

# DRAFT

## SILICON VALLEY DISASTER RESILIENCY CENTER

A proposal under development by Joint Venture Silicon Valley Network  
in partnership with

San Jose State University  
NASA-Ames Research Center  
Santa Clara County Office of Emergency Services

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Public and private partners from Silicon Valley visualize a new locally based Center that will offer services to the entire region. An outgrowth of a regional disaster preparedness initiative led by Joint Venture Silicon Valley, the proposed Silicon Valley Disaster Resiliency Center will geographically and programmatically integrate regional disaster planning and response resources, services, advanced training and technology development for first responders and emergency managers.

This paper lays out the concept for the new Center at Moffett Field, California developed from a proposed public-private partnership initiated by San Jose State University, Joint Venture Silicon Valley Network, the cities and counties of Santa Clara and San Mateo and NASA Ames Research Center.

### REGIONAL CENTER IN SILICON VALLEY

Natural or man-made disasters pose substantial risks as well as opportunities for Silicon Valley, the world's hub for new, cutting-edge ideas, technologies and systems. An earthquake, for example, can bring this highly productive knowledge-based economy to its knees while greatly impacting national and global economic and societal conditions. On the other hand, applying the resources, assets, talents and drive of the world's most advanced, innovative milieu to develop the tools, train the stakeholders, and integrate it all in a state-of-the-art emergency operations center not only would prepare the region, but create a response capability worth emulating.

First responders and emergency managers are both doers and planners, which is to say that to lead **response and recovery** efforts effectively, they must also prepare effectively, i.e., plan, organize, train, equip, exercise and continuously evaluate actual performance.

National Response Framework, July 2007 (Draft)



The Preparedness Cycle Builds Capabilities

The Silicon Valley Disaster Resiliency Center provides regional leaders the opportunity to develop and implement a seamless, fully integrated response and recovery capability. By leveraging the highly innovative capacity of our region in collaboration with local public and private assets and integrating state and federal resources as necessary, the Silicon Valley

Disaster Resiliency Center can improve regional planning, training, response, and recovery by integrating our three keystone symbiotic components:

- *Disaster Resilience and Response Hub* - a centralized and protected location for the staging, logistics, management and coordination of resources in the event of a catastrophic event in the Bay Area;
- *Applied Research and Technology Laboratory* - a virtual lab to develop, deploy, test and validate the tools and systems focused on regional capability that Incident Commanders, EOC directors, and first responders need to more effectively undertake disaster response and recovery operations; and
- *Advanced Emergency Response Training Center* – developing and diffusing advanced training programs supporting national efforts for emergency and medical personnel in advance of their need.

The Silicon Valley Disaster Resiliency Center will provide a collaborative public-private hub for coordinated regional disaster response while developing the model, programs and technologies for widespread deployment. A federation of leading individuals and organizations working together through The Silicon Valley Disaster Resiliency Center will: prepare and provide varied resources in a well orchestrated manner; enhance information management, disaster surveillance and situational awareness tools, systems and processes; and train responders, health care professionals and volunteer coordinators in state-of-the-art techniques.

All the functions of incident management – plan, prepare, respond and recover -- will be cross-linked to assure that locally, the region is prepared and that globally the methods, tools and training are improving before the next disaster strikes.

## **REDUCING DISASTER IMPACTS TO RESIDENTS, BUSINESSES AND INSTITUTIONS**

In the aftermath of the disaster, is Silicon Valley ready to recover in such a way as to minimize the adverse impact on its community and temper the rippling effects throughout the State and nation? We must be resilient to the impact of a disaster – capable of withstanding the shock without permanent deformation or rupture; able to recover from or adjust easily to misfortune or change. In short, we must be able to bounce back from a catastrophic event to save lives and restore business operations.

While protection of human lives is the bedrock purpose, there also is a compelling national economic interest in having Silicon Valley recover quickly. The region accounts for more than 5 percent of the national gross domestic product. Measured by value added per worker, Silicon Valley productivity is the highest of any region and grows at twice the national rate. Clearly continuity of private sector business operations will quickly reach national importance.

The Center will integrate the private sector from the start, with business priorities focused in the Commercial Resiliency Center, which will include hazardous materials training, best practice audit teams to counsel on appropriate levels of preparedness, and coordination of private emergency response centers.

Of course, protection of the workforce comes down to protecting lives. The greater Silicon Valley has a population of over 2.5 million people. As a state, the region would rank number 18 in terms of population. In projected scenarios of catastrophic earthquakes, as many as 500,000 individuals will need immediate support and as many as 200,000 people will need long term

support. With over five million people residing or working within the greater Bay Area, over one million individuals will require support.

When catastrophic disaster occurs, whether an earthquake, flood, bio-contaminate or wildfire, the time to meet the needs of the community is not measured in weeks or days. The most critical period to prevent human suffering and to save lives is during the hours immediately after the initiation of the event; a time when accurate information is missing and rumors abound; a time when essential services are suspended; a time when underlying business continuity must be maintained. Food, water and sheltering are required within the first 24 hours. Depending on the magnitude of the event, communities within the impacted region may be on their own for up to seven days before State and Federal assets can be made available. A multi-jurisdictional event could overwhelm the capacity of local agencies to respond, even with mutual aid. A public-private collaborative regional disaster response and recovery capability is essential if the immediate needs of the community are going to be met.

## **THE PROPOSAL: THREE CORE CAPABILITIES UNDER ONE ROOF**

Following a catastrophic event in the Bay Area, much-needed resources will be limited in supply. Municipalities, businesses, non-profits and private citizens will compete for available resources. Assets controlled and deployed by multiple agencies and response organizations will be stretched. Accurate information, rapidly delivered about ever-changing conditions will be highly valued. Successful response under such conditions will ultimately depend on how effectively the region is prepared, trained and equipped to address the evolving situation in an orchestrated manner.

The founding private/public partners in the Silicon Valley Disaster Resiliency Center identified the perfect geographical hub for regional activities: NASA Ames Research Center at Moffett Field. This location will provide the focal point for the Center's three major initial components: the Disaster Resilience and Response Hub, the Applied Research and Technology Laboratory, and the Advanced Emergency Response Training Center.

### **1. Disaster Resilience and Response Hub**

The use of Moffett Field as the ideal location grew out of lessons learned from Hurricane Katrina, when NASA's Stennis Space Center became the prime Logistics Staging Area and Operational Staging Area for the region. NASA Ames Research Center's active airfield, and access to freeways, railways and the waterways of San Francisco Bay, make it an ideally situated transportation center and distribution point for disaster response. Data and voice communications, including a robust emergency communications capability, also are available, as are emergency power, fuel storage and water storage.

#### *Regional Logistics Center*

A Regional Logistics Center might include many of the same capabilities as a FEMA Territorial Logistics Center. A Regional Logistic Center is a permanent facility that receives, stores, ships, and recovers disaster response commodities and equipment. Depending on the region(s) being served, it would store sufficient commodities and equipment to meet regional needs for [X] days<sup>1</sup>.

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<sup>1</sup> See the following for information on FEMA Territorial Logistics Centers:  
[http://www.fema.gov/media/fact\\_sheets/logistic-supply-chain.shtm](http://www.fema.gov/media/fact_sheets/logistic-supply-chain.shtm)

*Regional Mobilization Center*

Typically, a Mobilization Center is a facility established by a State and/or FEMA to receive and dispatch response personnel and resources. Federal and State resources may be pre-positioned at a Regional Mobilization Center for fastest dispatch when and where they are needed.

*Pre-established Responder Base Camp*

A Pre-established Responder Base Camp is a housing center that provides shelter, care and feeding for first responders, emergency workers, and volunteers. This facility will speed the response by providing a pre-determined location for the immediate Base Camp. Depending on the magnitude and extent of disaster, additional Base Camps may be required outside of the Disaster Resilience and Response Hub. In this case, the Disaster Response would provide coordinated support to the external Base Camps.

*Emergency Operations Center*

The Emergency Operations Center is the central command and control facility responsible for implementing disaster management functions at the strategic level. The Emergency Operations Center could manage all operations during a disaster.

*Emergency Communications Center*

The Emergency Communications Center could serve as the communications nerve center of the regional emergency response and recovery effort. Response personnel in the field communicate via radio, mobile data terminal, or mobile phone, to logistics personnel within the Emergency Operations Center, to a staging site, to a base camp etc. The Emergency Communications Center would provide an interoperable communications platform such that responding agencies with diverse communication platforms can effectively communicate with each other<sup>2</sup>.

*Commercial and Government Resiliency Center*

The Commercial and Government Resiliency Center is the focus for private and public sector business interests providing resources and access to best practices to assure continuity of business and government operations.

**2. Applied Research and Technology Laboratory**

Professional emergency responders are the “go to” folks for responding to catastrophic disasters. Yet while there is no doubt that advanced systems and state of the art technologies can enhance responder’s capabilities and increase their safety, several disconnects impede progress:

- Private technology developers have limited insight into what responders really need or how to make the technology useful in the responder’s working environment.
- Frequently responders are not aware of new developments in technology. Even if they become aware of them, there are limited integrated training programs that specialize in the hands on training on advance tools and techniques.
- Emergency response organizations at the local level seldom have sufficient funding to provide financial support for technology development.

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<sup>2</sup> As an example: Hernando County, Florida has a combined Emergency Communications and Operations Center that is state-of-the-art.[http://www.homelandresponder.org/hrbrief\\_216.htm](http://www.homelandresponder.org/hrbrief_216.htm)

- Private industries, companies, and laboratories that develop new technologies are responding to markets that will result in a significant return on their investments. This means that some specialized technologies for emergency response aren't developed because of a perceived lack of profit.

Co-locating researchers and developers with stakeholders from the disaster response, training and preparedness communities – both virtually and physically -- can help overcome these obstacles. Effectively linked and focused on priority problems, collaborators from a broad network of the region and nation's universities, federal laboratories and the highly innovative firms can leverage R&D already underway, reduce the cost of developing technologies and get them into use faster. By working directly with emergency responders in training and realistic settings, technologists can get a rare view into this dangerous and difficult environment and better address the needs of the disaster response community. In recent years, such interactions between the scientists and engineers from regional universities like Carnegie Mellon West, federal labs like NASA or LLNL/LBL, large companies like Google, and start-ups like IntelliSense engaged in training programs at DART and SJSU or field exercises coordinated by California OES or InSTEDD.

In one longer-term effort, for example, NASA and the US Forest Service collaborated with a network of universities, research centers and companies while undertaking the Wildfire Research and Applications Partnership (WRAP) project. Guided by stakeholders from the wildfire management and science community, the technical team developed, matured, evaluated, and transitioned key NASA, university and industry technologies and capabilities to enhance tactical wildfire monitoring, management, and observational capabilities. Key elements included: UAV platform utility, development and integration of new requirements-driven sensor technologies, maturing real-time data telemetry and autonomous real-time processing, and innovative data visualization and evaluation capabilities. In addition to the R&D project, the resulting system was successfully deployed during the Fall 2007 Southern California wildfires, providing valuable fire perimeter information to Incident Commanders and city and county EOCs as well as data for post-fire analysis of environmental impacts and risks.

As part of the Silicon Valley Disaster Resiliency Center, the Applied Research and Technology Laboratory can facilitate the development, introduction and incorporation of such new ideas and products by:

1. Developing technologies, to include leveraging existing technologies to be used in emergency preparedness, mitigation, response and recovery.
2. Providing a test-bed for proof of concept and eventual field-testing of new concepts and technologies. The intent is to team professional responders with a "technologist" in various types of simulated disaster environments.
3. Establishing a team of highly qualified "technologists" that are trained as responders to utilize advanced technologies during response and recovery operations.
4. Teaming with the Response and Training Center to not only ensure introduction of new and related technology to the field of disaster resiliency but also ensure training in the proper use of these innovations.
5. Providing a showcase for the region's technology innovations applicable to disaster response and resiliency.

Formal integration of laboratory activities with those of the Disaster Resilience and Response Hub and Training Institute will put prototype systems and tools in the hands of first responders more frequently and accelerate development cycles. Deployment of systems in easily accessible,

simulated environments constantly scheduled for training will streamline efforts to test systems under development. And lastly, responders will be able to get comfortable with new tools and better assimilate their use into current protocols and procedures while technologists gain first hand experience in realistic but safe conditions.

### **3. Advanced Emergency Response and Training Center**

The Advanced Emergency Response and Training Center (the Training Center) is an all risk/all hazard/all function institution of advanced learning. It is not intended to replace or compete with existing responder training facilities or programs within the region but instead to partner with them to provide the most comprehensive training possible in a single, highly sophisticated, regionally located learning environment. With the dedication of San Jose State University to making this Center a joint yet fully integrated program, it truly can become a conduit for the latest ingenuity and innovation in the field. The Training Center will build on national programs to regionally synchronize the numerous, often segregated training courses required by different industry partners to share their best practices and lessons learned. This will mark the integrated training center as a world class model for the nation. Such unity of effort optimizes training quality and time and produces financial savings for industry partners.

This unique state-of-the-art Center will provide an opportunity for emergency responders to receive advance practice training and education in such specialties as disaster medicine, specialized prehospital patient care, bioterrorism response, and general emergency management that often are limited to specific career fields. As the program matures and other advanced practice critical skills program shortages are identified, the Center will offer additional programs. Private and public managers will have the opportunity to share and learn techniques for establishing resiliency that will help minimize loss of business and community productivity in the event of disaster. This center will provide a realistic simulation village introducing students to scenario experience and field level decision-making instruction before they are presented with real-life survival decisions. It is anticipated that this well equipped educational institute will grow from an initial capability of providing specialized readiness and response course training to a baccalaureate degree program. Ongoing education in such things as disaster management and resiliency training will naturally follow. By integrating the significant preparedness investment that much of private industry and government have already dedicated to the field, the synergistic savings and capability enhancement from this integrated training program is enormous.

The Training Center will include a collapsed structure complex and hazardous materials training complex, a test-bed for weapons of mass destruction response technology and methodology, a city block mock-up and an emergency operations center training facility.

The facilities will be configured to allow broad use by other disciplines and organizations at the federal, state and local levels, including the military, that provide public safety and emergency response services.

This integrated type of facility does not currently exist in the region. The Center clearly would have appeal to many regional municipal jurisdictions that presently have training requirements hampered by fiscal constraints. Private industry partners will find assistance in building disaster resiliency that can result in savings, often in the millions of dollars, related to disasters. Public value will be measured in disaster preparedness and response proficiency that has the potential of saving thousands of lives in real world situations.

Potential partnership with such programs as the DHS operated Center for Domestic Preparedness, could export regionalized training for the entire West Coast creating a “train as you fight”

environment in their own back yard; the regional consolidation and standardization of preparedness training will result in tremendous cost savings for fiscally struggling municipalities<sup>3</sup>.

## **GOVERNANCE MODEL**

The initial governance model for the Disaster Resilience and Response Hub will be structured as a “Joint Powers Authority” (JPA) of the cities and the counties of Santa Clara and San Mateo. Under this JPA the cities and counties will be asked to provide an appropriate level of startup financial support. The JPA will establish a mission statement, goals and objectives, intergovernmental responsibilities/authority, and a budget for the Disaster Resilience and Response Hub. The JPA then will create a nonprofit corporation to operate the facility, thereby establishing a public-private joint governance structure. Joint Venture Silicon Valley Network will recruit private sector support and representatives of interested businesses will be invited to membership on the Board of Directors of the corporation.

This nonprofit organization will build and operate the Disaster Resilience and Response Hub. The JPA will retain general oversight responsibilities while the nonprofit organization will develop partnerships with private sector companies, government agencies, and university institutions to implement the Disaster Resilience and Response Hub mission and objectives. It will be responsible for the Hub’s daily operation. The nonprofit organization also will identify funding sources and execute an approved business plan for the Disaster Resilience and Response Hub.

A conceptual organization chart is attached.

## **ACTION PLAN**

Aligning support and building the business development plan for the Silicon Valley Disaster Resiliency Center will be critical to moving this plan into reality. Conceived to be scalable, the Center’s three primary components will likely have different funding sources and development timelines. Based upon comparable initiatives, previous studies and preliminary planning efforts, capital costs – for design, construction and outfitting – may range as high as \$150-200 million, contingent on specific plans and programmatic requirements. Ongoing operating costs will also depend on specific programs, awards for special training or technology development projects, scale of the operation, and the like. In short, it is an expensive, but worthwhile undertaking, with the true costs still lying in the details.

In the short term, this concept paper is aimed at soliciting support from a wide range of stakeholders and partners to help flush out and test the core concepts. It is also aimed at securing the initial funding for key staff and consultants to organize that support, develop a business plan

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<sup>3</sup> For reference see Texas A&M’s Disaster City®  
<http://www.teex.com/teex.cfm?pageid=USARprog&area=USAR&templateid=1117>

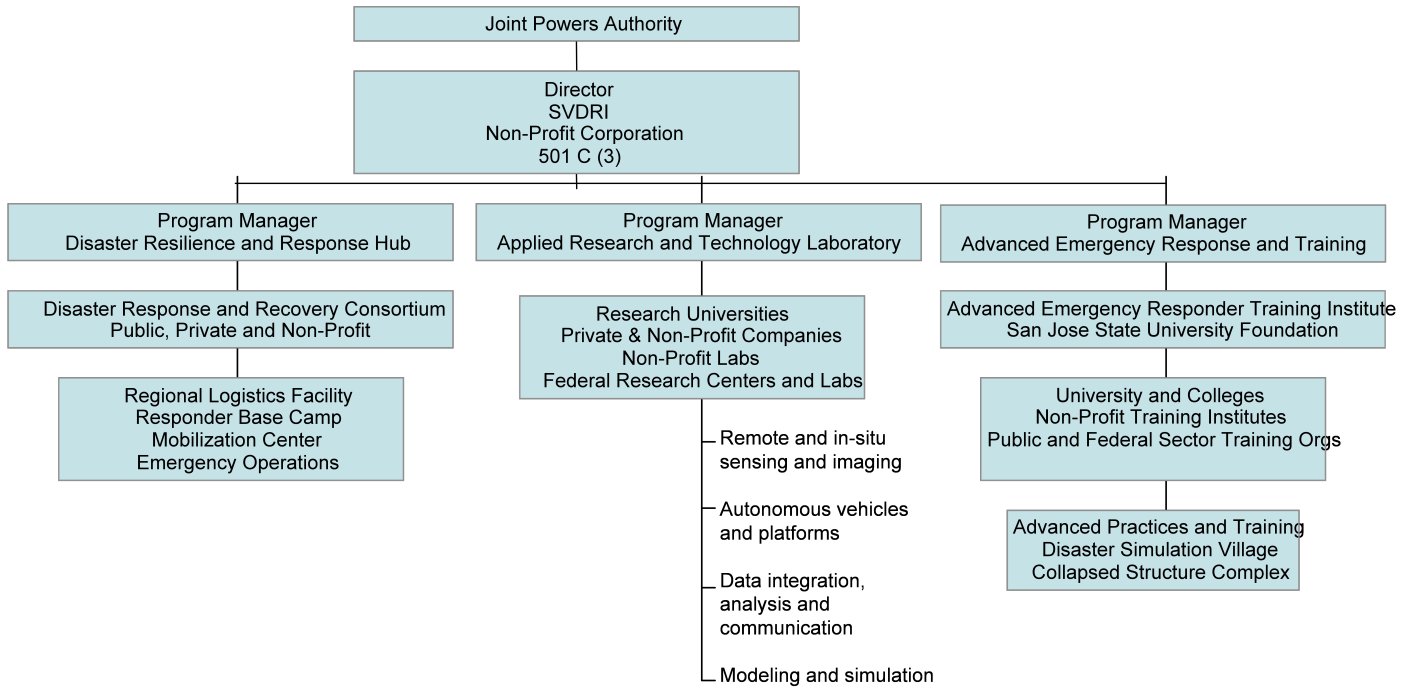
Also reference the NASA Ames Emergency Response and Recovery Training and Testing Facility at:  
[http://dart.arc.nasa.gov/Train\\_Facilities/facilities.html](http://dart.arc.nasa.gov/Train_Facilities/facilities.html) and  
Florida Atlantic University has an advanced disaster medical program that is similar to what we envision for the emergency medical aspects of the Training Institute. See below link.  
[http://med.fau.edu/biomedical/disaster\\_emg\\_training.html](http://med.fau.edu/biomedical/disaster_emg_training.html)

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and delineate the steps and funding required for the more detailed master planning and design of facilities and programs.

The goal is to raise \$500,000, and then recruit the core staff and consultants as needed to complete these short-term activities within 12-18 months. We anticipate this money will be raised by membership in the JPA and through grants.

# Silicon Valley Disaster Resiliency Center



## References

### Government guidance documents:

1. **The National Preparedness Goal**
2. **The National Strategy for Homeland Security** (published Oct 2007)  
 Vision: *A NATION PREPARED with coordinated capabilities to prevent, protect against, respond to, and recover from all hazards in a way that balances risk with resources and need.*
  - Comprehensive and collaborative community and regional planning is essential for the protection of the American people.
  - The private sector plays an essential role implementing plans for the rapid restoration of commercial activities and critical infrastructure operations
3. **The National Response Framework** (published Sept 2007)
  - Supersedes the National Response Plan
  - Includes a Private Sector Coordination Support Annex
  - Establishes the requirement for developing processes and protocols to map capability with regional response plans and information-sharing networks
4. **The National Preparedness Guideline Draft** (published Sept 2007)
  - The first priority of the National Preparedness Guidelines is to “Expand regional Collaboration.”
  - The Guidelines reinforce the fact that preparedness is a shared responsibility.
5. **The Targeted Capabilities List (TCL)** (published Sept 2007)
  - The TCL is a Tool for Expanded Regional Collaboration
  - Critical tasks focus on:
    - Integrating the complexities of nongovernmental organizations and the private sector entities into the emergency management planning and decision-making processes
    - Driving planning, training, exercising, evaluation, and the incorporation of after action reviews (AAR) and lessons learned (LL)
6. **National Planning Scenarios Final Draft version 21.3** (published Mar 2006)
  - Identify standardized events for planning
  - Highlight regional impact
7. **Universal Task List (UTL) version 2.1** (published Feb 2007)
  - The Universal Task List (UTL) is one tool developed to help the homeland security community implement the capabilities-based planning process established under HSPD-8.
8. **The National Infrastructure Protection Plan (NIPP) 2006**  
[http://www.dhs.gov/xprevprot/programs/editorial\\_0827.shtm](http://www.dhs.gov/xprevprot/programs/editorial_0827.shtm)
  - Addresses the need for regional collaboration and advanced training and education, simulation, to prepare and respond to catastrophic events.
  - Key issues addressed in the NIPP:
    - Requirement for public/private partnerships
    - Collaboration and integration centers
    - Advanced training, education modeling, simulation centers

- Cross jurisdictional integration
- Build resiliency
- \* Provides a list of guidance documents
- \* No analysis of what capability exists or does not exist to support the concepts

**Review and analysis of existing capability and compliance with national guidance:**

1. GAO-08-35, Homeland Security: Federal Efforts Are Helping to Alleviate Some Challenges Encountered by State and Local Information Fusion Centers [GAO-08-35](#) October 30, 2007
  - Improvements have been made, however, challenges exist in training and identification of standards to ensure that analysts have similar skills.
  - DHS and DOJ have initiated a technical assistance program for fusion centers. They have also developed a set of baseline capabilities, but the document was still in draft as of September and had not been issued.
  
2. GAO-08-36; Influenza Pandemic: Opportunities Exist to Address Critical Infrastructure Protection Challenges That Require Federal and Private Sector Coordination; [GAO-08-36](#) October 31, 2007
  - An outbreak of pandemic flu requires close cooperation between the public and private sectors to ensure the protection of our nation's critical infrastructure, such as drinking water and electricity.
  - Over 85 percent of the nation's critical infrastructure is owned and operated by the private sector
  - Challenges exist in identifying and developing strategies for addressing crucial cross-sector interdependencies that will be important for the continued operation of the nation's economy and society during a pandemic
  - Additional challenges were identified in obtaining needed investments for training and infrastructure and potential legal and regulatory issues
  
2. GAO-05-121 Management of First Responder Grant Programs Has Improved but Challenges Remain, Feb 2005
  
3. GAO-06-373; Bioterrorism Preparedness Varied across State and Local Jurisdictions Apr 2005
  
4. GAO-04-1100T; Infectious Disease Preparedness: Federal Challenges in Responding to Influenza Outbreaks
  
5. GAO-04-1009; Homeland Security: Effective Regional Coordination Can Enhance Emergency Preparedness

**Consensus guidance:**

1. Guide for an Action Plan to Develop Regional Disaster Resilience: A Special Report by the Infrastructure Security Partnership; Feb 15, 2006. [http://www.tisp.org/rdr\\_guide](http://www.tisp.org/rdr_guide)
  
2. Building Resiliency: The Imperative for Public-Private Partnerships, Business Executives for National Security, National Conference on Community Preparedness,

- June 12, 2007. [http://www.citizencorps.gov/doc/2007\\_nccp/LynneKidder-BuildingResiliency.pdf](http://www.citizencorps.gov/doc/2007_nccp/LynneKidder-BuildingResiliency.pdf)
3. Barbisch D, Koenig K. Understanding Surge capacity: Essential Elements. Academic Emergency Medicine. Nov 2005. Available at: <http://www.aemj.org/cgi/content/full/13/11/1098>
  4. Regional Resilience: Prerequisite for Defense Industry Base Resilience, Pacific North West Economic Region, The Infrastructure Security Partnership, April 2007. <http://proceedings.ndia.org/7030/scalingi.pdf>

### **Preliminary Cost/Phase Breakdown**

The following is a preliminary estimate for the creation, development and operation of the Silicon Valley Disaster Resiliency Center in non-emergency times. Obviously during a crisis, both staffing and financial needs will rise dramatically.

#### **Phase One A– Planning and Program Development**

1. Hire project management team
2. Hire consultants to draft formal governance policy
3. Establish governance
  - a. Appoint Governance Board
4. Hire consultant to draft 501 (C) 3 Charter and implement
5. Enter into formal agreement with NASA
6. Formulate programmatic content
7. Develop SVRC requirements document
8. Hire consultants to develop Master Plan
9. Develop Business Plan

#### **Phase One B-Program Development**

1. Prepare request for proposal for design/build construction of SVRC
2. Review and select design/build contractor
  - a. Award contract
3. Enter into formal agreement with Advanced Practices Group
6. Establish technology partners
7. Establish formal working arrangement with FEMA Logistics Group

Phase One A will be financed locally through membership fees in the JPA and grants. The anticipated cost is **\$500,000**.

The anticipated cost for Phase One B, assuming a two year effort, is **~\$3,000,000**. It is anticipated that this money will be raised through grants.

#### **Phase Two – SVRC Construction**

1. Review and approve design/build concept
  - a. Work through the NASA Ames construction permit process and “Building Department”
2. Construct SVRC
3. Purchase and install required interior furnishings
  - a. Data systems
  - b. Emergency Communications
  - c. Furniture
  - d. Warehousing equipment
4. Upgrade Moffett facilities as required
  - a. Rail system (including switch in Mountain View)
  - b. Access to Bay
  - c. Fuel storage
  - d. Potable water wells
  - e. Air Traffic Control
  - f. Airfield Operations Ground Control equipment
5. Purchase commodities (first time buy)

It is anticipated that Phase Two will be funded through a combination of local, state and federal sources. Anticipated cost for Phase Two including the cost of project management team ~**\$175,000,000**. May cost more or less depending on requirements established under Phase One.

**Phase Three - Annual**

1. Hire DSC Director and Staff
2. Commodities annual expense
3. NASA Moffett infrastructure costs
  - a. Utilities
  - b. Fire protection and prevention
  - c. Security Law Enforcement
  - d. Roads and Grounds
  - e. Facility Maintenance and Custodial
  - f. Emergency Services
4. Operations and supplies
5. Data, voice, video, other IT

Annual anticipated operating cost (non disaster) not including replacement of commodities **\$6,000,000 to \$10,000,000** depending on requirements as established under Phase One. This figure does not include the cost of Advanced Practices or Technology Development.

## **ENDORSEMENTS**

1. Russell Hancock, Joint Venture Silicon Valley Network