FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2025

City Challenge

Max 3 pages

send to smartcity@taltech.ee by Sept 30, 2025

Challenge Title – Rooted Resilience Design Challenge

City/county and country – Milton Keynes, United Kingdom

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1. What is the future urban challenge that would need a solution to?

- Please describe the challenge of your city / county neighboring a city?

As cities face increasing climate pressures—from prolonged droughts to sudden flash floods—urban trees have become essential assets in creating resilient, liveable environments. Yet, existing tree pit designs often fall short of supporting long-term tree health, fail to manage stormwater effectively, and can contribute to costly damage to pavements and infrastructure due to uncontrolled root growth.

We seeking innovative design solutions from the industry for a new generation of urban tree pits that can support healthy tree development in increasingly challenging urban conditions. These systems should be capable of accommodating natural root expansion without damaging surrounding infrastructure, while ensuring access to sufficient nutrients and water. Designs must also integrate the capacity to absorb rainfall—particularly during heavy downpours—to reduce surface runoff and alleviate pressure on stormwater systems. Additionally, we are interested in features that allow for both passive irrigation and community-supported watering practices, reinforcing civic engagement and long-term tree care.

This call represents an opportunity to rethink how urban tree infrastructure is designed, aligning with broader climate adaptation strategies and sustainability goals. We invite the industry to collaborate with us in developing scalable, durable, and climate-responsive tree pit systems that will enable urban trees to thrive—today and into the future.

- Which category your challenge is primarily in: climate resilient city
- Why is it important for your city to solve it? How big priority it is for you and why?

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This is a particularly acute climate resilience challenge for Milton Keynes given its unique urban form, and heritage as a new town. This means our city is designed with lots of green space and biodiversity, with millions of trees to maintain. This has a considerable knock on effect on maintaing the public realm.

- Is this a unique challenge/problem of your city, why or is this by your knowledge a challenge/problem that many cities have – which kind of other cities?

This is a problem that will be faced by cities across europe, and all Local Authorities which are responsible for green space maintenance and landscaping.

2. Innovation.

- How have you solved that issue so far? Why aren't the present solutions good enough? Are there legal obstacles, which ones?

Existing tree pit designs often fall short of supporting long-term tree health, fail to manage stormwater effectively, and can contribute to costly damage to pavements and infrastructure due to uncontrolled root growth. The problem is of growing interest to the City Council as climate change is increassing the number of flooding incidents and the reliance on the built environment and landscoping to assist.

- What should be the main features, characteristics of the future solution to be potentially best for that challenge or problem?

Good solutions to this challenge need to be cost effective and safe to install in the public realm. They need to reduce the impact that trees have on the public realm, whilst allowing them to continue their important role in climate mitigation.

3. Expected impact of your pilot solution.

- What is the expected impact to your city environment you expect to see if the challenge gets solved?
- What is the expected impact to your citizens you expect to see if the challenge gets solved?
- What is the expected impact to your city governance you expect to see if the challenge gets solved?

The city environment will be improved if this challenge is solved. We would expect to see tree survival rates increase, a reduction in the funding required to deal with the impact of tree root interference in the public realm.

Citizens will respond to this improvement to the public realm positively, and it may be possible to also engage the public in maintainence of the public realm.

We would expect that addressing this issue would lead to an improvement in city governance, as resources can be redirected to more proactive issues.

4. Piloting

- Why would you be interested to become a piloting partner of a proposed solution to the challenge you are describing here? Describe shortly your capability to participate.

As the local authority covering the entire area of the city of Milton Keynes, we have landscaping sites throughout the municipal area where potential innovations can be trialled. We are most interested in the application of such innovations in our City Centre, and could provide sites in which to trial new technologies.