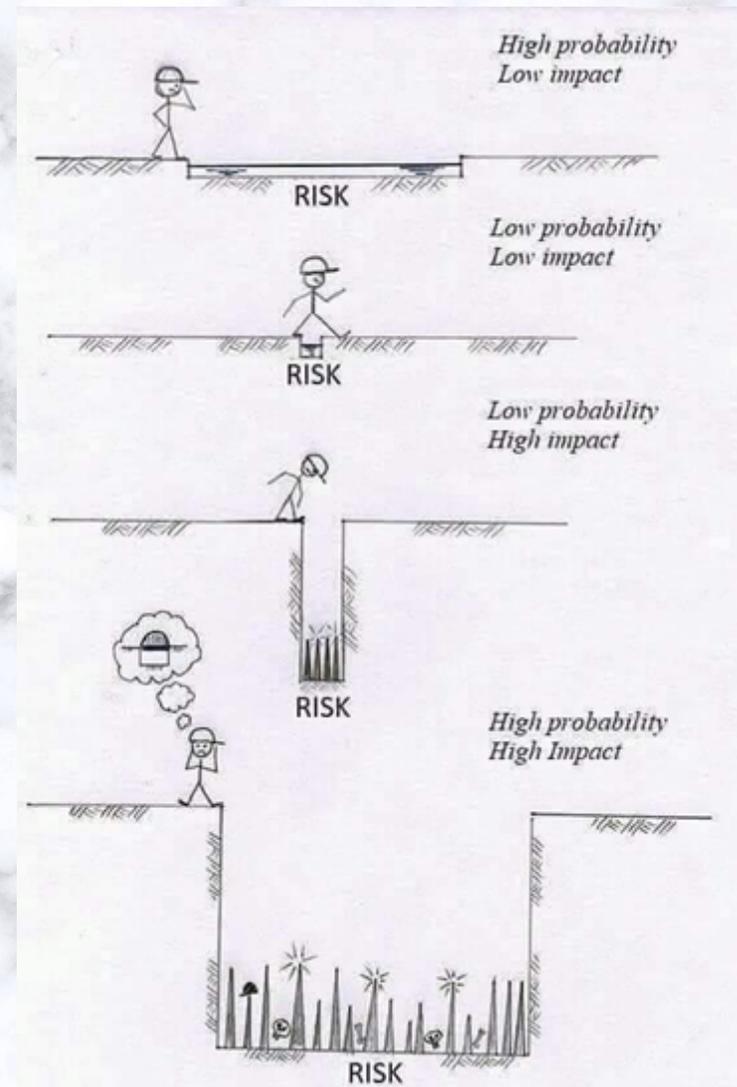


A guidebook to developing your decision briefs

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HSEM F434 All Hazards Risk Analysis

Last updated: November 2019





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Purpose:

This book is intended to communicate the decision brief series in a more visual and abbreviated way

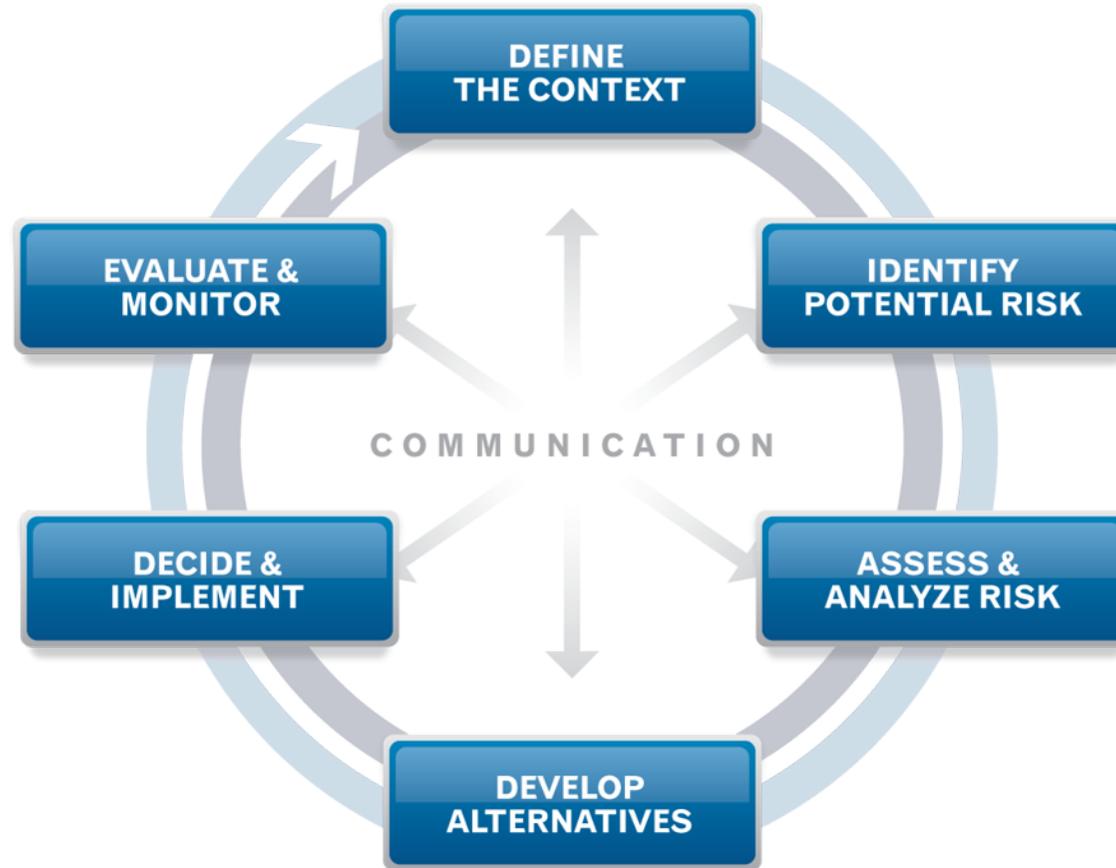
The decision brief exercise is an example of project-based learning. Over the period of 15 weeks, you are asked to gain knowledge and skills in how to apply the DHS risk management framework. I generally provide a 2-week interval between major assignments so that you have the ability to redo and resubmit before moving on.

All assignments must be done in order. I will not accept assignments for the decision briefs out of order, as that is the equivalent of MSU (Making Stuff Up).

As always, let me know if you have questions.

Catherine

The DHS Risk Management Cycle



As shown in DHS's [Risk Management Fundamentals: Homeland Security Risk Management Doctrine](#) (2011)

First, just what is the difference between risk assessment and risk management?

Risk Assessment Triplet Questions

[Kaplan and Garrick, 1981]:

“What can go wrong?”

“What is the likelihood?”

“What are the consequences?”

Risk Management Triplet Questions

[Haimes, 1991]:

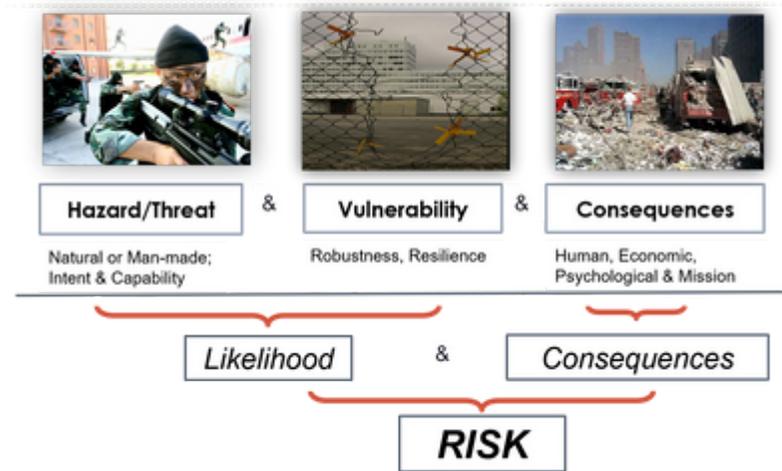
“What can be done and what options are available?”

“What are the tradeoffs in terms of all costs, benefits, and risks?”

“What are the impacts of current decisions on future options?”



How does these concepts inform the DHS Risk Management Cycle?

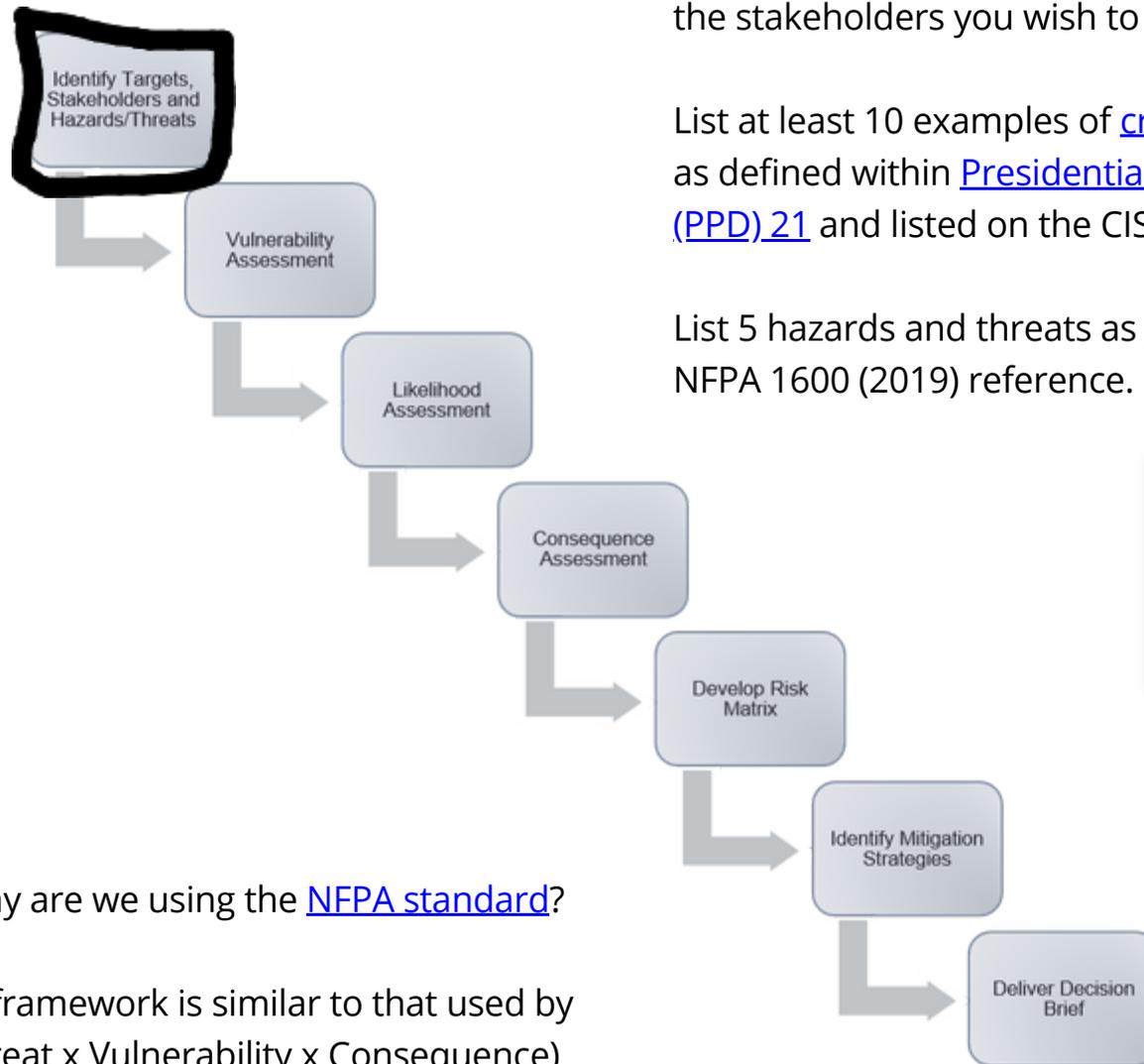


Define the Context, Identify Potential Risk, Assess & Analyze Risk gets to the first part of the equation....

Assessing the risk!

Your stakeholders will be responsible for the risk management but you'll be asked to provide them some ideas for consideration

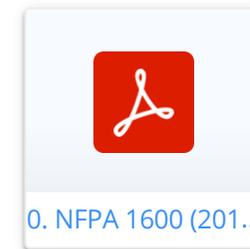
Decision Brief #1



Identify your target city, list its characteristics and the stakeholders you wish to influence

List at least 10 examples of [critical infrastructure](#) as defined within [Presidential Policy Directive \(PPD\) 21](#) and listed on the CISA website

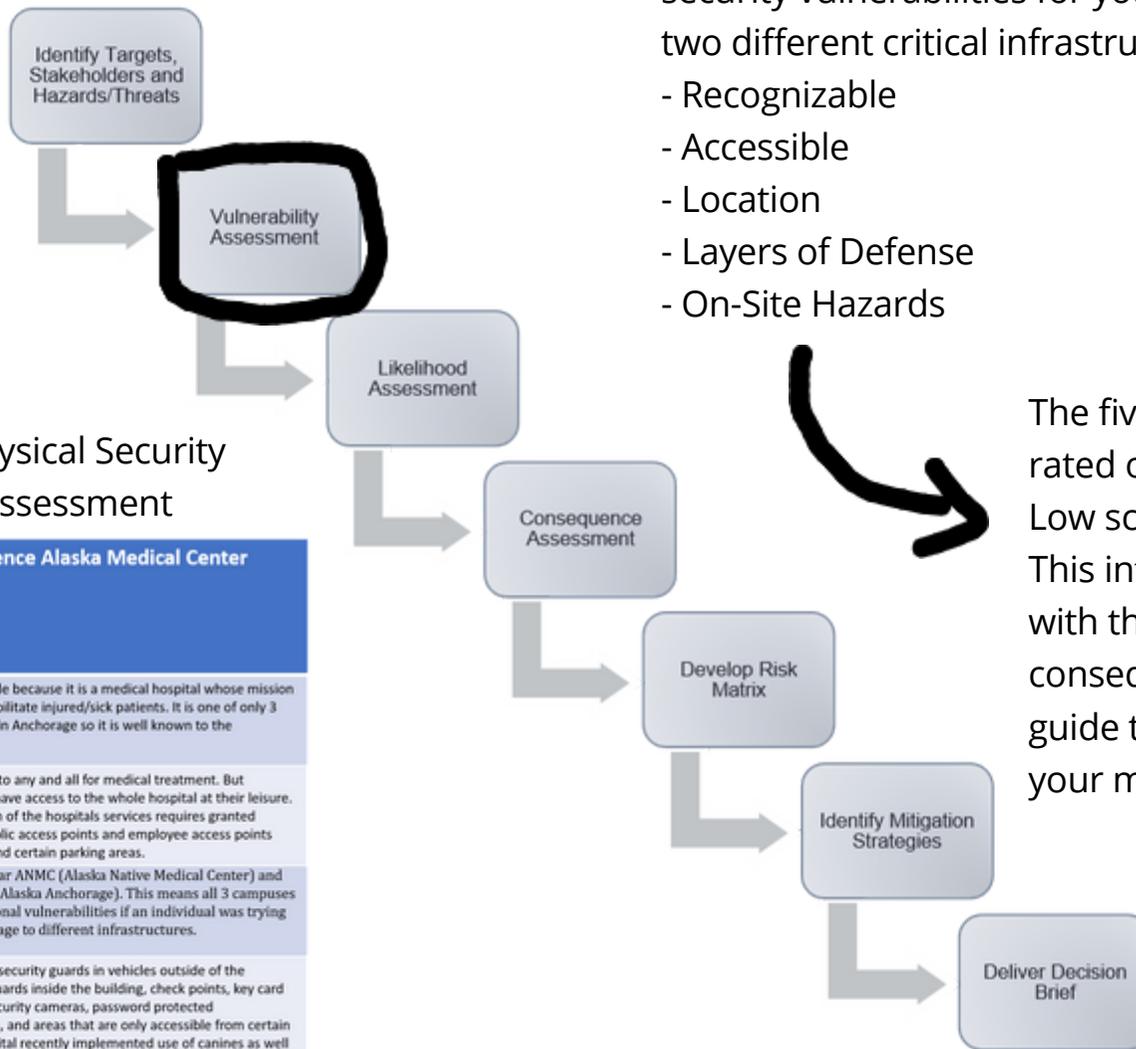
List 5 hazards and threats as you select from the NFPA 1600 (2019) reference.



Question: Why are we using the [NFPA standard](#)?

Because the framework is similar to that used by DHS. (e.g, Threat x Vulnerability x Consequence)

Decision Brief #2



Evaluate the physical, people and information security vulnerabilities for your target city and two different critical infrastructures based on:

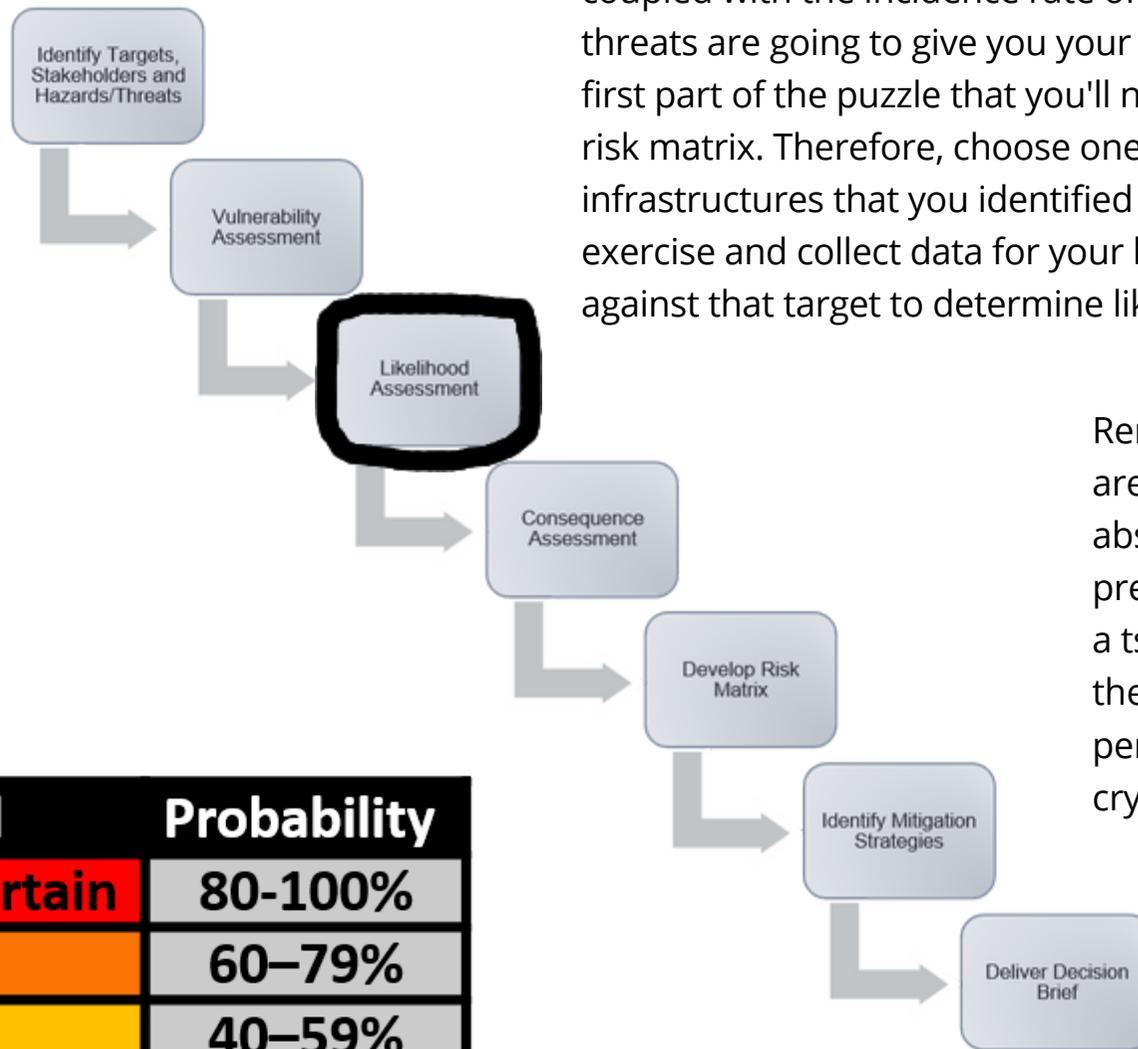
- Recognizable
- Accessible
- Location
- Layers of Defense
- On-Site Hazards

The five criteria are then rated on a High-Medium-Low scale for vulnerability. This information, coupled with the likelihood and consequence data, should guide the development of your mitigation strategies

Example of Physical Security Vulnerability Assessment

Physical Security Element	Providence Alaska Medical Center
Vulnerability: High-Medium-Low	
Recognizable	PAMC is recognizable because it is a medical hospital whose mission is to treat and rehabilitate injured/sick patients. It is one of only 3 "regular" hospitals in Anchorage so it is well known to the community.
HIGH	
Accessible	PAMC is accessible to any and all for medical treatment. But bystanders do not have access to the whole hospital at their leisure. A significant portion of the hospitals services requires granted access. There is public access points and employee access points from the exterior and certain parking areas.
MEDIUM	
Location	PAMC is located near ANMC (Alaska Native Medical Center) and UAA (University of Alaska Anchorage). This means all 3 campuses create some locational vulnerabilities if an individual was trying to cause mass damage to different infrastructures.
HIGH	
Layers of Defense	PAMC has roaming security guards in vehicles outside of the building, security guards inside the building, check points, key card guarded entries, security cameras, password protected rooms/supply areas, and areas that are only accessible from certain locations. The hospital recently implemented use of canines as well to increase security and safety.
MEDIUM	
On-Site Hazards	Due to PAMC being a hospital it does contain materials that could be used for harm if an individual had bad intentions. PAMC has Rx medications, Bio-Waste, Waste of infectious diseases, Radioactive material (for nuclear medicine), 100% oxygen plumbing system (reduces the flash point for other sources), needles, natural gas, MRI machines with powerful magnets, Antidote's, and significant amount of supplies that could be dangerous.
MEDIUM-HIGH	

Decision Brief #3

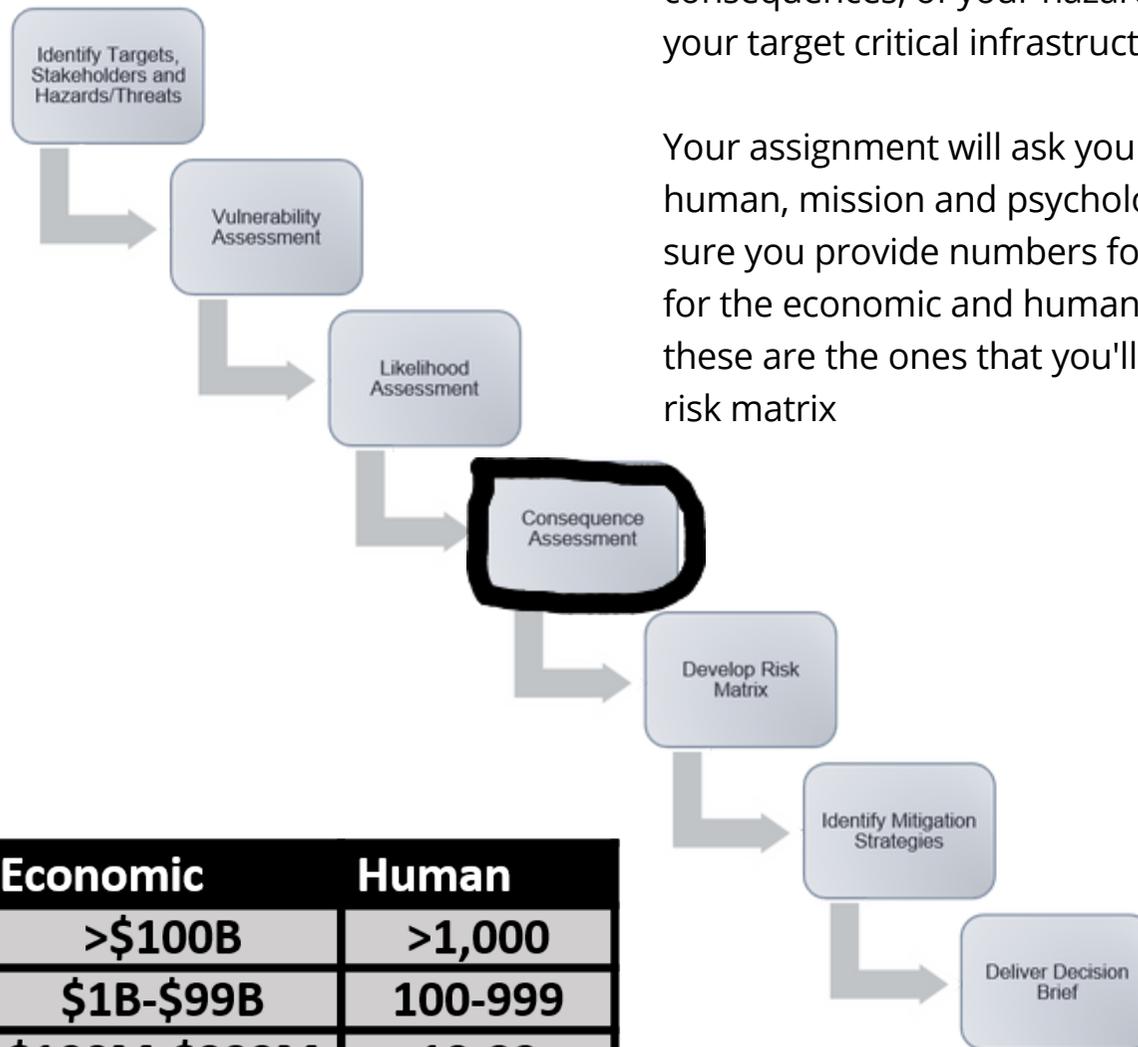


The vulnerabilities to your target infrastructure coupled with the incidence rate of your hazards and threats are going to give you your Likelihood and the first part of the puzzle that you'll need to form your risk matrix. Therefore, choose one of the critical infrastructures that you identified in the previous exercise and collect data for your hazards and threats against that target to determine likelihood

Remember that these are not going to be absolutes - you can't predict the likelihood of a tsunami to be 3% in the next year - unless perhaps you have a crystal ball?

Likelihood	Probability
Almost Certain	80-100%
Likely	60-79%
Possible	40-59%
Unlikely	20-39%
Rare	0 -19%

Decision Brief #4



Now it's time to look at the impact, or consequences, of your hazards and threats on your target critical infrastructure

Your assignment will ask you to look at economic, human, mission and psychological impacts. Make sure you provide numbers for your assessments for the economic and human assessments, as these are the ones that you'll be graphic on the risk matrix

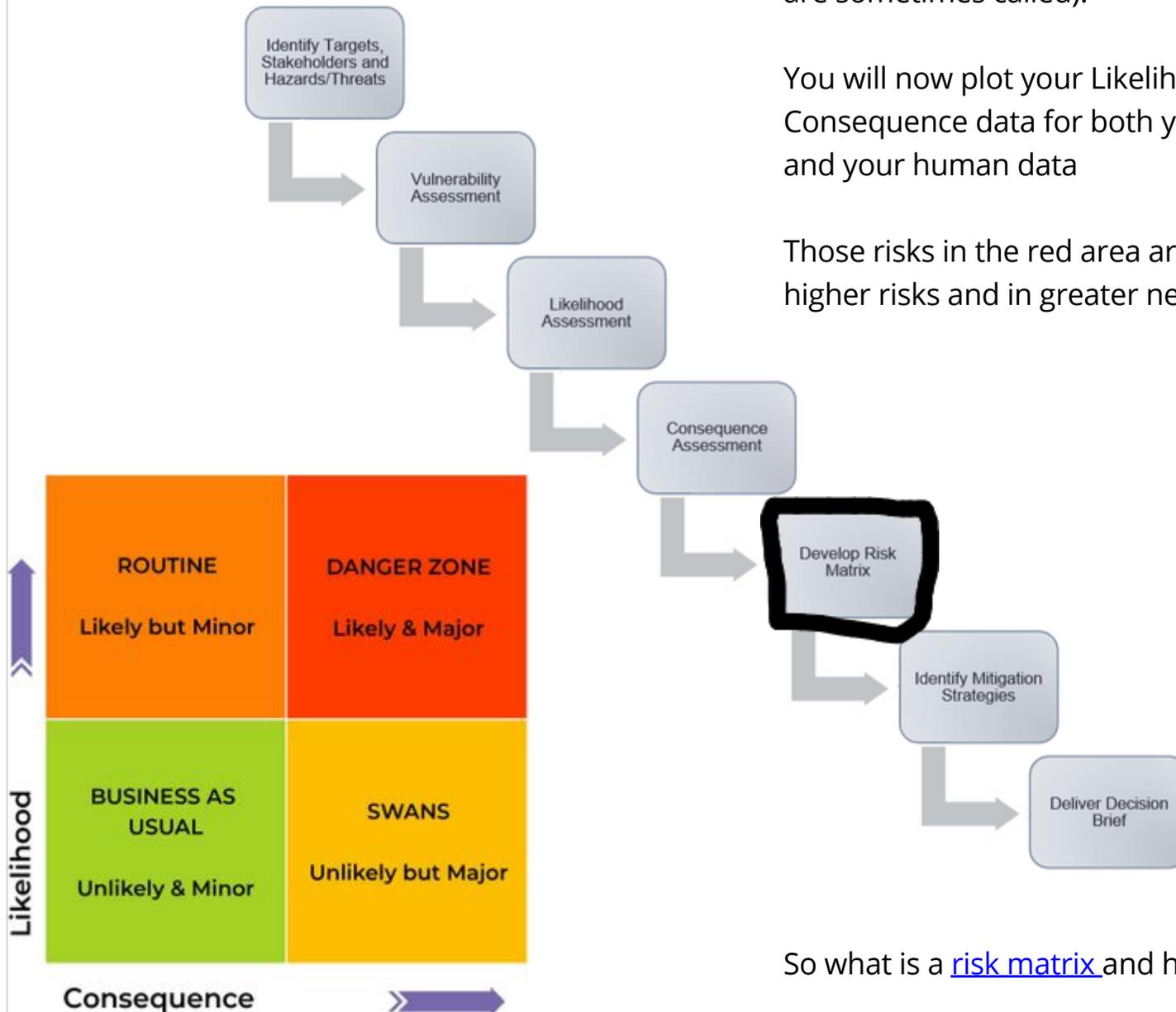
Impact	Economic	Human
Extreme	>\$100B	>1,000
High	\$1B-\$99B	100-999
Medium	\$100M-\$999M	10-99
Low	\$10M-\$99M	1-9
Negligible	<\$10M	0

Decision Brief #5

Time to build a Risk Matrix (or Heat Map as they are sometimes called).

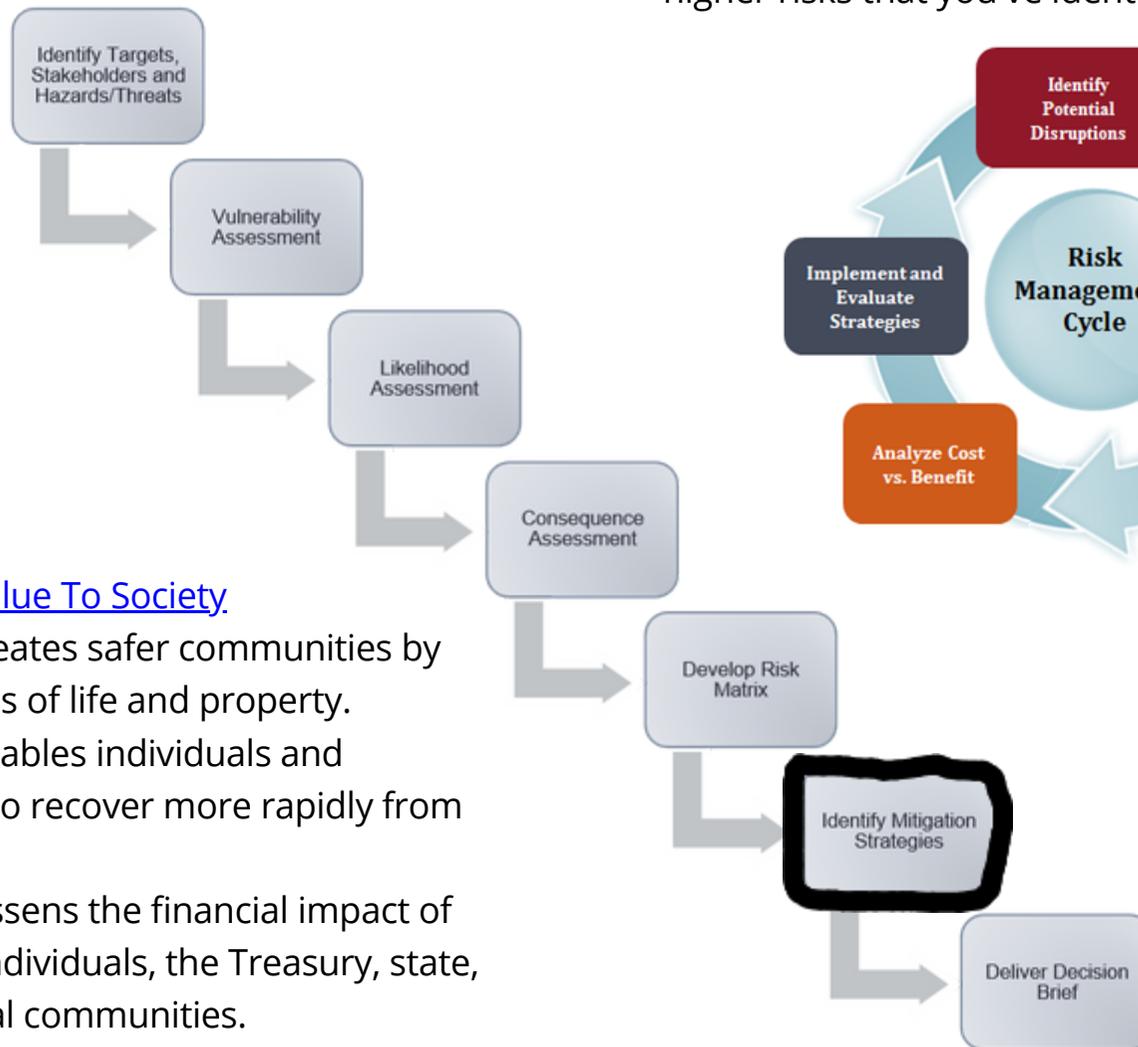
You will now plot your Likelihood and your Consequence data for both your economic data and your human data

Those risks in the red area are considered to be higher risks and in greater need of mitigation



So what is a [risk matrix](#) and how do we build one?

Decision Brief #6



It's time to identify some mitigation plans for the higher risks that you've identified.

Mitigation's Value To Society

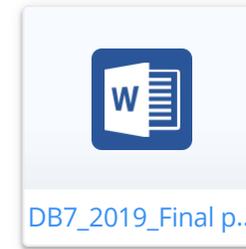
- Mitigation creates safer communities by reducing losses of life and property.
- Mitigation enables individuals and communities to recover more rapidly from disasters.
- Mitigation lessens the financial impact of disasters on individuals, the Treasury, state, local, and tribal communities.

<https://www.fema.gov/what-mitigation/federal-insurance-mitigation-administration>

What controls could be put in place to reduce either the Likelihood, the Consequences or both?

Decision Brief #7

Pulling it all together



An example



Identify Targets, Stakeholders and Hazards/Threats

Vulnerability Assessment

Likelihood Assessment

Consequence Assessment

Develop Risk Matrix

Identify Mitigation Strategies

Deliver Decision Brief





In summary, you are starting from a very large environment and then focusing your analysis on a specific target. Use your analytical sieves to remove extraneous data

1. Identify your town, your critical infrastructure, your stakeholders and your hazards and threats
2. Select two of your critical infrastructures from your list of 10 and identify the vulnerabilities to those two critical infrastructures
3. Select one of your two critical infrastructures above and then develop your likelihood analysis .
4. Develop the consequence analysis for this target
5. Develop the Risk Matrix from your likelihood and consequence analyses.
6. Identify some potential mitigation factors
7. Develop your decision brief for your stakeholders.

Risk Communication...

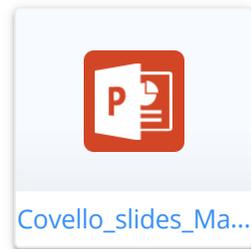
is figuring out what to tell to whom when with the highest degree of accuracy and effect....

Some ways work better than others - check out the resources for various templates



Risk Communication References and Templates

- <https://coast.noaa.gov/digitalcoast/training/mental-shortcuts.html>
- <https://coast.noaa.gov/digitalcoast/topics/risk-communication.html>



Helpful hints

Questions that you should ask yourself as you go thru these exercises...

- What is the time frame I should consider in my assessment? (Hint: the assignment asks you to look at one year in the future)
- Have I collected data that is appropriate for my target rather than the city as a whole?
- What are the questions that my stakeholders might have and how have I addressed them in my analysis?
- What questions did I identify when I completed the bias and critical thinking exercise?

Another view of the risk management cycle

