn gå i skole og især den øget trafik, som efter lukningen af udkørslen fra Kolbækvænget kun kan komme fra området i gennem Hald Ege eller krydset på Koldingvej ved Løvbjerg. Begge steder er der allerede idag udfordringer med trafiksikkerheden. I Hald Ege cykler mange af byen allerede i dag på fortovet, da deres forældre synes Egeskovvej er for farlig at cykle på og jeg forstå dem godt, for jeg bryder mig ikke engang som voksen om at cykle på Egeskovvej, da helleanlæggene sender modgående biler helt over i modsatte sidde af vejen.

Krydset ved Løvbjerg er allerede i dag et helvede, at skulle over, når man kommer fra afkørslen fra ringvejen i myldretrafikken. Bilerne kommer fra alle steder og der skal så lidt til før man overser en bil eller cyklist og det går galt.

Skulle de nye udstykninger blive til noget håber jeg virkeligt, at man vil gøre noget ved de trafikproblemer som allerede findes i dag.

Indsendt af Lene Bach Lysdal

Insigelse mod boligbyggeri mellem hald ege og viborg

Efter at have læst lokalplan 499 og 509, må jeg på det kraftigste gøre indsigelse mod disse planer.

Området er indvindingsopland til Viborg vandværk syd og er af naturstyrelsen udpeget som indsatsområde pga dets sårbarhed(ringe lerlag).

Til begge lokalplaner er vedlagtmiljørapporter, som jo begge baserer sig på Naturstyrelsens rapport "afgiftfinianseret grundvandskortlægning-regørelse for Viborg syd 2011".

Under punkt 5.1.5 indsatser, skriver de bl.a " det anbefales at iværksætte tiltag for at bevare vandkvaliteten indenfor hele indvindingsoplandet, men i forhold til at prioritere tiltagene kan der med fordel tages udgangspunkt i de dele af grundvandsdannelse oplande eller indvindindsoplandene, som ligger nærmest kildepladsen" .

Jeg er ret sikker på at det naturstyrelsen mener med " tiltagene" ikke indkluderer at bygge et parcelhuskvater !

Sammenholdes ovennævnte med miljøministerens seneste udtalelser om sikring af rent drikkevand, giver lokalplanerne da slet ingen mening.

Indsendt af Jens Christian fregerslev thomsen

Infrastrukturen Hald Ege og sydpå

Jeg er meget bekymret over at der ikke er taget mere hensyn til den stigning der kommer i trafikken igennem Hald Ege i forbindelse med de nye udstykninger. Hald Ege vil blive en gennemkørsels by for mange der skal ind til de nye udstykninger når de kommer sydfra og for mange der skal sydpå og trafikken er i forvejen steget en hel del.

Indsendt af Michael Holmer

lokalplan 509+510

Det er meget bekymrende, når jeg læser forslag til lokalplanen!

Egeskovvejen gennem Hald Ege bliver belastet af meget trafik allerede nu og det vil med tiden blive værre endnu hvis lokalplanerne vedtages! Et fantastisk og enestående stykke natur forsvinder og det samme gælder delvist for Magurit-ruten.... :-/

Den smukke, grønne skovstrækning til og fra Hald Ege ødelægges - som for mange (også ikke-haldege-borgere) er et "lufthul" fra by/bebyggelse !!

Vil på det kraftigste mane til besindighed og fornuft, samt at man tænker miljø og dyreliv ind i beslutningerne.

Mvh. Mikkel Krabbe

Indsendt af mikkel krabbe

Indsigelse lokalplan 509

1. Jeg finder det ikke sandsynliggjort i lokalplanen, at drikkevandsområdet vil have samme beskyttelse efter en vedtagelse af lokalplanen. Planen omhandler alene henstillinger til de nye beboer omkring anvendelse af pesticider, vask af bil etc. Jeg er indforstået med at man ikke kan skrive det som krav, idet man ikke er i stand til at kontrollere disse forhold. Det mener jeg man bør tage til efterretning, og dermed ikke godkende lokalplanen. Alene det faktum at man ikke kan skrive det som krav i lokalplanen, bør have opsættende virkning på lokalplanens gennemførsel.

2. De nye grundejere har alene lokalplanen som varedeklaration på deres livs største køb. Jeg mener man - igen - ikke har synliggjort for almindelige borgere hvad der er den juridiske del og ikke juridiske del af lokalplanen. Det burde efter min mening være et standard krav at tydeliggøre at en del af lokalplanen IKKE er juridisk bindende på nogen som helst måde for kommunen. I dette tilfælde har man ved skrivebordet løst en optimering af grundudstykninger ved at nedsætte hastigheden fra 80 til 50 km/t på Egeskovvej. Det vil trods små foranstaltninger ikke være realistik at en billist køre 50 km/t fra Rideskolen og til Hald Ege byskilt. Dermed vil man IKKE kunne overholde støjkravet for nærmeste bebyggelser til Egeskovvej. Et er at man har lavet en gigantisk håndvask i lokalplanen, men jeg mener man bør have et realistisk udsyn også - lokalplanens udsyn på støjgener er urealistisk.

3. Lokalplanen vil i forening med den sydlige lokalplan SAMT lokalplan 487 totalt blokere de nuværende vildt korridorer der leder på tværs af Egskovvej. Dermed bliver vildtets passage sammenpresset på et betragetligt mindre stykke lige inden Hald Ege. Enhverv kan med simpel beregning sandsynliggøre det øgede antal vildt påkørsler dette vil frembringe. Dette går lokalplanen uden om, samt miljørapporten, og dermed de private investorer. Når vi så om 4 år har en drastisk øgning af ulykker opstår et folkekrav om en korridor underføring på Egeksovvej - og den får skatteborgerne så lov at betale.

Min yderligere personlige mening er desuden, at lokalpalnerne for området er et sørgeligt eksempel på, at det er private bygherrer der styre byudviklingen, og ikke de ansatte som vi alle aflønner for at være fremsynet, have en tydelig mission for byudviklingen og dermed bliver kommunen en risikofaktor for at afvikle i udviklingens tegn. Såfremt jeg ikke har ret mangler jeg fuldstændig plausibelt grundlag i planer og visioner for at sammenbygningen af landsby og by skulle være det nye sort. Jeg kan ikke finde eksempler på det er sket målrettet før, og jeg kan alene kun se store problemer i at udvikle byen med sammensmeltning af landsby, med landsbyens logistiske formåen, fremfor at udvikle byens rige muligheder for udvikling over åbent land.

Indsendt af Kim Albech Sørensen

Lokalplanforslag 499 og 509 og tillæg nr. 26 til Kommuneplan 2017 - 2029

Indsendt af Ryan Pedersen

Vedhæftet fil

Indledende bemærkninger

Som udgangspunkt er vi tilhængere af byudvikling, og vi har da også været vidne til mange gode tiltag fra Viborg Kommunes side, men ind imellem så synes vi det kikser. Derfor er det vigtigt at vi som borgere får mulighed for at komme med indsigelser inden den endelige vedtagelse i byrådet finder sted, og så håber vi bare at vores indsigelser bliver hørt og taget alvorligt.

Da vi flyttede til Hald Ege i 1975 var det nyeste byggeri Nonbo Hede. Siden er der kommet 7 nye by udvidelser til. Det drejer sig om følgende: Nonbo Hegn, Nonbo Vænge, Nonbo Dal, Nonbo Mark, Nonbo Krat, Nonbo Enge og Videbechs Allé, så hr. Johannes Vesterby, her i Hald Ege har vi klappet i vores små hænder mange gange, som du siger de ville have gjort i de ”mindre byer”, som Stoholm, Sparkær o.s.v., men huden i hænderne bliver med tiden slidt så meget, så det begynder at gøre ondt. Hald Ege er en mindre landsby og det er trafikforholdene fra gammel tid indrettet efter og man bør nu indse, at Hald Ege simpelthen ikke kan bære et væsentligt forøget trafikpres.

Flere gange har vi her i Hald Ege hørt, at nu er det altså også den sidste udstykning i Hald Ege området!

Torsdag aften var vi til stede sammen med ca. 200 andre fremmødte borgere til et høringsmøde om Lokalplanforslag 499 og 509 og de deraf nødvendiggjorte forslag til ændring af Kommuneplan 2017-2029.

Vedr. foreslåede ændringer til Kommuneplanen 2017 – 2029

I Kommuneplanen, som den forligger i dag, er det område, som Lokalplanforslag 509 omfatter, fastlagt til anvendelse som rekreativt område, så derfor kan Lokalplanforslaget ikke gennemføres uden at den ønskede ændring i Kommuneplanen gennemføres.

Når man kigger rundt i hele landet, ser man igen og igen, at randzonerne til følsomme naturområder udvides. I Viborg gør man det modsatte. Her flytter man bare disse grænser efter behov. Man kan undre sig over, at Viborg Kommune ikke kan finde de ca. 6 ha jord, som området omfatter, andre steder i Kommenen hvor de ikke vil støde på behov for ændringer af den 1 år gammel Kommuneplan.

Vi er nogle af de mange borgere i Viborg Kommune, som jævnligt færdes og nyder naturen i området. Vi kan fuldt ud støtte op om og bekræfte den fortælling, som en af de fremmødte borgere fremførte for medlemmerne af Teknisk Udvalg. Hr. Johannes Vesterby var meget hurtig til at skyde fortællingen ned, med denne udtalelse: ”Jamen alle disse mennesker går da ikke rundt i hestefoldene”! Nej det gør vi ikke, men hans udtalelse anskueliggør præcis det faktum, at han ikke har forstået hvad der ligger i et ”dette rekreative område”. At man kan færdes i denne natur uden at bilister og andre motoriserede trafikanter suser om ørene på en, er et unikt forhold, som man ikke finder mange andre steder i Viborg området.

Vi vil opfordre Hr. Johannes Vesterby til at stå tidligt op en søndag morgen og så gå en tur ud igennem området. Så vil han opleve, at der er meget mere dyreliv på hestemarkerne end hestene. Og så skal han forestille sig, at i stedet for udsigten til hestene og alt det andet dyreliv, så vil han, hvis planen føres ud i livet, kunne opleve en tur med udsigt til et 500 meter langt og 1,80 meter højt plankeværk! Så tror vi, at han vil forstå hvad det er, der bekymrer os borgere i denne henseende.

Når vi ser salgsannoncer for ejendomme i vores område, er det med beskrivelser af den fantastiske natur, som de nye beboere kommer til at bo i. Fremover kan man forsvare, at beskrivelsen i stedet nævner den fantastiske natur der var! Man skal tænke på at når først tilladelserne til bebyggelsen er givet, så kommer naturoplevelserne i disse rekreative områder aldrig tilbage.

Vi skal endelig anføre, at det samlede byråd også burde gå turen, hvis de ikke allerede har gjort det. Oplevelserne kræver, at man er der og ikke bare oplever det i papirerne!

På denne baggrund vil vi kraftigt anbefale, at det samlede byråd tænker sig om endnu en gang og derefter når frem til det resultat, at ændringsforslaget bør forkastes!

Bemærkninger til Lokalplanerne

De trafikale forhold

Vi må indrømme, at Philipsen – arkitekterne har lavet et rigtig flot projekt, men hvor er det en skam at de ikke har fundet en anden lokalitet at placere det på. Det ses da også tydeligt, at de har været nødsaget til indgå mange kompromisser af hensyn til de kulturelle aktiver, som de har været nødsaget til at tage hensyn til. Også selvom de følte, at det kunne være svært at få øje på visse af disse kulturelle aktiver.

Disse forhold har også medført, at det har været nødvendigt at foretage trafikregulerende foranstaltninger, med henblik på at reducere støjgener.

Ifølge planerne, har man til hensigt at nedsætte hastighedsgrænserne fra 80 km/t til 50 km/t på en ikke uvæsentlig strækning. Det siger sig selv, at det bliver meget svært for mange bilister at overholde den hastighedsgrænse, og dette har planlæggerne indset og derfor foreslår man at der skal etableres en række trafik chikaner på strækningen. En af ulemperne ved mange trafikchikaner er, at der imellem chikanerne automatisk opstår en slags væddeløbsbaner for at nå frem til chikanen inden den modkørende når frem. Vi taler af erfaring, idet vi dagligt oplever det ved chikanerne i Hald Ege.

Dette forhold skaber meget farlige situationer for cyklisterne, idet bilisterne har opmærksomheden rettet mod de modkørende bilister, og derfor ikke er opmærksomme på eventuelle cyklister, som indenom også er på vej igennem chikanen. På vej ud af chikanen er der simpelthen ikke plads til både en bil og en cyklist.

Ydermere oplever vi om sommeren, når bevoksningerne i chikanerne er blevet for høj, at bilisterne mister overblikket.

Med den forventede trafikforøgelse, vil man morgen og eftermiddag/aften opleve, at trafikpropperne ved chikanerne bliver endnu længere, og dette vil automatisk medføre stressede situationer, idet folk som regel har ekstra travlt på disse tidspunkter.

Vores forslag til ændrede trafikreguleringsmetoder

Den største del af trafikstøjen kommer fra den friktion, der er mellem asfalt og dæk. Denne støj reducerer man andre steder ved af bruge specielle asfalttyper, som er meget støjreducerende. Vi foreslår derfor at man anvender denne type asfalt på Egeskovvej, både ud for det påtænkte nybyggeri og igennem Hald Ege by. Herved kan man måske nøjes med at regulere hastigheden til 60 eller evt. 70 km/t.

Alternativt foreslår vi, at der i stedet for chikaner indføres strækningskontrol på hele strækningen fra Egeskovvejs start – eventuelt helt inde fra Løvbjerg – og til udkørslen fra Hald Ege til Herningvej. Færdselssikkerhedskommissionen oplyser jo, at de er klar til at kigge på alt, der sikre en mere sikker trafik.

Ved anvendelse at denne metode, kan Viborg Kommune undgå at etablere – og ikke mindst – vedligeholde dyre chikaner.

Vi bilister kan så bare sætte fartpiloten på 50, 60 eller 70 km/t og stille og roligt køre derudad / derindad. Og så vil man opleve, at der ikke kan "snydes" med hastigheden. Den forsinkelse, som man får ved lavere hastighedsgrænser, vil man tjene ind ved ikke at skulle holde for trafikpropper ved chikanerne. Jeg er sikker på, at vi bilister hurtigt vil vænne os til dette system, idet det vil være for dyrt ikke at gøre det.

Udkørslen fra Kolbækvænget til Vejlevej

Som vi under indledende bemærkninger har skrevet, så vil Hald Ege have meget svært ved at kunne afvikle den forventede stigning i trafikken. Vi forslår derfor, at man bibeholder udkørslen til Vejlevej. Vi foreslår, at denne udkørsel reguleres med et system magen til det der er i Birgittelyst i krydset Vejlevej – Herningvej. Efter vores opfattelse er det en af de bedste trafikreguleringer, som man har lavet i Viborgområdet. Det fungerer bare rigtig godt, og det vil efter vores opfattelse ikke genere den ordinære trafik på Vejlevej, hvis man lader krydset være åbent for lige ud gående trafik så længe der ikke er trafik til eller fra Kolbækvænget.

Afslutning

De fleste af vores bemærkninger til Trafikområdet er naturligvis kun relevante for det tilfælde, at Byrådet - mod forventning - godkender ændringsforslagene til Kommuneplanen.

Strækningskontrollen gennem Hald Ege mener vi dog stadig vil være på sin plads.

Med venlig hilsen

Hanne Gehlert og Ryan Pedersen

Hald Ege

Fasthold Kommuneplanen

Til Viborg Byråd

I Miljørapporten for lokalplan 499 er der et flot drone billede af lokalplan 509´s område.

Det er et meget flot landskab med tunneldalen og Vint Mølle Sø i baggrunden.

Af billedet fremgår det tydeligt at hele området på vestsiden af Vejlevej er præget af foldene, som bruges af Viborg Rideklub.

Hvad vil Viborg Kommune med rideskolen?

Skal der være en bynær rideskole, som børnene kan cykle eller tage en bus ud til?

Hvilken betydning har det for børn og voksne at kunne ride på og omgås disse dyr og hvad betyder det for alle andre der færdes i området at se og opleve de store dyr på en græsmark?

Jeg tror fortsat på, at der er så meget tilbage i os af vores "bondeæt", at alle nyder synet af disse flotte dyr.

Det bør der være plads til i " Børnenes og børnekulturens kommune", som der står i konstitueringsaftalen for Viborg Byråd.

Jeg har intet at gøre med rideskolen, blot kigget på deres hjemmeside og set på, at de i dag disponerer over hele arealet. Gennem Viborg Idrætsråd har jeg erfaret at klubben har en rimelig økonomi - hvad ikke alle rideklubber kan siges at have.

I Kommuneplan 2017 -2029 er området udlagt til "Grønt rekreativt Område" og det har det været i alle tidligere kommuneplaner. Der er ikke et dokumenteret behov for byggeri her, og slet ikke et byggeri ,som kan overtrumfe Almenvellet for dette område.

Det bør hele byrådet forholde sig til.

MVH Jørgen Buus

Indsendt af Jørgen Buus

Indsigelse ifb. reduktion af skobvbyggelinjen

På høringsmødet d. 17/1 spurgte jeg ind til, hvorvidt skovejer er blevet hørt ifb. ansøgning om reduktion af skovbyggelinjen.

Karl Johan Legaard svaret klart og tydeligt "Nej!" til spørgsmålet.

Dette er vel en decideret procedurefejl, da der på Miljøstyrelsens hjemmeside tydeligt står, at kommunen skal tilvejebringe bl.a.: "Redegørelse for den skov, der afkaster skovbyggelinjen, ejerforholdene for skove og skovejers eventuelle bemærkninger."

Mvh.

Morten Sigby-Clausen

Hald Ege

Indsendt af Morten Sigby-Clausen

Indsigelse

Min bekymring ved de fremsendte lokalplaner ved Egeskovvej og Koldbækken er i høj grad de trafikale forhold. Det vil give en stærkt øget trafik på Egeskovvej - gennem Hald Ege og på Koldingvej ind mod byen under den røde bro ved Mars Stigsvej.

I forvejen er trafikken igennem Hald Ege øget væsentligt de senere år med øget risiko for børn og bløde trafikanter. Jeg er med på at der skal skabes boligmuligheder i Viborg for at kommunen fortsat kan vækste - men det er der også gang i mange steder. Arnbjerg - Taphede på sigt - Banebyen m.m. Set ift til den befolkningstilvækst der har været de seneste år synes jeg ikke der er argumenter for at disse 3 områder også skal bebygges. Jeg synes ikke det er nødvendigt at placere boliger hvor det vil give trafikale udfordringer samt skæmme natur og udsyn til natur.

Der er selvfølgelig mange andre steder i Viborg hvor der er stærk trafik men det er ikke et argument for at etablere yderligere trafikale problematikker.

Samtidig håber jeg at udkørsel til Vejlevej fra Kolbækvænget kan bevares så længe som muligt.

Indsendt af Marianne Toppenberg

Indsigelse til lokalplanforslag 509

Indsigelse til lokalplanforslag 509

Allerførst vil jeg gerne klage over, at Viborg Kommune ”presser” denne lokalplan igennem det kommunale system ved hjælp af et kommuneplantillæg.

Viborg kommune bør, som er ”ånden” i det at lave kommuneplantillæg, kun lave kommuneplantillæg, når man er i nød. Og det er man absolut ikke her!

Der er masser af byggegrunde i Viborg, så man ville nemt kunne have fulgt de procedurer, som gælder for udarbejdelse af kommuneplaner – altså en gang hvert ca. 5 år

Herudover vil jeg lave indsigelse over, at der laves lokalplan på dette smukke stykke bynære natur. Der er mange andre steder i Viborg bys nærhed, hvor områder kunne plastres til med boliger.

Men demokratiets kraft” ser åbenbart ud til at spille fallit i denne sag. Det virkede ved borgemødet den 10. januar som om Johannes Vesterby og Co. allerede har besluttet sig og at lige meget, hvor mange indsigelser der kommer til dette lokalplanforslag, så er beslutningen truffet – DER SKAL BYGGES BOLIGER PÅ OMRÅDET!

Endvidere vil jeg lave indsigelse over, at Viborg kommune ikke har forholdt sig til problemer, som opstår, som følge af, at der bygges boliger på området.

Her tænkes på:

• Hvor skal børn fra området gå i børnehave, skole og klub?

• Hvordan skal den øgede biltrafik frem og tilbage om morgenen skulle kunne blive afviklet på en fornuftig måde? Forældre, som ikke arbejder syd for Hald Ege, skal igennem Hald Ege to gange hver morgen!! – og så kommer flere af dem igen om aftenen – to gange!!

• Hvordan skal børn kunne komme forsvarligt til skole om morgenen og i klub om eftermiddagen med den voldsomt øgede trafikbelastning?

• Hvordan løses den øgede støjbelastning, som følge af den øgede trafik, for de boliger, som ligger langs Egeskovvej.

Det virker som om at Viborg Kommunes planafdeling har skyklapper på og kun tænker på hvordan miljøkrav skal håndteres indenfor lokalplanforslaget.

Johannes Vesterby gjorde, på borgermødet den 10. januar, meget ud af at fortælle, at Viborg Kommune arbejder ud fra ”rettidig omhu”. Jeg vil derfor kraftigt opfordre Viborg Kommunes politikere til at handle ud fra rettidig omhu, og som minimum sikre en trafiksikker løsning for børn og andre ”bløde” trafikanter, som skal igennem Hald Ege ad Egeskovvej, ved at etablere cykelsti igennem Hald Ege langs Egeskovvej og etablere cykel/gangtunnel under Egeskovvej – det ville være rettidig omhu!!

Med venlig hilsen Mogens Ditlev

Indsendt af Mogens Ditlev

Vedr.lokalplan 509

Helt uforstående overfor hvordan man kan se en så vigtig ting overhøring som at der på dette område er et så vigtig grundvandsareal.

Ligeledels er jeg helt uforstående over for hvordan man kan få dispensation for skovbyggelinien. Mystisk at lige denne her sag kan få det, når så mange andre sager ikke har kunnet få det igennem, - Helt igennem en total uoprettelig skamplet på et smukt naturområde. Hvor hestefolden også kun er med til at forskønne området.

Indsendt af Anita Løber

Indsigelse til lokalplan 509

Jeg er bekymret over ændring af den smukke natur med omlægning til bebyggelse

Jeg er bekymret for grundvandet.

Jeg er MEGET bekymret for en øget trafikmængde - både i Hald Ege, på Egeskovvej og videre ind i Viborg. Som daglig cyklist på Egeskovvej, oplever jeg gang på gang farlige situationer - både for mig selv og andre cyklister. Jeg har haft den aldeles rædselsfulde oplevelse, at ramme et barn, da jeg i bil skulle svinge ud fra en af de små sideveje, og barnet kom cyklende på fortorvet. Der skete heldigvis ikke noget alvorligt. Hald Ege kan ikke bære mere trafik, uden at det vil skabe stor risiko for ulykker.

På Koldingvej er der ofte lange køer med ventende bilister i krydset Koldingvej / Marsk Stigs Vej.

Ved Søndre Skole er der ofte kaos pga antallet af biler ifm aflevering af børn.

Jeg tør slet ikke tænke på, hvordan det vil blive, hvis der kommer endnu flere biler.

Jeg er bekymret for støjgener i Hald Ege.

Jeg undrer mig over den tilbagevendende melding om ønsket fra Viborg Kommunes side om at trække nye borgere til Viborg - men hov - hvorfor hører vi slet ikke noget om at glæde "egne borgere" - har vi slet ingen betydning, når vi først "er landet".....

Der står på Viborg Kommunes hjemmeside, at "Viborg Kommune har et bredt udbud af boliggrunde til salg - her findes noget for enhver smag". Mon ikke det rækker, så lokalplansforslag nr. 487, 499 og 509 kunne annulleres med henvisning til naturen, grundvandet samt risiko for uoverskuelige trafikale problemer.

Indsendt af Marianne Højberg

Plan for imødekommelse af trafikale konsekvenser?

Jeg er bekymret for, om kommunens planafdeling har vurderet konsekvenserne for den øgede trafik gennem Hald Ege, herunder kommunens forpligtelse til at sikre sikker skolevej,

- BÅDE for elever fra Videbechs Allé, der skal krydse Egeskovvej på vej til folkeskolen, og som ikke har nogen cykelsti at køre på, en et fortov (virkeligheden viser, at ingen trækker på fortovet, for så at cykle den længere vej til Alhedestien - der cykles på fortovet hele vejen - kom selv ud og se efter en hvilken som helst hverdag kl. 8-8.10).

- For elever, der skal krydse Egeskovvej, for at cykle til Friskolen

- forældre, der skal krydse Egevkovvej, for at komme til de to daginstitutioner

- Børn/Unge, der skal i klub om eftermiddagen (også i myldretid)

- Unge, der går på efterskolen og skal krydse Egeskovvej.

Egeskovvej krydses mindst tre steder af MANGE elever, HVER morgen. Men der er kun plantænkt i én fodgængerovergang. Denne plan afspejler ikke virkeligheden. Der er behov for flere sikre, belyste overgange.

Det er ikke sikkert, men FARLIGT, at cykle på Egeskovvej, fordi chikanerne i bestemte tilfælde lægger op til, at cykel og bil kører frontalt mod hinanden. Ingen børn får lov at cykle på vejen af deres forældre. Det er simpelthen for farligt.

Den billigste løsning er flere sikre overgange. Den bedste løsning er en cykelsti. Der er plads til den på den vestvendte side af vejen.

Besøg også lige Hald Ege Skole om morgenen. Det er det vilde vesten. Få overholder trafikreglerne og som altid er det de svage trafikanter, der er i risiko for at blive kørt ned af fortravlede forældre.

Indsendt af Simon Olling Rebsdorf

bløde trafikanter

bekymringen for konsekvensen af byggeriet for de bløde trafikanter i Hald Ege, der skal krydse Egeskovvej i myldretiden, herunder appel til at kommunens sikrer en sikker skolevej - både for dem, der skal i folkeskolen, i friskolen, i daginstitutioner, efterskolen og klubben. Måske trafikken burde ledes helt uden om Hald Ege.

Indsendt af Tille Schøler

Fejlbehæftet vurdering af trafikfordeling fra Rideskolen

Jeg er bekymret for, at kommunen ikke vurderer den forventede mertrafik fra nye boliger i 499, 509 og 487 korrekt.

På borgermødet fremkom det, at der med de tre nye lokalplanforslag 499, 509 og 487 samt lukning af afkørsel til Vejlevej fra Kllbækvænget i alt vil komme 1.200 flere biler.

På mødet fremgik det yderligere, at under halvdelen vil køre mod nord, ind i Viborg, nen under halvdelen forventes at køre sydover, gennem Hald Ege, for at komme dypå til fx. Silkeborg, Ikast, Herning, Karup.

MEN: Kommunen glemmer, at langt de fleste af de, der skal nordpå, FØRST skal aflevere deres børn på Hald Ege Skole. Dvs. deres kørsler FORDOBLES gennem byen -til og fra skole, hver eneste morgen (eller de dage, hvor det regner eller børnene af andre årsager ikke cykler ad Alhedestien). Tendensen er, at forældre kører deres børn i skole. dette bør korrigeres, når den øgede trafikbelasgning ad Egeskovvej estimeres.

Og efter evt. byggeri bør der jo måles, hvad det øgede trafiktry så faktisk er.

Indsendt af Simon Olling Rebsdorf

Hvornår er NOK NOK?

Jeg deler de mange bekymringer og synspunkter, som er listet op i de mange glimrende høringssvar der allerede er indsendt. Og det ikke bare i forhold til boligområdet Egeskoven/Egeskovvej, men i høj grad også planerne omkring boligerne v. Kolbækken.

Dvs. bekymringer omkring:

- trafikforhold (i forvejen en udfordring gennem Hald Ege og v. Koldingvej)

- natur

- grundvand

- områdets sjæl og karaktér

- osv. osv. osv

Hvornår er det mon NOK? Er der slet ingen ambitioner i Viborg kommune om at vedligeholde og forskønne områderne i og omkring Hald Ege i stedet for at plastre det hele til med byggerier og dermed masser af biler!?

Indsendt af Helle Doktor Simonsen

22-01-2019 55

Indsigelse Egeskovej Hald Ege

Vi er meget bekymret over massiv stigende trafik på Egeskovej.

Der er mange bløde trafikanter der krydser vejen ifm skole idrætshal og institutioner.

Indsendt af Niels Ole Bech

Trafik på Koldingvej iforb m Nybyggeri på Egeskovvej

Jeg vil blot sikre mig, at man er opmærksom på den nuværende morgentrafik på koldingvej i nordgående retning, navnligt ved t kryds v Marsk Stigsvej og ikke mindst v krydset Marsk Stigsvej/gl Århusvej

De bløde trafikanter har rigtig dårlige vilkår .. Særligt dem der skal krydse Marsk Stigsvej idet at travle/utålmodige højresvingende morgenbilister fra Koldingvej meget nemt og hyppigt overser cyklisterne .. Vi har altså i forvejen et problem med den tunge morgentrafik på koldingvej (stærkt forværret af parkerede på kørselsbanen i begge retninger) og jeg frygter naturligvis hvad det vil betyde med den forestående massive forøgning af bilister på vejen.

Jeg ser iøvrigt også dagligt hvordan skolebørn der sættes af på koldingvej i nordgående retning med livet som indsats forsøger at krydse vejen til Søndre Skole

Indsendt af Irene Krabbe

Byggeri på Egeskovvej

Det ville være ønskeligt om man i forbindelse med planlægning af nybyggeri på Egeskovvej havde startet op med et enkelt projekt, så man fik et ordenligt billede af hvilken betydning det ville få for trafik belastning både på Egeskovvej, koldingvej og ikke mindst i Hald Ege, for det antagede støjniveau på Egeskovvej og for miliøet ikke mindst herunder vandmiljøet som også er diskuteret

Indsendt af Irene Krabbe

Trafik på Egeskovvej

Jeg frygter rigtig meget, at trafikken stiger meget mere end der kalkuleres med. Trafikken med de 1200 biler fra de to områder langs Egeskovvej holder ikke. Hvad med trafikken fra område 487? Er de talt med i de 1200 billister -det kan jeg ikke læse mig frem til.

Hvis man vælger at lukke Kolbækvej ud til Vejlevej, så vil de billister fra Viborg, der i dag kører via Koldingvej ud på Vejlevej køre igennem Hald Ege. Og det vil være en ekstra øgning af trafikken på Egeskovvej. Jeg vil gøre indsigelse mod denne lukning. Det har også betydning for os i Hald Ege, der f.eks. skal på Revas. Vi er flere der vælger at køre ud på Vejlevej med trailer i stedet for at skulle hele vejen igennem byen.

Konklusion: langt højere trafiktal på Egeskovvej, og en dårligere infrastruktur for Hald Ege.

Indsendt af Henrik Degn

Offentlig trafik

Når hastigheden på Egeskovvej nedsættes bliver det også mindre rentabel for den offentlige trafik at køre deres rute. Hvordan sikres det at Hald Ege stadig vil blive betjent af de nuværende busruter? Det gælder også de regionale ruter som rute 53 og X-bus

Indsendt af Christian Kragsig

Lokalplan 509

I forbindelse med den foreslåede udbygning i lokalplan 509 må det forventes, at trafikmængden gennem Hald Ege øges betydeligt.

Pt. befærdes Egeskovvej af ca. 2500 daglige motortrafikanter. Dette vil nødvendigvis stige. Hvor meget er naturligvis svært at vide, men koblet med lukningen af tilkørslen fra Kolbækvænget til A13, virker det ikke urimeligt ud fra de eksisterende trafikmålinger at antage en stigning til minimum 3500 daglige motortrafikanter. Eller ca. det halve af trafikken på Herningvej.

Egeskovvej er på ingen måde egnet til sådan en trafikmængde.

Dels vil skolevejen for mange børn, der i dag skal krydse Egeskovvej blive markant mindre sikker, dels vil støjgenerne vil denne forøgede trafikmængde i betydelig grad påvirke området langs Egeskovvej.

Indsendt af Kresten Kjær Jeppesen

Vandindvindingsområde til boring syd, Viborg

Miljørapporten for beskyttelse af vandindvindings-området Langs Egeskovvej står der fremført, at området med fordel kunne beskyttes i større grad ved en skovrejsning.

Det der er på tale nu er, at man i stedet for plante træer vil beplante området i stor stil med rækkehuse og huse med stor fare for at uheld kan opstå i.f.t. udledning af uønskede stoffer kommer ned i vores allesammens drikkevand, Jeg kunne læse i et læserbrev, at Viborgs vandforsyning har problemer med uønskede stoffer i drikkevandet. Hvorfor så ikke sikre vores drikkevand på lang sigt ved at lade området område fortsætte med sin status som rekreativt område.

Indsendt af Henrik Henrik Degn

Trafik gennem byen

De sidste 10-15 år har antallet af biler gennem Hald ege været stigende, til et niveau hvor grænsen er overskredet. Med de 3 nye boligområder bliver det kaos der i forvejen er, især ved skolen, morgen og eftermiddag endnu værre. Når et barn skal køres i skole kan det give 4X kørsel hvis forældren arbejder i viborg. Der skal gøres noget for at sikre skolevejen. Det kan ikke være rigtig at det kun er den nye borger man vil tiltrække der skal tilgodeses, mens forholdene bliver ringere for dem der allerede bor her. De 3 projekter kunne evt. give et økonomisk bidrag hertil.

Indsendt af Christian

Danmarks Naturfredningsforenings lokalafdelings bemærkninger til lokaplanforslag nr. 509 m.fl.

Se vedhæftede fil

Indsendt af Ebbe Vang-Pedersen

Vedhæftet fil

DN Viborg

Den 23. januar 2019

Til Viborg Kommune

Kommunen har den 3. december 2018 offentliggjort lokalplanforslag nr. 499 og 509 for 2 områder til boligbebyggelse langs Egeskovvej. Lokalplanforslag nr. 487 for et område i Hald Ege ligeledes til boligbebyggelse blev offentliggjort den 17. januar 2019.

DN ser med forundring, at Viborg Kommune har fremsat disse 3 lokalplanforslag mellem Viborg og Hald Ege.

Hele dette område ligger i område 5 i den uformelle planlægning "Plan 09" med følgende anvendelsesbestemmelser:

"Hald Sø og Hald Ege er et af Viborgs mest pittoreske naturområder, og skal bevares som sådan. Der skal ikke ske yderligere byudvikling, og de landskabelige, geologiske, naturmæssige og kulturhistoriske kvaliteter, der er i området, skal bevares. Området skal fastholdes og udvikles som kulturrigt, rekreativt udflugtsmål".

Dette synes formelt delvist fulgt op i Kommuneplan 2017, hvor hele området omfattet af lokalplanforslag 509 og den væsentligste del af området omfattet af lokalplanforslag 499 er udlagt til rekreativt grønt område.

Det er skuffende, at Byrådet er så respektløs over for sin egen planlægning også i betragtning af, at Byrådet for godt et år siden vedtog "Kommuneplan 2017", der ikke forudsatte planlægning for byudvikling mellem Viborg og Hald Ege.

Konkret kan lokalplanlægningen kun genføres, såfremt skovbyggelinjen indskrænkes eller der dispenseres til hvert enkelt byggeprojekt. Kommunen vil søge skovbyggelinjen indskrænket til 30 m.

DN kan af principielle grunde ikke anbefale, at skovbyggelinjen generelt søges reduceret for så store områder.

Såfremt lokalplanlægningen bliver gennemført, bør det sikres, at den økologiske forbindelseslinje omkring Kolbækken får en naturmæssigt ordentlig udformning ved den nye vejføring ved Vejlevej.

Med venlig hilsen

DN Viborg

Indsigelse

Planforslaget vil øge trafikken på en i forvejen trafikeret vej (Egeskovvej) til fare for fodgængere og cyklister.

Indsendt af Tina Poulsen

Indsigelse mod lokalplan forslag 509

Indsendt af Lena Faurskov

Vedhæftet fil

Indsigelse mod lokalplan 509

Jeg er for alt fornuftig vækst og byudvikling for Hald Ege og især for Hald Ege skole.

Men løsningen til vækst, må kunne findes uden at øge usikkerheden for cyklister og gående der færdes på Egeskovvej.

Af forslagene fremgår det, at alt trafik til de nye områder skal gå via Egeskov vej og at adgangen fra koldingvej ved Kolbækvænget til vejlevej lukkes samtidig. I er udmærket bekendt med at der er en stor mængde trafik daglig allerede nu fra koldingvej til Vejlevej. Disse biler inklusiv de biler til de nye områder skal nu væk fra området via Egeskovvej.

Hvad er det som gør at de nye kvarterer fra disse lokalplaner vægtes højere end trafik sikkerheden for børnenes skolevej til henholdsvis Hald Ege skole og Friskolen i Hald Ege?

Med hensyn til Viborg Rideskole. De er pt omgivet af marker og benytter i dag de berørte områder, og har historisk se benyttet dem altid. I mange år som parkering i forbindelse med Stævner og nu som hestefold. Ønsker I at spærre rideskolen inde i et villakvarter?

Jævnligt, - især i de forårs og sommermåneder måneder møder vi ryttere til hest, der skal krydse koldingvej/egeskovvej. Et faktum er at med en øget mængde biler deromkring vil skabe en større usikkerhed for trafikanterne til hest. Det kan i perioder være svært nok for en hel flok på hest at krydse vejen.

Naturen

I den anden ende af Hald Ege har hal byggeriet taget sin lange tid og skulle gå i et med naturen og parkeringspladser kunne der kun skabes få af pga fredskov. Og jeg har været glad for, at man har taget så meget hensyn til naturen ifm dette byggeri. Men i den nordlige ende ønsker I at tilbygge naturen med villaer klods op af skov, gravhøje og kolbækken.

Hvad med dyrelivet i skoven? Jeg er ikke biolog og ved ikke hvad der sker med dyrene når vi fratager dem deres normale områder. Men fakta er at en stor mængde af råvildt jævnligt krydser Egeskovvej imellem Viborg og Hald Ege. Hvordan forklarer man lige disse dyr at nu skal I holde jer til den ene side, for vi tager naturen på den anden side af vejen til beboelse?

Jeg har stor opbakning til Viborg kommune, og er glad for mange af de ting I får udført, men kære politikere, - det her må I simpelthen kunne gøre bedre. Hvorfor kæmpe så intens for, at få lov at udstykke et område til boliger, hvor I er fuldt bekendt med, at der er nødt til at søges dispensation for overhovedet at kunne realisere det, og hvor der samtidig hersker så meget veldokumenteret og velbegrundede argumenter imod projektet.

Med venlig hilsen

Lena og Erik Faurskov

Slugten 7

8800 Viborg

Trafikbelastning af Egeskovvej

Lokalplanforslag 509, Indsigelse

Etablering af nye boligområder influerer selvsagt på nærområderne.

Viborg Kommune forventer, at trafikmængden på Egeskovvej øges med op til 1200 biler dagligt.

En del (måske 50%) vil køre gennem Hald Ege og medvirke til at øge den i forvejen tætte morgen- og eftermiddagstrafik. Grundet manglende cykelsti langs Egeskovvej gennem Hald Ege er det i forvejen ikke trygt for skoleelever at cykle ad eller krydse Egeskovvej.

Ligeledes vil støjbelastningen for beboerne langs Egeskovvej øges.

Skulle de påtænkte bebyggelser alligevel blive realiseret, vil jeg derfor opfordre til, at trafikplanlægningen gennem Hald Ege gentænkes.

Indsendt af Steen Christensen

Kommuneplan 2017-2029

Jeg gør hermed indsigelse mod at Kommuneplanen 2017 - 2029 ændres så tidligt efter vedtagelsen, altså i 2018, således at delområde 2 ikke længere er rekreativt, grønt område som vedtaget.

Det virker helt utroværdigt at så store beslutninger revideres så hurtigt efter vedtagelsen og giver mistro til politikernes dømmekraft.

Indsendt af Søren Rasmussen

Indsigelse mod de nye lokalplaner 487, 499 og 509

Vi har boet i Hald Ege i næsten 17 år, og det er med stor bekymring, at vi læser om Viborg Kommunes nye lokalplaner for området.
I forslagene fremgår der ikke, hvorledes byggeplanerne vil påvirke beboerne og lokalsamfundet i Hald Ege.

Hald Ege er et attraktivt landsby at bosætte sig i, idet byen har meget omkring liggende natur. Den skønne natur vil vi gerne bevare.
Hvorfor skal ALLE grønne områder omkring Viborg bebygges?

Hald Ege har status som "Landsby" - det forsvinder ved bebyggelse af lokalforslagene.

Der er ikke brug for de boliger, der er i høring. Undersøgelser viser, at tilflytningsprocenten ikke er på højde med byggeprocenten.
Så hvorfor ALLE de udstykninger?

Hvordan kan der bygges på et rekreativt område?
Det er et af de smukkeste strækninger mellem Viborg og Hald Ege. Det er et enestående naturområde.

Det er sørgeligt, at vi alene har politiker, som tilgodeser byudvikling i naturskønne områder, der er mange øde og "døde" byer i Viborg Kommune, hvor det vil give større mening med byudvikling.

Yderligere må vi ikke glemme vores bynære Viborg Rideskole. Den største og mest velfungerende rideskole i Viborg Kommune med god økonomi (det er lang fra alle), og en skøn beliggenhed. Viborg rideskole er den eneste rideskole i Viborg kommune med masser af udenomsplads, der er mange folde og gode muligheder for turridning i den nærtliggende skov. Det vil blive væsentligt indskrænket, hvis lokalplanen for området bliver vedtaget.

Indsendt af Bodil

Indsigelse mod forslag til planændring

Jeg ønsker hermed at gøre indsigelse mod forslag til ændring af lokalplan 509. Indsigelsen begrundes i manglende begrundelse for behovet for planændrig og yderligere boligmasse i Viborg, manglende trafiksikring, manglende undersøgelse af konsekvenser for dyreliv i området og øget risiko for nedsivning af miljøfremmede stoffer til grundvandet. Se venligst vedhæftede bilag for yderligere detaljer i indsigelsen

Indsendt af Birgitte Krogh-Poulsen

Vedhæftet fil

Forslag til Lokalplan 509/tillæg til kommuneplan 26 i offentlig høring fra 3. december 2018 til 28. januar 2019

Indsigelse mod vedtagelse af forslaget

Jeg ønsker hermed at gøre indsigelse mod ovennævnte forslag til ændring af lokalplan/kommuneplan som følger:

1. Helt overordnet finder jeg det ikke tilstrækkeligt belyst i forslaget, hvorfor netop dette byggeri er til fordel for Viborg Kommune og kommunens borgere. Det fremgår blot, at byrådet ønsker at fremme byudviklingen i området, men ikke hvorfor byudvikling i området, som i dag er landzone udlagt til rekreativt formål er ønskværdig. I lyset af, at der i øjeblikket bygges og udstykkes til beboelse flere steder i kommunen, og især i Viborg by, finder jeg det ikke tilstrækkeligt godtgjort, at der er behov for yderligere byudvikling. Jeg har ikke kunnet finde en samlet oversigt over antal boliger under udstykning og opførelse men et forsigtig estimat, udregnet af en anden borger, lyder på ca. 5000 boliger i de igangværende og allerede godkendte projekter. Det antal, hvis det er korrekt (og jeg skal hermed opfordre Viborg kommune til at offentliggøre let tilgængelig information om antal nye enheder under opførelse i kommunen) opfylder rigeligt det boligbehov, som kan forventes, hvis Viborg kommunes egen fremskrivning, som forudser en tilvækst på knapt 9000 nye borgere frem til 2033, holder stik. Fremskrivningen er betydeligt højere end den fremskrivning for Viborg kommune, som man kan finde på Danmarks Statistiks hjemmeside. Her regner man med kun lige godt det halve antal nye borgere from til 2033. Viser det sig, at Danmarks Statistiks fremskrivning er mere akkurat – og at der derfor kommer til at ”mangle” lige knapt 3700 nye borgere i kommunen - vil øget boligbyggeri potentielt også underminere de eksisterende projekter, særligt Taphede og Arnbjerg, hvor der også bygges/planlægges en-families huse.

2. Jeg finder det yderst problematisk, at et rekreativt område kan nedlægges inden for mindre end to år efter vedtagelse af gældende kommuneplan. Det kunne betragtes som

dårligt politisk håndværk og/eller forvaltningsskik at fremsætte så betydelige ændringer ganske kort tid efter vedtagelse af kommuneplanen og jeg undrer mig over processen, særligt når man tager i betragtning at Planloven (§ 11) forudsætter at kommunen gennemfører en rummelighedsanalyse som grundlag for kommuneplanen. Det undrer mig, at behovet for boliger langs Egeskovvej ikke stod klart ved udarbejdelse af rummelighedsanalysen, som jeg formoder blev udarbejdet, i forbindelse med Kommuneplanen fra 2017. Derfor opfordrer jeg til, at man genovervejer hvorvidt der overhovedet er brug for nye udstykninger/boliger i Viborg. Dette skal især ses i lyset af, at allerede vedtagne byggeprojekter vil forøge boligmassen betydeligt og give adgang til tilstrækkeligt med boliger, selv hvis kommunens befolkningsfremskrivning holder (som beskrevet ovenfor). Jeg skal derfor gøre indsigelse mod projektet, da det ikke er godtgjort, at der er behov for nye udstykninger på et område, som er udlagt til rekreative formål.

3. Jeg undrer mig over ønsket om at nedlægge et af de rekreative områder som er med til at give stor værdi for Viborgs borgere. I Viborg Kommunes Landskabskaraktergennemgang vurderes området som af høj eller meget høj betydning i flere oplevelsesklasser, bl.a. ”skovfølelse”, ”kulturhistorie” og ”service og samvær”. En væsentlig grund til at bosætte sig i og omkring Viborg er områdets store naturværdier, ikke mindst de bynære grønne områder og den lette adgang til dem. Udlægges de bynære grønne områder til beboelse forsvinder en væsentlig grund til at besætte sig i byen. Derfor ønsker jeg at gøre indsigelse mod vedtagelse af forslaget, da det må forventes at få væsentlig visuelle og rekreative konsekvenser, der kan påvirke kommunen, byen og borgerne negativt på længere sigt. Viborg Kommunes befolkningsfremskrivning er allerede væsentligt mere optimistisk end Danmarks Statistiks prognose for Viborg Kommune og ødelægger man byens herlighedsværdi ved at bebygge bynære grønne områder, har det potentielt negative konsekvenser for befolkningstilvæksten. Denne form for manglende konsekvensanalyse i forslaget til ændring af lokalplan og kommuneplan gør forslaget ubæredygtigt, og jeg skal derfor gøre indsigelse mod forslagets vedtagelse.

4. Jeg vil gerne gøre indsigelse mod, at man bebygger et grønt område i landzonen uden at vurdere konsekvenserne for dyrelivet. Jeg finder at miljøvurderingen for projektet er mangelfuld da den ikke tager stilling til projektets konsekvenser for dyre- og planteliv i og omkring skoven i forbindelse med byggeriet. Man har blot ved screeningen vurderet, at der har været hyppig omlægning af arealet og at det betyder, at der ikke findes såkaldte bilag IV arter i området, til trods for at der er konstateret fredet og truet Grøn Køllelguldsmed i området. Derudover må bebyggelse forventes at have indflydelse på ikke truede dyrearters levesteder. Det gælder f.eks. de rådyr, som lever i området og som jævnligt krydser Egeskovvej. Jeg finder det mangelfuldt at forslaget til ændring af kommuneplanen ikke undersøger konsekvenserne for områdets dyreliv overhovedet og heller ikke vurderer risikoen for trafikuheld, der involverer vildt når trafikmængden øges.

5. Jeg finder det helt utilstrækkeligt at hverken projektforslag eller miljøvurdering indeholder bedømmelse af byggeriets betydning for sikkerheden på skolevejene til Hald Ege Skole og Søndre Skole. Øget trafik fra nye boliger må, alt andet lige, forventes at påvirke sikkerheden for skolebørn, som cykler og går til skole. Derfor finder jeg det utilstrækkeligt at miljøvurderingen udelukkende ser på trafiksikkerheden umiddelbart ud for bebyggelsen. Den bør som minimum undersøge evt. konsekvenser på de mest benyttede skoleveje og ved de to nærliggende skoler. Jeg ønsker at gøre indsigelse mod godkendelse af projektet, hvis det påvirker sikkerheden på skolevejene negativt, og ikke kun for børnene som kommer til at bo i de nyopførte boliger, men også de børn, som allerede bor i området og som skal færdes på/krydse Egeskovvej eller Gl Koldingvej for at komme i skole på Søndre Skole eller Hald Ege Skole.

6. Lukning af udkørsel til Vejlevej og øget trafikmængde fra nye boliger må forventes generelt at påvirke trafikmængden på Egeskovvej gennem Hald Ege og på Gl. Koldingvej, som minimum indtil opkørsel til A13/Finderupvej. Særligt krydset omkring Finderupvej/opkørsel til A13 er i dag allerede stærkt trafikeret og det forekommer yderst mangelfuldt at miljøvurderingen ikke konsekvensberegner på hverken trafiksikkerhed eller støjgener langs Gl. Koldingvej og Egeskovvej frem til udkørsler til hovedvejene. På den baggrund ønsker jeg at gøre indsigelse mod godkendelse af projektet, hvis ikke der udarbejdes foranstaltninger til at mindske støjgener og sikre sikker afvikling af trafikken på Gl. Koldingvej og Egeskovvej from til udkørsel til hhv. Vejlevej og Herningvej.

7. Ændringsforslaget lægger op til betydelige begrænsninger i byggefasen for at beskytte det grundvand som indvindes i området. Det er for så vidt godt og nødvendigt, men efterlader spørgsmål om, hvorvidt grundvandet vil være tilstrækkeligt beskyttet når boligerne er opført og beboerne ukrudtsbekæmper, vasker bil osv. på grundene. Da det ikke er muligt at forbyde private borgere at bruge for eksempel pesticider på egen grund (og selvom det var ville det være vanskeligt at håndhæve), må man antage at den betragtelige risiko for nedsivning af miljøfremmede stoffer, som miljøvurderingen beskriver, er en væsentlig langsigtet risiko, hvis området bebygges. Det er derfor et væsentligt spørgsmål, om det overhovedet er til gavn for kommunens borgere at der bygges på jorden eller om kommunen og borgerne samlet set er bedre tjent med at området forsat udlægges til rekreativt område for at beskytte vandindvindingen mest muligt? Ikke mindst i lyset af de senere års problemer med at sikre rent drikkevand flere steder i landet. Projektbeskrivelsen mangler en fyldestgørende redegørelse for, hvorfor netop dette projekt er til gavn for kommunen, for at man kan vurdere om øget risiko for drikkevandsindvindingen til Sydbyen, opvejes af et større perspektiv. Jeg skal derfor gøre indsigelse mod godkendelse af projektet så længe det ikke kan garanteres at projektet ikke medfører øget risiko for forurening af grundvandet og dermed Sydbyens drikkevand.

Eksisterende egetræer langs Egeskovvej ønskes bevaret

I lokalplanforslagets §9 stk. 5 er anført:

"Eksisterende egetræer langs Egeskovvej, skal så vidt muligt bevares"

Det er et udbredt ønske, at der skabes sikkerhed for, at egetræerne langs Egeskovvej forbliver uanset en evt. udstykning.

Derfor ønskes det, at ordene "så vidt muligt" udgår af en evt. lokalplan.

Ønsket om ændringen blev også rejst på borgermødet den 17. januar.

Her gav projektets talsmand klart udtryk for, at ønsket var i overensstemmelse med deres planer.

Med baggrund heri ønskes § 9 stk. 5 ændret til følgende:

"Eksisterende egetræer langs Egeskovvej skal bevares"

Da projektets talsmand under borgermødet kunne tiltræde ønsket, må en imødekommelse heraf være uproblematisk.

Indsendt af Bjarne Dige

Indsigelse mod bebyggelse oven på grundvandsreserve

Der ønskes at bygge ovenpå en grundvandsreserve, som vi som borgere ikke har råd til at risikere bliver forurenet. I Rambøll rapporten fremgår det,at der er tale om et følsomt grundvandsområde. At der under byggeprocessen og i valg af byggematerialer skal tages forholdsregler i forhold til risiko for forurening. Hvis byggeriet bliver gennemført vil beboere efterfølgende kunne foretage grundvandsforurening gennem brug af vejsalt, insektbekæmpelse, pesticider i forhold til ukrudtsbekæmpelse samt gødning på græsplæner og bede. Der udover er der risiko for at beboere vil vaske deres bil på matriklen. Alt sammen noget man kan have en intention om at ville regulere gennem regler i en grundejerforening, men som i praksis ikke er muligt at håndhæve. Dette taler for at fastholde en status quo for området.

Indsendt af Peter Holberg

Støjniveauet fra Egeskovvej

I lokalplanforslaget fremgår det at man vil reducere støjpåvirkningen fra Egeskovvej ved at reducere hastigheden. Kommunen har fornylig foretaget trafik tælling i Hald Ege på Egeskovvej ud for nummer 35. Her blev det konstateret at en stor del af bilisterne overtræder hastighedsgrænsen på maksimalt 50 km i timen, en endnu større del overtræder den anbefalede hastighed på 40 km i timen. Dette i et så stort omfang at Midt- og Vestjyllands politi i henvendelse fra kommunen har svaret at man anbefaler kommunen at gøre tiltag i trafik foranstaltningerne for at dæmpe farten. Således vil kommende beboere i udstykningen blive udsat for støjforurening over den tilladte grænse på 59DB, da det i praksis ikke vil være muligt at håndhæve en hastighedssænkning på 50 km i timen forbi de påtænkte udstykninger.

Indsendt af Peter Holberg

Helhedsindtrykket i forhold til kultur og natur

En del af helhedsindtrykket når man færdes, er variation i landskab natur og bebyggelse. Markerne ved lokalplanforslag 509 giver et naturligt udsyn til det åbne landskab og skaber den variation i kontrasten mellem at kunne se kort og langt. At foretage den ændring i landskabet svarer til at man valgte at sløjfe eksempelvis Nytorv eller Borgvold for at bebygge det. To steder som har en værdi for byen og helheden i bybilledet. På samme måde har markerne den funktion i at skabe helheden i landskabet, hvilket ikke må forsvinde.

Indsendt af Peter Holberg

Hensyn til vildtet og indskrænkning af dyreveksler

Vildtets muligheder for at krydse Egeskovvej bliver væsentligt reduceret, og vil medføre en væsentlig øget risiko for påkørsel af krydsende dyr. Passagen vil med de påtænkte lokalplan forslag reduceres med 700 meter, hvilket svarer til en reduktion på ca. 50 %

Indsendt af Peter Holberg

Viborg Rideklub

Viborg rideklub en vigtig aktivitet i foreningslivet i Viborg. Det er en af Midtjyllands største rideklubber med 100 heste og 400 medlemmer. Det er en aktiv klub som har behov for plads både fysisk og i borgernes mentalforståelse. Det frygtes at den påtænkte udstødning vil medføre beboer klager over støj trafik og lugtgener når først de nye naboer måtte flytte ind i udstykningerne. Noget som er set i kommunen i forbindelse med udstykningen i Møgeltoft, hvor naboer klager over den lokale svinebonde, som har ligget der længe før udstykningen i Møgeltoft blev udmøntet.

Indsendt af Peter Holberg

Maksimal højde / antal etager

Såfremt lokalplanforslaget vedtages bør den maksimale højde og antal etager reduceres til det af Philipsen Gruppen fremlagte forslag til bebyggelse i ét plan. Dette bør indskrives i lokalplanens bestemmelser. Svarende til maksimalt 4,5 meters højde.

Indsendt af Peter Holberg

NEJ til dette byggeri!

Indsigelse mod byggeri!

Et unikt og æstetisk område, som vi, der færdes på Egeskovvej hver dag – endnu kan glædes over - står over for en massiv forandring – i min optik en ødelæggelse, en ”natur- og områdeafvikling” som er uigenkaldelig!

Med denne indsigelse viser jeg min store bekymring, at hvis byggeriet bliver en realitet vil vi stå med en ødelagt natur, en øget trafik og trafikstøj, skæmmende støjvolde, smukke gamle egetræer, som ikke længere hilser os velkomne på vores køretur til Hald Ege, fredede dyrearter der forsvinder, grundvandsindvindingen som lades hånt om, et grønt rekreativt område ved Koldbækken forsvinder etc. etc.

Husk, at måden hvorpå vi nu og her behandler og forvalter vores natur og miljø er i sidste ende den arv vi giver videre til vore børn og de kommende generationer!

Så derfor - et rungende NEJ til dette byggeri!!!

Indsendt af Ulla Hedegaard

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Indsigelse

se venligst vedhæftede

Indsendt af Helge Moustsen

Vedhæftet fil

Forslag til lokalplan 499/tillæg til kommuneplan 19 og til Lokalplan 509/tillæg til kommuneplan 26 i offentlig høring fra 3. december 2018 til 28. januar 2019

Jeg vil gerne gøre indsigelse mod byggeprojekterne af følgende grunde.

I kommuneplanen fra 2017 er det vedtaget at området er udlagt til rekreativt område i landzone. Kort tid efter vedtagelse af kommuneplanen starter kommunen en proces for at ændre området til byzone. Hvis dette skal give mening burde byrådet angive årsagen til dette holdningsskifte. Jeg har desværre ikke fundet en eneste begrundelse i forslaget til ændring af kommuneplanen fra kommunen. Når Byrådet ændrer kommuneplaner og lokalplaner kort efter de er vedtaget, uden argumenter for ændringer, bliver borgere og tilflyttere nervøse, og ikke kun i området omkring den aktuelle udstykning. Kan man for eksempel købe hus i Arnbjerg uden at der kommer et højhus i baghaven?

Kommunen har oplyst, at de ikke ved hvor mange byggerier de har tilladt i Viborg. En privat borger har derfor forsøgt at opgøre hvor mange borgere, der bygges/udstykkes til. Ved 3 personer pr. husstand bliver det til ca. 15.000 mennesker. Danmarks Statistik vurderer en befolkningstilvækst i hele kommunen på 3860 i de næste 10 år. Der planlægges dermed langt flere boliger end der er behov for. Når der er større udbud end efterspørgsel vil huspriserne falde i hele Viborg. Der vil være flere, der bliver stavnsbundet og så længe der forventes yderligere fald i huspriser vil der være færre købere, hvilket igen får priserne til at falde yderligere.

Når der planlægges flere boliger i Viborg by end der er brug for i hele kommunen, kan det også være et bevidst valg fra Byrådet. Hvis politikerne ønsker, at der er flere mennesker, der flytter fra landsbyerne i Viborg kommune til Viborg by, er det et rigtigt valg at udbyde for mange boliger i Viborg. På denne måde kan man affolke landsbyerne i kommunen, så det bliver umuligt at opretholde de små lokalsamfund. Det er ikke mit indtryk, at det er byrådets ønske.

Områderne er udpeget som særlig følsomt vandindvindingsområde og miljørapporten fastslår, at der kun kan byudvikles inden for indvindingsområder, hvis det kan godtgøres, at der ikke er alternative placeringer. Byrådet har i Kommuneplanen fastlagt alternative placeringer, hvor der må bygges, så alene af den grund burde ændring af lokalplanerne stoppes da det ikke er godtgjort, at der ikke findes alternative placeringer.

Miljørapporterne bliver udarbejdet for at sikre miljøet mod uhensigtsmæssige byggerier. I dette tilfælde har de to rapporter ikke helt de samme konklusioner vedr. grundvandssikring og den ene er på 27 sider og den anden på 56 sider. Med så stor forskel på de to miljørapporter må der være tvivl om kvaliteten.

I miljørapporten for lokalplan 509 beskrives på s. 48 at der skal etableres bassiner i den sydlige ende til overfladevand, så de er max er 2 meter under det naturligt beliggende terræn. Derudover ligger der et

deklarationsareal i den sydlige ende, hvor der ikke må fortages bebyggelse, ske terrænregulering og beplantning med dybdegående rødder. Når jeg samtidig kan læse i lokalplanen "*Det fastlægges i lokalplanen at der kan terrænreguleres således at det nødvendige fald til regnvandsbassiner sikres*" bliver jeg lidt forvirret. Betyder det at bygherren vil se bort fra deklarationsarealet eller vil man køre ekstra jord på området? Hvis der skal ekstra jord er det ikke beskrevet, hvordan kommunen sikrer at jorden ikke indeholder giftstoffer.

Miljørapporten foreslår også, at der laves et forbud mod at benytte vejsalt. Når selv almindeligt vejsalt kan ødelægge grundvandet til vores vandværk virker det ikke fornuftigt at bygge på disse områder.

Forvaltningen har desværre ikke lave konkrete beregninger af trafikken på Koldingvej og gennem Hald Ege. På borgermøde blev det fremlagt af forvaltningen, at der ville komme 1200 biler ekstra, der ville køre enten til Viborg eller til Hald Ege. Forvaltningen var ikke klar over om der var indregnet den ekstra trafik, der kommer i forbindelse med lukning af udkørsel til Vejlevej fra Kolbækvænget. Jeg forstår ikke, at politikkerne ikke kræver et ordentligt beslutningsgrundlag, specielt når skolevejen bliver betydelig farligere for de to skoler, der bliver direkte påvirket. Jeg synes det kræver grundigere undersøgelser, når børns liv står på spil.

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Indsigelse

se venligst vedhæftede

Indsendt af Helge Moustsen

Vedhæftet fil

Forslag til lokalplan 499/tillæg til kommuneplan 19 og til Lokalplan 509/tillæg til kommuneplan 26 i offentlig høring fra 3. december 2018 til 28. januar 2019

Jeg vil gerne gøre indsigelse mod byggeprojekterne af følgende grunde.

I kommuneplanen fra 2017 er det vedtaget at området er udlagt til rekreativt område i landzone. Kort tid efter vedtagelse af kommuneplanen starter kommunen en proces for at ændre området til byzone. Hvis dette skal give mening burde byrådet angive årsagen til dette holdningsskifte. Jeg har desværre ikke fundet en eneste begrundelse i forslaget til ændring af kommuneplanen fra kommunen. Når Byrådet ændrer kommuneplaner og lokalplaner kort efter de er vedtaget, uden argumenter for ændringer, bliver borgere og tilflyttere nervøse, og ikke kun i området omkring den aktuelle udstykning. Kan man for eksempel købe hus i Arnbjerg uden at der kommer et højhus i baghaven?

Kommunen har oplyst, at de ikke ved hvor mange byggerier de har tilladt i Viborg. En privat borger har derfor forsøgt at opgøre hvor mange borgere, der bygges/udstykkes til. Ved 3 personer pr. husstand bliver det til ca. 15.000 mennesker. Danmarks Statistik vurderer en befolkningstilvækst i hele kommunen på 3860 i de næste 10 år. Der planlægges dermed langt flere boliger end der er behov for. Når der er større udbud end efterspørgsel vil huspriserne falde i hele Viborg. Der vil være flere, der bliver stavnsbundet og så længe der forventes yderligere fald i huspriser vil der være færre købere, hvilket igen får priserne til at falde yderligere.

Når der planlægges flere boliger i Viborg by end der er brug for i hele kommunen, kan det også være et bevidst valg fra Byrådet. Hvis politikerne ønsker, at der er flere mennesker, der flytter fra landsbyerne i Viborg kommune til Viborg by, er det et rigtigt valg at udbyde for mange boliger i Viborg. På denne måde kan man affolke landsbyerne i kommunen, så det bliver umuligt at opretholde de små lokalsamfund. Det er ikke mit indtryk, at det er byrådets ønske.

Områderne er udpeget som særlig følsomt vandindvindingsområde og miljørapporten fastslår, at der kun kan byudvikles inden for indvindingsområder, hvis det kan godtgøres, at der ikke er alternative placeringer. Byrådet har i Kommuneplanen fastlagt alternative placeringer, hvor der må bygges, så alene af den grund burde ændring af lokalplanerne stoppes da det ikke er godtgjort, at der ikke findes alternative placeringer.

Miljørapporterne bliver udarbejdet for at sikre miljøet mod uhensigtsmæssige byggerier. I dette tilfælde har de to rapporter ikke helt de samme konklusioner vedr. grundvandssikring og den ene er på 27 sider og den anden på 56 sider. Med så stor forskel på de to miljørapporter må der være tvivl om kvaliteten.

I miljørapporten for lokalplan 509 beskrives på s. 48 at der skal etableres bassiner i den sydlige ende til overfladevand, så de er max er 2 meter under det naturligt beliggende terræn. Derudover ligger der et

deklarationsareal i den sydlige ende, hvor der ikke må fortages bebyggelse, ske terrænregulering og beplantning med dybdegående rødder. Når jeg samtidig kan læse i lokalplanen "*Det fastlægges i lokalplanen at der kan terrænreguleres således at det nødvendige fald til regnvandsbassiner sikres*" bliver jeg lidt forvirret. Betyder det at bygherren vil se bort fra deklarationsarealet eller vil man køre ekstra jord på området? Hvis der skal ekstra jord er det ikke beskrevet, hvordan kommunen sikrer at jorden ikke indeholder giftstoffer.

Miljørapporten foreslår også, at der laves et forbud mod at benytte vejsalt. Når selv almindeligt vejsalt kan ødelægge grundvandet til vores vandværk virker det ikke fornuftigt at bygge på disse områder.

Forvaltningen har desværre ikke lave konkrete beregninger af trafikken på Koldingvej og gennem Hald Ege. På borgermøde blev det fremlagt af forvaltningen, at der ville komme 1200 biler ekstra, der ville køre enten til Viborg eller til Hald Ege. Forvaltningen var ikke klar over om der var indregnet den ekstra trafik, der kommer i forbindelse med lukning af udkørsel til Vejlevej fra Kolbækvænget. Jeg forstår ikke, at politikkerne ikke kræver et ordentligt beslutningsgrundlag, specielt når skolevejen bliver betydelig farligere for de to skoler, der bliver direkte påvirket. Jeg synes det kræver grundigere undersøgelser, når børns liv står på spil.

Beskyttelse af grundvands ressourcen

Indsendt af For Lars Kirkegaard (j. Buus)

Vedhæftet fil

Til Viborg Byråd
Grundejerforeningen i Gl. Hald Ege protesterer imod ændringen i Kommuneplan 2017-2029,
I Kommuneplanen er området langs Egeskovvej udlagt som "Grønt rekreativt område" Blandt andet for at beskytte vandindvindingsområdet på lokaliteten.
I lokalplanerne 499 og 509 åbnes der op for byggeri oven på dele af vandreservoiret.
Vi finder ikke, at Viborg Kommune overholder Statens retningslinjer om at, "der kun kan byudvikles indenfor indvindingsoplande, hvis det kan godtgøres, at der ikke er alternative placeringer".
Skal ovenstående fravælges, skal det begrundes, og andre områder undersøgt og fravalgt, hvilket vi ikke kan finde oplysninger omkring.
Viborg Amt har tidligere nedlagt forbud mod bebyggelse.
Kravene er ændret fra dengang, men nok ikke blevet mindre restriktive.
Vi henviser også til Naturstyrelsens rapport for Viborg Syd 2011, hvoraf det fremgår at tiltagene til forbedring af vandkvaliteten bør foregå i områder nærmest kildepladsen – altså ikke som her bebygges.
Vi har tidligere i Hald Ege frem til omkring 1978 haft eget vandværk fra en boring i egeskoven vest for Egeskovvej. Den blev lukket grundet stof fra ørnebregner og ikke mindst pesticider fra Kurens meget store køkkenhave, fra dengang da området tilhørte Forsorgen. Det bør ikke gentages.
Vi ønsker at bevare vores drikkevand – det bør kommunen også.

MVH Lars Kirkegaard formand for Hald Ege Grundejerforening.

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Bebyggelse langs Egeskovvej

Indsendt af Else Marie Buus

Vedhæftet fil

" Hald Ege er ikke verdens navle"
Nej, Hald Ege er ikke verdens navle men en landsby omgivet af fredsskov med hvad der dermed følger af glæder og begrænsninger.
Nu støtter byrådet to grundejeres ønsker om udstykning af deres jord, hvorved der inddrages arealer, der så sent som i 2017 i kommuneplanen, var kategoriseret som grønt rekreativt område. Byskiltet flyttes nogle hundrede meter og Viborg bliver større.

Hvad rager det Hald Ege ?
Det er forøgelsen af trafikken, der bekymrer.
Der er tre børne-institutioner, to skoler (som begge har meget skolebus-kørsel), gennemgående busruter og kørsel til og fra arbejde.
Der er hastighedsbegrænsning og chikaner, der skal nedsætte hastigheden. Ja, men som danner trafikpropper på den smalle vej og klemmer bløde trafikanter.

Bløde trafikanter kan jo benytte Alhedestien!
Det har ingen gang på jorden at forbyde forældre at køre deres børn i skole, når de alligevel skal aflevere børn i børnehave, skal på arbejde eller det regner.
Sæt et par videokameraer op et par steder i byen, ved skolen f.eks. og I vil kunne se hverdagssituationen.

Hvorfor må vi ikke snakke om det nu?
Med det tænker jeg på den trafikale situation, der opstår på Egeskovvej og Koldingvej, når lokalplan 487 udbygges.

Sidst og ikke mindst !
De landskabelige tab betyder nok mindre, når der er penge blandet ind i debatten.
Desværre.

Else Marie Buus

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Indsigelse for Ulla Nielsen (Jørgen Buus)

Indsendt af Jørgen Buus

<u>Vedhæftet fil</u>

26.01.2019

Til Viborg Kommune.

Indsigelse imod: "Lokalplanforslag nr. 509 og forslag til kommuneplantillæg nr. 26."

Jeg vil gerne gøre indsigelse mod byggeplanerne, da området er nitratfølsomt indvindingsområde (NFI) og indvindingsopland til Viborg Vandværk Syd. Det er altså et område med drikkevandsinteresser, og boringerne til Viborg Vandværk syd er kun 400m fra kanten at lokalplanområdet. Området er sårbart i forhold til grundvandsressourcen, da det vurderes, at der er hydraulisk kontakt til de underliggende sandmagasiner.

Miljørapporten foreskriver da også en række tiltag, såsom at render, grøfter samt vej- og parkeringsarealer etableres med tæt bund, og at der etableres nedsivningsbassiner, der skal håndtere overfladevand fra hele området med tilhørende renseforanstaltninger.

Citat fra miljøplanen: "Byggepladsen skal indrettes således, at optankning af maskiner og håndtering af stoffer sker på pladser, hvor et eventuelt spild kan opsamles og håndteres, uden risiko for jordbund og grundvand, da projektområdet er et NFI-område, og ligger indenfor indvindingsoplandet til Viborg Vandværk syd."

Desuden må problematiske tagmaterialer samt tagrender af zink og kobber ikke anvendes af bygherren, og der må ikke anvendes vejsalt til glatførebekæmpelse.

Disse påbud/begrænsninger fortæller med stor tydelighed, at det er et grundvandsområde, der er meget følsomt. Det giver derfor ikke mening, at en privat bygherre skal have tilladelse til at bygge på stedet med efterfølgende risiko for, at der sker en forurening. Det er særdeles vigtigt, at vi passer på vores drikkevandsressourcer, og de må til enhver tid være vigtigere end private, økonomiske interesser. Specielt, da Viborg i disse år har store attraktive udstykninger andre steder.

Venlig hilsen Ulla Nielsen.

Ulla Nielsen,

Brinken 8, 8800 Viborg.

Bemærkninger vedr. grundvand/drikkevand

Til Viborg Kommune, Teknik & Miljø

Vedhæftet bemærkninger fra Danmarks Naturfredningsforening Viborg til forslaget til lokalplan 509

Indsendt af Jens Ove Nielsen

Vedhæftet fil

DN Viborg
Kontaktperson:
Telefon: 31 70 48 44, e-mail: jensoveni@gmail.com

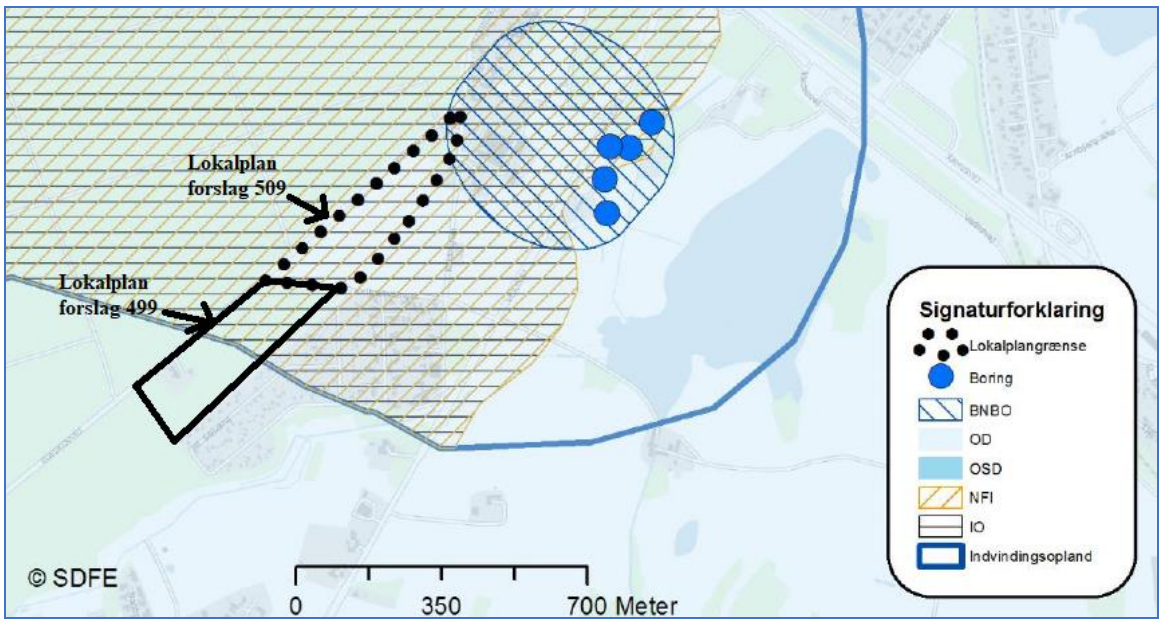
Danmarks Naturfredningsforening

Dato: 26-01-2019

Til: Viborg Kommune
Teknik & Miljø

Bemærkninger til forslag til lokalplan 509 - Boligområdet Egeskoven i Viborg

DN Viborg har set nærmere på grundvandsforholdene i lokalplan 499 og 509, som støder umiddelbart op til hinanden. Lokalplan 499 ligger delvist indenfor indvindingsoplandet til Viborg Vandværk Syd og lokalplan 509 ligger helt indenfor indvindingsoplandet. DN Viborg finder det bemærkelsesværdigt, at grundvandsforholdene vurderes noget forskelligt i de 2 lokalplaner, og det påkalder sig særligt opmærksomhed, at retningslinjerne vedrørende beskyttelsen af grundvandet er stærkest i lokalplan 499 som ligger længst fra vandværkets boringer og kun delvist indenfor indvindingsoplandet. Placeringen af de 2 lokalplanområder og indvindingsoplandet fremgår af følgende figur.



Figur 1: Lokalplanområde 499 og 509 samt drikkevandsinteresser

I miljørapporten for lokalplan 499 konkluderes følgende (side 23): *Foranstaltninger til beskyttelse af grund- og drikkevandsinteresser sikres gennem fastsættelse af en maksimal befæstelsesgrad samt krav om, at* ***nedsivning af tag- og vejvand skal foregå udenfor indvindingsopland til almene vandværker****.*

Dette følges op i lokalplanforslag 499, hvor det ifølge § 11.2 og kortbilag 2 – Anvendelsesplan – bestemmes, at nedsivning af regnvand og overfladevand skal ske i den sydvestligste del af lokalplan området helt udenfor indvindingsoplandet for vandværket, netop for at sikre beskyttelsen af drikkevandsressourcerne.
I lokalplanforslag 509 bestemmes, at regnvand og overfladevand kan nedsives i bassiner i den sydvestligste del af lokalplanområde 509 og dermed indenfor indvindingsoplandet for vand-

værket. I miljørapporten for lokalplanområdet konkluderes i afsnit 3.2: *Det vurderes på den baggrund, at planforslagene ikke vil give anledning til væsentlig påvirkning af indvindingsboringer og -magasiner i området.*

Der er en tydelig uoverensstemmelse i vurderingen af de hydrogeologiske forhold i de 2 lokalplaner, selvom den detaljerede kortlægning, der er gennemført i området, ikke afslører nogen forskelle. Det må derfor være klart, at det kortlagte indvindingsopland for Viborg Vandværk Syd skal respekteres i begge lokalplaner, altså, at nedsivningen af regnvand og overfladevand skal ske udenfor indvindingsoplandet, og dermed udenfor lokalplanområde 509.

I følge *Bekendtgørelse om krav til kommuneplanlægningen inden for OSD og indvindingsoplande,* skal kommunen udarbejde en særlig grundvandsredegørelse, hvis den planlægger for forurenende aktiviteter indenfor indvindingsoplande eller områder med særlige drikkevandsinteresser. Det skal herunder bl.a. undersøges om den pågældende aktivitet kan placeres et andet sted.

Det fremgår ikke af det fremlagte materiale, at kommunen har udarbejdet en sådan særlig redegørelse eller undersøgt om der kan udlægges boligområder andre steder i kommunen.

DN Viborg mener på denne baggrund, at lokalplan 509 ikke kan vedtages i den nuværende udformning. Der mangler særligt en redegørelse for, at boligområdet kun kan placeres netop her og særligt at nedsivningen af regnvand/overfladevand ikke kan ske andre steder end indenfor planområdet. DN Viborg er af den klare opfattelse, at nedsivningen ikke kan ske indenfor lokalplanområdet.

Med venlig hilsen

Jens Ove Nielsen
Bestyrelsesmedlem DN Viborg
Hovedgaden 36, Vejrumbro
8830 Tjele

Indsigelse vedr. trafik i forbindelse med lokalplan 499 og 509

I forbindelse med lokalplanerne 499 og 509 bliver udkørslen fra Kolbækvænget til rute 13 lukket og der bliver herved et væsentlig større trafikmæssigt pres på Koldingvej og Egeskovvej. Der skal ifølge planen laves et venstresvingsspor ved tilkørsen til det nye boligområde, men hvis den nuværende beplantning langs Egeskovvej som lovet skal bibeholdes, mener jeg ikke der er plads til en ekstra bane uden at trafikken kommer for tæt på egetræerne langs vejen. Af den øgede trafik vil en hel del komme til at gå gennem Hald Ege, som i forvejen er hårdt presset. Vi har jo en del rutebusser (rute 711 - 712 og 53) som kører gennem Hald Ege og som læsser passagerer af og på. Ved af op pålæsning opstår der ofte lange køer allerede nu og det vil blive væsentlig forøget, både med gennemkørende trafik og kørsel med skolebørn til Hald Ege Skole.

På mødet i Multisalen på kommunen d. 17. januar i år blev det nævnt at skolebørnene jo bare kunne bruge cykelstien som jo går direkte til skolen, men jeg tror da ikke at hverken mindreårige børn eller deres forældre vil bryde sig om at køre gennem en mørk skov - og da slet ikke om vinteren - når kun en del af vejen er oplyst - det vil blive kørsel i bil.

Hald Ege er en by hvor der ikke er de store muligheder for at udvide vejen, lave cykelsti eller lave støjdæmpende foranstaltninger, så når man påtænker at bebygge området ved Egeskovvej og tage mest mulig hensyn til de nye beboere der, flytter man jo bare problemet dobbelt til Hald Ege og Koldingvej. Opkørslen til Rute 13 fra Koldingvej vil blive et meget stort kaos. Forslaget er, at kommunen køber området og bibeholder det som vedtaget i den sidste lokalplan.

Poul G. Nielsen - Hald Ege

Indsendt af Poul G. Nielsen

Indsigelse mod lokalplan nr. 509

Området i lokalplan nr. 509 bør fortsat være udlagt som grønt, rekreativt område, som beskrevet i kommuneplanen. Vi beder derfor om, at der ikke bygges boliger i området.

Byrådet arbejder med bæredygtighed som et overordnet mål. Denne lokalplan er sammen med de to andre lokalplaner, der er foreslået om boliger i området, en meget stor udvidelse i antallet af boliger. Set med vores øjne er det en meget voldsom udvidelse - og bestemt ikke en bæredygtig udvikling. Dette synspunkt uddybes i det følgende:

I løbet af de senere år er der allerede bygget mange nye boliger i Hald Ege. Med de tre nye lokalplaner vil området blive udbygget med mere en 300 nye boliger.

Det er en meget voldsom vækst, som ikke kan undgå at få nogle uheldige konsekvenser for fremtiden.

En bebyggelse vil blandt andet medføre et stort tab af grønne områder - på et område som allerede er udlagt til grønt, rekreativt område. Det er ærgerligt, da vi og mange andre netop har bosat os i området på grund af naturen og de grønne områder. Vi ved, at der også er mange andre fra hele kommunen samt gæster udefra, der nyder den grønne strækning mellem Viborg og Hald Ege. Det vil være et stor tab, hvis Hald Ege og Viborg vokser sammen. Det er ærgerligt, hvis vi mister de bynære grønne områder, som er med til at give hele området karakter.

En så massiv udvidelse i antallet af boliger, som de tre lokalplaner samlet giver, vil også betyde en stor stigning i trafik både i Hald Ege og i Viborg. Der er i forvejen meget gennemkørende trafik i Hald Ege. Det vil være uheldigt at øge trafikken yderligere.

Det er også betænkeligt at bygges i et følsomt indvindingsområde for grundvand. Det er hele i kommunens interesse at beskytte grundvandet bedst muligt. Det gør man ikke ved at bygge i området.

Det, der gør området attraktivt, kan således let ødelægges. Lad ikke de kortsigtede interesser vinde over mere langsigtede interesser!

Indsendt af Annette og Lars Arp Andersen

Indsigelse mod lokalplan nr. 509

I lokalplan nr. 509 betegnes området Egeskoven – det er meget misvisende betegnelse, og ikke et navn, der bør anvendes.

Egeskoven ligger i Hald Ege – Det gælder blandt andet den gamle egeskov, som er en rigtig skov, andelsboligforeningen 'Egeskoven', Egeskovens Børnehave osv. Det vil være en hån at kalde lokalplanområde nr. 509 for Egeskoven.

Der bør i øvrigt slet ikke bygges i området, da området i forvejen er udlagt i kommuneplanen som grønt, rekreativt området. Det bliver ikke til en skov, bare fordi man kalder det 'Egeskoven'.

Indsendt af Annette og Lars Arp Andersen

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Indsigelse til lokalplan 509

Indsendt af Kristian Damsgaard

Vedhæftet fil

Indsigelser til lokalplan 509

Lokalplan 509 opfattes sammen med lokalplan 499 og 487 som helt vanvittige. Snedigt af kommunen at behandle disse 3 forslag enkeltvis. Ud af de 3 planer er 509 den som i mine ører lyder mindst tåbelig og uigennemtænkt – MEN den kan ikke stå alene! De 3 planer tilsammen vil ødelægge vores naturrige omgivelser, og især trafikmængden bliver en voldsom belastning for især Hald Ege!

De største problemer med netop lokalplan 509 kan uden at gå i detaljer nævnes:

- Grundvand: i netop dette område er undergrunden særlig grundvandsfølsomt
- Trafiksikkerhed. I miljørapporten for lokalplan 499 står der følgende: *"Selvom mertrafikken til projektområdet – alt andet lige – vil øge uheldsrisikoen, vurderes de konkrete trafikale løsninger, at bidrage til, at planforslaget samlet set ikke vil resultere i væsentlige forringelser af trafiksikkerheden."* Dette er ikke nævnt i miljørapporten for lokalplan 509, men sammen med lokalplan 499 bliver dette vel blot ENDNU værre.

Man kunne bruge timer på at opremse ulemperne ved dette projekt, men det gider jeg ærlig talt ikke, for det har jo helt sikkert ingen effekt!!!

Eneste fordel ved projektet er vel, at det er med til at holde alle vore rådyr væk fra Egeskovvej så vi slipper for at påkøre dem….

Farvel og tak til Hald Ege landsby – vi er jo snart en del af Viborg by…

Indsigelse mod lokalplan 509

Området i lokalplan 509 bør ikke bebygges. Det bør fortsat være udlagt som grønt område til glæde for alle borger i Viborg Kommune. Området omkring Hald Ege har en helt speciel karakter og bør derfor bibeholdes. At kommunen søger om dispensation fra skovbyggelinien er meget uheldig. Man børe respektere intensionerne med denne lovgivning, specielt hvis man som by vil promovere sig som grøn by.

mvh. Solveig Harksen

Indsendt af Solveig Harksen

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Indsigelser / spørgsmål

Indsendt af Anders Bjerre

Vedhæftet fil

Indsigelse til lokalplan nr. 509 og kommuneplantillæg nr. 26 - Boligområdet Egeskoven i Viborg.

Min indsigelse til ovenstående lokalplan går på følgende:

1. Egeskovvej og den smukke natur omkring denne.
   Er der taget højde for den trafikale påvirkning, af den smukke alle´ og skoven, når der forventes en belastning af området med yderligere ca. 200 boliger, samt en ekstra miljøbelastning på skønnet 300 biler tilhørende boligerne? Det kan ikke undgås at det må have store miljømæssige påvirkninger for skov om omgivelser!
   Skovene omkring Viborg er blevet et varemærke for Viborg, da den er omkranset af den smukke natur! (Se bare på Herning som er omkranset af motorvej. Ønsker vi at sammenligne os med det?)
2. Belastningen af Egeskovvej gennem Hald Ege.
   Denne vil også blive voldsomt belastet af den ekstra trafik som vil komme i forbindelse med 200 ekstra boliger.
   Er der taget højde for de små trafikanter/ skolebørn til skolen, cykelstier mv.?
   Kan Hald Ege Skole og Søndre Skole tage de ekstra børn som vil komme til?
3. Der er d. 21. juni 2017 vedtaget en kommuneplan, som ikke indeholder et boligområde ved Egeskovvej.
   Set udefra er det højest mærkeligt at man 6 mdr. efter vedtagelse af en så STOR politisk beslutning vælger at i gang sætte/ lave et tillæg og samtidig lokalplan forslag?
4. DET GRØNNE Ø, udarbejdet af klima og miljøudvalget.
   Vedtaget af byrådet d. 23. september 2015. Her ønskes Viborg omkranset af naturen adskilt af sø båndet på tværs. Hvor er den henne i denne sammenhæng her? Kommuneplanen vedtaget i 2017 bakker denne op med natur og ikke boliger ved Egeskovvej og dette område!

Hvorfor sætte gang i en så lille og kompliceret kommunalplanlægning, når man har hele Taphede som Viborgs fremtidige bydel. Her er der lavet målinger for den trafikale påvirkning over søerne.

Der etableres en ny skole som kan rumme fremskridtet, der satses på en ny bydel på 200 ha. Svarende til 1500 boliger ad åre!

Der er ingen skov, ingen miljømæssige hensyn at tage.

DET GRØNNE Ø forbliver her adskilt af naturlige istidslævn i form af det kuperede terræn.

- Viborg skal tænke større, bevare det natur som vi er kendt for, vi reklamerer for.
- Viborg skal ikke lave små projekter som vil skæmme den omkring liggende natur.
- Viborg har vokseværk, og derfor skal der satses på områder som ikke møder så massiv modstand som dette område her gør.

Mvh

Anders Bjerre

Nonbo Enge 22

8800 Viborg

27-01-2019 90

Indsigelse / spørgsmål

Indsendt af Christina Nielsen

<u>Vedhæftet fil</u>

Indsigelse til lokalplan nr. 509 og kommuneplantillæg nr. 26 - Boligområdet Egeskoven i Viborg.

Min indsigelse til ovenstående lokalplan går på følgende:

1. Egeskovvej og den smukke natur omkring denne.
   Er der taget højde for den trafikale påvirkning, af den smukke alle´ og skoven, når der forventes en belastning af området med yderligere ca. 200 boliger, samt en ekstra miljøbelastning på skønnet 300 biler tilhørende boligerne? Det kan ikke undgås at det må have store miljømæssige påvirkninger for skov om omgivelser!
   Skovene omkring Viborg er blevet et varemærke for Viborg, da den er omkranset af den smukke natur! (Se bare på Herning som er omkranset af motorvej. Ønsker vi at sammenligne os med det?)
2. Belastningen af Egeskovvej gennem Hald Ege.
   Denne vil også blive voldsomt belastet af den ekstra trafik som vil komme i forbindelse med 200 ekstra boliger.
   Er der taget højde for de små trafikanter/ skolebørn til skolen, cykelstier mv.?
   Kan Hald Ege Skole og Søndre Skole tage de ekstra børn som vil komme til?
3. Der er d. 21. juni 2017 vedtaget en kommuneplan, som ikke indeholder et boligområde ved Egeskovvej.
   Set udefra er det højest mærkeligt at man 6 mdr. efter vedtagelse af en så STOR politisk beslutning vælger at i gang sætte/ lave et tillæg og samtidig lokalplan forslag?
4. DET GRØNNE Ø, udarbejdet af klima og miljøudvalget.
   Vedtaget af byrådet d. 23. september 2015. Her ønskes Viborg omkranset af naturen adskilt af sø båndet på tværs. Hvor er den henne i denne sammenhæng her? Kommuneplanen vedtaget i 2017 bakker denne op med natur og ikke boliger ved Egeskovvej og dette område!

Hvorfor sætte gang i en så lille og kompliceret kommunalplanlægning, når man har hele Taphede som Viborgs fremtidige bydel. Her er der lavet målinger for den trafikale påvirkning over søerne.

Der etableres en ny skole som kan rumme fremskridtet, der satses på en ny bydel på 200 ha. Svarende til 1500 boliger ad åre!

Der er ingen skov, ingen miljømæssige hensyn at tage.

DET GRØNNE Ø forbliver her adskilt af naturlige istidslævn i form af det kuperede terræn.

- Viborg skal tænke større, bevare det natur som vi er kendt for, vi reklamerer for.
- Viborg skal ikke lave små projekter som vil skæmme den omkring liggende natur.
- Viborg har vokseværk, og derfor skal der satses på områder som ikke møder så massiv modstand som dette område her gør.

Mvh

Christina Nielsen

Nonbo Enge 22

8800 Viborg

27-01-2019 91

Indsigelse vedr. lokalplan 499 og 509 samt kommunetillægsplan nr. 19 og 26

Indsendt af Line Nielsen og René Skov Nielsen

Vedhæftet fil

Viborg Kommune
Teknik & Miljø, Plan
Prinsens Allé 5
8800 Viborg
plan@viborg.dk

27. januar 2019

Indsigelse vedr. lokalplan 499 og 509 samt kommunetillægsplan nr. 19 og 26

Vi har bevidst valgt at bosætte os i Hald Ege, fordi det er en landsby, som ligger naturskønt omgivet af skov og marker. Når vi kører hjem på cykel af Alhedestien eller i bil af Egeskovvej, så har det for os stor betydning, at køre ud af Viborg, forbi marker og gennem skov inden vi kommer til Hald Ege. Vi vil derfor gerne gøre indsigelse imod de planer, der er om at bebygge området mellem Hald Ege og Viborg.

I et læserbrev den 22. januar 2019 karakteriserede byrådspolitikker Lone Langballe fra Dansk Folkeparti Viborg Kommune på følgende måde: *"Skidt pyt med retningslinier, for vi er en erhvervsvenlig kommune. Har man penge, så kan man få alt til at ske, og vupti vupti får byrådet forvaltningen til at stå på hovedet for at tække jordbesiddere og statskassespekulanter."* Udviklingen har altså ifølge karakteristikken fortrinsret frem for naboer, miljøet, dyr og planter. I samme læserbrev skriver hun desuden, at borgerne skal kunne regne med, at de beslutninger, som byrådet træffer, er gældende. Læserbrevet omhandler placeringen af vindmøller i kommunen, men det er fuldstændig samme oplevelse, vi har i relation til de områder, som ønskes udstykket mellem Hald Ege og Viborg (både områderne som denne høring vedrører samt lokalplan 487). Vi kunne ønske os, at vi kunne regne med kommuneplanen for 2017-2029, der udlægger lokalplansområderne til rekreativt område, og vi ønsker at gøre indsigelse imod, at kommuneplanen bliver ændret så kort tid efter vedtagelsen. Desuden ønsker vi at gøre indsigelse imod, at jordbesidderes interesser med disse lokalplaner vægtes over hensynet til naturen (herunder skovbeskyttelseslinjer, vildtets færden og vandmiljøet), hensynet til lokal idrætsforening, hensynet til kulturarven og hensynet til naboerne.

Som det er i dag, er der allerede mange trafikale udfordringer omkring Egeskovvej i Hald Ege. Den største udfordring er formentlig de bløde trafikanter, som skal krydse Egeskovvej for at komme fra Videbechs Allé til folkeskolen eller modsat for at komme fra "Alhedesti-siden af byen" til Hald Ege Fri- og Efterskole, dagsinstitutionerne eller Klubben. Selv kan vi glæde os over, at vores børn kan cykle i skole via Alhedestien, og vi kan benytte Alhedestien til at cykle på arbejde i Viborg. Fra næste skoleår skal vores ældste søn dog gå i klub, og vores børn besøger allerede i dag legekammerater på den anden side af Egeskovvej, hvorved vi

også er udfordret af, at der er meget få sikre steder at krydse Egeskovvej, samt at det ikke er forsvarligt at cykle på Egeskovvej.
I forhold til sikker skolevej for de potentielt nye beboer langs Egeskovvej, så forventes de at skulle cykle på Alhedestien, men vi vil gerne henlede opmærksomheden på, at stien ikke er oplyst på størstedelen af stykket mellem Lyngvej og Teglgårdsvej. Det er allerede i dag en udfordring særligt i vintermånederne for os, som dagligt og året rundt benytter stien. Såfremt det er i Hald Ege, børnene kommer til at skulle gå i skole, så er krydset mellem cykelstien og Teglgårdsvej allerede i dag et farligt kryds med biler og cyklister kombineret med dårlige oversigtsforhold, og det bliver formentlig ikke bedre af, at der kommer flere cykelister fra Viborg-siden.
I forhold til støjen fra trafikken har beboerne langs Egeskovvej vores sympati i argumenterne om, at disse lokalplansforslag vil forøge de gener, de allerede oplever i dag. Vi vil derfor gerne gøre indsigelse imod, at der ifm. lokalplansforslagene 499 og 509 (samt 487) ikke er foretaget en helhedstænkning af, hvordan trafikale udfordringer, i et i forvejen trafikalt belastet område, kan afhjælpes i stedet for at forværres både ift. Egeskovvej og Alhedestien.

Frem for bebyggelse på områderne, er det vores ønske, at områderne får lov til at vedblive at være, som de er i dag. Alternativt kunne der foretages skovrejsning til glæde for vandmiljøet eller andre former for beplantning til glæde for dyrene, biodiversiteten og miljøet som helhed. Det kunne også vælges at prioritere en kombination af anlæg som fremmer kulturværdierne i området og naturen.
Såfremt det besluttes, at områderne skal udlægges til bebyggelse, så er hensigterne i de foreslåede byggeprojekter i vores øjne relativt gode, men de er ikke enslydende med lokalplansforslagene, som ikke er restriktive nok bl.a. fordi, der åbnes op for bebyggelse i op til to etager og op til 8,5 m højde. En sådan højde vil være generende for udsynet ud over området samt for naboerne, og én etage med op til 4 eller 5 m skulle være nok ift. de projekter, som pt. er projekteret på områderne. Desuden bør antallet af huse mindskes, så påvirkningen bliver mindre. Vi vil derfor gerne gøre indsigelse imod antallet af huse og højden på husene, som lokalplanen giver mulighed for.
Endvidere er det en enestående oplevelse året rundt at køre af Egeskovvej gennem tunellen af egetræer, og derfor vil vi gøre indsigelse imod, at der i lokalplansforslagene står, at *"eksisterende egetræer langs Egeskovvej skal så vidt muligt bevares."* Det bør i vores øjne kraftigt understreges i lokalplanen, at oplevelsen af at køre gennem en tunnel af egetræer skal bevares, og at eksisterende egetræer skal suppleres i det omfang, det er nødvendigt for at opfylde formålet.

Med venlig hilsen

Line Nielsen og René Skov Nielsen
Nonbo Enge 21, Hald Ege
8800 Viborg

Fredede dyrearter

Jeg ser med stor forundring på de graverende mangler i miljøvurderingerne som foreligger i forslagene.

Der findes f.eks. ingen steder en skriftlig vurdering af firben i området.

Ifølge Miljø- og fødevareministeriet findes der i Danmark disse krybdyr:

2 arter af slanger og 3 arter af øgler.

Alle krybdyr er fredede;

Skovfirben/Almindeligt firben (Lacerta vivipara)

Hugorm (Vipera berus)

Markfirben (Lacerta agilis)

Snog (Natrix natrix)

Stålorm (Anguis fragilis)

Har Teknisk Forvaltning tænkt sig at ignorer Bilag-4 dyrearter? I så fald er det jo lovbrud!

Dette spørgsmål vil jeg gerne ha' uddybet!

Indsendt af U. Hedegaard

Fredede dyrearter

Jeg ser med stor forundring på de graverende mangler i miljøvurderingerne som foreligger i forslagene.

Der findes f.eks. ingen steder en skriftlig vurdering af flagermus i området. Flagermus bor bl.a. i hule træer og der er jo mange træer der, hvor I planlægger at bygge en masse boliger.

Flagermus er omfattet af to internationale aftaler (Bernkonventionen og flagermusaftalen under Bonnkonveritionen), der beskytter dem og deres levesteder. Danmark har underskrevet begge konventioner, ligesom alle danske arter er totalfredede ifølge Lov om jagt og Vildtforvaltning.

Har Teknisk Forvaltning tænkt sig at ignorere behovet for en vurdering af flagermus?

Dette spørgsmål vil jeg gerne ha' uddybet!

Indsendt af U. Hedegaard

Trafik ogbyggehøjde

Indsigelse til lokalplan 509

Jeg er bekymret. Min bekymring går på, at der er mange ikke gennemtænkte ting omkring hele lokalplansforslaget. Min bekymring går hovedsageligt på trafikken, beskyttelse af grundvandet samt mængden af boliger/enheder.

Trafikken

Trafikken er et voldsomt problem - det handler om såvel mængden som støjen. Den planlagte vej ind til projektet vil så afgjort skabe problemer. Derudover er hverken Koldingvej eller Egeskovvej gearet til den øgede mængde trafik. Morgentrafikken på Egeskovvej er hektisk, specielt omkring skoletid med mange børn på vejene samt børn der skal krydse Egeskovvej for at komme til skole. Jeg vil kraftig opfordre til, at man finder en løsning på ovenstående og ikke kun har fokus på de trafikale forhold ved, i og omkring projektet.

Antal af boliger

Projektforslaget er et fint byggeri og det virker som om, at man har tænkt og overvejet mange aspekter omkring byggeriet. I øjeblikket er det et et-plansbyggeri. Men hvilken garanti har vi for, at det vedbliver med at være huse i et plan. I udkastet til lokalplan er den tilladte højde 8,5m.

Altså der er mulighed for at bygge i 2 planer og dermed øge antallet af enheder. Byggehøjden burde ændres - så kun et-plans villaer er muligt.

Indsendt af Pia Lund

Lokalplan 509 / trafikforhold

Lokalplan 509/ trafikforhold

I forbindelse med lokalplan 499 og 509 vil trafikken gennem Hald Ege og på Koldingvej (Sydbyen) øges yderlig. Trafikken er gennem de seneste blevet øget gennem Hald Ege, dels pga. mange udstykninger og fordi mange benytter Hald Ege som gennemkørsel for at komme til / fra Herningvej. Trafikforholdene på Koldingvej er ligeledes kaotiske på tidspunkter af døgnet. Problemet vil givetvis bliver yderlig forværret ved at udkørslen til A13 fra Koldbækvænget bliver lukket.

Med den nye lokalplan er der forsøgt at mindske støjniveauet for de nye boligejer ved at lave fartbegrænsning på 50 km/t på Egeskovvej mellem Viborg og Hald Ege. Men der er, så vidt jeg kan se, ikke foretaget en vurdering af støjniveauet for borgerne ved Egeskovvej i Hald Ege. Man har ligeledes ikke taget stilling til, hvordan skolevejen i Hald Ege sikres. Klub og friskole ligger på denne ene side af Egeskovvej, mens Sportshal og Hald Ege Skole er placeret på den anden side af vejen. Der er boliger på begge sider af vejen. Det betyder, at børn i Hald Ege vil skulle krydse Egeskovvej. Der er i forvejen udfordringer med at mange bilister ikke overholder fartbegrænsningerne gennem Hald Ege.

Ambitionsniveauet i Viborg Byråd når det gælder at tilpasse og sikre trafikforhold i forbindelse med byggeplanerne er helt utilstrækkelige.

mvh. Solveig Harksen

Indsendt af Solveig Harksen

27-01-2019 96

Grundvandsindvindingen

Grundvandsindvindingen

Jeg ser med stor bekymring og forundring på planerne om at bygge på et indvindingsområde..

På borgermødet som blev afholdt torsdag den 17. januar 2019 kl. 17.15 i Multisalen på Viborg Rådhus, kom det frem, at Kommunen KUN kan HENSTILLE til ikke at bruge pesticider – at man HENSTILLER til at undlade at vaske bil på sin matrikel – at man HENSTILLER til ikke at bruger kemikalier.

Er Teknik og Miljø så naive at tro, at en HENSTILLING vil forhindre nogen i at bruge miljøskadelige stoffer???

Og hvad har T og M tænkt sig at gøre, den dag, hvor grundvandet er blevet forurenet?

Og er det ikke en hån mod indbyggerne i Viborg, at der for nyligt er blevet brugt mange af skatteborgernes penge på at forny rørføringen i den sydlige del af Viborg, hvis det om nogle år viser sig, at grundvandet er ubrugeligt?

Dette vil jeg gerne ha' uddybet.

Indsendt af U. Hedegaard

27-01-2019 97

Indsigelse mod ændring af Kommuneplan 2017

Indsendt af Jørgen Buus

Vedhæftet fil

Til Viborg Byråd
Indsigelse imod byggeriet af en ny bydel i Viborg (Lokalplan 487, 499 og 509)
Der er ikke bymæssig sammenhæng mellem de foreslåede boliger grundet fredninger og der er ikke basis for et sådant "planløst" byggeri af denne størrelsesorden uden sammenhæng med det omgivende by og landskab. I konstitueringsaftalen for Viborg Byråd står der – at man vil " Skabe en sund og grøn kommune" .
Hvad med at begynde her, hvor området i forvejen er udlagt som "Grønt rekreativt Område?
Af taktiske grunde og efter ønske fra bygherrerne er høringerne opdelt i flere omgange, selv om det er de samme problemer for alle fire områder. 487 borgeres ønske om en fælles høringer ville "man" ikke være med til. På det tidspunkt aner man ikke fra kommunens side , hvad man har tænkt sig med Viborg Rideklub eller om man vil overholde beskyttelseslinjerne for gravhøjene. Tilsvarende beskyttelseslinjer for Kolbækken og Fredskoven ønskes reduceret til ingenting?
"Skabe en sund og Grøn kommune?
Af samme aftale fremgår , at byrådet vil have fokus på " Den demokratiske proces i kommunen"
Fra hvornår? Den opgave er meget meget svær, men ser godt ud på papiret.

Jeg er stor tilhænger af Viborg Kommunes visionære planer for Banebyen,Arnbjerg, Taphede og ikke mindst af at byrådet har truffet beslutning om at området ved Vedsø indgår i Viborg Naturpark.
Banebyens samlede investeringer løber vel efterhånden op i omkring 6 milliarder kroner.
Hertil kommer en betydelig investering på 83 millioner kroner omkring Hærvejsbroen og baneområdet.
Hele hensigten med Hærvejsbroen er som beskrevet i projektet, at lave en "Kobling af et bydannelsesområde i forstaden til bymidten". Det er kæmpestort tænkt.
Denne kobling afhænger af at der er investorer, der har lyst til at investere i Banebyen, men lige så meget af, at der er nogen, der vil investere i Vesterbrogade med torvet, for at bydelene kommer til at hænge sammen. Det er en svær opgave med en mindre befolkningstilvækst og færre skattekroner.
Det er så store beløb det handler om, og der er brug for et massivt engagement fra Viborg Kommune og masser af kommunale penge til disse projekter. Hvis visionerne skal udmøntes er der ikke plads eller økonomi til en masse mindre projekter, der ligesom må vente.
MVH Jørgen Buus

Indsigelse mod forslag til lokalplan 499 og 509

Vi deler Teknisk Udvalg og Byrådets ønske om, at Viborg Kommune til stadighed er i vækst og udvikling.

Derfor undrer det os, at Teknisk Udvalg og Byrådet har fundet anledning til at udarbejde forslag til lokalplan 499 og 509 for at imødekomme enkelte private lodsejeres snævre økonomiske egeninteresser mod at bebygge dele af ét af kommunens skønneste naturområder.

Konsekvenserne af at vedtage lokalplanforslagene vil være det stik modsatte af det, som Teknisk Udvalg og Byrådet ønsker sig: der vil blive gjort uoprettelig skade på et område, der gør Viborg unikt og attraktivt. Først og fremmest for kommunens borgere og gæster. Men så sandelige også for de tilflyttere, som Teknisk Udvalg og Byrådet ønsker at tiltrække (i hård konkurrence med omkringliggende byer/kommuner).

Når det er sagt, er det stærkt bekymrende, at der ikke i lokalplanforslagene tages stilling til de trafikale konsekvenser heraf for trafikken på Egeskovvej i Hald Ege. Vejen er i forvejen belastet betydeligt i særligt myldretidstrafikken og på ingen måde sikker for de bløde trafikanter - herunder særligt for børn på vej til/fra Hald Ege skole, Hald Ege friskole og Klubben.

Teknisk Udvalg og Byrådet bør (uagtet lokalplanforslagene) snarest prioritere etablering af 1) nødvendige foranstaltninger (cykelsti) for at sikre de bløde trafikanter på Egeskovvej og herunder 2) nødvendige passager (underføringer) ved Videbechs Allé og skolen.

Line og Søren Kaack Hansen

Indsendt af Søren Kaack Hansen

Trafikale forhold

Mine bemærkninger vedrører den uundgåelige øgede trafik gennem Hald Ege, ved etablering af lokalplan 487, 499 og 509. Jeg synes, at det er yderst uheldigt, at vejen fra Kolbækvænget til Vejlevej lukkes i forbindelse med gennemførelse af lokalplan 487, 499, 509, uden at der er lavet andre alternativer til udkørsel til Vejlevej. De nuværende trafikanter, der benytter udkørslen fra Kolbækvænget til Vejlevej, samt de potentielt 1200 nye trafikanter, vil give temmelig stor forøgelse af trafikken gennem Hald Ege. Til borgermødet blev vi oplyst, at Statens trafikstyrelse kræver vejen til Vejlevej lukket pga. øget trafikmængde. Jeg mener, at der må arbejdes på at finde en løsning på, hvordan denne udkørsel kan bibeholdes. Jeg blev meget ked af at erfare, at trafik/cykel forholdene i Hald Ege ikke var med i overvejelserne i helhedsperspektivet ved etablering af de nye udstykninger.

Hald Ege er i dag i forvejen trafikalt udfordret og med en farlig skolevej for de mange børn der færdes på Egeskovvej. Dette er resultatet af de mange udstykninger der er etableret i Hald Ege gennem de seneste 20 år, uden at der er kigget på de trafikale forhold hidtil. Byen kan ikke bære mere trafik, trafikken MÅ ledes udenom.

Indsendt af Mette Larsen

27-01-2019 100

Indsigelse mod lokal plan

Pga. grundvandet i netop dette område er særlig grundvandsfølsomt grundet undergrunden bør man ikke opfører byggerier i dette område.

Indsendt af Ditte Kristensen

27-01-2019 101

Indsigelse mod lokalplan

Indsigelse mod byggerierne!

Et så smukt, naturskønt og bynær område, som folk der færdes på i område kun kan glædes over - står overfor en massiv ødelæggelse.

Hvis byggeriet bliver en realitet vil vi stå tilbage med en ødelagt natur, en øget trafik og trafikstøj, skæmmende støjvolde og fredede dyrearter som forsvinder, grundvandsindvindingen tør jeg næsten ikke tænke på. Et grønt attraktiv område omkring Koldbækvænget/rundt om haveforeningen Solvang vil forsvinde og utrolig meget vil gå tabt.

På nuværende tidspunkt er det en naturperle, et lækkert område at færdes i, hvor rigtig mange mennesker cykler/går/løber/rider/går tur med hunden mm. og hvor man kan opleve skovens dyr og stilheden. Pga. skoven rundt om stien, så kan man næsten ikke høre bilerne fra de omkringliggende veje. Det er en oplevelse værd!

Indsendt af Ditte Kristensen

Trafik- og naturmæssige forhold

Jeg undres over at Viborg Kommune ikke har gennemtænkt de trafikale forhold ordentligt før man vælger at udstykke plan nr. 509. Der er ingen tvivl om at der vil opstå en flaskehals med tæt trafik, når vejen til Vejlevej lukkes og der åbnes op på Egeskovvej, der i forvejen er smal. Man har tilmed ikke gennemtænkt, hvordan trafikken skal afvikles i Hald Ege med skolevej, og dette bærer præg af lidt for hurtige løsninger. Der findes allerede masser af "varer på hylden" dvs. attraktive byggegrunde i Viborg kommune som nytilkomne kan vælge imellem Arnbjerg og snart Taphede.

Jeg er personlig bekymret for at vi sælger ud af grønne rekreative områder i Viborg, som jo netop er det der gør, at folk vil bo her. Hvis vi plastre disse områder til med villaer forsvinder de. Endvidere er det set før at bebyggelse i naturområder åbner op for en glidebane, hvor naturen må vige for urbaniseringen.

Indsendt af Anne Vibild

27-01-2019 103

Indsigelse til lokalplan

Det er altid godt med by udvikling, men hjælp mig lige med at forstå hvad der ligger til baggrund for netop dette projekt, findes der et dokumenteret behovet for så mange nye boliger i Viborg, med tanke på de øvrige meget store projekter der p.t. er under opførelse?

Jeg mangler en klar plan for hvorledes det er påtænkt at håndtere den øgede trafikmængde ind igennem Hald Ege? Herunder hvordan vores børn bliver bedre beskyttet i trafikken? Vi mangler både cykelsti og fodgængerovergange..

Det er bekymrende, at projektet kan få "væsentlig indvirkning" på miljøet, da grundvandet i netop dette område er særlig grundvandsfølsomt…!

Indsendt af Søren Søndergaard

27-01-2019 104

Manglende planer for trafik

Det er med bekymring at vi læser planerne for lokalplan 499 og 509 samt næste plan over kolbækken. Vi finder ikke at der er overvejet sikker vej til de bløde trafikanter. Den øgede trafikmængde vil give et øget flow til Hald Ege skole. Det er i forvejen virkelig svært for børn at krydse Egeskovvej for at komme til cykelstien. Dårlig belysning og udsigt. Findes der en cyklist på Egeskovvej kan ingen biler passere hinanden. Alhedestien er uoplyst og det er svært for yngre børn at komme igennem skoven alene.

Indsendt af Sarah Bendtsen

27-01-2019 105

Indsigelse til lokalplan 509

Indsigelse til lokalplan 509

Min bekymring ved de fremsendte lokalplaner ved Egeskovvej og Koldbækken er i høj grad de trafikale forhold. Det vil give en stærkt øget trafik på Egeskovvej - gennem Hald Ege og på Koldingvej ind mod byen under den røde bro ved Marsk Stigsvej.

I forvejen er trafikken igennem Hald Ege øget væsentligt de senere år med øget risiko for børn og andre bløde trafikanter.

Jeg opfordrer kommunen til at sikre, at udkørsel mod syd og vest fra de (evt.) nye boligområder kan ske ad flere veje, så det sikres, at trafikken ikke presses gennem Hald Ege. I forvejen er her nemlig store trafikale vanskeligheder for cyklister som færdes på og krydser Egeskovvej. Byen er gennem de seneste mange år vokset på begge sider af Egeskovvej, hvilket betyder kaotiske og meget utrygge forhold på Egeskovvej på visse tider af dagen.

Indsendt af Mette Carlsen

27-01-2019 106

Grundvand

Det er med bekymring at vi læser Danmarks naturfrednings forenings bekymringer ang nedsivning til grundvand. Der henstilles til deres indsigelse.

Indsendt af Sarah Bendtsen

Indsigelser mod lokalplan

Jeg synes forslaget generelt bære præg at der tænkes i vækst for hver en pris og der er flere problematikker vedr udstykningen/lokalplanen der er kritisable:

* Grundvand/drikkevand: Området er udpeget som følsomt indvindingsområde og jeg mener ikke at der ved udstykning af området kan sikres en tilstrækkelig beskyttelse af grundvandet i området. Vores drikkevand er en sårbar ressource og hensynet til dette burde gå forud for kortsigtede ønsker om vækst og økonomisk gevinst.

* Trafikale forhold: Som beboer på Egeskovvej oplever jeg de udfordringer der er for skolebørn (de der kommer fra Videbechs Allé området) i at krydse Egeskovvej på forsvarlig vis om morgenen. Desuden opleves trafikken i myldretiden både på Egeskovvej og på Koldingvej som værende rigeligt presset i forvejen og trafikken på begge veje vil vel kun blive væsentligt øget ved den planlagte udstykning. I forslaget er indtænkt en hvis form for støjdæmpning ud mod Egeskovvej. Dette hjælper dog ikke de beboere på Koldingvej og Egeskovvej som med en yderligere trafikal belastning også vil blive udsat for væsentligt mere trafikstøj end hidtil.

Jeg får det indtryk at der med disse lokalplansforslag 509, samt 499 kun tænkes i hvordan man skaber et attraktivt nyt boligområde. Men hvad med resten af den sydlige bydels beboer, hvad med beskyttelsen af dem? Hvad med deres daglige trivsel, ifht trafik støj, kø kørsel til og fra arbejde, indkøb og daginstitutioner samt skoler. Gør man i byrådet sig overvejelser om hvordan man sikre at de eksisterende boligområder fortsat er attraktive?

Indsendt af Mie Erslev

27-01-2019 108

Indsigelse mod lokalplan 509

se vedhæftede

Indsendt af Kirsten R. Sørensen

Vedhæftet fil

Indsigelse mod lokalplan 499 og 509.

På borgermødet d.17.1.19 blev ordene fremsynet, rettidig omhu, vækst og udvikling gentaget adskillige gange af bl.a. Johannes Vesterby som argument for, at planerne om bygning af boliger ud mod Egeskovvej skulle gennemføres.

Et andet argument var, at Viborg er i konkurrence med andre byer, bl.a. Silkeborg, om tilflyttere. Derfor er det uomgængeligt at have "varer på alle hylder" til evt.købere = "det, folk vil have"= salgbart, hvis Viborg ikke skal tabe.

Kommunens tilgang rammer ved siden af, fordi der i planerne ikke tages tilstrækkelige hensyn til de landskabsmæssige herlighedsværdier.

Fremsynethed er at behovet for boliger er baseret på et fagligt og realistisk skøn. Mange har stillet spørgsmålstegn ved metoden eller mangel på samme ved opgørelsen af forventet vækst i indbyggertal i Viborg. Så : er der behov for de mange nye boliger? det mangler jeg en forklaring på.

Bebyggelsen i de 3 lokalplaner er placeret i områder, hvor grundvandet afstrømmer mod de almene vandindvindingsboringer. Den kummulerede effekt af bebyggelsen på sårbart grundvand er ikke miljøvurderet i VVM-redegørelserne for de 3 planer. Effekten er alene vurderet hver plan for sig. Derfor mener jeg, at konsekvensen for grundvand og drikkevand skal være genstand for en mere omfattende og samlet vurdering.

En af de ting, der bekymrer mange i Hald Ege er trafiksikkerheden og det er der skrevet mange relevante indsigelser omkring. Jeg ønsker oplyst, hvad kommunen har tænkt med hensyn til trafiksikkerhed i forbindelse med byggeplanerne for de berørte områder. Foreligger der en samlet plan for trafik og trafiksikkerhed i områderne eller vil en sådan blive udarbejdet inden iværksættelse af byggeri ?

I Hald Ege er vi ikke selvtilstrækkelige eller forkælede. Faktisk er Hald Ege bl.a. kendetegnet ved en åbenhed ift. nytilflyttere. Det har jeg selv mærket i udstrakt grad, da vi flyttede hertil for godt 3 år siden. I Hald Ege er vi glade for den omkringliggende natur og passer godt på den. Vi bor i et fantastisk smukt område, rigt på natur og dyreliv. Vi deler det gerne med andre, men værner om det unikke ved landsbyen. Det er også til glæde for "folk udefra", turister, vandrere, motionister, fugleentusiaster o.m.a.

Derfor bekymrer planerne 499 og 509 – samt 487 mig.

Kirsten R.Sørensen

Videbechs Allé 175C

27-01-2019 109

Opmærksomhedspunkter Lokalplan 509 Viborg Rideklub

Indsendt af Ingelise Christensen

Vedhæftet fil

27. januar 2019

I forbindelse med udvikling af lokalplan nr. 509 og lokalplan nr. 499 - boligudvikling ved Egeskovvej – ønsker Viborg Rideklub følgende taget i betragtning:

- Rideklubben har haft denne placering siden 1969, og der er investeret mange millioner kroner i stalde, ridehaller og øvrige anlæg. Beliggenheden som bynær rideklub har den fordel at klubbens mange børn og unge, der benytter klubben efter skole, selv kan transportere sig til og fra klubben på cykel eller med offentlig transport. Viborg Rideklub ønsker fortsat at kunne eksistere på adressen Koldingvej 215.
- Drift af rideklubben giver en række påvirkninger af lokalområdet. Disse påvirkninger omfatter:
    - Ugentligt transport af foder, halm, wrap/hø til klubbens adresse. Dette er i kategorien tung trafik!
    - Ugentlig transport af lastbilcontainere med hestemøg fra klubbens adresse. Dette er i kategorien tung trafik!
    - Heste på stald og folde giver anledning til fluer samt lugtgener – særligt i sommerhalvåret.
    - Trafik i form af store hestetransporter og biler med hestetrailere kørende til og fra klubbens adresse. Særligt store belastninger forekommer i forbindelse med klubbens mange årlige stævner og andre arrangementer, hvor der ligeledes kan der være noget kaotiske parkeringsforhold. Der vil til sådanne arrangementer også være støj fra fx højttalere ved udendørsstævnerne. Afholdelse af stævner og øvrige arrangementer er en helt afgørende indtægtskilde for Viborg Rideklub, og omfanget af disse arrangementer kan ikke begrænses.
    - Daglig færdsel af klubbens heste langs cykelstier og veje i forbindelse med ud- og indlukning fra folde samt i forbindelse med ridning til/fra skoven.
- Viborg Rideklub forventer, at de lovede trafikale foranstaltninger for at sikre færdsel for alle på både Koldingvej og særligt krydsning af Egeskovvej implementeres.

Viborg Rideklub ønsker således ikke at modtage klager fra beboere i de nye lokalplanområder om tung trafik, lugtgener, fluer eller andre ting, der er uløseligt forbundet med daglig drift af en Rideskole.

Med venlig hilsen

Bestyrelsen for Viborg Rideklub

Øget trafik gennem Hald Ege er et problem

Vedr. Plan for boligområde ved Kolbækken, Hald Ege.

Jeg skriver denne indsigelse som bekymret mor og borger. Jeg er nemlig bekymret for trafiksikkerheden for mine børn, som dagligt cykler rundt i Hald Ege og dagligt krydser Egeskovvej til og fra skole. Der er i forvejen megen trafik på Egeskovvej og mangel på både cykelsti og forgængerovergange - alligevel ønsker Viborg kommune med de nye planer om et boligområde ved Kolbækken, at øge trafikken gennem Hald Ege og det gøres uden at have en plan for hvordan den øgede trafik gennem Hald Ege afhjælpes. Det er problematisk!

Viborg kommune henviser til at cyklister, fodgængere og andre "bløde trafikanter" kan benytte alhedestien/ banestien, men problemet er jo alle de børn (og voksne) som skal krydse Egeskovvej - enten fordi de bor vest for Egeskovvej (i området langs Videbæksalle) og skal krydse Egeskovvej for at nå Banestien på vej til Hald Ege skole eller fordi de bor øst for Egeskovvej (i Gamle Hald Ege eller Nonbo området) og skal krydse Egeskovvej for at komme til Friskolen, børnehaverne eller vuggestuen. Det er allerede et problem og mere trafik gennem Hald Ege vil forværre situationen.

Indsendt af Camilla Aakjær Andersen

27-01-2019 111

Indsigelse forslag til lokalplan 509

Indsendt af Thomas C. Andersen

Vedhæftet fil

Indsigelse ift.
Forslag til lokalplan nr. 509 og kommuneplantillæg nr. 26 - Boligområdet Egeskoven i Viborg

Hald Ege er fuldt udbygget
Borgerne i Hald Ege er blandt de mest øvede i Viborg Kommune i at byde nye borgere velkommen. Hald Ege er et af de lokalområder i Viborg Kommune, der procentvis er vokset allermest i nye boliger og borgere siden år 2000. I foråret 2019 bydes velkommen til ca. 40 nye beboere, når Boligselskabet Viborg åbner for 21 nye seniorboliger ved Egeskovvej.

Hald Ege tæller formelt som en del af Viborg by. Alligevel optræder Hald Ege som en selvstændig by på Viborg Kommunes hjemmeside og var ligeledes nomineret som årets lokalområde i 2017.

Status er, at Hald Ege er fuldt udbygget. Hvis der skal være plads til flere boliger og borgere i Hald Ege, så kræver det, at enten Hald Ege Fri- og Efterskoles bygninger omdannes til boligområde, hvilket ikke er sandsynligt, eller at der bygges boliger på den sydøstlige del af Teglgårdsvej helt tæt på rute 13 (Vejlevej), hvilket heller ikke er sandsynligt grundet den allerede voldsomt underdimensionerede Teglgårdsvej ift. antallet af boliger.

Med forslagene til lokalplan 499 og 509 (samt lokalplan 487) lægges op til an massiv udbygning af arealet mellem Viborg og lokalområdet Hald Ege. Den overvejende del af den foreslåede bebyggelse er placeret meget tæt på byskiltet til Viborg og mere end en kilometer til byskiltet Hald Ege. Derfor lyder det lidt som et klassisk ejendomsmægler-greb at benævne områderne i lokalplan 499 og 509 som Hald Ege. Med et glimt i øjet kunne områderne evt. i stedet omdøbes til 'Halv Ege'.

260 boliger i grønt, rekreativt område
De tre områder (forslag til lokalplan 499, 509 og 487) er 'delt' med hver sin tilhørende lokalplan. Men de tre lokalplanområder bør rettelig behandles og forstås som et samlet boligområde, herunder også områdernes samlede påvirkning af natur, dyreliv, trafik m.v.

De tre områder indeholdt i lokalplanerne 499, 509 og 487 giver tilsammen plads til 260 nye boliger. Dvs. 260 boliger i et område som byrådet så sent som i 2017 selv udlagde som grønt, rekreativt område. Alle tre områder forudsætter også, at Miljøstyrelsen imødekommer en ansøgning fra Viborg Kommune om en reduktion af skovbyggelinjen fra 300 m til 30 m. Miljøstyrelsen kan således suverænt sætte en stopper for måneders planarbejde i Viborg Kommune, skitser og projektering fra grundejeres og arkitekters side og berørte borgeres medvirken i for-debat og nuværende høringsperiode.

Behov for nye boligområder?
De 260 boliger svarer til Viborg Kommunes samlede salg af boliggrunde i hele kommunen de foregåede 3 år. Med den aktuelle befolkningsudvikling i Viborg Kommune, som er væsentligt mindre i 2017 og 2018 end i 2015 og 2016, kan man stille berettiget spørgsmålstegn ved, om der er en realistisk efterspørgsel efter så mange nye boliger - ud over alle dem der allerede er planlagt andre steder i Viborg Kommune.

Viborg Kommune har gennem de seneste år investeret et trecifret millionbeløb i at byggemodne og klargøre særligt Banebyen og Arnbjerg som nye og attraktive boligområder i Viborg by. Hvis

Viborg Kommune vedtager forslag til lokalplan 499, 509 og 487, er der en risiko for, at salget af boliggrunde i disse allerede udlagte og investerede områder tager væsentlig længere tid end planlagt. Dermed vil der gå tilsvarende længere tid før Viborg Kommune får sin egen investering hjem igen. Det samme gælder for de private investorer, som allerede har planlagt eller er i gang med planlægning af byggeri i Banebyen.

Viborg Kommune har også en ambition om at landdistrikterne skal udvikles i kommunen, herunder også et øget salg af byggegrunde i disse områder. Den ambition vil næppe blive nemmere at realisere, hvis der er så stort et (over)udbud af helt nye byggegrunde/boliger i Viborg by.

Skab attraktive boligområder på andre måder
Hvis Viborg Kommune vil skabe nye attraktive boligområder – og generelt fremstå som et endnu mere attraktivt område at bosætte sig i, så vil det være oplagt at etablere nye bynære skovområder. Skovområder skaber både dyreliv, beskytter grundvandsressourcer, giver rum for bevægelse (sundhed) og bidrager til at gøre boliggrunde attraktive.
Viborg Kommune spejler sig jævnligt i Silkeborg Kommune og Silkeborgs store trækplaster er (ud over en motorvej) netop mange bynære skovområder.
Etablering af nye bynære skovområder kunne også (gen)starte Viborg Kommunes tidligere (?) ambition om 'det grønne ø' omkring byen.

Hvis byrådet er ivrig efter at tilbyde meget attraktive boliger til nye (og eksisterede) borgere i kommunen og byrådet er villig til at ændre gældende lokalplaner, så vil jeg anbefale, at man overvejer rydning af det tilbageværende skovstykke i den nordøstlige ende af Nørresø og naturområdet på østsiden af Søndersø og giver plads til etagebyggeri med ejerlejligheder – det er efter sigende den boligform, som der fremadrettet vil være stor efterspørgsel efter og som vi i Viborg har et underskud af. Hvis der er i et sådant etagebyggeri var krav om almene boliger, ville også andre end velhavende viborgensere kunne få en bolig med udsigt til Viborg-søerne. Men her vil byrådet formentlig også blive mødt af indsigelser fra borgere.

Trafik
Der angives i materialet til de to lokalplaner 499 og 509 (tre inkl. lokalplan 487) en øget døgntrafik på 1200 biler. Man kan af gode grunde ikke præcist forudsige, hvordan den trafik vil fordele sig i retning Viborg ad Koldingvej eller retning syd ad Egeskovvej (gennem Hald Ege), men trafikken kan kun forgå på de to veje.

Trafikken på Koldingvej og særligt ved området Løvbjerg, Rema 1000 og Søndre Skole er allerede i dag voldsomt belastet, ikke mindst grundet den endnu større udbygning af boliger i Liseborg. Trods væksten i boliger i Liseborg og Hald Ege er der ikke lavet trafikmæssige foranstaltninger på Koldingvej, der har imødekommet den voldsomt forøgede trafik.

Trafikken på den del af Egeskovvej der er placeret mellem Teglgårdsvej og rute 12 (Herningvej) afvikles allerede i dag ikke hensigtsmæssigt. Det er *ikke* muligt at udvide vejen. De nuværende fartdæmpende foranstaltninger på strækningen virker modsat hensigten. I perioder med begrænset trafikmængde kører alt for mange biler 'om kap' for at komme først igennem indsnævringerne i vejbanen, hvilket øger farten. I perioder med megen trafik lukker trafikken helt til pga. samme indsnævringer i vejbanen. I alle perioder er der ikke plads til cyklister ved

vejindsnævringerne. Desuden er trafikken grundet indsnævringerne nødt til at køre i modsatte vejbane flere steder, herunder helt tæt på flere T-kryds og indkørsler på Egeskovvej.
Uanset om lokalplan 499 og 509 vedtages af byrådet vil det være en oplagt løsning, at de nuværende 6 indsnævringer i vejbanen afløses af vejbump i vejens fulde brede. På den måde dæmpes farten, der vil ikke længere være 'kapløb', cyklisterne vil ikke blive klemt og trafikken vil ikke stoppe til.

I løbet af 2019 åbnes for det meste af den store renovering og opdatering af 'De Fem Halder'. Ambitionen med det store projekt er bl.a. en fordobling i antallet af besøgende i området. En stor del af disse besøgende må forventes at køre turen til Hald fra Viborg gennem Hald Ege og/eller omvendt tage en tur til Viborg efter besøget på Hald. Denne forventede forøgelse af trafikken indgår ikke i lokalplanernes prognoser for udvikling af trafikken, herunder på både Koldingvej og Egeskovvej.

Alhedestien
Der henvises i lokalplanmaterialet til Alhedestien som en sikker skolevej for de børn, som kommer til at bo i området og for alle borgere i øvrigt. Alhedestien ER en glimrede og meget benyttet cykel- og gangsti. Opmærksomme brugere vil imidlertid også have bemærket, at Alhedestien en del steder (særligt der hvor der er høje og stejle skrænter) er udfordret. Den asfalterede cykelsti er placeret helt tæt på den ene kant, som langsomt, men sikkert skrider sammen. Cykelstien og kanten bliver særligt udfordret, når tunge køretøjer kører på cykelstien (f.eks. EnergiViborgs igangværende nedgravning af ny vandforsyningsledning og når bevoksning ved stien skæres til af store, tunge maskiner). Selve banevolden er ikke blevet vedligeholdt i mere end 50 år. Hvis Viborg Kommune fortsat vil have en god og sikker cykelsti på Alhedestien i årene fremover, kan man enten forstærke volden på udsatte steder med (meget store mængder) jord, eller flytte cykelstien til en placering midt på volden.
Hvis Alhedestien skal være en sikker sti, bør man også overveje opsætning af belysning på strækningen fra Teglgårdsvej ind mod Viborg.

Inddragelse af landdistrikter og lokalområder
Byrådet har gjort en stor indsats for at blive bedre til at lytte og inddrage landdistrikter og lokalområder uden for Viborg by, herunder også ift. fysisk planlægning og udlægning af områder til boliger.
Viborg by og herunder lokalområdet Hald Ege er også et lokalområde. Derfor bør byrådet være mindst lige så ivrige efter at lytte til ønsker og eventuelle indsigelser ift. byrådets planer for udvikling i Viborg Kommune.

Genovervej forslag til lokalplan 499 og 509
På baggrund af ovenstående - og de mange øvrige indsigelser - vil jeg anbefale byrådet at genoverveje det hensigtsmæssige i at vedtage lokalplansforslag 499 og 509.

Venlig hilsen
Thomas C. Andersen
Videbechs Alle 21, 8800 Viborg

27-01-2019 112

Indsigelse mod lokalplan 509

Indsendt af A. Christian Sørensen

Vedhæftet fil

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27. januar 2019

Indsigelse vedr. lokalplan 499 og 509 samt kommunetillægsplan nr. 19 og 26

Hald Ege er et fantastisk område. Det er hovedårsagen til, at vi valgte at bosætte os her i 2009. Vi vil gerne dele det med andre, men det skal ske på en ordentlig måde, så området ikke forringes. Noget af det vigtigste i Hald Ege er den diversitet, som området rummer. Der er både skov og åbent landskab, og der er både tørre og våde områder. Denne diversitet giver mulighed for et rigt dyre- og planteliv. Hvis de to lokalplaner vedtages vil noget af denne diversitet gå tabt. Vi vil derfor gøre indsigelse mod disse forslag, da det ikke fremgår, hvorfor det er nødvendigt at bebygge netop disse to områder, med tab af biodiversitet til følge.

På miljøstyrelsens hjemmeside fremgår argumentationen for at have en skovbyggelinje: 'For at sikre det frie udsyn til skoven og skovbrynet og for at bevare skovbrynene som værdifulde levesteder for plante- og dyreliv forløber der en skovbyggelinje i en afstand af 300 meter fra skoven.' (https://mst.dk/natur-vand/natur/national-naturbeskyttelse/bygge-og-beskyttelseslinjer/skovbyggelinjen). Disse to formål kan ikke opfyldes, hvis der bygges 30 meter fra skovkanten. Vi vil derfor gøre indsigelse mod disse forslag og henstille til, at Viborg Kommune respekterer Naturbeskyttelsesloven ved ikke at ansøge om dispensation. I så fald kan disse lokalplaner ikke gennemføres i deres nuværende form.

Hele området, der berøres af lokalplan 509 og den nordligste del af området, der berøres af lokalplan 499 er iflg. Miljøstyrelsen et såkaldt følsomt indvindingsområde (https://arealinformation.miljoeportal.dk). Af samme reference fremgår det, at der både øst og vest for Viborg er rig mulighed for udstykning af byggegrunde, der ikke ligger i områder med særlige drikkevandsinteresser eller følsomme indvindingsområder. Der er en risiko for forurening af drikkevandet, da lokalplanen udelukkende lægger op til at henstille til bygherrer og fremtidige beboere at optræde hensigtsmæssigt i forhold til brug af kemikalier mv. Viborg Kommune har ingen mulighed for at håndhæve dette, hvis lokalplanerne vedtages. Viborg Kommunes eneste mulighed for at begrænse forurening af drikkevandet er at sørge for, at der ikke bygges på områderne. Vi vil derfor gøre indsigelse mod disse forslag, da evt. bebyggelse af netop disse områder medfører en risiko for forurening af vores drikkevand.

Vi støtter op om, at Viborg by udvikler sig. Men vi opfordrer Viborg Kommune til at lave en helhedsplan og gentænke placeringen af fremtidige udstykninger, så færrest mulige naturressourcer forringes i forbindelse med udstykning. Dette vil også øge mulighederne for at tiltrække fremtidíge beboere til kommunen.

Med venlig hilsen

Line Hjortø og Anders Christian Sørensen

Nonbo Enge 5

Indsigelse - Lokalplan 509

Jeg er imod den planlagte udstykning grundet de mangelfulde færdselsforhold som udstykningen skaber omkring Egeskovvej. Egeskovvej er underdimensioneret til at kunne klare det trafikale pres som adgangsvejen ud til Egeskovvej vil skabe. Kødannelser vil kunne påregnes og dermed farlige situationer for alle slags trafikanter . Børn og cykelister der skal krydse Egeskovvej vil være særligt udsatte, især de børn der skal krydse Egeskovvej både i Hald Ege på vej til og fra skole, og ligeledes brugere af rideskolen. Det store antal kommende bilister der skal til og fra udstykningen er alt for stort -

Antallet af husstande skulle være væsentlig mindre.

Et helt andet forhold er udgiften til skolebus - jeg tror næppe det er medtaget i kommunens budget, at der er over 2,5 km til Hald Ege skole.

Jeg opfordre således til at antallet boliger/husstande minimeres.

Indsendt af Jens Jørgen Ditlevsen

27-01-2019 114

Bevar området som natur til glæde for nuværende og kommende Viborgensere

Vi er beboere på Kolbækvænget og har udsigt til Alhedestien og de to områder, der med en ny lokalplan vil blive bebygget. Vi ved derfor, hvor mange børn og voksne, der hver eneste dag søger dette område til fods, med løbesko, med hund, til hest, på cykel eller rulleskøjter. Vi ved, at her året igennem færdes dagplejebørn, skolebørn fra både Hald Ege og Søndre Skole, hesteglade børn og voksne fra Viborg Rideskole, motionister af mange slags, hundelufter, vandrer og hærvejsturister fra ind og udland.

Det er ikke lige meget om Alhedestien går gennem et bebygget område eller som nu et område præget af skov og åbne arealer, der benyttes af rideskolens heste. Det vil naturligvis ændre områdets karakter grundlæggende, hvis et rekreativt område omdannes til to store sammenhængende boligområder jf. lokalplan nr. 499 og 509.

Som området står nu kommer børn og voksne her helt tæt på naturens gang: På mosekonebrygge, på dyreliv med masser af harer, rovfugle og rådyr, på stjernehimlen over et fuldstændigt mørket, på susen i træerne og lyden af en ugle, der tydeligt høres, fordi her ellers er stille. Det er ikke naturoplevelser, der kræver en biltur eller søndagsudflugt og netop derfor er de så væsentlige og vigtige børn og voksne i hele den sydlige del af Viborg.

Ændres lokalplanen er det ikke alene et tilvalg af flere byggegrunde men et fravalg af et område, der hver eneste dag bringer mange børn og voksne erfaringer og glæde ved at være i nærkontakt med naturen.

Netop sådanne muligheder gør Viborg attraktiv og det er glædeligt, at Viborg udvikler sig. Men det er kortsigtet at ofre et område, som er præget af varieret natur og oldtidshøje og fungerer som et rekreativt område for mange mennesker. Der findes omkring Viborg heldigvis andre muligheder for skaffe byggegrunde, hvor der ikke skal tages hensyn til fortidsminder og ændres ved skovbyggelinjen. Det har Viborg Byråd hidtidig haft øje for, når de tidligere har afvist ansøgninger om at bebygge dette område. Vi håber også det nuværende Byråd vil tænke byudvikling ambitiøst og langsigtet og derfor fastholde området ved Kolbækvænget og Alhedestien som rekreativt område til glæde for nuværende og kommende Viborgensere.

Med venlig hilsen René Schmidt og Anne Mette Buus

Kolbækvænget 9, 8800 Viborg.

Indsendt af Anne Mette Buus

Afbød tung trafik i evt. byggeperiode

Hvis lokalplanforslag vedtages, og det gør de nok, trods borgermodtand, så ved vi, at grusgraven ligger ude mod Karup, og med eksisterende viden om dem, der laver udstykning, så kommer de til at køre gennem Hald Ege med sand, grus og tunge maskiner.

MEN: Det appellerer jeg til, at kommunen sikrer undgået, fx. ved at indskrive et påbud i udbudsaftalen mellem bygherre og entreprenør om, at entreprenører SKAL køre udenom Hald Ege. Dvs. hele vejen op til rundkørslen og ned gennem Koldingvej og den vej ind til rideskolen eller Egeskovvej.

Problemet er i alles interesse, da det vil berøre alle husestande i byen, og endnu mere byens børn.

Indsendt af Simon

28-01-2019 116

Indsigelse mod lokalplan 499 samt 509 vedrørende kommende trafikforhold i Hald Ege

Jeg vil gøre indsigelse mod, at der udstykkes og bebygges i Hald Ege området; igen med en kraftig øgning af trafikken til følge.

I 1979 byggede jeg hus på Nonbo Mark. Dejligt åbent terræn med natur og marker til nabo. Siden er rigtig mange dejlige naboer kommet til, så Nonbo området i dag er udbygget.

Det samme er sket i det gamle Hald Ege, hvor institutionen folkekuren (Egeskovcentret) er ændret, og i dag fremstår, som boligområde for rigtig mange mennesker. Det er således, at beboerantallet er 5 gange større i dag, end da jeg købte min grund af Viborg Kommune.

Tilkørselsforholdene i 1979 var rigtig gode, idet jeg havde 4 muligheder for at få adgang til omverdenen. Dels ad Egeskovvej, som var uden forhindringer. Teglgårdsvej hvor muligheden for at køre ud på A13 i nord/syd retningen, Kolbækvænget og igen nå A13 i nord/sydgående retning og endelig Koldingvej.

Gennem tiden med de mange udstykninger i Hald Ege, er vejene forblevet uden nogen form for forbedringer for afviklingen af trafikken. Den er blevet minimum 5 gange tættere i tiden, ja endog endnu tættere, da en husstand ofte har 2 biler i dag.

Nej tværtimod - Først lukkede kommunen Teglgårdsvej. Det medførte at muligheden for at komme fra området blev forhindret. Derefter foranstaltede Viborg Kommune, at der skulle være chikaner på Egeskovvej gennem det gamle Hald Ege – som Jens Chr. Lund udtalte, så var det for at dæmpe hastigheden, men i høj grad også for at mindske uvedkommendes kørsel gennem byen (skulle virke til at folk tog en anden vej – nemlig Kolbækvænget) - og endelig blev det forbudt for lastbiler at køre gennem Hald Ege. Også Teglgårdsvej blev fyldt med chikaner – fælles for alle chikanerne i området forhindrer 2 biler i at passere hinanden. Cyklister fik meget svære tider herefter, da de ganske ofte kommer i klemme.

Chikanerne indebærer, at jeg i dag skal passere 15 chikaner, heraf 2 dobbelt chikaner, for at komme ud på Herningvejen; og 8 for at komme ned til Egeskovvej – som nu også skal dæmpes med yderligere chikaner ind mod Viborg.

Viborg byråd og teknisk forvaltning. Denne mangel på vejmæssige tilpasninger, er bare ikke godt nok! Rettidig omhu (brugt mange gange af Vesterby 17.02.19 på mødet i Multisalen) ville have startet med at få trafikken i Hald Ege planlagt, så belastningen stopper, og børnene kan færdes i tryghed. Der er taget hensyn til hestene fra Rideskolen, hvad med at vise samme hensyn til børnene i Hald Ege, der bor på vestsiden af Egeskovvej (Egeskovcentrets område)

Jeg foreslår, at Kommunen genoptager forhandlingerne med Vejdirektoratet og får lavet en aftale om udkørsel i A13 – Kæmp dog for det og få glade borgere i Viborg syd og Hald Ege.

Tak.

Per Busk, Nonbo Mark 10. Hald Ege, 8800 Viborg

Indsendt af Per Busk

Boligområdet Egeskoven, Egeskovvej delomr 2

Helt overordnet foregår til- og frakørsel for beboelser i Hald Ege og Kolbækvænget, og dele af sydbyen via Egeskovvej og Koldingvej. Til trods for, at antallet af beboelser, ikke mindst i Hald Ege, er steget drastisk, er til- og frakørselsforhold uforandret gennem de seneste 40 år. Udvidelse efter udvidelse er de heraf følgende stigninger i trafikmængden blevet bedømt for at være "ikke væsentlig". Med udvidelsen i antallet af beboelserne som beskrevet i lokalplanen øges trafikken yderligere. Håbet om, at kommunen tager alle aspekter af udvidelsen alvorligt, også dem der koster penge, bliver gjort til skamme. Ikke alene begrænser kommunens tiltag sig til etableringen af svingbaner, men udkørslen til hovedvej A13 lukkes. Allerede i dag er det denne mulighed for at komme til/fra området, som tager trykket af en efterhånden kvælende trafik. Det er en absolut nødvendighed, at kommunen udarbejder en helhedsplan som sikrer de nuværende og kommende beboere mod et trafikalt helvede. Sidstnævnte er forprogrammeret hvis lokalplanen i høring stemmes igennem uden ændringer.

Indsendt af Holger Nehmdahl

28-01-2019 118

Forslag til lokalplan nr. 509

Indsigelse vedr. angivelse af boligantal er vedhæftet

Indsendt af Jens Grønbæk Eriksen

Vedhæftet fil

Indsigelse til forslag til lokalplan 509 og 499

Bestemmelser vedr. maks. boligantal er ikke præcist formuleret, idet de anvendte formuleringer tilsyneladende kan overskrives ved en senere skønsmæssig fortolkning

I Viborg Kommunes lokalplan 408 er der i bestemmelserne §3 stk. 3.3 angivet, at der maks. kan opføres 20 boliger.

Efterfølgende giver Viborg Kommune tilladelse til, at der bygges 21 boliger.

Viborg Kommune begrunder tilladelsen med, at 1 bolig mere (5%) ligger meget tæt på det i lokalplanen tilladte, og at byggeretten overholdes (antal byggede m2).

Kommunen mener, at denne tolkning ikke er i strid med planlovens §19 stk. 1.

Vedr. forslag til lokalplan 509

I bestemmelserne i Lokalplan 509 anføres tilsvarende i samme §, at der højest må opføres 52 boliger og i formålsbeskrivelsen står der maks. 52 boliger. I høringsbrevet skrives tilsvarende maks. 52 tæt-lav boliger.

Når Viborg Kommune i lokalplanen anvender ordene "maks." og "højest", betyder det så reelt, at der under visse opfyldte andre betingelser, vil kunne gives tilladelse til en overskridelse på f.eks. 5% - altså konkret til 3 boliger mere end ”maks.”?

Vedr. forslag til lokalplan 499

I formålsbeskrivelsen i Lokalplan 499 anføres, at der maks. må etableres 74 gårdhavehuse, og dette fremgår ligeledes af Kommunens høringsbrev. Maks. antal fremgår ikke af lokalplanbestemmelserne.

Når Viborg Kommune i lokalplanen anvender ordet "maks.", betyder det så reelt, at der under visse opfyldte andre betingelser, vil kunne gives tilladelse til en overskridelse på f.eks. 5% - altså konkret til 4 boliger mere end ”maks.”?
Når det maksimale antal ikke fremgår af lokalplanbestemmelserne, betyder det så, at maks. antal boliger kun er vejledende, og at det antal, Viborg Kommune senere - under visse opfyldte andre betingelser – vil give tilladelse til er større end 5%?

Trafikken på Egeskovvej i Hald Ege

Jeg har boet i Hald Ege siden 1995 og deraf oplevet en stigende trafik igennem årene. Dette forøges endnu engang med nyt byggeri og væsentlig forøget trafik som følge af dette. Jeg må erkende at et af Viborgs ord ORDENTLIG Lyder hult i denne sag. At en formand for teknisk forvaltning kan sige at hvis man siger ja til dette byggeri og dermed øget trafik ikke ser på hvilken konsekvenser det har for det omgivende samfund. At børnenes skolevej bliver endnu mere usikker og man faktisk ikke har tænkt på at sikre børnene sikker skolevej. Ja der er sådan set slet ikke tænkt på at gøre noget ved den øgede trafik igennem Hald Ege og heller ikke ind mod byen ved Rema og Løvbjerg men istedet øges den yderligere ved at lukke udgangen til Vejlevej. Det var hvad jeg hørte til borgermødet d. 17.1.19 Det er ikke ordentlig men opleves som om der mangler en overordnet plan og overblik for området i et større perspektiv som kigger på trafikken, støj, naturen, historien og tør være visionær for området.

Indsendt af Irene Rask

28-01-2019 120

Områdets natur og byggeriets påvirkning

Vil først sige at de 2 projekter ser fine ud. Det er ikke projektet i sig selv men beliggenheden for projektet jeg opponerer imod. Vi har flot natur rundt om i Viborg og et af disse steder er hele området mod Hald Ege og ud videre mod Dollerup. Vi skal understøtte denne historie der ligger i dette område og det som mange både i Hald Ege og Viborg samt udenbys folk og turister ser som noget unikt og kommer for at opleve. Jørgen Buus skrev det så fint i et læserbrev fra d. 3.1.19 hvordan vi kunne udbygge hærvejens historie - inspireret af en artikel i Jyllandsposten af Ulrik Wilbek. At istedet for at afvikle så udvikle hærvejens sti som går lige ved dette område. At tænke hærvejsmarchens rute ind og gøre denne sidste rute inden byen starter, til noget enestående og bruge den flotte alle og hærvejens sti til at fortælle hærvejens historie og give alle dem der bruger den hele året rundt store natur oplevelser. Jeg håber og tror på at Viborg kommune har så meget MOD til at være visionær på naturen og historiens vegne så vi kan udbygge og udvikle historien istedet for at afvikle denne enestående indgangsport til Dollerups natur og historie.

Indsendt af Irene Rask

28-01-2019 121

Trafikken på Egeskovvej – mangel på sikkerhed for bløde trafikanter

Jeg deler overordnet Viborg Kommunes og Teknisk Udvalgs ønske om vækst og udvikling i vores kommune, som jeg er glad for at være en del af.

Jeg er dog bekymret for, at de fremsatte lokalplansforslag 509 og 499 vil medføre en betydelig øgning af trafikken gennem Hald Ege. De bløde trafikanter (cyklende) er udsatte på denne vejstrækning i forvejen, og i hele vinterhalvåret afvikles morgentrafikken inden solopgang i begrænset gadebelysning. Cyklister "klemmes" i chikanerne hvor overblikket er tvivlsomt. Reelt cykler skolebørnene på fortovet. Jeg har tidligere i forbindelse med kommunens forespørgsel om ønsker til trafikbedringer givet til kende, at der behov for en mere sikker vej for cyklister, herunder i særdeleshed for skolebørn til og fra Hald Ege Skole, men også til og fra Hald Ege Friskole og til Klubben i Hald Ege. De fremsatte lokalplansforslag bør tage højde for direkte konsekvenser i form af forværring af ovenstående – derfor: Etablér en sikre cykleforhold langs hele Egeskovvej – som der i øvrigt er langs Egeskovvej nord for Krathusvej, langs Videbechs Alle og langs Teglgaards vej, men besynderlig nok ikke på den mest centrale strækning af Egeskovvej mod Hald Ege Skole.

Indsendt af Anders Neumann

28-01-2019 122

Indsigelse til forslag til lokalplan

Indsendt af Poul Andersen

Vedhæftet fil

Egeskovvej, lokalplan 499 og 509

Ifølge planforslag er der tænkt lavet en indkørsel til de nye boligområder: Et T-kryds med en venstresvingsbane. Venstresvingsbanen skal være temmelig lang hvis der ikke skal opstå trafikpropper når trafikken er størst. Vejbredden ved krydset skal udvides med min. en halv vejbane eller ca. 4 meter. Vejbanen udvides mod syd – det vil kræve at alle de store træer på den udvidede strækning (og den bliver lang) skal fjernes. Udkørsel fra boligområderne vil komme til at ligge noget tilbagetrukket – også 4 meter. For at kunne se trafikken der kommer fra Hald Ege skal der laves et oversigtsareal og endnu flere store træer må fjernes. Alt i alt vil etableringen af krydset skabe et kæmpe hul i rækken af store træer langs Egeskovvej. Dette vil være ødelæggende for den helt specielle og smukke skovstrækning.

Ydermere vil man lave en støjvold helt tæt på Egeskovvej – hvad foregår der lige i hovedet på planlæggerne. Sådan en støjvold eller skærm skal trækkes mindst 10 meter tilbage, så der kan blive plads til mindre træer som kan skjule en støjskærm/vold som absolut ikke hører til langs Egeskovvej.

Opfordringen må være: Lad være med at ødelægge den smukke Egeskovvej. Find et andet sted at lave indkørsel til området.

På mødet den 17.01.19 blev det oplyst, at man ikke med lokalplaner kan forhindre brugen af pesticider i boligområder. Hvis man ikke kan forhindre brugen af ukrudtsbekæmpelsesmidler m.m. , bør der ikke opføres boliger på det følsomme vandindvindingsområde. Det er nok ikke helt tilfældigt, at særligt følsomme vandindvindingsområder anbefales tilplantet med træer.

Med venlig hilsen

Poul og Ebba Andersen

Skovløbervej 6, Hald Ege

Yderligere trafikal belastning

Allerede i dag er den trafikale belastning stor og voldsom igennem Hald Ege, kulminerende kl. 630-830 og igen kl. 15-17. En stor del er gennemgående trafik, som blot bruger Egeskovvej som smutvej til Herningvejen. Men de nye udstykninger vil denne trafikmængde øges betragteligt. Dette bekymrer mig meget, primært set i forhold til alle vore bløde trafikanter/gående omkring Egeskovvej, men også set i forhold til støj og forurening i det hele taget. På den baggrund vil jeg på det kraftigste opfordre politikerne i byrådet til at overveje/genoverveje udstykningerne i området mellem Hald Ege/Kolbækken og Rideskolen.

Indsendt af Ole Nielsen

28-01-2019 124

Indsigelse mod lokalplan

Hermed indsigelse mod lokalplanerne 499 og 509 og ligeledes 487, der i forhold til støjgener og trafikproblemer ikke lader sig adskille fra hinanden.

Indsigelsen begrundes med, at kommunen ikke på høringsmøde 17/1 tilfredsstillende kunne gøre rede for, at der er gennemført relevante støjmålinger eller lavet beregninger af lydbelastningen ved gennemførelse af lokalplanerne.

Der foreligger ingen SPL målinger før eller beregninger efter gennemførelse af lokalplanerne, hvilket er mangelfuldt stabsarbejde, inden byrådet på et kvalificeret grundlag kunne tage stilling til forslagene.

Kommunen bedes derfor forklare, hvorfor der ikke er lavet Sound Pressure Level målinger af den aktuelle støjbelastning af vejrtrækningen der dækker såvel ejendommene i Hald Ege, på hele Koldingvej såvel som resten af Egeskovvej.

Kommunen bedes gøre rede for, hvorfor der ikke er lavet beregninger af den forventede støjbelastning for bebyggelserne på vejrtrækningen givet man lukker tilkørslen til Vejlevej fra Kolbækvænget, og samtidigt opfører ca 260 nye boliger i området.

Kommunen bedes gøre rede for, hvorfor der ikke er lavet simulationer, der estimerer hvilke støjdæmpende tiltag der skal til, for at nedbringe trafikstøjen til et niveau, så det ikke er helbredsskadeligt for beboerne på den nævnte vejstrækning.

Ovenfor nævnte målinger bør laves eller beregnes af hensyn til nuværende som fremtidige beboere, der berøres af de påtænkte lokalplaner.

Det kan undre, at der ikke er taget hensyn til WHO anbefalingerne for gennemsnitlig støjeksponering i WHO rapporten “European Noise Guidelines for the European region” publiceret i 2018.

Jeg er ikke modstander af udvikling, men mener, at man med de tre lokalplaner, uden samtidigt at lave relevante støjforbedrende tiltag i væsentlig grad øger helbredsrisikoen for beboerne langs Koldingvej og Egeskovvej

Vh Larry Højgaard Kristiansen, Hald Ege

Indsendt af Larry Højgaard Kristiansrn

Grønne områder

Jeg mener ikke man bør ødelægge de grønne områder i det bynære miljø.

Al erfaring viser at det der efterspørges i byer er grønne områder.

Man bør derfor bevare områder i grønne områder nær byen.

Indsendt af Mark

28-01-2019 126

Drikkevand

Jeg mener der er en alt for stor risiko ved at bygge ovenpå drikkevandsforsyningen.

Der findes et stadig stigende antal gifte eller sprøjterester i vores grundvand som man var sikker på ikke var skadelige for 15 år siden. Jeg mener ikke man skal løbe en risiko ved at tro at man kan forudsige resultaterne af byggeriet.

Indsendt af Mark

Drikke og grundvand

Det undrer mig, at der planlægges boligkvarter i indvindingsområdet til Sydværket.

Man vil "henstille" til de eventuelle nye boligejere - om ikke at salte, vaske bil eller benytte pesticider i området, da man ikke kan forbyde det ved lov.

Desuden vil der blive anlagt nye villaveje, med nedsivning af beskidt/forurenet vejvand tilfølge.

Det er simpelthen ikke "rettidig omhu".

Vi skal alle tænke på at de kommende generationer også gerne skal have tilgang til rent vand.

Hvordan har Viborg Kommune tænkt sig at håndtere dette?

Indsendt af Chris Stampe

28-01-2019 128

Indsigelse mod udstykning ved Egeskovvej

Jeg er imod den planlagte udstykning ved Egeskovvej (lokalplanerne 499 og 509) af flere årsager.

For det første bør man bevare og understøtte naturen der er i den sydlige del af Viborg og Hald Ege, som via marguerite ruten forbindes med den helt unikke natur ved Hald Sø og Dollerup Bakker. Turen langs margueritruten er noget ganske specielt med egetræes allen og mange nyder Alhedestiens forløb i de rekreative områder. I kommuneplanen fra 2017 er området netop udlagt til rekreativt område i landzone til gavn for både dyr, mennesker og miljøet, hvorfor har man ændret holdning til dette? Hvorfor vil vi sælge ud af de grønne rekreative områder i Viborg, som netop er med til at gøre, at folk gerne vil bo her?

For det andet er jeg bekymret for den øgede trafik gennem Hald Ege herunder især sikkerheden for de bløde trafikanter. En del børn og forældre har behov for at krydse Egeskovvej enten på vej til skole eller institution. Vejen er endvidere ikke egnet til cyklister på grund af dårlig belysning og helleanlæg, som gør, at der ikke er plads til en cyklist og to biler ad gangen. Der er i forvejen en del trafik i spidsbelastningsperioderne om morgenen og eftermiddagen og den ekstra trafik vil kun forværre situationen yderligt.

Herudover kan nævnes flere andre bekymringer vedr. grundvandsindvinding, indskrænkning af vildtet passage over Egeskovvej og øget risiko for påkørsel, stærk øget trafik ved Løvbjerg/Rema og støj både for nuværende beboere ved Egeskovvej og beboere i de nye udstykninger.

Indsendt af Naja Kokholm Jensen

28-01-2019 129

Indsigelse og bemærkninger til forslag til lokalplan 499 og 509

Hermed indsigelse mod de tre lokalplansforslag (487, 509 og 499) vedrørende nyt byggeri mellem Hald Ege og Viborg.

Som beboer i Hald Ege er jeg bekymret for de konsekvenser som de tre lokalplanforslag må forventes at få for trafikken på Egeskovvej i Hald Ege. I Miljørapporten til lokalplanerne 509 og 499 er der alene foretaget en vurdering af trafikstøjen og trafiksikkerheden på Egeskovvej ud for lokalplansområderne, men der er ikke foretaget en vurdering af, hvilke konsekvenser lokalplanerne vil få for trafiksikkerheden i selve Hald Ege, hvilket vidner om manglende helhedsplanlægning i forbindelse med fremsættelse af lokalplansforslagene.

Der er allerede i dag tæt trafik på Egeskovvej i myldretiden, og vejen er ikke sikker for skolebørn. Det blev nævnt på borgermødet, at Alhedestien er en sikker skolevej, men mange børn skal enten køre et stykke langs Egeskovvej eller krydse Egeskovvej for at komme til Alhedestien. Der mangler en sikker overgang på Egeskovvej. Jeg bor tæt på den eneste fodgængerovergang, der er på Egeskovvej i dag, og her ser jeg desværre meget ofte, at bilister ikke holder tilbage for fodgængere. Egeskovvej er i det hele taget ikke dimensioneret til øget trafik, som er konsekvensen af vedtagelse af de tre lokalplansforslag samt lukningen af udkørslen til Vejlevej. Jeg ønsker derfor at gøre indsigelse mod de tre forslag til lokalplaner.

Samtidig synes jeg, at det er trist, at bekymringerne vedrørende den øgede trafik på Egeskovvej på borgermødet den 17/1 blot blev mødt med, at Hald Ege-borgerne jo bare kunne tænke på de beboere, der bor ud til Randersvej fra formanden for Teknisk Udvalg, Johannes Vesterby. I forbindelse med behandlingen af de tre lokalplansforslag bør kommunen og kommunalbestyrelsen som minimum også forholde sig til de konsekvenser, som en så stor forøgelse af boliger i området må forventes at få for Hald Ege, og ikke blot henvise til, at der er andre steder i kommunen, hvor der er borgere, der er udsat for en stor trafikbelastning.

Endelig synes jeg, at det er en ærgerligt, at der skal bebygges yderligere i et af de smukkeste naturområder ved Viborg. En del af det, som gør kommunen attraktiv, er i høj grad, at der smukke naturområder, og de bør derfor bevares.

Indsendt af Clara Mikkelsen

28-01-2019 130

Indsigelse mod lokalplanerne 487, 499 og 509

Jeg må tilslutte mig bekymringen for det trafikalepres disse lokalplaner(487, 499 samt 509) ligger på Egeskovvejen. Som far, bosiddende på Videbechs Alle, må mit barn krydse Egeskovvejen for at komme i skole, og det undrer mig at man overvejer disse planer, uden at have fundet en holdbar og sikker løsning for disse bløde trafikanter først. Jeg synes faktisk det tangere til uforsvarligt.

Kom ud og se hvordan det fungerer i hverdagene mellem 07:50-08:20,13:55-14:20 og 15:30-16:30, og stil dig så spørgsmålet: Vil jeg sætte mit barn ud i det her på cykel? Hvis du(imod forventning;) ikke har problemer med det, så prøv at skrue op for antallet af biler, og tænk tanken igen?

Jeg har meget svært ved det, og jeg synes at der skal være plads til at alle kan færdes sikkert. Også børn på cykel til og fra skole.

Indsendt af Keld Nissen

28-01-2019 131

Høringssvar til lokalplan 509

Se vedhæftede fil

Indsendt af Gerner Revall Klærke

Vedhæftet fil

Høringssvar til lokalplan 509

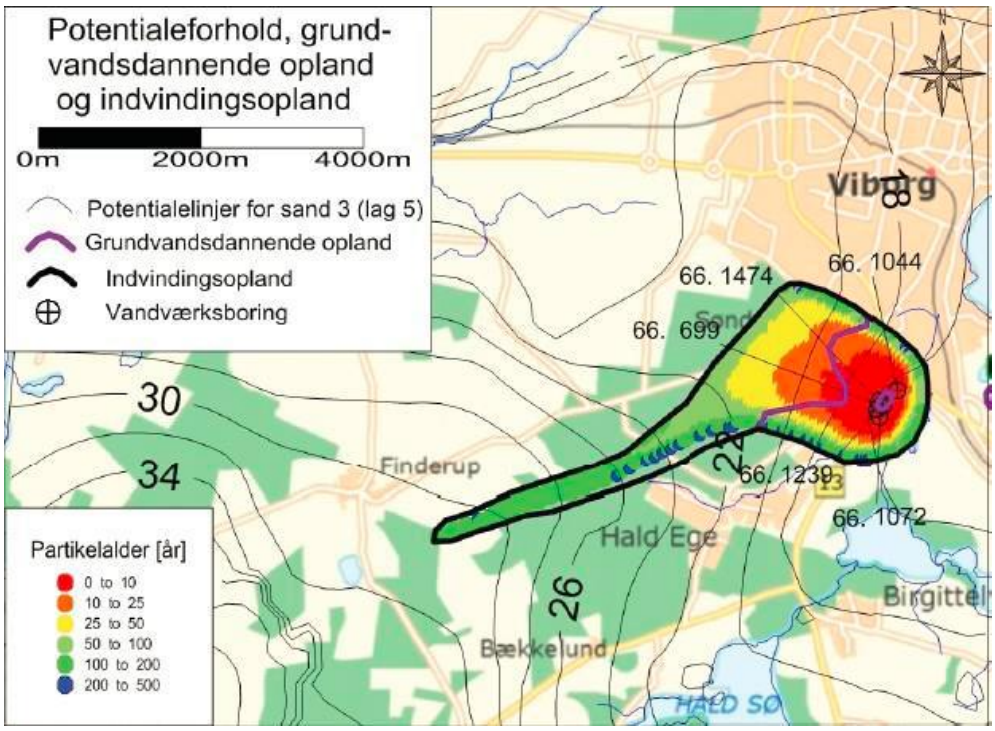
1) Grundvand

Jf. lovgivningen (”*Bekendtgørelse om krav til kommuneplanlægning inden for områder med særlige drikkevandsinteresser og indvindingsoplande til almene vandforsyninger uden for disse”*) skal kommunen jf. §2, stk. 3: *”Kommunalbestyrelsen skal desuden friholde afgrænsede boringsnære beskyttelsesområder til almene vandforsyninger for udlæg af nye arealer til en arealanvendelse, der medfører øget fare for forurening af grundvandet.”*

Det er indiskutabelt, at en kommende bebyggelse med villahaver og parkeringsarealer medfører en øget fare for forurening af grundvandet i forhold til 0-alternativet, som er status quo. En vedtagelse af lokalplanen er derfor en overtrædelse af bekendtgørelsen.

Kommunen kan afvige §2, hvis der ikke kan findes andre egnede områder. Man skal dog have meget snævre briller på, hvis man ikke i Viborgs nærhed kan finde andre alternativer til placering af nyt boligområde. Det lader til at vurderingen er lavet ud fra, at der ikke kunne findes bedre alternativer i en 1km radius. Dette mener vi strider mod intentionen i bekendtgørelsen.

Området ligger lige oveni indvindingsområdet for 600.000m^3 grundvand til borgere i Viborg Syd og lige ved ”indsejlingen” til boringerne fra det grundsvandsdannende opland.



En vedtagelse af lokalplanen vil være ”at fucke med vores grundvand” (citat Bodil Jørgensen i reklamer for affaldssortering).

2) Afledte trafik-konsekvenser i Hald Ege

Allerede i 2014 gav grundejerforeningen i Hald Ege som høringssvar til lokalplan 408 fra 2014 (byggeri på Egevænget i Hald Ege) udtryk for frustration over, at trafikpresset på Hald Ege kun bliver større og større. Denne lokalplan 509 sammen med lokalplan 499 vil øge dette pres markant. Disse afledte effekter savnes der i den grad en plan og stillingtagen til.

Hver lokalplan for sig tager kun stilling til sit eget område og følgeeffekter afvises med begrundelsen, at det ligger uden for det grundlag, der skal vurderes i den aktuelle lokalplan.

Egeskovvej i Hald Ege ER farlig at færdes på som blød trafikant – særligt i morgentrafikken.

Muligheder for børn for sikkert at krydse Egeskovvej er IKKE tilstrækkelige.

Banestien/Alhedestien ligger øst for Hald Ege og er IKKE den naturlige skolevej for rigtig mange af Hald Eges børn.

Der ønskes stillingtagen og dialog omkring sikring af afledte konsekvenser i fald lokalplanen vedtages.

Mvh. Gerner og Gry Revall Klærke

31-01-2019 132

Kommuneplans ændring

Indsendt version 23-12-2018 havde fejl og kunne ikke åbnes

Indsendt af Jørgen Buus

Vedhæftet fil

23.12.2018

Til Planafdelingen Viborg Kommune

Indsigelse imod ændring af den i 2017 vedtagne Kommuneplan. (Tillæg 26)

Det kan ikke være rigtigt, at en kommuneplan ændres så kort tid efter en lang offentlig høringsperiode og endelig vedtagelse af det daværende byråd. Forslag til ændringen var indleveret i marts 2017 og var en gentagelse af officielle og uofficielle henvendelser.
Viborg Kommune bør fastholde sin egen planlægning og fastholde området langs Egeskovvej som "Grønt rekreativt område" ikke mindst fordi området er indvindingsområde til vandværket Viborg Syd.
Det daværende Viborg Amt nedlagde forbud mod bebyggelse af hensyn til indvindingsområdet. Hvad er sket siden?
Der er nedlagt en skydebane, men ellers er der ikke sket anden ændring i området.
Der er kommet endnu et nyt byråd.
Grundejerne søger fortsat om tilladelse til boligbyggeri i området, som de har gjort i rigtig mange år.

Kravet til indvindingsområder er ikke blevet mindre i tidens løb, og i Rambøls Miljøvurdering af området er " Den nye drikkevandsbekendtgørelse 2018" ikke medtaget. Der er ikke taget vandprøver i området mig bekendt.

Bekendtgørelsen rummer betydelige nye krav til vandkvaliteten, som kommunen ikke kan undslå sig at følge.

Området er udpeget til følsomt NFI(National Forest Inventory), som vigtigt for miljøet og beskyttelse af grundvandet.

I den sydlige del af området er der i dag en forvokset juletræsplantage med nordmansgran, der er noget af det mest krævende med hensyn til gødning, ukrudtsbekæmpelse og sprøjtning mod skadedyr.

Oven på en drikkevandsforsyning!

Mange kommuner er nødtvungen til at hente deres drikkevand under bebyggelse – det behov, er der ikke i Viborg Kommune. Takket være vore plantager.

Indvindingsområdet bør friholdes af hensyn til almenvellet.

Almenvellet - det fælles gode i modsætning til det private gode.

MVH Jørgen Buus

Niels Bugges Vej 12

Hald Ege