

## **MCUBE STREET OF TOMORROW - REIMAGINE YOUR STREET WITH AI**

### **Team Members:**

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### **Our Platform EcoVision: A virtual space to create, share and vote on the future of sustainable street transformation**

#### **1. Introduction (Larissa Krebs & Julia Anzer)**

Sustainability has become a defining principle for shaping the future of cities, emphasizing the need to balance environmental protection, economic growth and social inclusion. Within this context, urban mobility plays a crucial role in accelerating a sustainable transformation by influencing how people move, access services and interact with their environments. "The mobility transition is the socio-political process of converting traffic and mobility to sustainable energy sources, gentle mobility use and to connect different forms of individual transport and local public transport" (May-Beckmann, 2025). Sustainable urban mobility transformation seeks to reduce greenhouse gas emissions, improve air quality and enhance the quality of urban life. According to the European Commission, sustainable urban mobility planning is a strategic approach that integrates transport development with broader environmental, social and economic goals, ensuring that mobility systems are inclusive, resilient and future-oriented. The process is relying on stakeholder engagement to align transport policies with the needs of citizens (European Commission, n.d.).

In Munich, the MCube Cluster for the Future of Mobility in Metropolitan Regions – our challenge giver - represents a leading effort in driving this transformation. Coordinated by the Technical University of Munich, MCube brings together academic, industry and civil society partners to develop innovative solutions under the guiding principle: ‘Making innovations for the mobility transition—together—possible’. By focusing on the quality of time, space, and air, the cluster aims to create scalable models for sustainable mobility that can be replicated across global metropolitan regions. (Munich Cluster for the Future of Mobility in Metropolitan Regions, n.d.).

## **2. Challenge (Sweekrati Sachan)**

Transforming urban mobility is not just a matter of infrastructure and policy—it is, at its core, a profoundly human endeavor. The success of such transformation depends not only on technical expertise but also on the willingness of everyday citizens to embrace change. Yet, this acceptance is often elusive. Many people find it difficult to imagine how redesigned streets, new transport options, or expanded public spaces will affect their daily routines and the character of their neighborhoods (Müller & Schmidt, 2022). This uncertainty can breed hesitation, skepticism, and even resistance.

Recent findings from the Munich Urban Survey illustrate this challenge vividly: 78% of residents expressed resistance to urban changes when they could not visualize the outcomes (Stadt München, 2023). This statistic is more than just a number—it represents thousands of individuals who worry about losing familiar landmarks, cherished routines, or the unique identity of their community. At the same time, only 14% of respondents felt they had been genuinely consulted about street redesigns (Stadt München, 2023). Such feelings of exclusion can erode trust and make citizens feel like passive recipients rather than active partners in shaping their city’s future.

The consequences of this disconnect are significant. When people are not engaged early or meaningfully, urban mobility projects often face delays, escalating costs, and, in some cases, outright abandonment (BMBF, 2024). The traditional, manual approach to gathering citizen feedback can take six to twelve months—a timeline that feels frustratingly slow in a world where change is both urgent and constant (BMBF, 2024).

However, there is a promising path forward. Research shows that when citizens are invited to participate in the planning process—when they can see, touch, and even co-create future scenarios—they are much more likely to support and champion sustainable mobility initiatives (Klein et al., 2021). Visualization tools, such as interactive maps, virtual reality walk-throughs, and storytelling workshops, can help bridge the gap between abstract plans and lived experience. These approaches allow people to picture themselves in a transformed city: cycling safely with their children, strolling through greener streets, or enjoying vibrant public squares.

Ultimately, creating a shared vision for sustainable mobility is about more than just technical solutions; it is about fostering a sense of belonging and collective purpose. When residents feel heard, respected, and inspired, they become advocates for change rather than obstacles to it. In this sense, the tools of communication, storytelling, and visualization are as vital as any engineering blueprint. They help turn dry policy documents into compelling narratives that speak to people's hopes, fears, and aspirations.

As cities like Munich and many others around the world are discovering, the journey toward sustainable urban mobility is not just about moving people from point A to B—it is about moving hearts and minds toward a better, more inclusive future.

### **3. Mission statement (All)**

Based on the described challenge, it is our aim to transform how citizens visualize, recognize and perceive the urban mobility transformation. We want to bridge the gap between municipalities and people living in Munich to enable a smooth, transparent communication and a shared vision of a sustainable future. Together, we're reimagining public engagement to create streets that reflect community needs and sustainable futures.

### **4. The Idea and Value Proposition (Elizaveta Dvorshchenko)**

To achieve the mission, the interactive platform “EcoVision” was developed. EcoVision creates a shared space for citizens and municipalities of Munich to co-create, explore and vote on the future of their streets. Through the platform, urban visions will turn into tangible images. It empowers citizens by offering them a place where their perspectives are valued and their ideas can drive real change. It functions as a participatory tool for shaping the future of urban spaces. For citizens, EcoVision provides a meaningful voice in the transformation of their neighborhoods, fostering a creative and engaging experience. The idea – displayed as an image - which is ranked as favorite by citizens is being considered by the municipality for real urban mobility transformation. This strengthens trust in urban development processes.

For municipalities, EcoVision facilitates inclusive participation by enabling fast, structured feedback directly from residents. It generates valuable data on public preferences and delivers visual concepts that serve as concrete starting points for planning and decision-making. By bridging imagination with actionable planning,

EcoVision helps transform streets into shared, community-driven visions for a more sustainable urban future.

## **5. Process of Idea Iteration (Julia Anzer)**

The development of EcoVision emerged from a critical observation in urban planning: despite growing interest in sustainable mobility solutions, many projects face public resistance due to a lack of tangible visualization. This disconnect motivated our team to explore existing participatory tools, such as Commonplace and CitizenLab, which revealed a common limitation. While these platforms efficiently gathered feedback, they often failed to help users visualize proposed transformations in a concrete way.

Initial prototyping began with collaborative brainstorming sessions using Miro and Figma, where early concepts focused on a mobile application with game elements (cf. Figure 1: Application homepage, Figure 2: Application prototype). However, feedback from partners and project workshops significantly reshaped our approach. The importance of accessibility was emphasized by our feedback givers, noting that not all residents own smartphones, while older participants expressed a preference for larger screens. Additionally, during the feedback the need for compatibility with existing GIS tools to ensure practical implementation was stressed. These insights led us to abandon the app-based model in favor of a web platform designed for broad accessibility, including mobile access without a need for login. The final prototype successfully balanced municipal requirements, such as structured data exports for planners, with community-friendly features like one-click voting and AI-generated before-and-after visualizations. Key technical implementations included Google Street View integration for contextual accuracy, AI-assisted image transformation to render user proposals realistically and an anonymous participation system to protect user privacy while maintaining cross-platform functionality. This development process underscored the importance of iterative, user-centered design in civic technology. By continuously incorporating feedback, EcoVision evolved into a practical tool that bridges the gap between

abstract planning concepts and community engagement, ultimately supporting more inclusive and visually grounded urban transformations.

## **6. The Prototype (Larissa Krebs)**

The EcoVision prototype offers an interactive digital platform designed to engage citizens in the co-creation of sustainable urban spaces. Upon entering the platform, users begin by either uploading a photo of their own street or directly choosing their location via Google Street View (cf. Figure 3: Prototype Homepage). Users are then guided through a series of questions aimed at defining their sustainable vision, such as prioritizing greenery, improving accessibility, enhancing family-friendliness, or incorporating innovation from MCube, the project's challenge partner. To ensure clarity and focus, users select one response per question and may optionally add a textual description of their ideas. Therefore, municipalities are able to derive prioritizes of citizens (cf. Figure 4: Prototype Questions).

Once the input is complete, the platform uses AI to generate a visual representation of the proposed transformation. These images may even include specific elements like the autonomous MCube vehicle, offering a glimpse of how future mobility might be integrated into redesigned streets (cf. Figure 5: Prototype Transformed Image). Users can then explore a gallery of their own designs alongside submissions from others in their neighborhood, showing diverse interpretations of sustainable, inclusive and livable urban environments (cf. Figure 6: Prototype Gallery).

A ranking page features the most popular designs, where users can view, like and comment on submissions made by citizens. The highest-rated entries are highlighted in a public contest format. The most-supported ideas are not only aspirational, they are actively reviewed by municipalities to be implemented in urban street design (cf. Figure 7: Prototype Ranking Page). This positions EcoVision as a practical tool for participatory urban planning and real-world impact. EcoVision is available both on desktop and mobile version to ensure easy and

smooth access to its functions. Users do not need to log in, ensuring data security and privacy.

## **7. Go-to-market Strategy & Future Outlook (Boris Gusev and Elizaveta Dvorshchenko)**

EcoVision's implementation strategy focuses on two key phases: initial pilot testing in Munich and subsequent scaling to other cities. The platform's planned integration of 360-degree Google Street View and 3D visualization capabilities, which is enhanced by architectural expertise, ensures that proposed street designs are both realistic and technically feasible, addressing a critical gap in current participatory tools. This functionality not only improves public engagement but also provides municipalities with actionable, visually grounded proposals that align with urban planning standards.

For broader adoption, EcoVision will be offered as a SaaS model or a customizable city planning tool, targeting municipalities within the C40 network, where 58% of budgets are already allocated to digital transformation initiatives (Eurocities Report, 2024). Marketing efforts will leverage grassroots tactics to drive participation, including city-hosted events with demo booths, targeted flyer campaigns, and QR-code posters placed in high-traffic areas. These methods aim to lower barriers to entry while fostering community ownership of street redesign processes.

Looking ahead, the platform's potential extends beyond Munich. By incorporating feedback from the initial "Reimagine Your Street" campaign and partnerships with research institutions like MCube, EcoVision can adapt to diverse urban contexts. Future iterations may include advanced features such as real-time traffic impact simulations or integration with municipal budgeting tools, further bridging the gap between citizen input and actionable planning. This approach positions EcoVision not just as a tool, but as a scalable framework for inclusive, sustainable urban development.

## **8. Conclusion (Sweekrati Sachan & Boris Gusev)**

The EcoVision project demonstrates how digital tools can transform participatory urban planning by making sustainable street design tangible, inclusive, and actionable. Rooted in the urgent need to bridge the visualization gap, evidenced by Munich's urban surveys showing 78% resident resistance to changes they cannot picture, the platform reimagines civic engagement through AI-powered co-creation. By integrating 360-degree Google Street View, 3D visualization, and architect-informed design principles, EcoVision translates abstract planning concepts into realistic renderings that empower citizens to shape their neighborhoods while providing municipalities with structured, data-driven insights. Key outcomes from the Munich pilot validate this approach: residents engaged more actively when they could visualize proposals, and planners gained actionable feedback without the traditional 6–12 months delay of manual processes. The platform's accessibility features, such as cross-device compatibility and anonymous participation, ensure inclusivity across demographics, a critical factor in building public trust.

Looking ahead, EcoVision's SaaS model and alignment with C40 cities' digital transformation budgets position it as a scalable solution for global urban contexts (Eurocities Report, 2024). Future development will focus on enhancing functionality, such as traffic impact simulations, while maintaining the core principle that drove the project from its inception: sustainable urban transformation must be collaborative, visual, and rooted in community voices.

By turning "what if" into "here's how," EcoVision offers a replicable framework for cities to accelerate sustainable mobility projects while fostering social consensus, proving that the streets of tomorrow are best designed not just for people, but with them.



## 9. Appendix

### References

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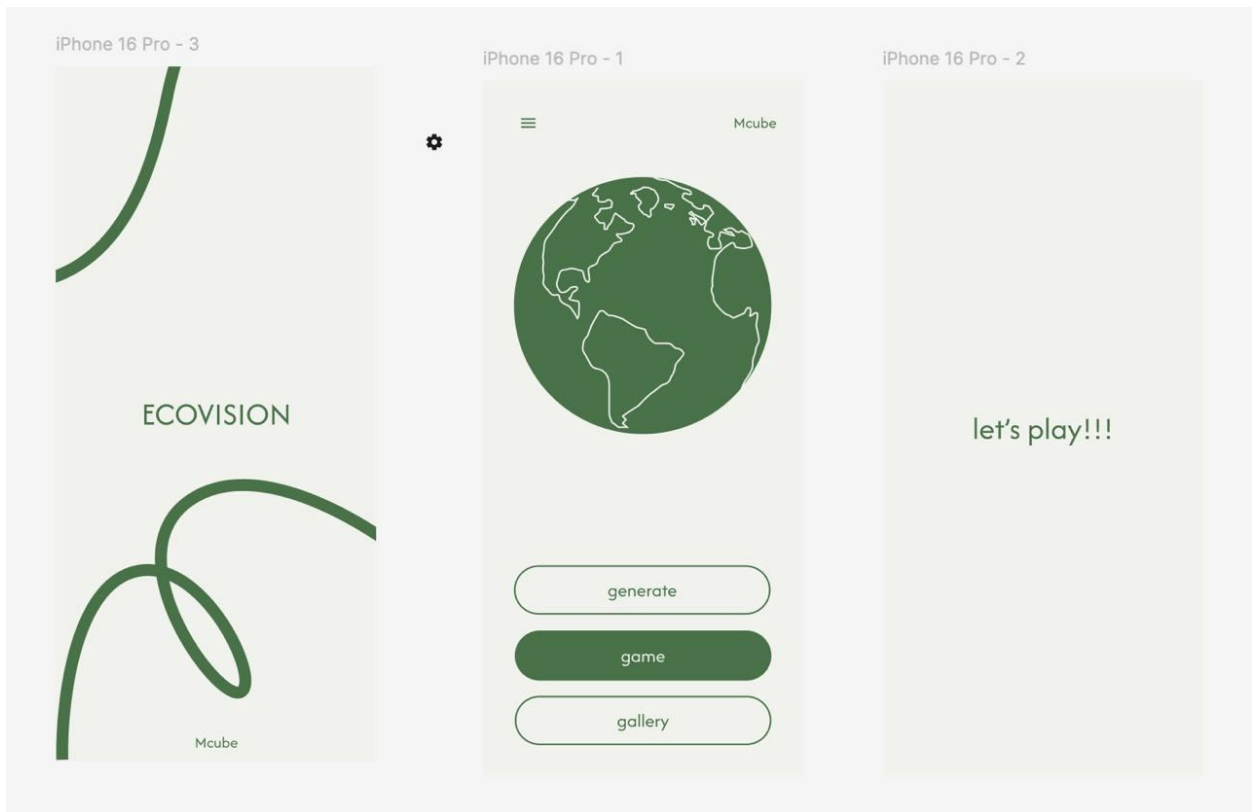
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Stadt München. (2023). *Munich Urban Survey: Attitudes Toward Street Redesign*. City of Munich Urban Planning Department.

### List of Images



*Figure 1: Application homepage*

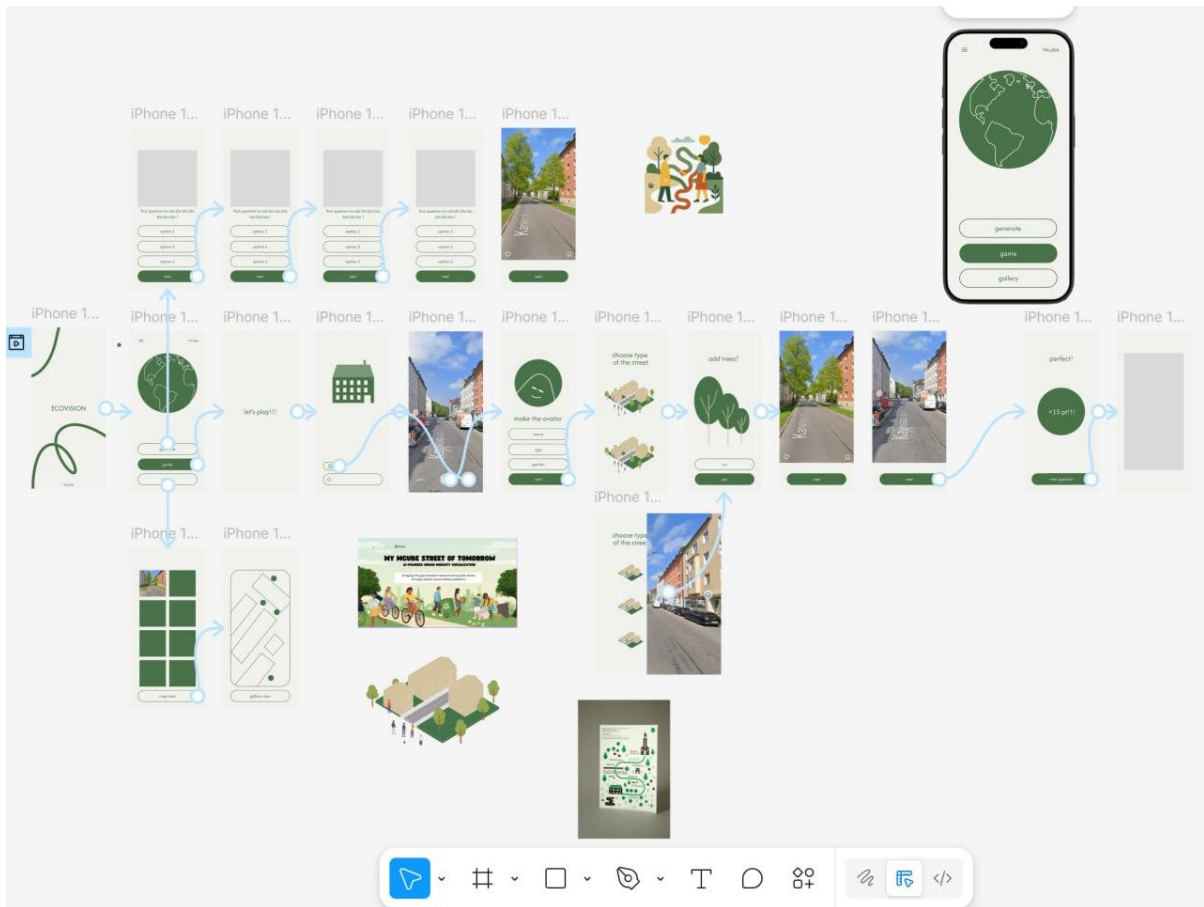


Figure 2: Application prototype

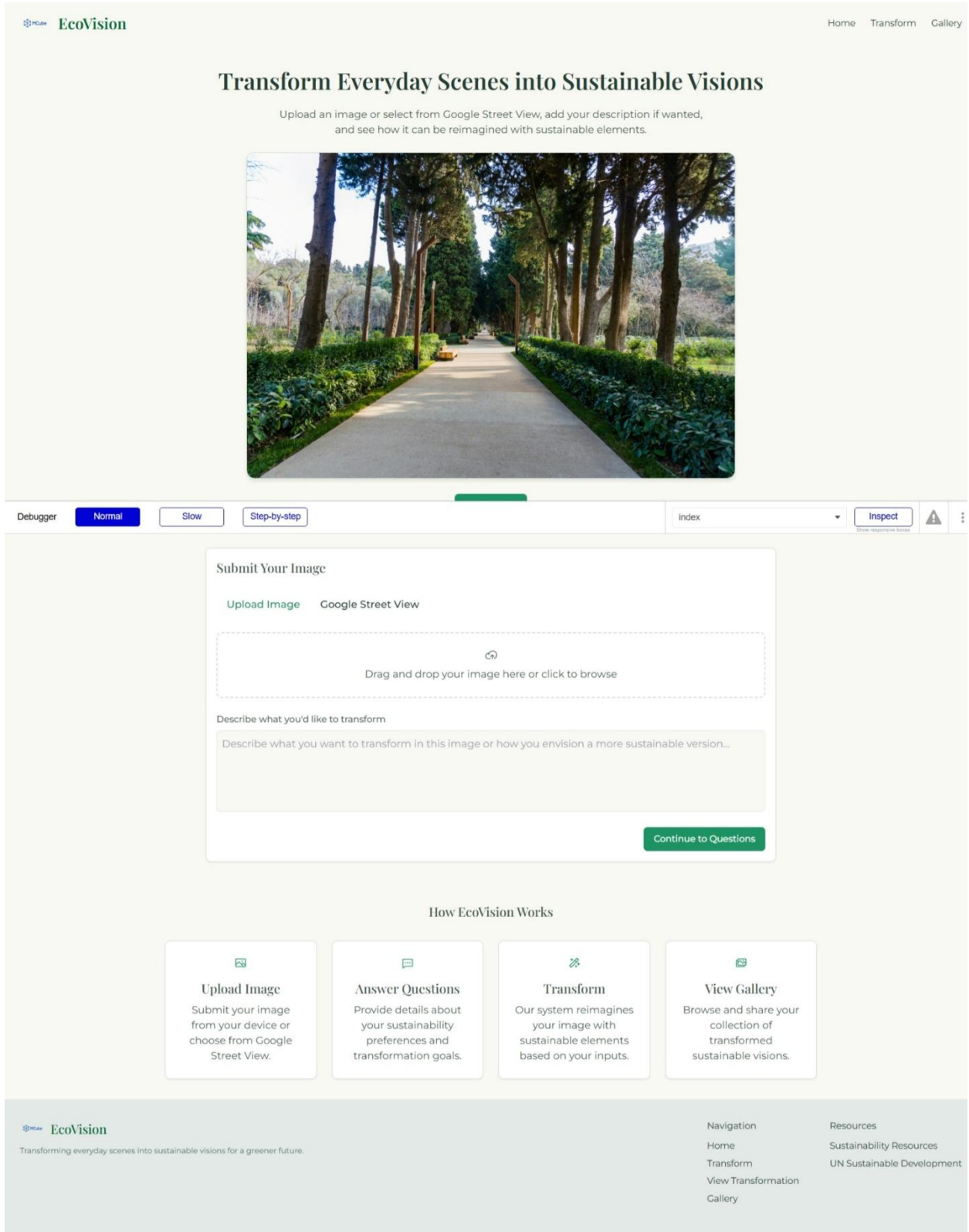


Figure 3: Prototype Homepage

EcoVision
Home Transform Gallery

### Customize Your Transformation

Answer a few questions to help us reimagine your image in a more sustainable way.  
Your choices will influence how we transform your vision.

What aspect of sustainability is most important to you?

☐ Greener Street, incl. trees, flowers or gras.
☐ Safer Street, e.g. making speed limit lower to protect pedestrians.

☐ Accessible for disabled people, such as wheelchair users.
☐ Other (optional):  
Type here...

Which mobility concept to you want to add?

☐ Bike-friendly street including bike storage and bike lanes.
☐ Mobility sharing possibilities, such as parking for E-scooters or shared bikes.

Debugger
Normal
Slow
Step-by-step
questions
Inspect

Do you want the street to be more family-friendly?

☐ Yes, e.g. playground for children.
☐ No, space should be used otherwise.

☐ Yes, I would add drinking water sources.
☐ Other (optional):  
Type here...

Which MCube features do you want to add?

☐ ASUR - our shared autonomous bus.
☐ Flowerbeds for insects and more greenery.

☐ Comficient Share - Carsharing made comfortable!
☐ Other (optional):  
Type here...

Additional Notes (Optional)

Share any specific aspects you'd like us to consider...

Back to Upload
Continue to Transformation

#### Your Image

EcoVision
Transforming everyday scenes into sustainable visions for a greener future.

Navigation
Home
Transform
View Transformation
Gallery

Resources
Sustainability Resources
UN Sustainable Development

Figure 4: Prototype Questions

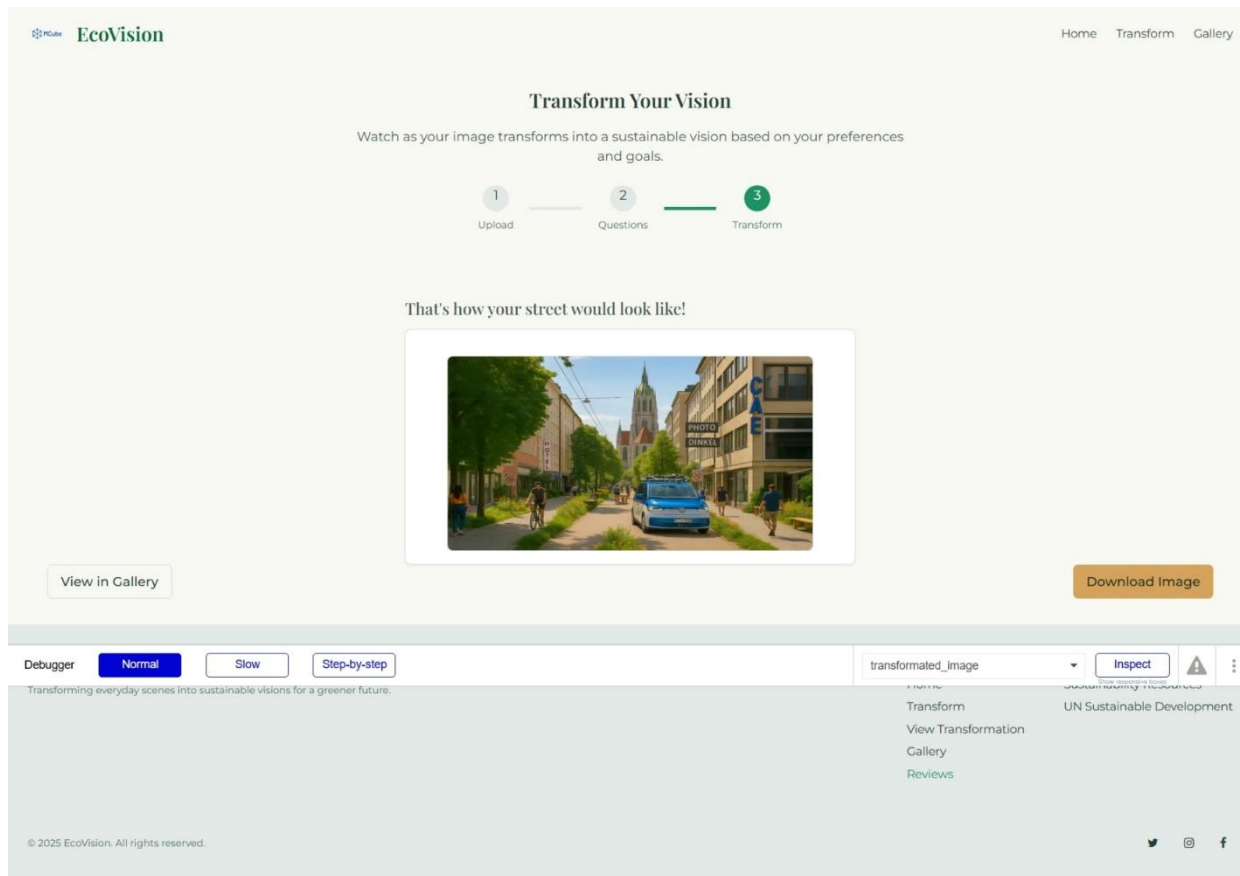


Figure 5: Prototype Transformed Image

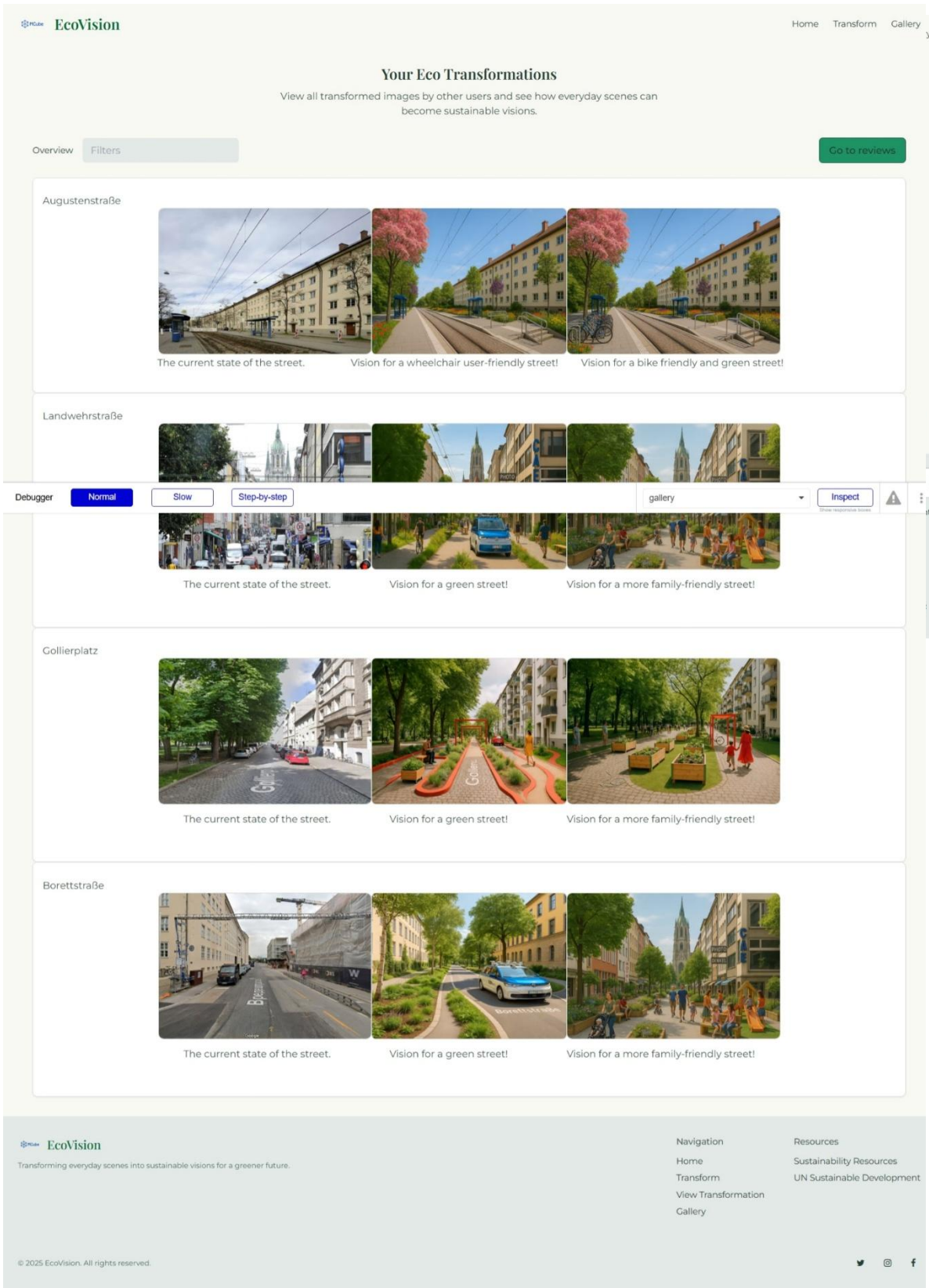


Figure 6: Prototype Gallery





### Top-Rated Sustainable Street.

★★★★☆ (122)

A green street, which includes different mobility concepts and is accessible for disabled people.

[Download](#)

#### About this picture

This picture shows a green transformation, which is wheelchair-user friendly and allows for bike parking.

#### Related products



Sustainable streets

★★★★☆ (12)



Sustainable streets

★★★★☆ (12)



Sustainable streets

★★★★☆ (12)



Sustainable streets

★★★★☆ (12)



Sustainable streets

★★★★☆ (12)



Sustainable streets

★★★★☆ (12)

#### Ratings & Reviews

★★★★☆ (122)

4.0 out of 5.0 stars

[Write a review](#)☐ Images only 

★★★★☆

##### The Perfect Sustainable Street

This street has all needed features. Disabled people are able to access the tram station. Trees and flowers make the atmosphere nicer. Really like that ideal!



12 people found this helpful

★★★★☆

##### The Perfect Sustainable Street

This street has all needed features. Disabled people are able to access the tram station. Trees and flowers make the atmosphere nicer. Really like that ideal!



12 people found this helpful

★★★★☆

##### The Perfect Sustainable Street

This street has all needed features. Disabled people are able to access the tram station. Trees and flowers make the atmosphere nicer. Really like that ideal!



12 people found this helpful

[See all reviews](#)

#### Discover more like this



Green Landwehrstraße

★★★★☆ (12)



Green Landwehrstraße

★★★★☆ (12)



Green Landwehrstraße

★★★★☆ (12)



Green Landwehrstraße

★★★★☆ (12)



Green Landwehrstraße

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Green Landwehrstraße

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Green Landwehrstraße

★★★★☆ (12)

Figure 7: Prototype Ranking Page