

Requirement Evacuate 270,000 people from their homes up to 500 miles away within 72 hours from evacuation notice.

Problem:

1. Major arteries jam
2. Resources to evacuate are least available to many that are most at risk.
3. Stress is compounded for Special needs people are subject to

Solution: Apply Just-in-Time and Deming concepts to the process of evacuating people:

1. Empower people to use judgment
2. Focus on the quality of the process
3. Drive out sources of variation
4. Create a flow to the process
5. Apply specialized capabilities to specialized needs.

Specific Tasks:

1. Do not apply a top-down management system. Any breakdown causes cascading collapse of the ability to act.

2. Empower and distribute initiative. Define specific missions for specific capabilities within specific operational conditions and then allow assigned authorities and emergent leaders to control those assets to act:
 - a. Assign block captains.
 - b. Assign evacuation routes
 - c. Assign water points so able bodied people can walk out, concentrating limited evacuation capacity.
 - d. "Many hands make light work."

3. Batching people adds to stress and decreases the quality of the process.

Communications:

1. Text message into cell phones priority and schedule for evacuation based on risk to specific areas.
2. Notify of resupply and water points.
3. Monitor movement patterns via cell tower feedback. Message into phones low stress routes.
4. Put cell repeating stations on airships to follow in a storm so people can see when they have cell service. Use cell phones to give specific instructions based on physical locations.

Technologies: Leverage technologies to drive our sources of variation; create and maintain a flow to the evacuation process.



Transport Technologies

Networks: Create inter-modal networks so available transport resources optimize their capacities. The more nodes on the network the more powerfully resources can be applied.

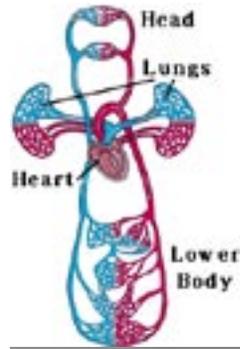
Analogy: Circulatory system for a body is a good analogy for applied transport networks. Specific structures and types of cells specialize to optimize delivery of resource to need.

ET3: ET3 (Evacuated Tube Transport) provides high volume, high speed, 70 to 500 mile capacity. This technology can form the major arteries of an evacuation network. These arteries must be built in advance of an emergency. The small real estate footprint allows them to be built on existing Interstate right of ways without interfering with existing traffic flows. These networks are computer control, minimizing sources of variation.

Intelligent Transportation:

Intelligent Transportation provides high volume, medium speed, 200 meters to 100 mile capacity. Ultra-light vehicles (JPods) are suspended from ultra-light rails. These Intelligent Transportation networks will likely form the basis for congestion relief around airports and then cities over the next 15 years. As these networks are completed, last mile capacity to manage millions of people per hour is practical (rush hour). These networks are computer control, minimizing sources of variation. These networks can provide feeders to trains, planes, ET3, etc...

Competitors to Intelligent Transportation are ULTra (selected by British Airport Authority to network Heathrow), Skyweb, SkyTran. Networks of these systems for commuters will also aid greatly in moving millions of people in rush hour or emergencies.



President of China riding in ET3 vehicle



Rescue-Rail: Rescue-Rail is a temporary version of Intelligent Transportation and ET3. These are deployed on temporary basis for a limited time in response to a specific emergency or special event. The objective is to deploy 30 to 60 miles per day per installation team. This rate of deployment requires routes to be pre-surveyed and pre-planned for deployment. Routes may require access to road and or rail right of ways.

The intelligent behaviors programmed into the network vehicles, support structures, switches, etc... allows these networks to be deployed over flooded, broken or damaged heavy infrastructure.

These temporary deployments provide feeder systems to other forms of transportation and access to those who do not own or cannot operate a car.

Cars: Utilize existing road networks. Drive out sources of variation by assigning specific evacuation timetables and routes. Enforce with cell phone movement. If cars are to be abandoned as part of an evacuation, define parking and security provisions people are willing to comply. Recognize that many, especially the old and young, will not have access to a car or capacity to drive a car.

Helicopters: Use for lift-capacity, not transport. Travel as short a distance as practical.

Boats: Use for specialized capacities. Travel as short a distance as practical.

Ambulances: Use for short-range shuttle services. These are too valuable to spend time traveling long distances and deadheading back.

Trains: Assign specific locations for rail stops. Mark temporary stations. Specify rules for using cargo carriers for moving people.

Planes: Assign specific locations for rail stops. Specify rules for using cargo carriers for moving people.

Walking: Walking is a viable option for able bodied people if preparations are made to manage emergencies. This will should always be maintained and trained as an option. An example is people walking across the Brooklyn Bridge after the 9/11 attacks.



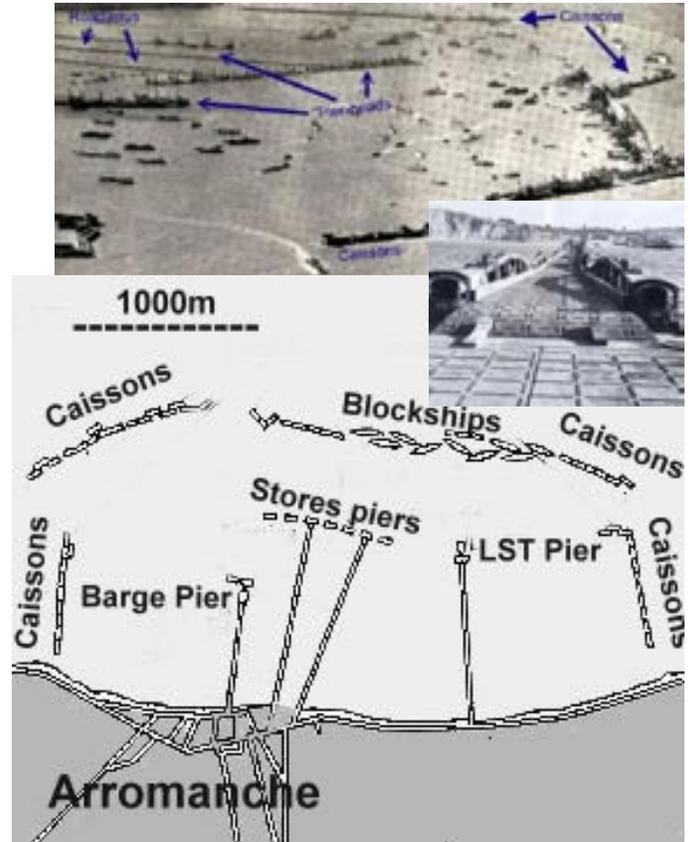
JPods providing last mile integration of various transport modes.

Rescue-Rail can provide this intermodal connection in emergencies.

Specialized JPods move ambulatory and others with special needs on-demand.

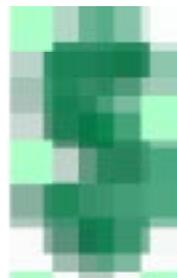
Mulberry Harbors:

As with the Invasion of Normandy, create temporary Mulberry Harbors so ship based resources can be applied to shore based emergencies.



Supply Mosaic: Empower every point of resupply to publish its inventories so resources are not hidden behind communications barriers.

An Economic Community is a mosaic of customers, vendors, trading partners, allies and support providers.



Better communications increases resolution. Resolution adds clarity in a mosaic.

