Adaptation Strategy Matrix

adapted from Climate Action Planning (CAP) by Boswell, Greve and Seale Chapter 7

Once a community conducts a climate change vulnerability assessment, they must devise ways to address the identified points of community vulnerability, finding the strategies that position them to be resilient to climate change impacts. (CAP.p200)

NOTE: GHG emissions reductions and adaptation goals are complementary in many ways but do have the potential to conflict	Prioritize adaptive needs *Which impacts require actions to address them?*	Identify Strategies *Which strategies should be pursued to address adaptation needs?*	Evaluate and Prioritize *Which strategies should be implemented first?*	Phase and Implement *How can the strategies be funded, staffed, and monitored?*
EX: A particular adaptation need, such as protection against extreme heat can be addressed in a variety of ways. GHG reduction should be considered a potential co-benefit for adaptation measures, but this is secondary to that requirement that measures adequately address the scale and severity of climate change impacts. For example, tree planting both sequesters carbon and helps alleviate the impacts of extreme heat, while strategies such as offering cooling centers that offer protection from heat may rely of air conditioning, which can be related to the release of GHG due to energy use. The trees address both emissions reduction and adaptation, but they may not offer protection	**Guiding Principles for Adaptation** *Adopt integrated approaches: Adaptation should be incorporated into core policies, planning, practices, and programs whenever possible.* *Prioritize the most vulnerable: Adaptation plans should prioritize helping people, places and infrastructure that are most vulnerable to climate impacts and be designed and implemented with meaningful involvement from all parts of society* *Use best available science: Adaptation requires coordination across multiple sectors and scales and should build in the existing efforts and knowledge of a wide range of public and private stakeholders* *Apply risk management methods and tools: Adaptation planning should incorporate risk management methods and tools to help identify, assess, and prioritize options to reduce vulnerability to potential environmental, social, and economic implications of climate change* *Apply ecosystem-based approaches. Adaptation should, where relevant, take into account strategies to increase ecosystem resilience and protect critical ecosystem services on which humans depend to reduce vulnerability of human and natural systems to climate change* *Maximize mutual benefits: Adaptation should, where possible, use strategies that compliment or directly support other related climate or environmental*	MMSD Resilience Plan 2019 SIX TOP RISKS p.27 Identified by 4 step process narrowed down from 12 to 6 FINANCIAL CONSTRAINTS Budget constraints due to tax policy (infrastructure investment, public workforce shortage, etc. SOCIAL EQUITY Social issue due to segregation: inequalities, crime and violence. VULNERABILITY OF CRITICAL INFRASTRUCTURE Risk associated with aging infrastructure and infrastructure failure (pipes, buildings, bridges, highways, communication networks, industrial areas, etc.), significant and rising costs of maintenance and repair CLIMATIC HAZARD Climatic events (flooding,	*In the case of local planning, the system is the community, defined by the interacting element of the biophysical setting, built environment , and sociopolitical conditions. Consider:* • *The **direct strength** of structures when placed under pressure* • *The ability of systems to **absorb** the impacts of disruptive events without fundamental changes in function or structure* • *The ability of systems to **adjust** to provide similar functions achieved in new ways* *(CAP p. 193)*	As projects are identified**, key performance indicators** should be created to demonstrate how effectively the project is addressing the action it is related to. The indicator should include a **baseline, a target/goal, and a timeframe** for when the target should be met. Because projects are likely to vary substantially, evaluating the impacts of the Plan is particularly challenging. **Indicators:** **Cost Avoidance** *This relates to the "return on investment" of a project by comparing the capital expenditures invested in the project with the costs incurred if a risk materializes and nothing is done.* **Quality of Life** *This relates to the improvement of specific social-based indicators such as housing, income, jobs, education, engagement, health, and life satisfaction.* **Environment** *This relates to evaluating the actions by measuring indicators that track impacts on natural systems such as land, air and water.* **Population** *This relates to the number of people, or*

from heat for the most vulnerable populations in a community, making the cooling centers a short-term necessity. Of course, the cooling center could be retrofitted with rooftop solar to mitigate the GHG emissions. (CAP. P, 196)	*initiatives, such as efforts to improve disaster preparedness, promote sustainable resource management, and reduce greenhouse gas emissions, including the development of cost-effective technologies* *Continuously evaluate performance: Adaptation plans should include measurable goals and performance metrics to continuously assess whether adaptive actions are achieving desired outcomes (CAP pp. 196,7)*	electrical storms and tornadoes, cold snaps) which impact existing assets. ABILITY TO ADAPT TO JOB MARKET CHANGES Risk of non-alignment of skills, competencies and demand. The need to maintain local skills and human capital (competitive workforce training and regional attractively) to an evolving labor market DISTRIBUTION OF PUBLIC SERVICES Ability of public services to meet basic needs (accessibility, equitability and effectiveness		*a subsection of the population that benefit from a particular action or project.* MMSD Resilience Plan 2020
BUILT ENVIRONMENT	Prioritize adaptive needs *Which impacts require actions to address them?*	Identify Strategies *Which strategies should be pursued to address adaptation needs?*	Evaluate and Prioritize *Which strategies should be implemented first?*	Phase and Implement *How can the strategies be funded, staffed, and monitored?*
Infrastructure				
Transportation:	https://www.youtube.com/watch?v=0iB6xYcNGFQ&feature=youtu.be&utm_source=Confirmed+iNews+subscribers&utm_campaign=33975a773b-EMAIL_CAMPAIGN_2020_02_25_04_40_COPY_15&utm_medium=email&utm_term=0_eb2a8ff6e2-33975a773b-119970177			https://talkofthecities.iclei.org/achieving-road-safety-through-vision-zero/?utm_source=Confirmed+iNews+subscribers&utm_campaign=33975a773b-EMAIL_CAMPAIGN_2020_02_25_04_40_COPY_15&utm_medium=email&utm_term=0_eb2a8ff6e2-33975a773b-119970177
Roadways,				
Airports,				
Marine Ports,				
Trains.				
MMSD Jones Island				
Buildings and				https://www.academia.edu/9583610/Rethinking_our_built_environments_Tow

Planned development				ards_a_sustainable_future?auto=download
Businesses				
Residences		*https://ppi.communityadvocates.net/policy-projects/healthy-housing-initiative.html*		https://www.shareable.net/bay-area-governments-fight-displacement-through-tenant-organization/
Community Services:				
Hospitals,				
Schools,				
Fire,				
Police				
SOCIAL JUSTICE	Prioritize adaptive needs *Which impacts require actions to address them?*	Identify Strategies *Which strategies should be pursued to address adaptation needs?*	Evaluate and Prioritize *Which strategies should be implemented first?*	Phase and Implement *How can the strategies be funded, staffed, and monitored?*
Public Health				
Public Safety				
Vulnerable Populations:		First, we can position caregivers as first responders, ensuring their participation in climate resilience planning within affected communities, nursing facilities, FEMA and the larger emergency management ecosystem. We need to professionalize their roles and pay them adequately for their work in climate resilience, providing education on climate change and health, disaster preparedness and post-disaster recovery. We can elevate their roles in climate		

		mitigation by training home health care workers, for example, to conduct home audits, disaster assessments and emergency preparedness. Wages should rise along with responsibility and skill. In fact, wages should rise, period. Paying caregivers a living wage would recognize the essential work they perform for the elderly and infirm—a category that will eventually include all of us. Those who comfort, bathe, diaper and protect our vulnerable family members should not have to live on the margins, one paycheck away from disaster themselves. Raising wages would boost the resilience of caregivers and, by extension, those who depend on their services. *Resilience Matters p33*		
Medical Conditions,				
Linguistic isolation,				
Residential location,				
Work Location,				
Poverty				
Population Increase				
Economic Systems	Prioritize adaptive needs *Which impacts require actions to address them?*	Identify Strategies *Which strategies should be pursued to address adaptation needs?*	Evaluate and Prioritize *Which strategies should be implemented first?*	Phase and Implement *How can the strategies be funded, staffed, and monitored?*
Economic health				

Import/Export of goods				
Employment level and security				
Flexibility				
Ecosystem Health	Prioritize adaptive needs *Which impacts require actions to address them?*	Identify Strategies *Which strategies should be pursued to address adaptation needs?*	Evaluate and Prioritize *Which strategies should be implemented first?*	Phase and Implement *How can the strategies be funded, staffed, and monitored?*
Terrestrial ecosystems		Trees: https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/Urban-Forest-Systems-GSI-FS-1146.pdf		
Freshwater ecosystems				
Coastal environments		To increase the odds that healthy coastal ecosystems will line the U.S. coast 100 years from now, governments and nonprofit organizations need to act fast to ramp up existing protection efforts and be effective advocates for these threatened resources. *Resilience Matters. P 28*		
Urban Agriculture				
Peri-urban Agriculture				
Rural Agriculture				
			Resilience Matters. Mazur et al. https://islandpress.org/sites/default/files/resilience_matters-action_in_an_age_of_uncertainty.pdf	Rethinking Our Built Environment https://www.academia.edu/9583610/Rethinking_our_built_environments_Towards_a_sustainable_future?auto=download

Appendix C
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