



The Mayor's Fund
for Philadelphia

Request for Information

Lower South Infrastructure Improvement Plan Request for Information

An initiative of Philadelphia's Lower South Infrastructure Resilience Collaborative and part of the development of a Lower South Infrastructure Resilience Roadmap

Issued by:

The Mayor's Fund for Philadelphia

On behalf of The City of Philadelphia, Office of Transportation, Infrastructure, and Sustainability and Office of Sustainability

All questions and requests for clarification concerning this RFI must be submitted to mayorsfund@phila.gov and sustainability@phila.gov by 5pm on June 3, 2022.

Responses to this RFI must be received no later than 5pm on June 30, 2022. A pdf version of the response must be emailed to: mayorsfund@phila.gov and sustainability@phila.gov.

PART I: RFI OVERVIEW

A. Response Calendar

	Date	Instructions
Request for Information Posted	June 26, 2022	Link
Questions about this RFI due	June 3, 2022	All questions must be submitted to mayorsfund@phila.gov and sustainability@phila.gov
RFI Pre-Response Meeting	June 2, 2022 at 1:00pm on Zoom	Register here
Responses to questions provided by Fund/City	June 8, 2022	Responses will be posted on Link
Responses to RFI Due	June 30, 2022	All responses must be submitted to mayorsfund@phila.gov and sustainability@phila.gov

B. Statement of Purpose

The Mayor's Fund for Philadelphia, in collaboration with the City of Philadelphia's Office of Transportation, Infrastructure, and Sustainability (OTIS) and the Office of Sustainability (OOS), has issued this Request for Information (RFI) to solicit statements of interest, capabilities, and Rough Order of Magnitude (ROM) cost estimates from all Respondents interested in, and capable of, developing a **Lower South Infrastructure Improvement Plan**. This RFI is intended to inform the development of a forthcoming Request for Proposals (RFP), specifying a specific scope of work for this analysis, and subsequent contract with a consulting firm, or team of firms, to support the development of a Lower South Infrastructure Improvement Plan. **Only Respondents to this RFI will be eligible to respond to the RFP.**

This RFI seeks input into the structuring and outcomes of the key components of the Lower South Infrastructure Improvement Plan's development.

C. Department Overview

The Mayor's Fund for Philadelphia (the Fund) works in close partnership with the City of Philadelphia and private sector partners to develop and run initiatives that reflect Mayoral priorities and seek to improve the quality of life for all Philadelphians. The Fund will serve as the fiscal administrator for this RFI, as well as the forthcoming RFP and contracting opportunity. The Office of Sustainability (OOS) will serve as the project manager for this effort on behalf of the Fund.

The City of Philadelphia's Office of Transportation, Infrastructure, and Sustainability (OTIS) drives change through Philadelphia's transportation and infrastructure systems. OTIS leads a group of departments and divisions that includes the:

- Office of Complete Streets, which manages many initiatives of the City's Complete Streets program
- Department of Streets
- Office of Sustainability
- Philadelphia Water Department

OTIS also works with local and national organizations to advance the City's interests. Through policies and programs, OTIS provides cost-effective, quality services with a focus on residents.

The City of Philadelphia's Office of Sustainability (OOS) is responsible for implementing Greenworks Philadelphia, the City's comprehensive sustainability plan. The Office of Sustainability (OOS) works with partners around the city to improve quality of life in all Philadelphia neighborhoods, reduce the City's carbon emissions, and prepare Philadelphia for a hotter, wetter future.

D. GENERAL DISCLAIMER

This RFI does not commit the Fund or the City of Philadelphia to post a future RFP or award a contract. This RFI and the process it describes are proprietary to the Fund and the City and are for the sole and exclusive benefit of the Fund/City. No other party, including any Applicant, is intended to be granted any rights hereunder. Any response, including written documents and verbal communication, by any Applicant to this RFI, shall become the property of the Fund/City and may be subject to public disclosure by the Fund/City, or any authorized agent of the Fund/City at the discretion of the Fund/City.

PART II: INTRODUCTION

A. BACKGROUND

Signs of new economic promise are emerging within and around the Lower South area of Philadelphia (See Appendix A: Conceptual Study Area Map). Philadelphia International Airport (PHL) is embarking on an expansion program that will add 1 million square feet of cargo facilities and 5 million square feet of taxiway and apron expansion to accommodate increased cargo operations. To the east, the Navy Yard continues to grow into "a fully functioning Philadelphia neighborhood" with a soon-to-be updated master plan that will guide \$2.5 billion of new investment in residential, life science, and commercial spaces situated around parks and recreation trails. Neighboring the Navy Yard is the Port of Philadelphia, which is undergoing improvement to support expanded cargo capacity and operations. To the north, the Philadelphia Sports Complex includes three world-class sports venues with planning underway to develop a state-of-the-art facility to host concerts, e-sports, and other events. Near the area's center is the former PES Refinery, which is being transformed into the Bellwether District, a 1300-acre campus for e-commerce, life sciences, and logistics.

This historic level of development calls for significant investments in infrastructure modernization and improvement - specifically the transportation network - to meet future demand and build long-term resilience. A group of property owners and infrastructure operators located in the Lower South, **the Lower South Infrastructure Resilience Collaborative (or "The Collaborative")**, has identified the need for a Lower South Infrastructure Improvement Plan primarily focused on mobility. This Plan is intended to balance two objectives 1) establish a set of solutions and coordinated actions to deliver a multi-model transportation system that catalyzes inclusive growth and development in the Lower South area, while 2) ensuring its resilience to existing and expected impacts of climate change.

The Lower South Infrastructure Resilience Collaborative

Building on PennDOT convenings for the Central to South Philadelphia (CSP) I-95 Planning Study, the City of Philadelphia continues to bring together property owners, infrastructure operators, and developers in the Lower South area to discuss existing transportation challenges, longer-term needs, and collective opportunities to meet them. The Collaborative includes:

- [Philadelphia Office of Transportation, Infrastructure and Sustainability \(OTIS\)](#) (Co-lead)
- [Philadelphia Office of Sustainability \(OOS\)](#) (Co-lead)
- Department of Planning and Development (DPD)
- Philadelphia Division of Aviation/Philadelphia International Airport (PHL)
- Philadelphia Water Department (PWD)
- Philadelphia Industrial Development Corporation (PIDC)
- PennDOT
- PhilaPort
- Russo Development
- Hilco Redevelopment Partners
- Sports Complex Special Services District
- Delaware Valley Regional Planning Commission (DVRPC)

While currently focused on existing and expected transportation challenges, the Collaborative also has interest in addressing vulnerabilities to other major systems, including water, energy, telecommunications, and natural infrastructure. Building on the Infrastructure Improvement Plan findings, members have interest in a future Lower South Infrastructure Resilience Roadmap.

B. THE NEED FOR AN INFRASTRUCTURE IMPROVEMENT PLAN

Worsening access and circulation challenges in the transportation network threaten the economic growth trajectory of this area. As the area grows and land uses change, increasing personal and commercial vehicle traffic could increase the volume beyond the roadway network's physical capacity, exacerbating existing recurring bottleneck conditions. The resulting severe congestion will negatively impact ingress and egress to properties and is at odds with the City's sustainability goals. Limited on- and off-ramp access to I-95 has already created a chokepoint at the Broad Street Interchange as the current design is incapable of efficiently accommodating the growing commercial developments, creating delays and causing significant safety issues. Increasing traffic volumes will demand network improvement

projects to address the desired operational level of service, as well as investments in transit and nonmotorized modes for trips that do not need to be made by private automobile.

Emerging risks, such as the accelerating climate crisis, will aggravate persistent transportation network challenges. As climate change intensifies, Philadelphia's transportation assets and infrastructure will experience ever-increasing operational disruptions and inundation from rising sea levels, storm surges, and more frequent and intense precipitation events. Without adequate adaptive measures, the physical flooding impacts of climate change increase the likelihood of stranded assets, including buildings, facilities, and potentially new sections of the multibillion-dollar reconstruction of the nearly six-mile segment of I-95 in Central and South Philadelphia (CSP). The scale of known and newly developing risk in the Lower South area calls for the pairing of immediate, targeted actions to improve access and circulation with area-wide interventions aimed at reducing long-term risk to assets' performance and value.

Managing escalating risk while improving operational efficiency in the near term necessitates a flexible transportation planning approach that allows for actions to be modified, as appropriate, or anticipate new actions based on actionable climate science. The effects of climate change and other risk factors will continue to emerge, indicating the need for a near-term, no-regret investment strategy accompanied by a longer-term framework.

Implementing an interconnected and comprehensive transportation network improvement strategy that addresses the full spectrum of challenges dramatically exceeds the funding capacities and scope of any individual entity. Success hinges on executing an innovative cooperative strategy that taps into specialized funding programs and one-time

The Lower South Infrastructure Resilience Collaborative identified an initial list of challenges they are experiencing and opportunities they might want to pursue. This is not an exhaustive list but rather a starting point from which the planning team can think more broadly and creatively about potential issues and solutions.

Specific needs:

- Access to I-95 between Broad Street and Packer Avenue
- Bi-directional access to I-95 from Cargo Facilities located at PHL Airport West
- Multimodal improvements to the I-95/Broad Street interchange
- Access management solutions at Oregon/Columbus and Kittyhawk/Delaware Avenue
- Access to and from I-76 from the Stadium District and the Walt Whitman Bridge
- Pedestrian improvements in the Stadium District Area

Broader interests:

- Freight, event, commuter, and multimodal circulation strategies informing arterial network design and performance standards
- Traffic monitoring and management concept of operations
- Medium- and long-term transit service plan and transit investment priorities, including need for smart transit and mobility solutions
- Integration of pedestrian, bike infrastructure, and freight rail based on existing network plans and other new or existing needs
- Truck parking strategies

funds at the state or federal level. In the absence of a coordinated strategy, the likelihood is that each entity will execute their own development plan and resiliency interventions, without taking into consideration the needs of adjacent properties and the overall system, resulting in potential negative impacts to surrounding communities and the region as a whole. The Collaborative, and this Plan and a future infrastructure resiliency roadmap in particular, seeks to harmonize all of the individual development plans, while maximizing the functionality, efficiency and resiliency of the overall transportation and infrastructure system.

This Plan's approach would align with the goals of the Infrastructure and Investment and Jobs Act (IIJA), and would allow for the City of Philadelphia to maximize the advantage of a once-in-a-generation opportunity to upgrade critical infrastructure in the Lower South area. In addition to the \$110 billion in new surface transportation spending, IIJA represents the country's first significant investment in climate resilience, with \$47 billion allocated to preparing communities for the ever-growing threat posed by climate change. The ability to capture the added monetary and non-monetary values, particularly equitable outcomes, of the collaborative approach should support the competitiveness for this novel federal funding opportunity.

C. LOWER SOUTH INFRASTRUCTURE IMPROVEMENT PLAN GOALS

The Collaborative envisions the Lower South Infrastructure Improvement Plan to be a transportation network improvement strategy to help the Collaborative achieve the following shared goals:

- Alleviate barriers to efficient circulation;
- Improve and potentially identify new access routes to address existing challenges and support on-going economic development;
- Increase the resilience of the transportation systems to existing and projected climate risks, namely flooding;
- Identify interdependencies and potential cascading effects between transportation and other shared or distributed infrastructure systems that may undermine the area's growth;
- Address the disproportionate negative environmental impacts of transportation on disadvantaged communities;
- Support the ongoing transformational growth of the Lower South's economic competitiveness;
- Identify and drive purpose-driven mobility innovations that further the other Lower South goals; and
- Strengthen existing and build new partnerships across the Lower South to support the growth and resilience of Philadelphia's economy and ensure ongoing implementation of the Plan's recommended strategies.

To help achieve these goals, the Plan is intended to include three primary outcomes:

- Identification of the transportation and other critical infrastructure-related risks to the area's economic competitiveness, social equity, and environmental health as well as opportunities for improvements (e.g., limits related to the capacity of the existing transportation network, impacts of projected flooding on the transportation network.).
- Development of a prioritized set of short, medium, and long-term action recommendations to address existing challenges and projected risks (e.g., short-term signage, striping, and other



operational changes; medium-term flood mitigation strategies to reduce road flooding; long-term new infrastructure that aligns with the City's climate action and resiliency goals)

- Implementation guidance that outlines the policies, partnerships, tools, and funding mechanisms to assist in transforming the recommendations into reality (e.g., identification of funding opportunities, best practice governance structures)

D. CONCEPTUAL STUDY AREA BOUNDARIES

The Lower South Study Area comprises all of the Lower South Philadelphia Planning District and part of the Lower Southwest Planning District. The Study Area is bound by the Delaware River to the East and South; the Philadelphia International Airport and the John Heinze National Wildlife Refuge to the West; and West Passyunk, the northern border of the proposed Bellwether District, I-76, and Mifflin Street to the North. (See Appendix A: Conceptual Study Area Map). This is a vast area, and therefore, there will likely be a need for more focused attention to specific subsets of the Study Area. The Study Area boundaries are conceptual at this point; the Collaborative is open to suggested changes to support best practice analysis.

E. PLAN DEVELOPMENT SCOPE AREAS

To support achievement of Lower South Transportation Improvement Plan goals, the Collaborative envisions the eventual RFP to cover the following Plan development scope areas:

- **Integrated multidisciplinary transportation planning approach.** Integrate multidisciplinary, yet overlapping technical, social, and economic considerations into a series of transportation and climate adaptation recommendations to ensure equitable and resilient outcomes. (See Appendix B: Existing Resources).
- **Robust impact assessment analysis.** Leverage existing transportation and flood modeling analyses, identify and address remaining data and modeling gaps, and engage with stakeholders to create a shared understanding of the strengths, weaknesses, opportunities, and risks to the transportation system—and the communities and the economies dependent on it—related to changes in land uses, growth, and climate change. This includes assessment of infrastructure, riverine, sea level rise, and storm-related flood risks to the transportation system and surrounding properties.
- **Identification and prioritization of interventions among numerous and diverse stakeholder groups.** Identify short-, medium-, and long-term interventions to address challenges to the transportation network and critical infrastructure systems and enhance their resilience to climate changes; evaluate alternative improvement concepts including rough estimates of costs and timing with a focus on the sequence of improvements that match evolving risks and opportunities; conduct stakeholder engagement to recommend a prioritized set of solutions. This engagement will focus on the property owners and infrastructure operators within the Study Area and will connect to and elevate the findings from adjacent community-based stakeholder engagement currently underway.

- **Foundation for ongoing implementation.** Recommend mechanisms to facilitate implementation of the Study recommendations and the Lower South Infrastructure Resilience Roadmap, including funding mechanisms. Identify and engage with key stakeholders including community representatives and external stakeholders at the regional, state and federal level to map out and initiate advocacy towards successful implementation. Pivotal to this effort will be setting up the Lower South area to be competitive for new federal infrastructure funding, with many programs featuring climate resilience as a key factor.

Understanding that there are diverse land uses within the Lower South Study Area, the eventual RFP will lay out a scope of work to help the Collaborative understand the potential range of short-, medium-, and long-term transportation solutions that could be available for improving the transportation network's performance for freight, event, commuter, and multi-modal circulation priorities, while also recognizing and accounting for the threat of climate change. The resulting Plan will empower the Collaborative to be flexible in project selection so that its individual and collective needs are balanced with those of neighboring communities.

Broadly, the Collaborative has discussed changes to circulation patterns; rethinking potential points of access; incorporation of impactful transit service and infrastructure improvements; appropriate locations for improvements for active transportation; and truck parking strategies. In terms of needs, challenges, and opportunities, Lower South stakeholders have discussed access to I-95 between Broad Street and Packer Avenue; bi-directional access to I-95 from cargo facilities located on the west side of the Airport; multi-modal improvements to the I-95/Broad Street interchange area; access management in the vicinity of Oregon Avenue and Columbus Boulevard and Kittyhawk and Delaware Avenue; and pedestrian improvements in the Stadium District Area. This is not an exhaustive list of potential solutions, but rather a starting point. Responses to this RFI will assist the Collaborative in developing a framework for the development of a climate-informed and transportation focused Infrastructure Improvement Plan that balances the needs of a diverse range of stakeholders and surrounding communities. This framework will also set the foundation for a potential future Infrastructure Resilience Roadmap, covering additional critical infrastructure, including natural systems, water/wastewater, energy, and telecommunications, to support a thriving, resilient, and sustainable city.

The Lower South Infrastructure Improvement Plan and the Resilient Infrastructure Roadmap are part of a suite of initiatives the City of Philadelphia is pursuing to support implementation of its citywide [Climate Action Playbook](#) and achievement of its Lower South climate action objectives:

- Ensure individual climate adaptation interventions do not operate at cross-purpose
- Avoid transference of risk to adjacent property or neighborhood
- Minimize spill-over costs to the City of Philadelphia (e.g., rescues for stranded residents/workers)
- Increase the City's competitiveness for federal funding opportunities
- Derive a more advantageous cost-benefit ratio for interventions that support resilience
- Create new amenities and other benefits for workers and residents



PART III: SUBMISSION REQUIREMENTS AND ADMINISTRATION

A. SUBMISSION DIRECTIONS

Submissions are expected to include responses to the questions provided in Part IV: RFI Response Template. This includes general information on each organization represented in the submission, which may involve more than one organization if submitting as a team. Responders can download a Word version of the Template to input their responses, or they can opt to provide them in a separate format.

RFI submissions must be received no later than 5:00 PM E.S.T. on June 30, 2022. Please submit an electronic version of the submission to sustainability@phila.gov with "Lower South RFI" in the subject line and cc: mayorsfund@phila.gov.

Only Respondents to this RFI will be eligible to respond to the subsequent RFP. This RFI does not commit the Fund or the City of Philadelphia to release an RFP and/or award a contract. This RFI and the process it describes are proprietary to the Fund and the City and are for the sole and exclusive benefit of the Fund/City. No other party, including any Applicant, is intended to be granted any rights hereunder. Any response, including written documents and verbal communication shall become the property of the Fund/City and may be subject to public disclosure by the Fund/City, or any authorized agent of the Fund/City.

B. QUESTIONS RELATING TO THE RFI

All questions concerning this RFI may be submitted in two ways: 1) in writing via email with "Lower South RFI – Questions" in the subject line to sustainability@phila.gov, with a cc: to mayorsfund@phila.gov by June 3, 2022 at 5:00pm E.S.T., and/or 2) virtually during the Lower South RFI Pre-Response Meeting on June 2, 2022 at 1pm. To join the Pre-Response Meeting, please register at https://us02web.zoom.us/meeting/register/tZAqf-quqzwwE9VS9xfvStFkH_y6UWegTP13.

The RFI project team will provide written responses to the questions by end-of-day June 8, 2022. These responses will be posted at mayorsfundphila.org with original questions noted.

C. REVIEW PROCESS

The Fund, OTIS, and OOS will review RFI responses in consultation with members of the Collaborative. The list of Collaborative members can be found in Part II: Background.

D. Confidentiality

Respondents shall treat all information obtained from the Fund or City which is not generally available to the public as confidential and/or proprietary to the Fund/City. Respondents shall exercise all reasonable precautions to prevent any information derived from such sources from being disclosed to



any other person. No other party, including any Respondent, is intended to be granted any rights hereunder.

E. Rights and Options Observed

In addition to the rights reserved elsewhere in this RFI, the Fund and the City reserve and may, in their sole discretion, exercise any or more of the following rights and options with respect to this RFI:

- Decline to consider any response to this RFI (“response”); cancel the RFI at any time; elect to proceed or not to proceed with discussions or presentations regarding its subject matter with any Respondent and with firms that do not respond to the RFI; to reissue the RFI or to issue a new RFI (with the same, similar or different terms);
- Elect not to proceed with the Lower South Infrastructure Improvement Plan RFP
- Waive, for any response, any defect, deficiency or failure to comply with the RFI if, in the Fund’s sole judgment, such defect is not material to the response;
- Extend the Submission Date/Time and/or to supplement, amend, substitute or otherwise modify the RFI at any time prior to the Submission Date/Time, by posting notice thereof on the Fund’s web page(s) where the RFI is posted;
- Require, permit or reject amendments (including, without limitation, submitting information omitted), modifications, clarifying information, and/or corrections to responses by some or all Respondents at any time before or after the Submission Date/Time;
- Require, request or permit, in discussion with any Respondent, any information relating to the subject matter of this RFI that the Fund or City deem appropriate, whether it was described in the response to this RFI;
- Discontinue, at any time determined by the Fund or the City, discussions with any Respondent or all Respondents regarding the subject matter of this RFI, and/or initiate discussions with any other Respondent or with vendors that did not respond to the RFI;
- To conduct such investigations with respect to the financial, technical, and other qualifications of the Respondent as the Fund or the City deem necessary or appropriate;
- Do any of the foregoing without notice to Respondents or others, except such notice as the Fund, in its sole discretion, may elect to post on the its web page(s) where this RFI is posted.

This RFI and the process described are proprietary to the Fund and City and are for exclusive benefit of the Fund and the City. Upon submission, responses to this RFI shall become the property of the Fund and the City, which shall have unrestricted use thereof.



PART IV: RFI RESPONSE TEMPLATE

Responders can download a Word version of the Template to input their responses, or they can opt to provide them in a separate format.

0. General Information
Organization Name (or names if submitting as a team):
Street Address:
City, State, Zip:
Primary Business:
Point of Contact Name:
Title:
Phone:
Email:
Organization Web Address:



Objective 1.0: Integrate multi-discipline, yet overlapping technical, social, and economic considerations into a series of transportation and climate resilience recommendations

The development of recommendations will require expertise on a number of interrelated topics, including transportation planning, engineering, and traffic modeling across a wide range of surface modes; climate modeling and vulnerability assessments; economic forecasting, infrastructure design, and site -level resilience.

1.1	What have you learned from past place-based, multi-disciplinary planning initiatives with a focus on transportation systems? How have you organized your teams, what has worked well, and what could have been improved?
1.2	<p>How would you propose undertaking this analysis? How would you suggest phasing and conducting transportation, climate assessment, and design analysis to ensure the following can be achieved?</p> <ul style="list-style-type: none">● Identification and conceptual design of short-term, non-structural transportation interventions to address existing circulation, access, safety, and flooding issues.● Help for the City and its partners to identify and develop competitive applications for state and federal funding to support medium- to long-term transportation, flood mitigation, and related infrastructure investments to support the Lower South's ongoing economic development and vitality.● Identification of timely recommendations to include, potentially, as early action items for the I-95 Section CSP project, including climate vulnerability and suggested design changes (e.g., additional ramps to expand capacity).
1.3	To undertake this complex planning process will require a wide range of professional expertise. How would you build and staff your team? What capabilities does your firm have and what capabilities would you bring from other firms?
1.4	Provide a table listing your proposed set of tasks and estimated fee to complete them. [Note: this is intended to give a sense of costs, trade-offs, and opportunities; teams will not be held to these estimates.] How would you suggest the City structure a contract to allow for flexibility in the timing of these tasks?



Objective 2.0: Leverage existing analysis, identify and fill remaining data and modeling gaps, and engage with stakeholders to create a shared understanding of risks to transportation systems, the economy, and area communities related to changes in land uses, growth and climate change.

There have been numerous transportation, master planning, and flood modeling studies in the Lower South area. [See List of Existing Studies (Appendix B) and Inventory of Available Climate Data and Modeling (Appendix C)].

2.1	What additional data is required to assess existing conditions, identify transportation challenges and vulnerabilities, and recommend promising interventions to address these risks? How would you identify and address gaps in available data? How would you propose to assemble and align this data and address conflicting information?
2.2	Appendix C lists potential planning parameters (e.g., study timeframes) for this analysis. What changes would you suggest to best align with ongoing and expected transportation analyses, available climate data, development plans, and federal funding opportunities?
2.3	<p>Which types of assessments would you recommend to meet the objectives of this planning process? In addition to baseline transportation and climate analysis, how would you propose to assess and/or address:</p> <ul style="list-style-type: none">● the impact of completed, proposed, and committed infrastructure investments and other interventions in the Study Area on transportation demand (by mode), access, safety, and circulation patterns;● transportation-related challenges, access, risk and intervention efficacy for vulnerable populations;● economic risk to property owners/facility operators and the City if transportation and climate risks are not addressed or not addressed in a coordinated fashion;● fiscal risk to the City, and the city and regional economy as a whole; and● the changing nature of risks over time? <p>What specific analytical or modeling tools do you see as appropriate to assess these questions over such a large study area, balancing breadth and depth of analysis?</p>



2.4	How would you seek feedback from the diverse range of stakeholders about their varying risk tolerances?
2.5	How would you ensure the outcomes of the assessments are actionable by the City, State, and its partners and allow for the assessment and prioritization of potential interventions to address transportation issues and challenges as well as climate-related risks?
2.6	What will be the quantitative and qualitative outputs of your analyses?
2.7	How will your analysis and/or modeling methodology account for the potential need to incorporate updated climate projections or other changing information at a later point?



Objective 3.0: Identify short-, medium-, and long-term interventions to address transportation challenges and climate risks; conduct analysis and stakeholder engagement to prioritize those solutions most aligned with stakeholder goals.	
3.1	What would be your approach to identify and assess specific, new interventions that address the identified risk and align with the Lower South Infrastructure Improvement Plan goals?
3.2	How would you quantify order of magnitude benefits and costs for different interventions?
3.3	How would you mitigate the potential for unintended consequences of planned and proposed interventions? (e.g., increasing flood risks to neighboring properties, increasing congestion within a surrounding community)
3.4	The City is already conducting or has planned a number of parallel community engagement, relationship building, and capacity enhancing initiatives. (See Appendix D). In addition to meetings and workshops, what additional communication tools would you propose to seek meaningful input and keep public and private stakeholders informed?
3.5	How would you suggest structuring this planning process to ensure it is transparent and inclusive as it connects to ongoing and planned efforts?
3.6	How would you address and align disparate stakeholder interests and priorities?



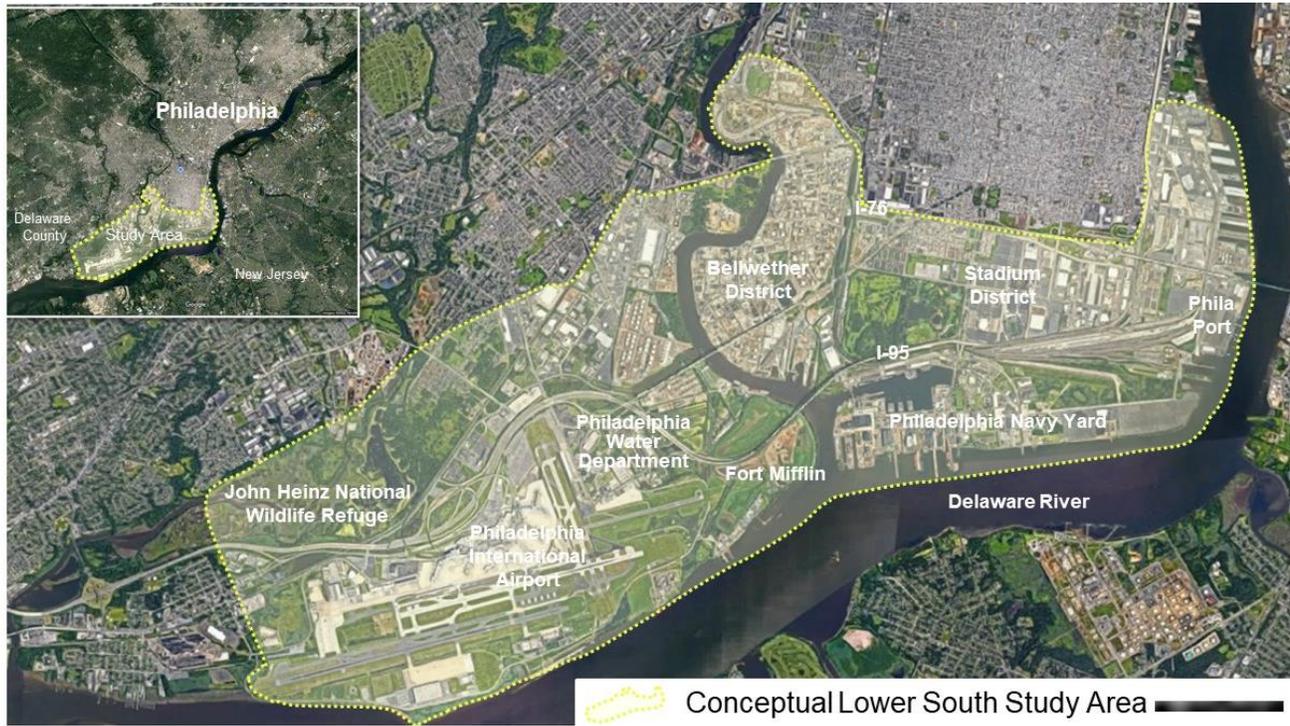
Objective 4.0: Recommend mechanisms to facilitate implementation of the Plan recommendations, including funding mechanisms and governance structures.

4.1	How would you ensure outcomes of analysis and recommended interventions are positioned to help secure implementation funding?
4.2	How would you identify new and/or innovative funding streams beyond existing state and federal grant opportunities?
4.3	How would you develop recommendations to support ongoing collaboration, transparency, and accountability around the implementation of critical transportation and climate resilience interventions?



PART IV: APPENDICES

APPENDIX I: CONCEPTUAL STUDY AREA MAP





APPENDIX II: RESOURCES, EXISTING REPORTS, AND DATA

a. Planning Studies

- [Philadelphia2035 Lower South District Plan LOWER SOUTH | phila2035](#)
- [Philadelphia2035 Lower Southwest District Plan LOWER SOUTHWEST | phila2035](#)
- [Philadelphia Navy Yard Plan: 2021 Update](#)
- [Philadelphia International Airport Air Cargo Expansion](#)
- [The Bellwether District, Hilco Redevelopment Partners](#)
- Studies in progress:
 - FEMA Cooperating Technical Partners Program: A Zone Remapping and Repetitive Loss Study

b. Transportation Studies

- [DVRPC Long-Range Plan & TIF](#)
- I-95: Section CSP in Sector B is currently a Planning Study and not yet in the Design Phase.
- Partner internal studies, to be shared with selected teams following the RFP.
- [ask partners for other studies to include]

c. Environmental Studies

- EPA Research Project: Movement of Contaminants during Flood Events. Looking at different scenarios around pollution movement during 10, 50 & 100 year flooding (on-going)
- EPA Clearview Superfund Remediation Study: [Site Profile - Lower Darby Creek Area - Clearview Landfill - EPA OSC Response](#)

d. Flood Mitigation Studies (see flood climate modeling list on next page)

- USACE Analyses 2016 Hydrologic Study for the Darby and Cobbs Watersheds
- Groundwater and Subsurface Characterization Study (on-going)

e. Philadelphia Model Inventory for the Lower South

- See table on next page.

APPENDIX III: PHILADELPHIA MODEL INVENTORY

Created: January and February 2022

Contributors: Philadelphia Water Department staff and Franco Montalto, Drexel University

Note: This inventory is intended to be a living document and serve as a catalog of completed or current modeling efforts in the City of Philadelphia. This is not an exhaustive list of modeling efforts, but is intended to capture key initiatives related to several water resource management areas including: flood risk assessment, infrastructure performance and alternatives evaluation, and water quality and quantity assessments. If a model is listed in this inventory, it should not be assumed that the model itself or related datasets can be made available to entities other than the owner/developer. However, where possible, and to facilitate citywide planning efforts, certain model information may be made available upon request.

Name (Alphabetical Order)	Owner/ Developer	Model Objective/Capability	Status	Model Type / Software	Geographic extent
Act 167 Darby-Cobbs Model	Delaware County Planning Department	A Hydrologic analysis as part of a stormwater management plan under Act 167 (Delaware County Planning Department, 2005), calibrated to frequent events. Results were compared to the Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) flows.	Completed in 2005	H&H / HEC- HMS	Darby and Cobbs Watersheds
AKRF - PHDC Eastwick Model	AKRF PHDC	Lower Eastwick Infrastructure and Flood Evaluation Hydrology and Hydraulic Modeling - model was constructed for the purpose of evaluating flooding in the vicinity of parcels owned by the Philadelphia Redevelopment Authority (PRA) and the Philadelphia School District.	Existing Conditions Modeling completed in 2021	H&H / HEC- HMS	Far field model' (1D) uses stream flow from USGS Schuylkill gage and tide gages at Bridesburg and Philadelphia to Delaware City, New Castle and Marcus Hook to facilitate 2D Near Field model 'Near Field Model' (2D) Community of Eastwick and Heinz preserve, east to Schuylkill banks



Name (Alphabetical Order)	Owner/ Developer	Model Objective/Capability	Status	Model Type / Software	Geographic extent
Eastwick Compound Flood Model NOAA-funded	Stevens Institute (PI), Drexel, PWD	Inform decision-making regarding flood mitigation solutions in Eastwick considering compound climate risks associated with several scenarios regarding changes in extreme precipitation, sea level rise, surges, and their joint occurrence.	Scheduled for official completion in August 2022, analysis to continue as part of a NOAA-AdSci grant led by Drexel	H&H / PCSWMM; 2D HEC-RAS	PC-SWMM: Ben Franklin Bridge to Marcus Hook, to Schuylkill dam; entire Darby and Cobbs Watersheds HEC-RAS: Eastwick neighborhood
Eastwick / Mingo Creek Basin Stormwater Model	PWD	The purpose of this model is to evaluate the stormwater collection system within the Eastwick area as well as the Mingo Creek Basin drainage area and Pump Station using EPA SWMM.	Completed in 2014	H&H / SWMM	Mingo Stormwater Basin Drainage Area
PHL Airport H&H Resiliency Study	PHL Airport; VHB Engineering	Allow for assessment of overland flood water flow paths and estimation of future flood levels at PHL due to climate change from major storm events and daily tidal flooding. This study will also evaluate potential adaptation measures to protect airport assets.	Anticipated completion June 2022	H&H and Coastal Transect / 2D HEC-RAS; CHAMP	PHL site and surrounding area. H&H model limits are Route I-95 on the Schuylkill River to the confluence of the Schuylkill River to the Delaware River, to approximately Little Tinicum Island on the Delaware River



Name (Alphabetical Order)	Owner/ Developer	Model Objective/Capability	Status	Model Type / Software	Geographic extent
PWD Collection System CSO Compliance Model	PWD	This is a hydrologic & hydraulic (H&H) model of the combined and separate sanitary wastewater collection systems to estimate Combined Sewer Overflow (CSO) volume and frequency under various conditions. It is used for reporting requirements under PWD's Consent Order & Agreement (CO&A) with PADEP and is supporting PWD-wide planning efforts.	Continuously maintained and updated.	Hydrologic & Hydraulic (H&H) / EPA's Stormwater Management Model (SWMM)	Combined and separate sanitary wastewater collection systems for Philadelphia and various outlying communities.
PWD Storm Relief (SFR) Models (various neighborhoods)	PWD	To assess flood risk and evaluate potential flood risk reduction methods in different areas within Philadelphia: Pennsport, South Philadelphia (Moore St.), and Cohocksink (Northern Liberties).	Completed 2021	H&H / PCSWMM; SWMM	Pennsport, South Philly, and Northern Liberties
USACE Analyses 2014	USACE	The USACE created a 1D HEC-RAS Model to provide the preliminary evaluation of a conceptual levee upstream of Clearview Landfill for flood protection in Eastwick.	Completed in 2014	H&H / HEC- Geo-RAS; HEC-RAS (Version 4.1)	Darby and Cobbs Watersheds
USACE Feasibility Study - H&H Model 2020	USACE, PWD	Model and investigate alternatives for flood risk management improvements in the neighborhood of Eastwick	TBD	H&H / HEC- RAS	Darby and Cobbs Watersheds: Confluence to Delaware River



APPENDIX IV: PLANNING PARAMETERS FOR DISCUSSION

Hazards	Riverine and coastal flooding, including flash floods, high tides and storm surge, infrastructure flooding, sea level rise, change in groundwater depth, wind, and extreme heat.
Timeframes	Ideally, the analysis of impacts and development of strategies would match the timeframes for transportation planning, funding opportunities, and existing climate projections. The City is open to suggested time frames, but at minimum, vulnerabilities must be analyzed for immediate action (within the Kenney Administration), near-term (within next ten years), medium-term, and long-term. Specific actions should focus on the immediate term with higher-level strategies focused on the later timeframes.
Geographic scope	Study Area boundaries are conceptual at this time, and the Collaborative is open to suggested changes. For some analysis, the geographic scope may require a broader approach to capture upstream watershed areas that impact the Study Area as well as neighboring areas impacted by the design of the Study Area should be considered, as well. For others, there may be the need to focus on a few smaller, targeted areas.
Spatial resolution	Consultant shall propose a level (or levels) of spatial resolution of global climate outputs appropriate for impact assessment and planning needs as part of the first sub-task of the impact assessment: gap analysis.
Frequency/ Severity:	Consultants should propose an approach they would recommend and why. At minimum, impacts could be analyzed for climate hazards that occur with the following return periods: monthly, yearly, and 100-year events. For certain assets, i.e., transportation and water infrastructure, it may make sense to analyze the 10-year, 25-year, 50 year, and potentially 500-year events.



Social Vulnerability Indicators	Consultants should propose an approach to assess social vulnerability. The following demographic factors at a minimum should be analyzed to understand disproportionate vulnerability to transportation-related challenges and climate hazards: median household income, race, age, language, disability status, and pre-existing health conditions such as hypertension, diabetes, and asthma.
Cascading Impacts	Impacts should be analyzed to address interdependencies across systems and how this impacts communities and businesses.

APPENDIX V: STAKEHOLDER ENGAGEMENT INITIATIVES

A. Lower South Infrastructure Roadmap Collaborative

Building on convenings organized by PennDOT's Central to South Philadelphia I-95 planning study, the City is continuing to bring the land owners, infrastructure operators, and developers covered by the Lower South Study Area to discuss their current development plans, existing challenges transportation challenges, medium to long term transportation needs, and collective opportunities to meet them. This Collaborative currently includes the Philadelphia Office of Transportation, Infrastructure and Sustainability (OTIS), Office of Sustainability (OOS), Department of Planning and Development (DPD), Philadelphia Division of Aviation (DOA PHL), Philadelphia Water Department (PWD), Philadelphia Industrial Development Corporation (PIDC), PhilaPort, Russo Development, Hilco Redevelopment Partners, PennDOT, the Delaware Valley Regional Planning Commission (DVRPC), and the Sports Complex Special Services District.

B. Eastwick: From Recovery to Resilience

The City of Philadelphia is facilitating community-based planning in one of the most vulnerable communities to climate change impacts, Eastwick. To support community resilience to flooding and other hazards, the planning efforts will focus on the identification of long-term mitigation efforts and development of mechanisms to implement them. This planning will build off the experience of a pilot community planning effort in Hunting Park, Beat the Heat, which addresses extreme heat. In Eastwick, the City will pilot a place-based flooding framework and seek funding to implement the planning process outcomes. The City also plans to expand the place-based extreme heat resiliency framework to other communities beyond Hunting Park. Expected outcomes include the creation of a community resilience plan for Eastwick that specifically includes addressing the needs of the Eastwick community; a proven equitable approach to strengthen the climate resilience of disadvantaged communities that can be replicated for other communities vulnerable to the impacts of climate change; increased technical assistance and community engagement of disadvantaged communities; and enhanced capacity of community-based leadership to define for themselves the solutions most relevant to the unique climate challenges they face.

C. Comprehensive Plan Update

Over-arching guidance for long-term investment is provided by the City's comprehensive physical development plan, updated and adopted by the Philadelphia City Planning Commission (PCPC). The current comprehensive plan is Philadelphia2035 [The Comprehensive Plan | Programs and initiatives | City of Philadelphia](#)