

# Health and Climate Implications of Transportation of Goods and People in a Changing Landscape

**Health Effects Institute Annual Conference 2024**

Chaired by

Ulrike Gehring, Utrecht University and HEI Review Committee

Marianne Hatzopoulou, University of Toronto and HEI Research Committee

# Transitioning the long-haul: challenges and opportunities

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Director, Positive Zero Transport Futures

# Long-haul freight (and passenger) mobility systems are undergoing major transformations affecting fleets and operations

- Technology: Alternative fuels, automation, electrification
- Behavior: Post-covid changes in mobility patterns and rise of e-commerce
- Environmental Justice: Intersection between the long-haul and last mile will lead to the creation of “hubs”

These trends are part of complex pathways that either:

- challenge the possibility of meeting climate targets or,
- enable decarbonization



# Assessing the sustainability of solutions requires us to look at and beyond GHG emission reductions today

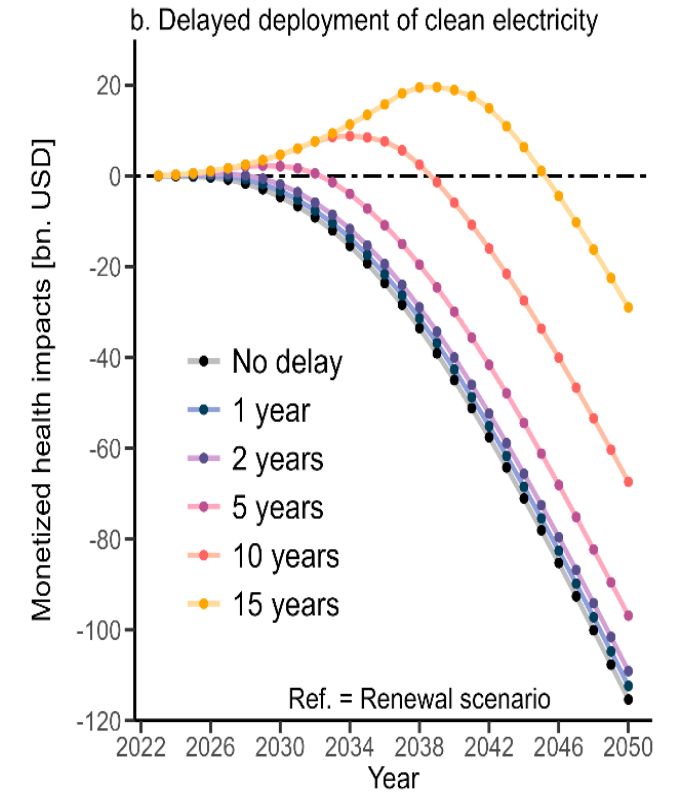
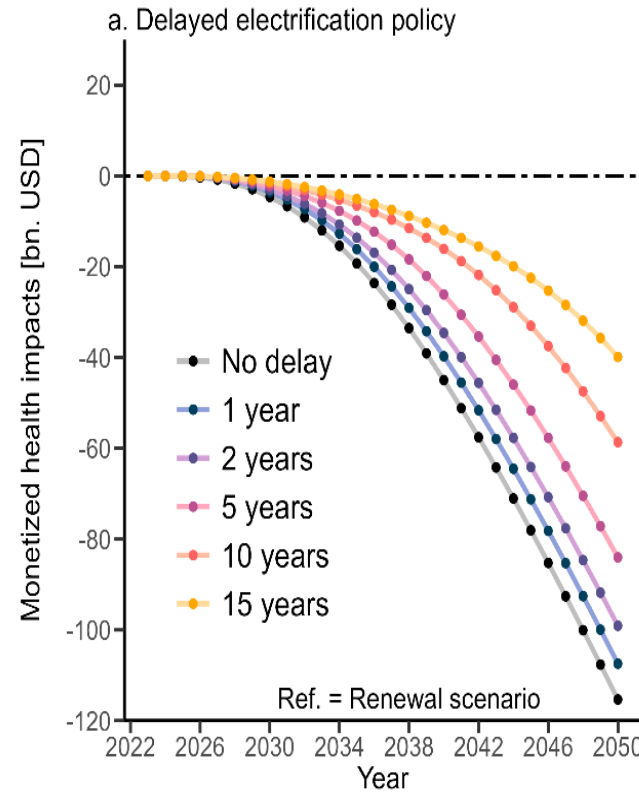
- Dynamics and time scales
- The future of diesel
- Trucks vs. cars: Tension for road space
- Hubs and communities



# Dynamics: When do we expect the maximum benefit of today's policies?

Impact of delays in the implementation of fleet electrification mandates (**Fig. a**) and in the deployment of clean electricity sources (**Fig. b**) on the cumulative health impacts (2023 net present value)

The reference (impacts = 0) is the fleet renewal scenario (newer ICEVs)

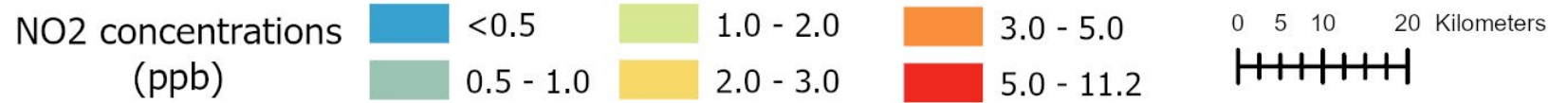
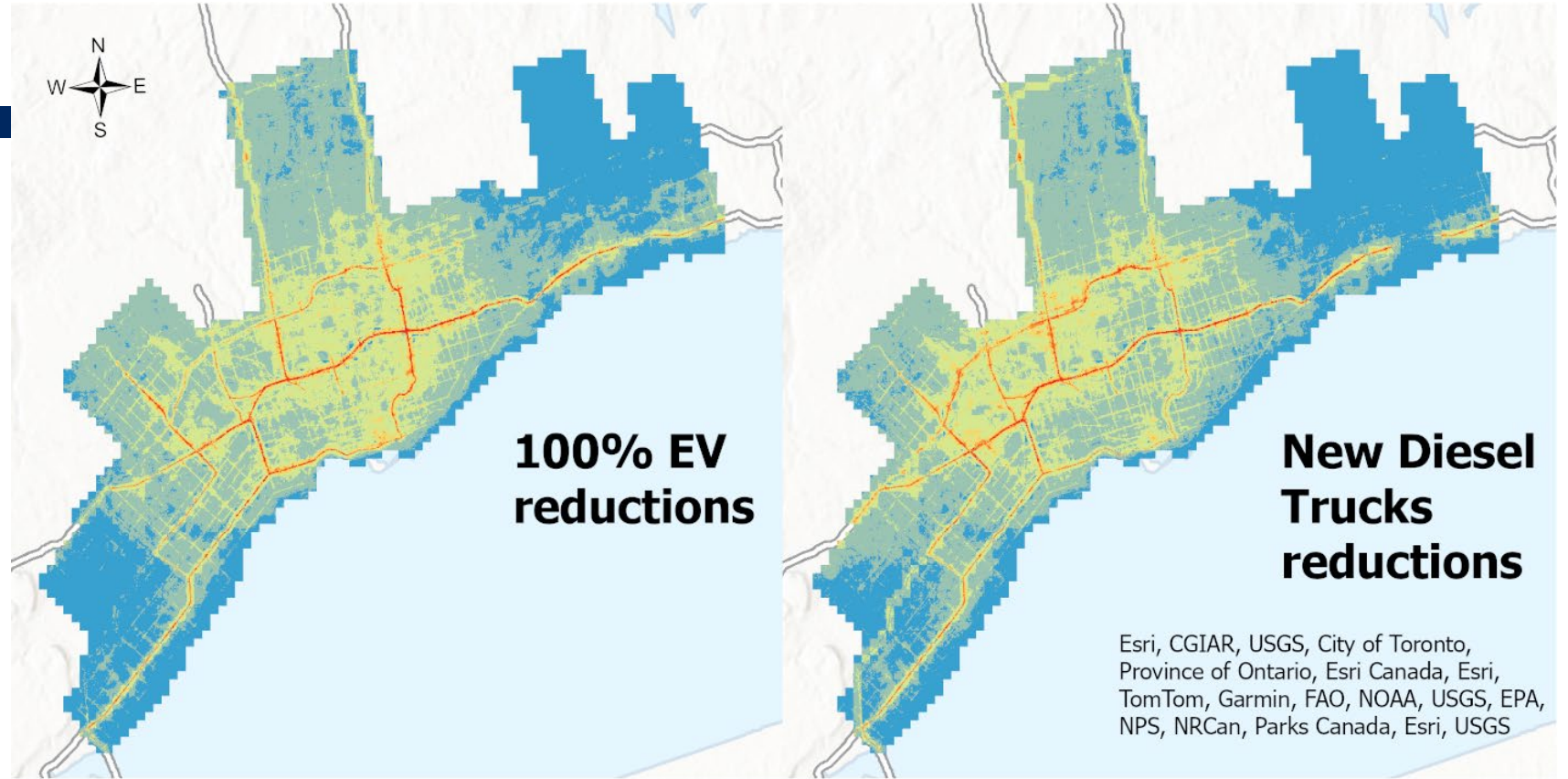


# The future of diesel

Reductions in NO<sub>2</sub> concentrations associated with:

a) electrifying all light-duty vehicles and

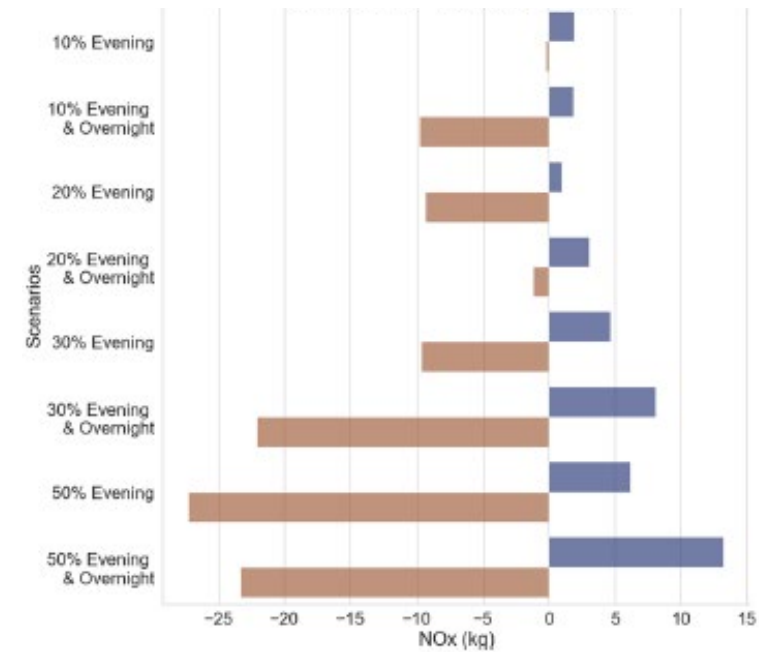
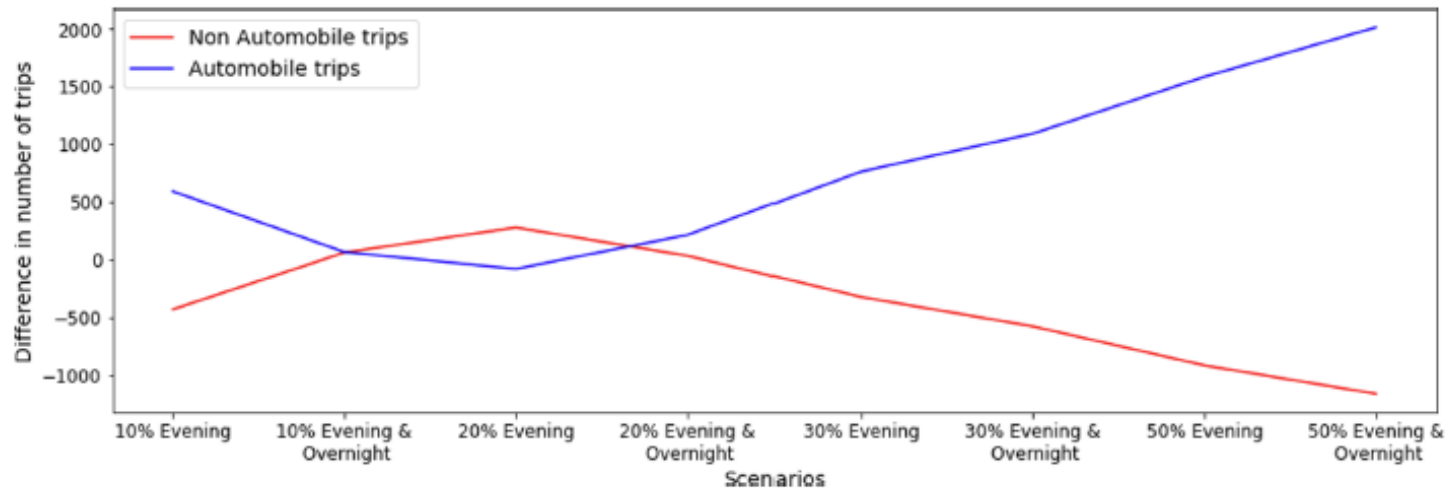
b) fleet renewal for all pre-2007 trucks



# Trucks vs. cars: Tension for road space

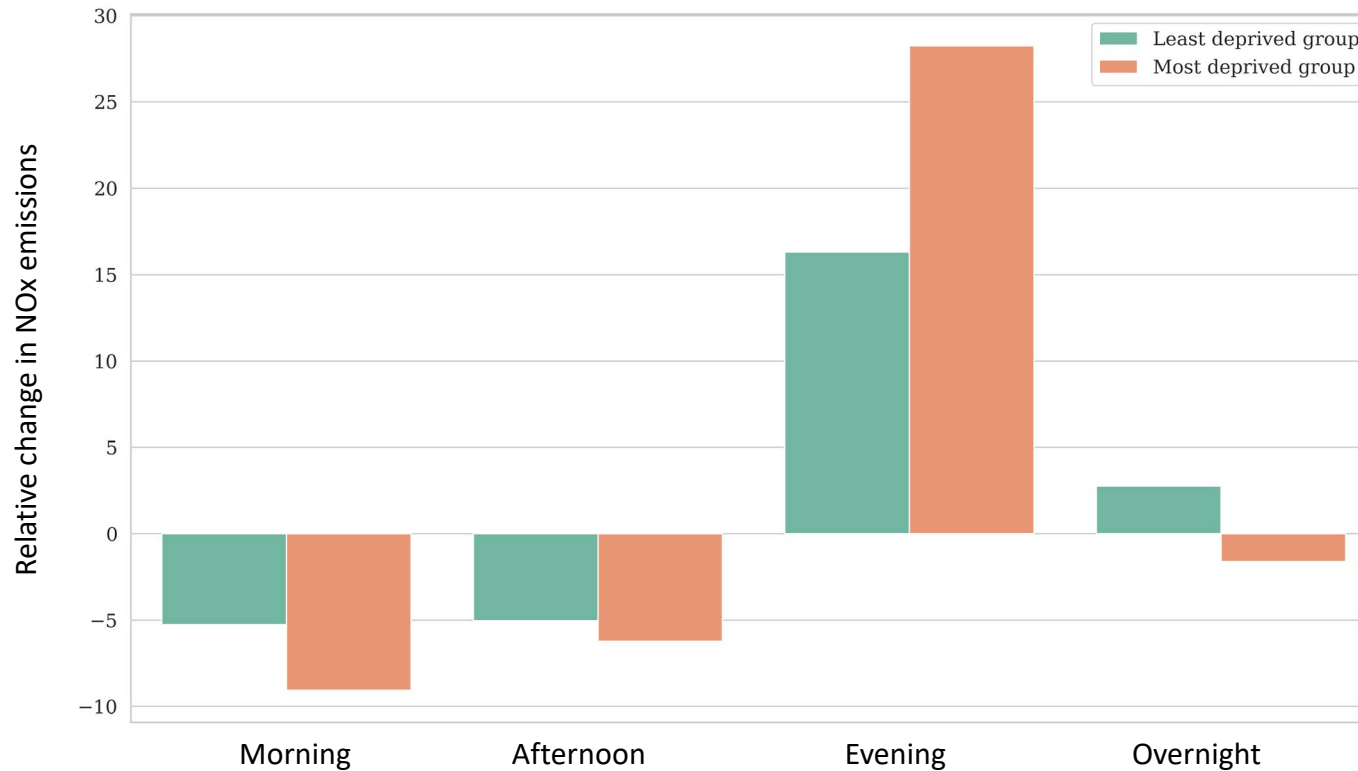
## The unintended consequence of an off-peak commercial delivery system

More cars on the road during the day when truck movements shift to the evening period



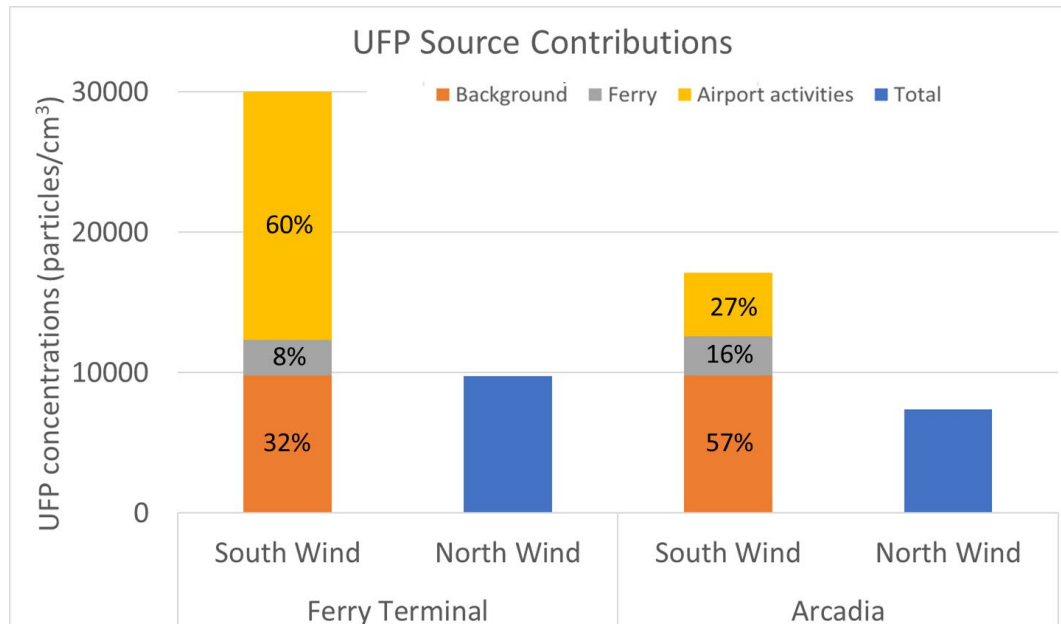
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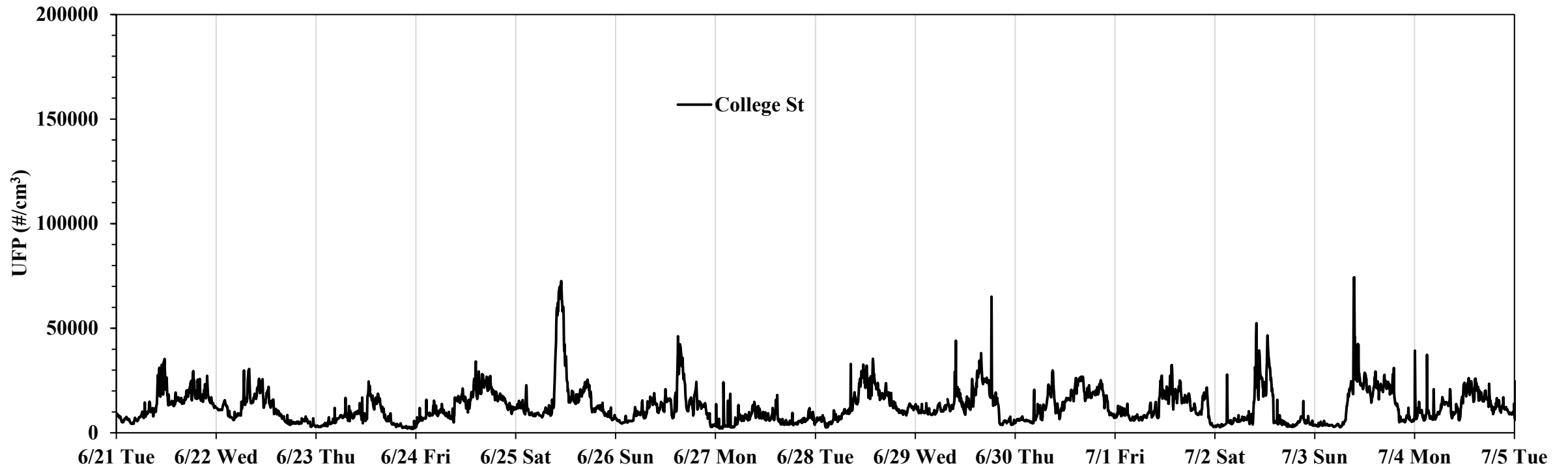


# Hubs and communities: Findings from a regional airport



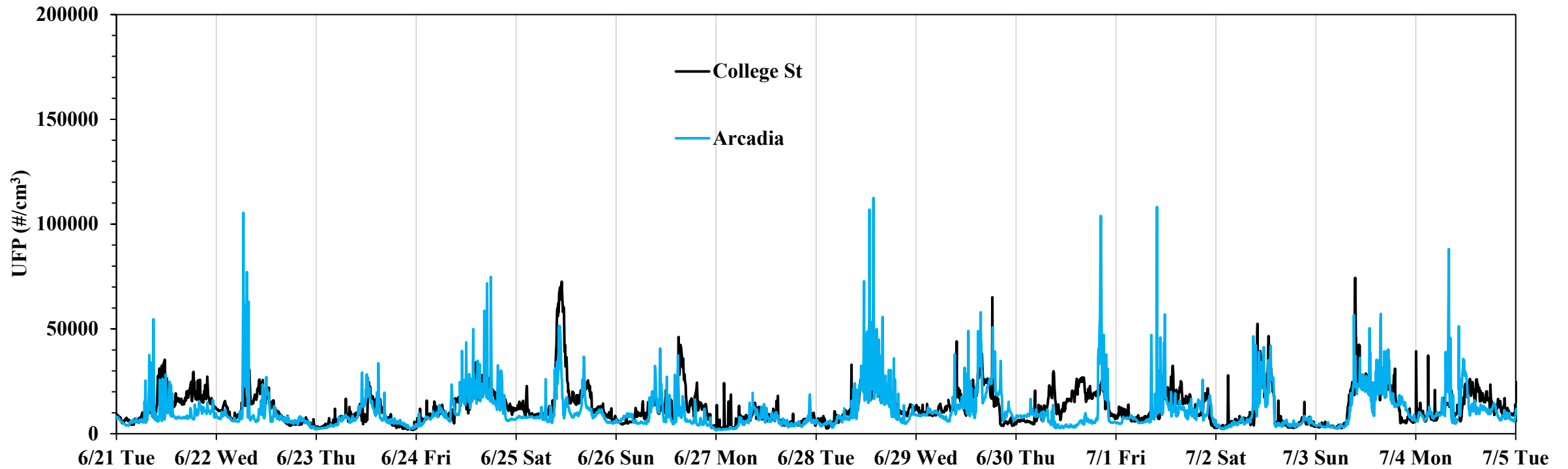
# Hubs and communities: Findings from a regional airport

5-min averages



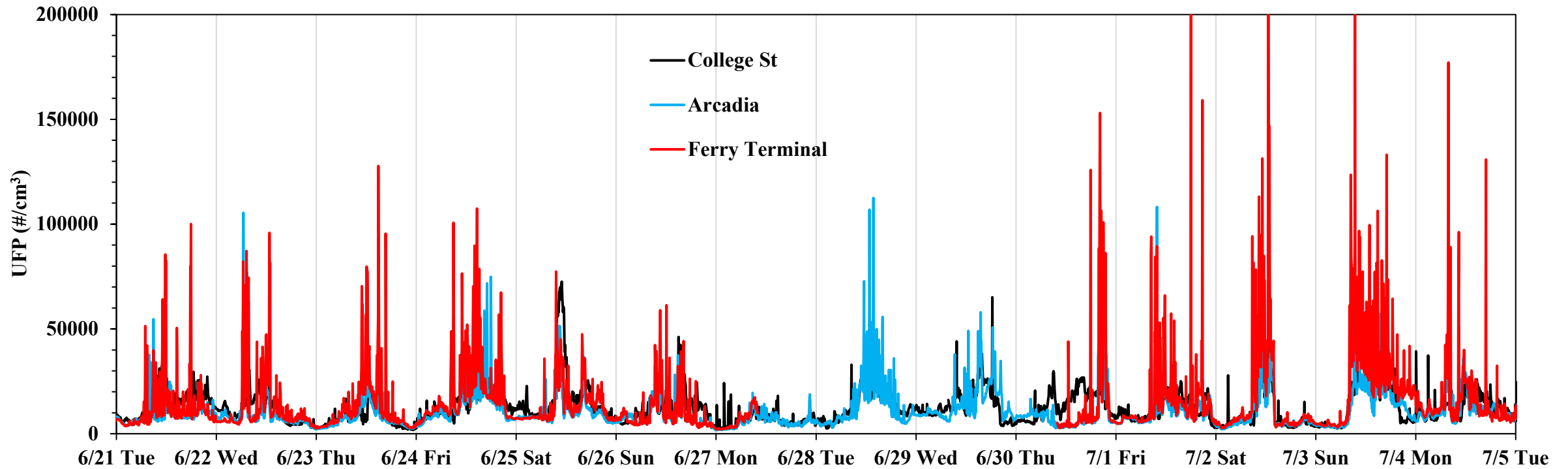
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# Chairs and Presenters



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