



Concepts and Tools for Envisioning New York City's Futures - Summary

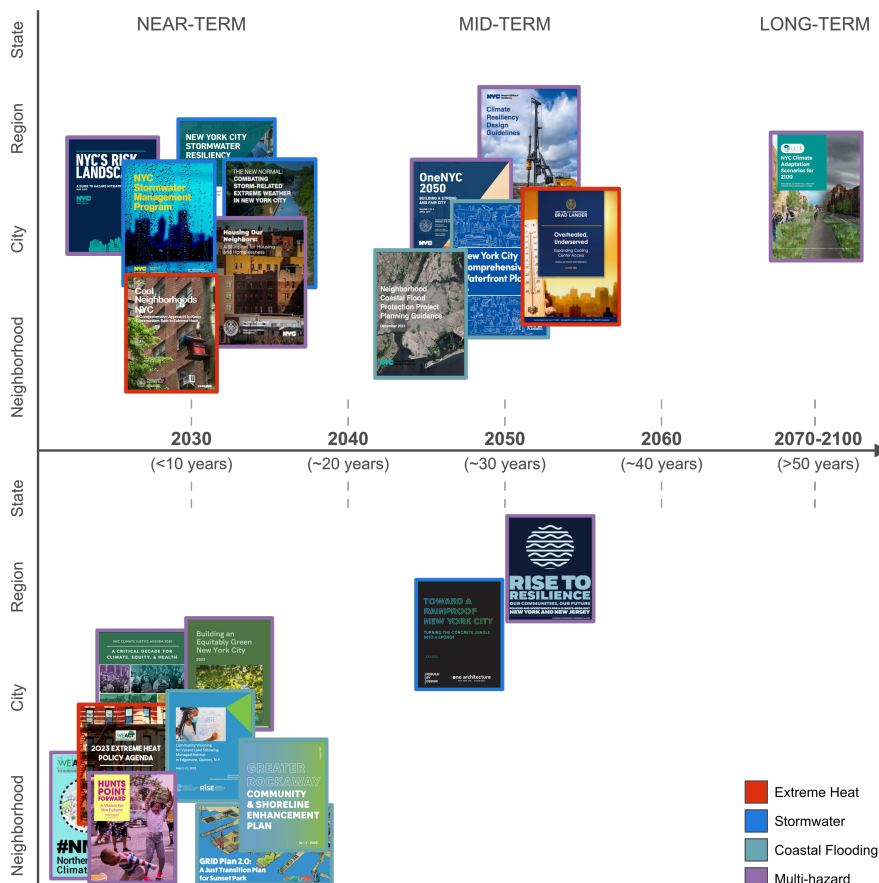
This chapter is the first effort by the NPCC to describe positive future visions, scenarios, and their intersections with current challenges in New York City. It reviews many different ways that scientists and planners envision and model the future either within a sector, or across many dimensions, and showcases the various tools that are used. This assessment can inform new methods for equitable climate change policy, planning, and engagement across the diverse social and infrastructural fabric of the city.

Highlights from this chapter include:

- Understanding the impacts of climate change requires understanding future population vulnerabilities.** Current projections indicate the city will become hotter, wetter, more flood-prone, and experience more frequent, intense, and severe tropical and winter storms throughout the century. The impacts of this changing climate will occur in a city with an aging population and built environment, but less is known about these futures past mid-century.
- Better scenario planning tools that incorporate urban dynamics, uncertainties, and complexities are needed to further bring health, social, environmental, and economic concerns into climate planning.** These tools should span mid-to-long-term time horizons and include local spatial variations in physical and socioeconomic characteristics. To reduce the possibility of maladaptation, climate adaptation strategies should incorporate sector interdependencies and a systems-view in future planning. Doing so will also help improve understanding of trade-offs and uncertainties.
- Equity and social justice should be explicitly centered in future climate adaptation goals, implementation efforts, and future planning to reduce unintended negative consequences.** Advancing equity, justice, sustainability, and resilience will require sustained engagement through participatory processes that bring together diverse perspectives and forms of knowledge alongside periodic and systematic monitoring and evaluation.
- Making the built environment more resilient while addressing challenges to equity and sustainability requires policies and investments to retrofit, rebuild, and improve infrastructure to support population health and well-being.** Examples include: (1) prioritizing transit, walking, and cycling to improve the health of New Yorkers while reducing greenhouse gas emissions; (2) nature-based solutions (critical for adaptation and simultaneously providing co-benefits); and (3) connected adaptation efforts in housing, transportation, land-use, ecosystems, and critical infrastructure.

Summary

Concepts and Tools for Envisioning New York City's Futures begins with a historical overview of New York City's major urban planning approaches adopted over the last 100 years. The authors explain how and why scenario planning is a useful approach for improving urban planning and decision-making in an uncertain world, as well as the dominant scenario planning tools adopted in the climate change community. It provides an overview and short explanations of climate and population projections as well as other planning tools used to achieve a more resilient, and desirable future.



Government-based (Upper) and community-based and non-governmental (Lower) climate adaptation and resilience plans based on their spatial and temporal scales and the climate hazard(s) they address.



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This chapter offers a broad framework for conceptualizing New York City as a complex urban system with interdependencies among social, ecological, and technical infrastructure systems (SETS). The authors provide an overview of NYC community-centered climate and sustainability plans across multiple time horizons and spatial dimensions to illustrate how examining complexity and interdependencies of these efforts can help identify important gaps. The chapter also describes a recent example of a long-term planning scenario for the city: the NYC Adaptation Scenarios for 2100 .

The chapter provides new content not considered in past climate assessments focusing on ways different communities envision, plan for, or project futures.

- The assessment of *sociodemographic futures* shows New York City's population is getting older but the future long-term age-profile, total population size, and distribution across neighborhoods depends in part on future socioeconomic development (and consistent with future emissions trajectories). New York is and will likely continue to be a diverse city home to immigrants. These aspects of future population composition and distribution will be differentially impacted by future climate exposures.
- The assessment of *built futures* builds on the work of NPCC3, which inventoried the various infrastructure systems of the city, and specifically focuses on the inequitable evolution of the city's surface transportation system and the related evolution of its streets and sidewalks: the public right-of-way (ROW). This chapter offers an alternative vision of the future of the city's surface transportation system, which repurposes the public ROW, transitioning from car parking and private automobile use to prioritizing more efficient, accessible (equitable) and healthier alternatives like cycling, walking, and mass transit. It suggests that recent climate and public health emergencies like hurricane Ida and the COVID-19 pandemic exposed the urgent need for this transformation and provides specific examples of how a reimagined public ROW could help foster a healthier, more equitable city.
- The assessment of *health futures* and valuations — i.e., economic valuation of health outcomes related to the impact of climate change — reveals ways in which climate planning approaches can have co-benefits for improving public health, including reallocating space in the public ROW, reducing local air pollution that disproportionately affects vulnerable and disadvantaged communities, shifting from driving to more active modes of transport, and avoiding heat stress by indoor and outdoor space cooling.
- The assessment of *nature and nature-based futures* stresses that ecological dimensions are embedded in complex urban systems but that such incorporation of nature-based solutions (NBS) into futures planning are still developing. This assessment finds that NBS need more attention and have the potential to advance climate adaptation goals (e.g., urban forests, parks, green roofs, and community gardens) and well-being in the city.

The chapter concludes with a discussion of the limitations of current approaches for envisioning the future of New York City but proposes tools and a framework that can be used to embrace the intrinsic complexity and uncertainty in future scenario planning, including deeply interdisciplinary approaches with sustained engagement of communities in order to ensure adaptation and mitigation decisions do not occur needlessly in siloes. Tools for future planning need to work across many spatial dimensions (local to regional) and temporal (short to end-of-century) horizons.

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