



Stakeholder engagement in Apeldoorn

Extract from the Demonstration Report

Apeldoorn, The Netherlands



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This text describes Apeldoorn's experience in carrying out a co-design process and a participation programme to engage citizens and stakeholders for the renovation of the residential road of Griffiersveld. The sections come from Apeldoorn's CityLoops demonstration report available [here](#).

Demonstration activities to close material loops

To be able to execute the Griffiersveld renovation process as circular as possible, the CityLoops demonstration project in Apeldoorn encompassed multiple activities to make sustainability and in particular circularity a priority for stakeholders involved in planning, reshaping and experiencing the built environment. Related to Elkington’s triple bottom line “people, planet and profit” (1999), these activities can be more or less categorized as social, technical or economic. The social activities included:

- A process journey with stakeholders (Section 4.1.1).
- A participation program with residents (Section 4.1.2).
- A contractor with circular ambitions took care of executing the project accordingly (Section 4.4).

The expected outcomes at the beginning of the project were the following:

	Grouping	Sub actions	Expected outcomes
4.1	Stakeholder/citizens involvement	Internal stakeholder process journey	Increased knowledge and awareness raising within municipal organisations
		Participation program	Citizens in Griffiersveld are engaged in the circular economy by means of raised awareness

Stakeholder and citizens involvement

Internal stakeholders process journey

The municipality of Apeldoorn wondered how to align the stakeholders in its public infrastructural projects to come to a circular and, at the same time, executable project. To this end, a literature study and experiment were conducted. The experiment consisted of a co-design process aiming for the renovation of a residential road constructed in the late seventies. Because of their expertise in methods of service design and guiding a team of stakeholders through the co-design process, advisors of Koos Service Design facilitated the process to come to this process journey, including the organisation of multiple interactive co-design sessions.

When conducting road renovation, multiple departments within the municipal organization and different external organizations need to collaborate. To them, circular material usage was

introduced as a new specific sustainable objective, while traditional constraints, like time and costs, remained. It was visualized in a process journey, showing who is expected to meet which collaborative milestones and when (see Figure 4.1). For more information, please take notice of the submitted and presented conference paper on this topic of Entrop, Hagen and Van Leeuwen (2022).

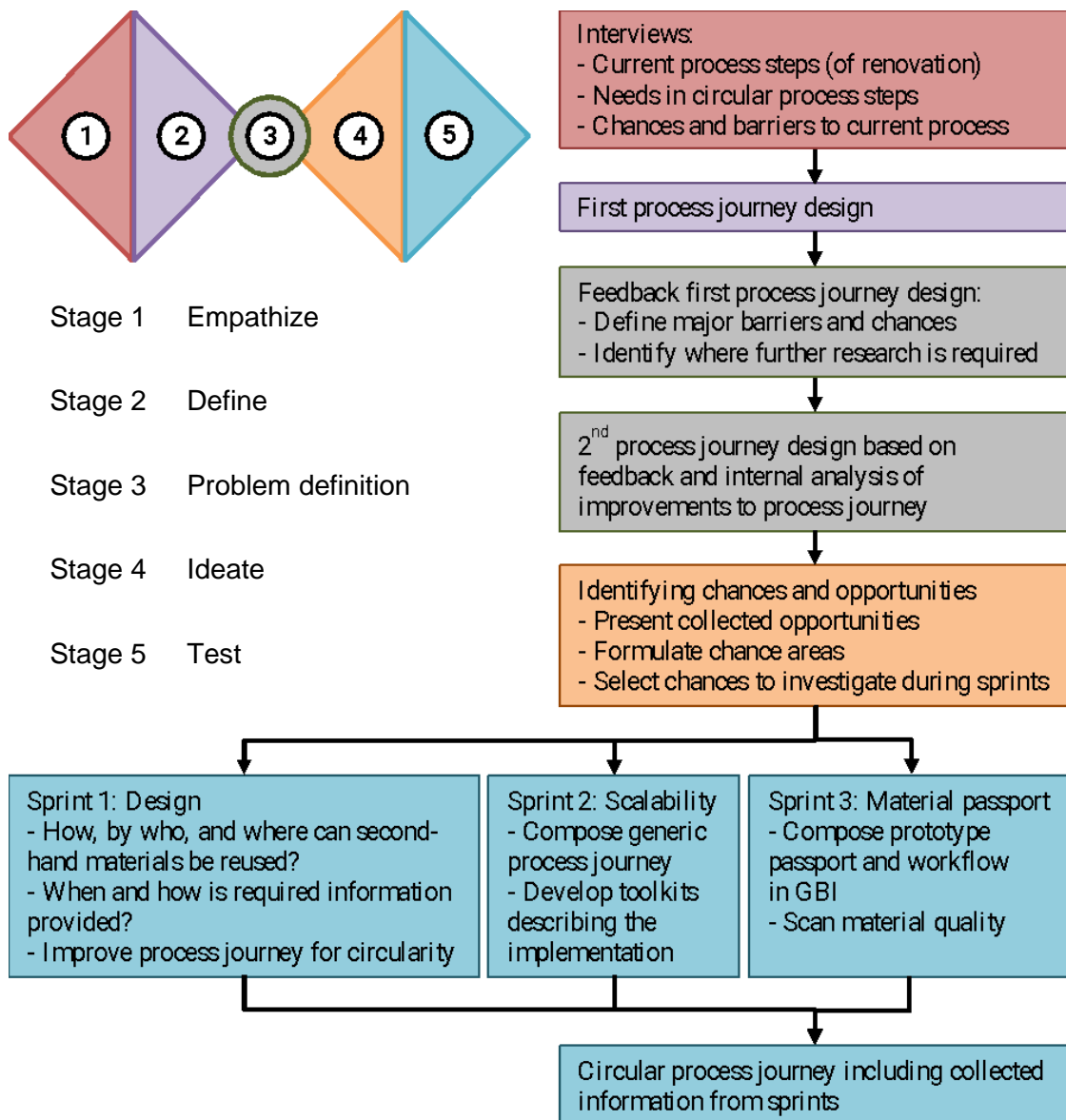


Figure 4.1. Overview of the complete service design trajectory resulting in a circular process journey by the early stakeholders involved in Griffiersveld (Entrop, Hagen and De Leeuw, 2022).

STAKEHOLDER CONSULTATION PROCEDURE: THE CO-DESIGN PROCESS

Together with the external process facilitator, Koos Service Design, the steps to come to a circular process journey were executed. When preparing a circular construction project, multiple actors and stakeholders are involved. However, difficulties can be experienced in aligning these actors and stakeholders to come to an executable project. A co-design process, based on the method of service design, was used to develop a process journey. This process journey is an overview of the involved actors per process phase. To collaboratively complete deliverables, it shows the roles and

tasks each actor is expected to fulfil. As such, the process journey can form a manual instruction to accomplish the desired project circularly.

Lessons learned

The roadmap is generic and applicable for design-driven projects in other cities worldwide. However, within CityLoops it has not yet been tested by any other municipality than Apeldoorn. When following the roadmap, the output will be a circular process journey. This output adds to the possibility to compare cities nationally and across countries. Design thinking forms the basis when going through the service design process. It may take time to develop and apply this way of thinking. “Service design does not have distinct expertise in the circular economy by itself. Its tools inspire and enable an intrinsic transition to design a new system collaboratively.” (Koos Service Design, 2022, p.43).

To make use of the tool successfully, the developers recommend having an open mind to opportunities to include organizations with knowledge of and experience in developing material passports and closing materials loops. Please, do not stay away from those who currently are not yet part of construction processes. Furthermore, it is important to involve stakeholders throughout the co-design process to make them at least partially owners of the process and to increase their sense of responsibility. In this way, stakeholders can share their insights within their organization and spread this way of working and thinking.

Although coming to circular material usage in road renovation projects highly motivated contractors to execute the process that is needed, it is not, due to European public tendering rules, an easy task to just invite contractors to participate in the co-design process. “Most of the transformations need to happen in the market, not in the municipality itself.” (Koos Service Design, 2022, p. 44).

Tool Factsheet “Stakeholder consultation procedure: the co-design process”

Conference paper <https://iopscience.iop.org/article/10.1088/1755-1315/1078/1/012119>

Facilitator Koos Service Design <https://www.koos servicedesign.com/>

Impact

Expected outcome: Increased knowledge and awareness raising within municipal organisation

Indicator	Baseline result	Intermediate result	Final result
21: New planning / tools for improved circularity	Zero	Together with Koos Design a process journey was developed. Design thinking process and workshops were held between September 2021 and February 2022. Every six weeks a meet up, to	By participating in the process journey we noticed an increased awareness and knowledge amongst the different stakeholders on roles, tasks and perspectives. By bringing all stakeholders together in one group, awareness was increased on the cross-connections in the project.

		develop the design thinking template.	
<p>Outcome review:</p> <p>In the municipality of Apeldoorn, this tool was used to map collaboration across actors in multiple phases of a road renovation project. In the process journey, actors were involved with a profound knowledge of road quality and road materials. The expected outcome of increased knowledge and awareness raising within the municipal organisation was achieved.</p>			

Participation program

To design its communication plans, the municipality of Apeldoorn makes use of the so-called participation ladder. Although originally developed by Arnstein, an extended version as offered by Pröpper (2009) is adopted. Experienced communication experts, employed by the municipality, design and deploy participation trajectories by advising project leaders and policy officers. They help in communication processes, but don't participate in the actual execution of projects. In some projects this is being experienced by the project leaders and policy officers as a shortcoming. To get residents and other stakeholders actively involved, one needs a clear understanding of the context.

Although one might consider the renovation of a road as a relatively simple process, still residents need to be informed through newsletters and meetings. The area under consideration is a neighbourhood to its residents; it is not a number of square meters asphalt in a highway nobody relates to or adores. The residents need to be offered an opportunity to interact in the design process and need to be prepared regarding what will happen during execution. Especially, when for most residents and many civil servants a new concept is introduced, which circularity was to them.

Thoughts had already been given to how the municipality could interact with the residents in Griffiersveld and how to offer a newsletter to residents, when the COVID-19 virus locked down the Netherlands in March 2020. The municipality of Apeldoorn used for example a self-made online environment to collect input from residents living in the residential area around Gilles Pieter Duinglaan (see Figure 4.2 and 4.3). The input collected online was used to redesign this road. For Griffiersveld, a survey was developed by students from Saxion to collect information among residents about their thoughts for the renovation plans. This survey can be found in Appendix 4 of Ten Brinke, et al. (2021).

1 ACHTERGROND PROJECT

De G.P. Duuringlaan

De G.P. Duuringlaan is een van de oudere wegen van Uigchelers. De weg is langzaam veranderd van een zandweg naar een verharde weg met bebouwing er langs, zogenaamde lintbebouwing. Kenmerkend voor deze oude wegen in het dorp zijn de bomenrijen en de grindbermen. De straat heeft een groen en landelijk uiterlijk. Dat past goed bij het dorp, en we vinden het belangrijk dat dat zo blijft, vandaar dat de grindbermen blijven zoals ze zijn bij de geplande vernieuwingen. Op plekken waar het kan komen bermen terug waar ze ooit waren. Ook planten wij meer bomen op locaties waar de bomenrijen verdwenen zijn. En natuurlijk gaan wij ook de weg zelf aanpakken. Het asfalt vervangen we voor klinkers. Daarnaast leggen we een regenwaterlozing onder de rijsaan zodat schoon water in de bodem onder de weg kan zakken. Op die manier wordt ook het bestaande riool minder belast.

Verkeersmaatregelen

Naast het verbeteren van de weg en het straatbeeld nemen we ook een aantal verkeersmaatregelen. Dit doen we om de verkeersveiligheid te verbeteren. De onderdoorgang G.P. Duuringlaan/Uigchelersweg - Al/Jan Houtmanlaan maakt straks deel uit van de bestaande 30 km-zone. Hiervoor worden een aantal passerende maatregelen genomen, zoals het aanbrengen van snelbedremmende aanpassingen en herkenbare en eenduidige voorrang op kruispunten. Kruispuntplea's worden aangebracht waarbij verkeer van rechts voorrang krijgt, zoals gebruikelijk is in ruimtes binnen de bebouwde kom.



Figure 4.2. During Corona the municipality of Apeldoorn used a self-made online environment to collect input from residents, when it comes to redesigning and renovating public residential areas, like here in the G.P. Duuringlaan (website by courtesy of Elbert de Hon).

1 ACHTERGROND PROJECT

2 HET AANGEPASTE ONTWERP

Uw stem telt mee

Eind 2021 heeft u uw feedback kunnen geven over het opnieuw inrichten van de GP Duuringlaan. In het ontwerp zijn wijzigingen aangebracht onder andere op basis van uw feedback.

Aan de rechterzijde van deze pagina treft u het ontwerp aan waarbij u kunt in- en uitzoomen op de kaart. De legenda staat rechts bovenin het scherm met uitleg van de symbolen. Daarnaast kunt u, met de knop naast de legenda, de luistof toevoegen als snergrondkaart.

De verwachting is dat wij in het najaar van 2022 starten met de uitvoering van het project.

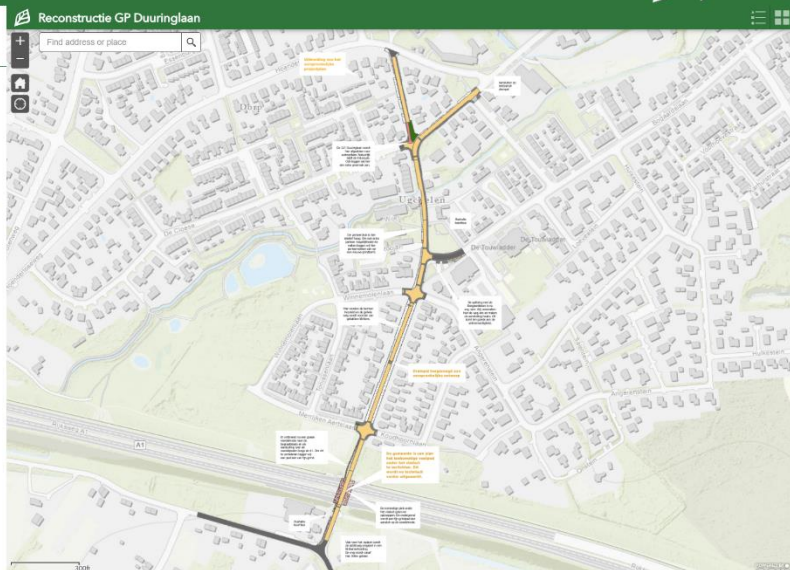


Figure 4.3. During Corona the municipality of Apeldoorn used a self-made online environment to collect input from residents, when it comes to redesigning and renovating public residential areas, like here in the G.P. Duuringlaan (website by courtesy of Elbert de Hon).

Based on experiences of other Dutch municipalities and based on research, the municipality decided to use a digital platform. The European D-CENT (Decentralized Citizens Engagement Technologies) research project ran from 2013 to 2016. The D-CENT project brought together civil servants of municipalities that in recent years played a role in transforming democracy and decision-making processes using digital tools. With the input of these innovators, a new

generation of shareable, local and privacy-aware tools for direct and deliberative democracy were developed. In Madrid, Reykjavik, Helsinki, and Barcelona a number of participation tools was extensively tested. Digital tools were made available for organizations and governments via the GitHub sharing platform (<https://dcentproject.eu/>, visited on February 22nd, 2023).

Using the insights from the D-CENT project, the Municipality of Apeldoorn had the intention to purchase a license for OpenStad, an online digital platform that can interact adaptively with its users (please have a look at <https://openstad.org/>, visited on February 22nd, 2023). The idea was to use this tool for interactive design processes with the residents in Griffiersveld. The current state of the road and the new designs can be shown in the platform, people can react to it and with the help of smart techniques, the reactions and comments can be given in real time.

At the municipality of Apeldoorn, an official was appointed for OpenStad who was going to make himself familiar with the platform. The person in question internalized himself to get started with it. However, the question rose to what extent the residents in the particular neighbourhood are digitally skilled to be able to work with this tool. A small survey was distributed among the residents both digitally and paper-based. The outcome was on the one hand unpleasant and on the other hand very enlightening. Only a few people completed the survey digitally, most paper-based. The survey showed that many residents are digitally illiterate and prefer to communicate directly and not via a digital platform with the municipality.

As a result, we organized a Sustainable Activity Day in the neighbourhood on the 25th of May 2022 (see Figure 4.4 and 4.5). On this day we reviewed several themes. Of course, the circular ambition in renovating the road was an important topic (see Annex A for the developed poster and brochure), but also other sustainable topics such as: improve storm water infiltration, saving energy in homes, reusing products, reducing and separating waste, etc.



Figure 4.4. Impression of the Sustainability Activity Day in Griffiersveld.



Figure 4.5. Discussing the plans for renovating Griffiersveld with the residents at the Sustainability Activity Day.

In terms of the different topics, we:

- made people aware of what they can do in the field of waste separation.

- gave people the opportunity to give up pavement in exchange for soil and plants in the context of climate change.
- put people in contact with energy coaches, so that they could get an explanation about what they can do in the context of energy saving and renewable energy sources.
- made people aware of what circularity is by explaining the plans and by inviting the contractor, who was going to carry out the reconstruction. In this way, the contractor was already able to work on his relationship management with the residents.

Impact

Expected outcome: Citizens in Griffiersveld are engaged in the circular economy by means of raised awareness.

Indicator	Baseline result	Intermediate result	Final result
CE -related knowledge building campaigns	Zero, citizen engagement method was not used before	Through different events and communication methods, sustainable doing day, and the survey to 134 inhabitants, development of brochures awareness is raised.	<p>We are in the process of conducting research to the final results of this indicator.</p> <p>It is expected that due to the different methods of engagements and participation, the citizens of Griffiersveld were more engaged with the circular aspect of the reconstruction of the road.</p> <p>An outstanding question which we are still researching is whether this has also led to less “complaints” in comparison to traditional road constructions.</p>
<p>Outcome review:</p> <p>There has been a positive intervention towards citizens in Griffiersveld. But interaction with the citizens has been limited due to Covid, regulations. One of the main learnings throughout the process is that before choosing a participation tool/ method, to first conduct research on the characteristics of the citizens. In this case the digital platform showed to be a mismatch due to the low digital savviness.</p>			

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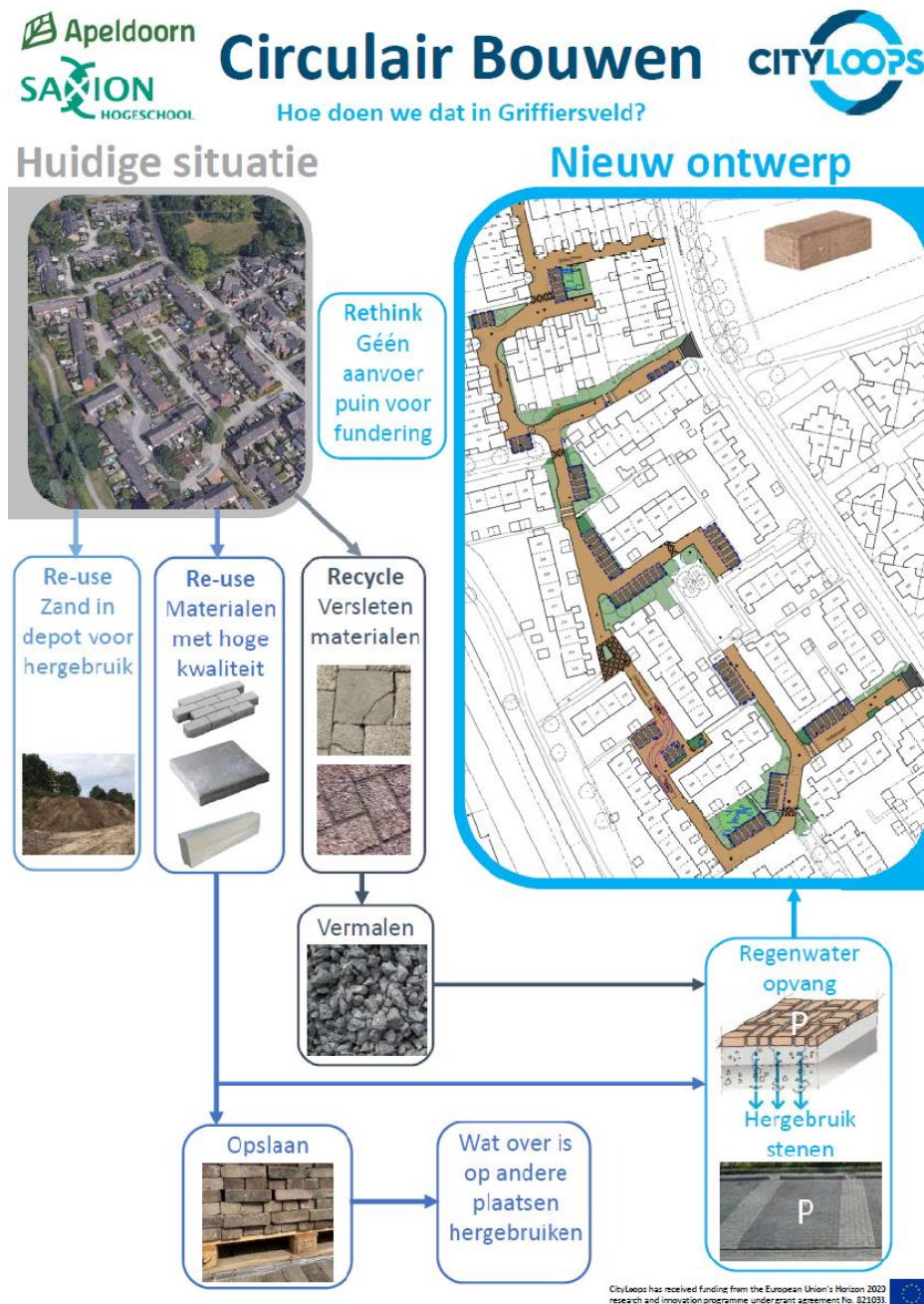
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Annex A: Informing residents

In this annex you can find a poster (Figure A.1) and brochure (Figures A.2 and A.3) that were developed by Saxion UAS and the municipality of Apeldoorn for the residents of Griffiersveld. The poster tries to visualize which materials are considered how in Griffiersveld. The brochure explains in a concise way what circularity and closing material loops are all about and how this will be achieved in renovating their street. It also provides the general applicable 10R system to close material loops.

Figure A.1: The poster that was presented to the residents on the sustainable action day.



Circulair Bouwen

Hoe doen we dat in Griffiersveld?



Het CityLoops project

CityLoops is een groot Europees project, waarin zeven gemeenten uit zes verschillende landen samenwerken aan het sluiten van materiaal-kringlopen, zodat waardevolle materialen niet worden verspild. Dit doen ze zowel voor biologisch materiaal (denk bijvoorbeeld aan gemaaid gras of gevallen bladeren), als voor bouw- en sloopafval. Samen met u en verschillende bedrijven werken de gemeente Apeldoorn en hogeschool Saxion eraan om dit in Griffiersveld voor elkaar te krijgen.

Wat is circulair bouwen?

Voor de bouw is van veel grondstoffen maar een beperkte voorraad aanwezig, daarom moeten we hier zuinig mee omgaan. In een circulaire economie bestaat er -net als in de natuur- geen afval, omdat materialen steeds opnieuw worden gebruikt. Dit wordt ook wel het sluiten van materiaalkringlopen genoemd. Omdat Nederland de ambitie heeft om in 2050 volledig circulair te zijn, moet ook de bouwsector circulair gaan bouwen.

Het 10R model

Het 10R model bestaat uit tien lagen die beschrijven hoe er circulair kan worden gebouwd. Deze tien lagen staan hiernaast beschreven. De meest circulaire toepassing is laag 1 en het minst circulair is laag 10. Het beste is dus om een maatregel in een zo hoog mogelijke laag toe te passen.

Het verbranden van materiaal zonder energie terug te winnen of het storten van materiaal in de natuur of op een vuilnisbelt vallen niet onder één van deze tien stappen en horen dus niet thuis in een circulaire economie.

1. **Rethink** (heroverwegen) is het begin van circulair denken en doen door een andere manier van denken en organiseren aan te leren;
2. **Redesign** (herontwerpen) door het ontwerp zodanig aan te passen dat het product een langere levensduur heeft, makkelijk te demonteren is en bestaat uit duurzame materialen die opnieuw gebruikt kunnen worden;
3. **Reduce** (verminderen) gaat om het verminderen van het verbruik van grondstoffen tijdens de productie;
4. **Reuse** betekent hergebruiken van een volledig product, in dezelfde functie;
5. **Repair** (repareren). Het is beter om goed onderhoud en reparatie uit te voeren dan spullen weg te gooien en nieuwe te kopen;
6. **Refurbish** (opknappen). Producten of bouwdelen worden hersteld of vernieuwd door ze op te knappen;
7. **Remanufacture** (reviseren). Het gaat er hierbij om dat nieuwe producten worden gemaakt van oude producten of onderdelen hiervan;
8. **Repurpose** betekent het hergebruiken van producten met een ander doel;
9. **Recycle** is een brede term die we gebruiken voor de verwerking en het hergebruik van materialen;
10. **Recover** is het terugwinnen van energie uit materialen.

Figure A.2: Front page and two inner pages (when A4 is folded) of the brochure for the residents.

Wilt u meer weten over het CityLoops project?
Kijk dan op apeldoorn.nl/cityloops



CityLoops has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 821033.

Circulair materiaalgebruik in Griffiersveld

In het vernieuwen van de bestrating in Griffiersveld worden drie van de tien levels van het 10R model toegepast, namelijk: Rethink, Reuse en Recycle.

Rethink (Heroverwegen)

De belangrijkste manier om circulair te bouwen is door zo min mogelijk materialen te gebruiken en te produceren. Dit kan worden gedaan door in de ontwerpfase te heroverwegen (rethink) of een bepaald materiaal wel echt nodig is.

In eerste instantie zou bij Griffiersveld een puinlaag als fundering onder de wegen worden toegepast. Deze zwaardere vorm van funderen is niet nodig in deze wijk, omdat er naar verwachting niet veel zware voertuigen (op de vuilniswagen na) over de weg zullen gaan rijden. Er is daarom besloten om de huidige zandlaag onder de wegen opnieuw als fundering te gebruiken. Dit type fundering is voldoende in deze wijk en daardoor hoeft er geen tot weinig zand te worden afgegraven en te worden afgevoerd. We voorkomen hiermee het aanvoeren van 750 m³ puin.

Reuse (Hergebruiken)

Wanneer het materiaalgebruik in de vorige stap tot een minimum is beperkt, is het belangrijk om de productie van nieuwe materialen te verlagen. Dit wordt gedaan door bestaande producten te hergebruiken (reuse).

Bij Griffiersveld wordt daarom een deel van de huidige materialen, die nog voldoen aan de kwaliteitseisen, hergebruikt in het nieuwe ontwerp. Dit is 535 m³ aan betonstraatstenen die worden gebruikt voor de nieuwe parkeerplaatsen. Andere bruikbare betonstraatstenen, betontegels en betonnen opsluitbanden, die niet in het nieuwe

ontwerp van Griffiersveld passen, worden op een online marktplaats speciaal voor bouwmaterialen geplaatst. Op deze manier kan een deel van de uit Griffiersveld komende materialen worden hergebruikt in andere projecten.



Recycle

Wanneer materialen niet kunnen worden hergebruikt, omdat bijvoorbeeld de kwaliteit niet meer goed genoeg is, worden de materialen gerecycled.

Het gaat hier om de betonnen materialen die worden vermalen. Door grof gemalen betonpuin onder de parkeerplaatsen toe te passen, kan regenwater makkelijker in de grond trekken. Hierdoor blijft het grondwater niveau beter op peil en komt er minder schoon regenwater in het riool terecht, waardoor er minder water onnodig gezuiverd hoeft te worden. De kans op wateroverlast wordt ook verminderd. Wanneer het betonpuin fijner wordt gemalen, kan het worden gebruikt als één van de ingrediënten in de productie van nieuw beton.



Figure A.3: Back page and two inner pages (when A4 is folded) of the brochure for the residents.

CITYLOOPS

CityLoops is an EU-funded project focusing on construction and demolition waste (CDW), including soil, and bio-waste, where seven European cities are piloting solutions to be more circular.

Høje-Taastrup and Roskilde (Denmark), Mikkelí (Finland), Apeldoorn (the Netherlands), Bodø (Norway), Porto (Portugal) and Seville (Spain) are the seven cities implementing a series of demonstration actions on CDW and soil, and bio-waste, and developing and testing over 30 new tools and processes.

Alongside these, a sector-wide circularity assessment and an urban circularity assessment are to be carried out in each of the cities. The former, to optimise the demonstration activities, whereas the latter to enable cities to effectively integrate circularity into planning and decision making. Another two key aspects of CityLoops are stakeholder engagement and circular procurement.

CityLoops started in October 2019 and will run until September 2023.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 821033.

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