EXTREME HEAT DAY DISRUPTION

Today temperatures soared to a **sweltering 120°F for over 7 hours** causing major issues across Hotville. This is a record-breaking temperature in the history of the city. The temperature has broken 100°F only once before (2004) and reached just 103°F for about 2 hours before dropping.

This extreme heat caused 50 people, mainly the elderly, those without air conditioning, children and outdoor workers, to fall ill to heat-related illnesses. There were 4 fatalities. Infrastructure throughout the city struggled with the high heat – roadways buckled and the power plant struggled to meet demand.

High Heat Day: Townhomes

Did you protect the Townhomes?	Did you not protect The Townhomes?
The local Housing Authority rewards you with $10,000 for your efforts to protect the Townhomes.	You are sued by the local Housing Authority for not maintaining mandatory ventilation requirements in the public housing units, costing you $50,000.

High Heat Day: Main Roadway

Did you protect the Main Roadway?	Did you not protect the Main Roadway?
The State Department of Transportation gives your city $50,000 for proactively protecting the roadways and maintaining connectivity throughout the region.	The main roadway and evacuation route buckled under the high heat, making it impassible for residents and through-way traffic. This created major issues for the hospital and police/fire to respond to health emergencies. The City Council removes $10,000 from your budget to pay for the overtime of emergency personnel.

High Heat Day: Senior Center

Did you protect the Senior Center?	Did you not protect the Senior Center?
The State's Department of Aging rewards you with $40,000 for your work protecting and prioritizing the elderly in the city.	The city's medical staff is overwhelmed by the sudden onset of heat illness at the Senior Center. The City Council removes $10,000 from your budget to pay for their overtime.

High Heat Day: Townhomes (cont.)

Impact Category	Example Impacts of High Heat Day on Townhomes and Cascading Impacts on City
Infrastructure	• If residents have window air-conditioning units, they will be used more, increasing the need for repair, and replacement of units, and placing extra demand on the grid, which could contribute to potential grid failure.
Social Systems & Public Health	• Lack of cooling and ventilation will cause increasingly uncomfortable and dangerous temperatures inside the residences, resulting in increasing heat-related illnesses and related deaths of residents. Elevated concern for elderly and very young residents.
Economic	• Increased costs to employers from lost productivity and loss of income to individuals too sick to work.
Environmental	• Increased use of air conditioning (when residents can afford it) resulting in additional greenhouse gas emissions.

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High Heat Day: Senior Center (cont.)

Impact Category	Example Impacts of High Heat Day on Senior Center and Cascading Impacts on City
Infrastructure	• Building's air conditioning system will likely run at its highest capacity, increasing risk of failure, and putting additional pressure on the grid.
Social Systems & Public Health	• The elderly are more vulnerable to heat due to their reduced ability to perspire, elevating potential for heat-related illness and death. Especially with a very high heat day, the onset of symptoms can be very quick and overwhelm/overwork the Center's and city's medical and emergency response staff.
Economic	• Cost for overtime labor required from on-site medical staff because of increased heat-related illness and death among residents.
Environmental	• Increased use of generators in the event of a power outage, resulting in increased greenhouse gas emissions and localized air pollution.

High Heat Day: Main Roadway (cont.)

Impact Category	Example Impacts of High Heat Day on Main Roadway and Cascading Impacts on City
Infrastructure	• Increased chance of damage such as buckling or destruction to roadway, creating connectivity issues for the city and region.
Social Systems & Public Health	• Heat damage could prevent passage of emergency vehicles and prevent workers from reaching work or students from reaching school.
Economic	• Roadway repair and rebuilding costs, including labor, impacts to city budget.
Environmental	• Increased stormwater runoff of roadways, causing increased oil and grease to enter the local waterways.

High Heat Day: Power Plant

Did you protect the Power Plant?	Did you not protect the Power Plant?
You managed to avoid any brown- or black-outs despite the sudden increase in demand. You receive an additional $100,000 in your budget from the increased economic activity.	The city has an isolated brownout in the downtown area resulting in a $100,000 impact to the city's economy. You lose $90,000 from your budget to support the area's businesses that lost productive time during the brownout.

High Heat Day: Hospital

Did you protect the Hospital?	Did you not protect the Hospital?
FEMA provides an additional $100,000 to your budget for ensuring your hospital maintained complete functionality during the high heat day and that all patients were able to receive proper care.	The Hospital is sued by the family of a patient who suffered from heat stroke when the Hospital's air conditioning system was overwhelmed and shut down for a couple hours. You lose $500,000 from your budget to settle.

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High Heat Day: Hospital (cont.)

Impact Category	Example Impacts of High Heat Day on Hospital and Cascading Impacts on City
Infrastructure	• Building's air conditioning system may become overworked due to sudden increase in use and use at highest capacity.
Social Systems & Public Health	• Sudden increase in the number of patients to treat due to higher heat-related illness. • If electricity fails on-site and back up generators are not maintained or have enough fuel, elevated concerns for those relying on electric-medical machines and/or elevators.
Economic	• Cost for overtime labor required from medical staff if major increase in heat-related illness and death throughout city, resulting in increased patients. • Cost from defending against or losing lawsuits.
Environmental	• Increased greenhouse gas emissions associated with increased AC and generator use.

High Heat Day: Power Plant (cont.)

Impact Category	Example Impacts of High Heat Day on Power Plant and Cascading Impacts on City
Infrastructure	• Increased exposure to heat (both ambient and related to overworking) could mean increased repair needs; grid failure would have widespread impacts on city.
Social Systems & Public Health	• Impacts of power outages to the city population, in particular those with increased susceptibility to heat-related illnesses, e.g., elderly and young, and those reliant on electricity for life-saving purposes, e.g., i.e., hospital patients.
Economic	• Potential cost to repair damages to the plant and for overtime labor of plant staff.
Environmental	• Increased greenhouse gas emissions and air pollution associated with increased demand for electricity (assuming the plant isn't 100% renewable) and increased generator use.

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