

Planning for a Resilient Future

VA Risk Mitigation Study



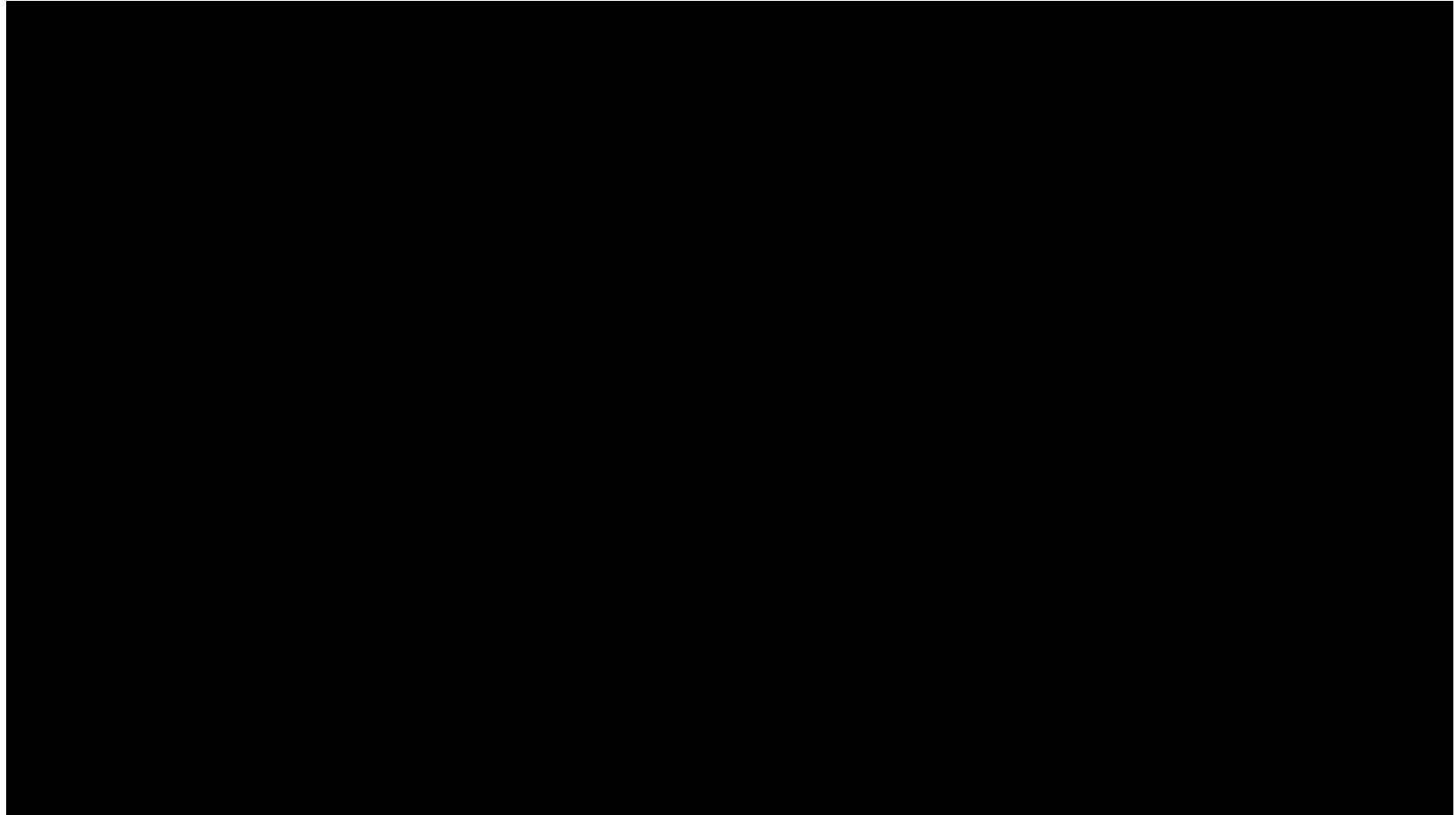
NAS – February 20, 2019

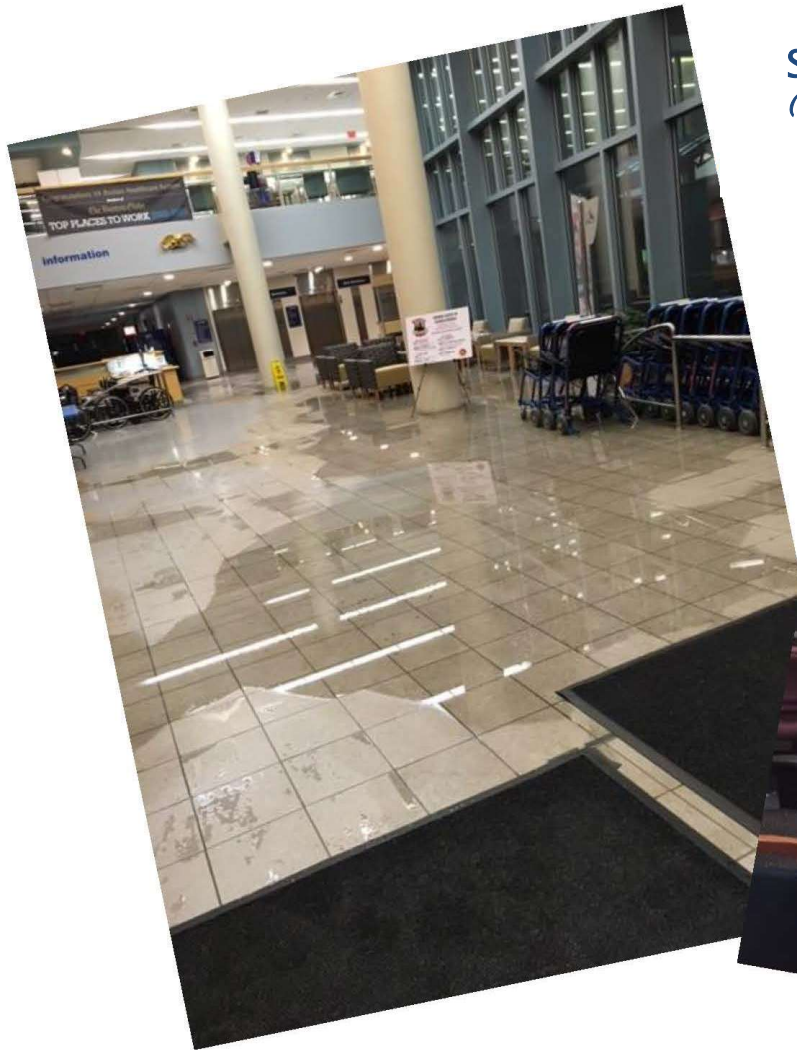


Agenda

- How We Got Here
- Risk Mitigation Project
- Communication
- Key Takeaways
- Q&A

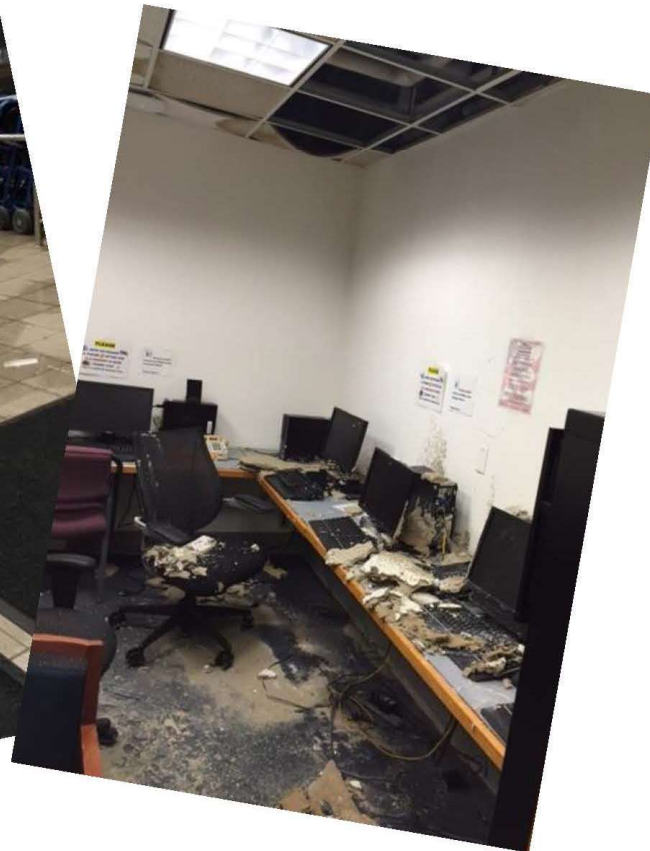
JP Flood In The News





Sunday, February 14, 2016
(Day Before President's Day 2016)

44 burst pipes / 200,000 s.f. damaged



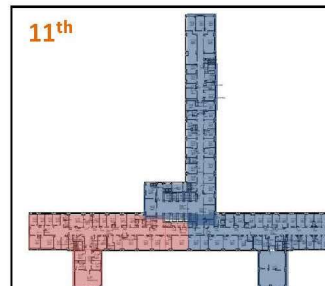
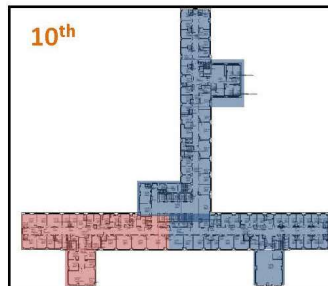
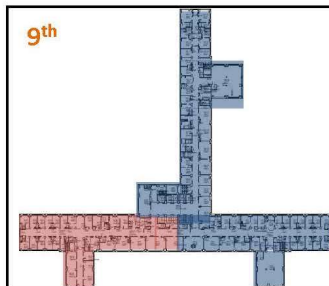
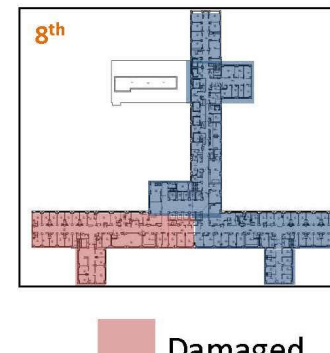
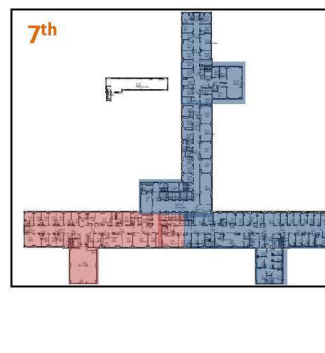
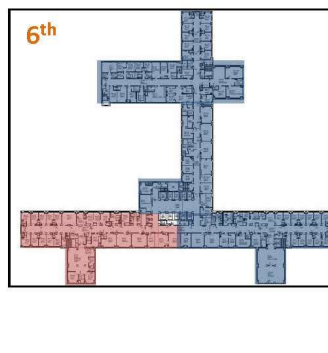
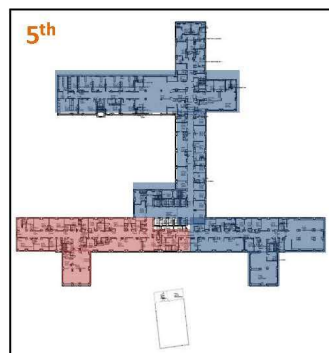
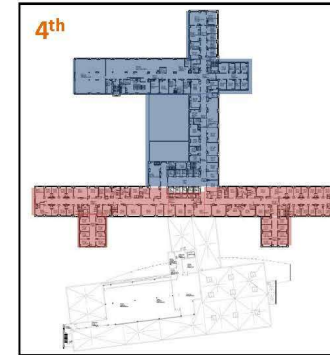
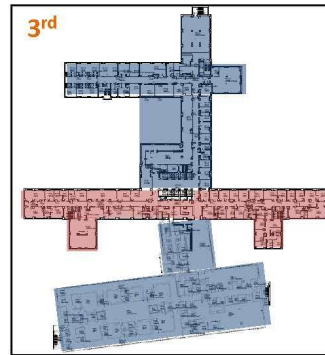
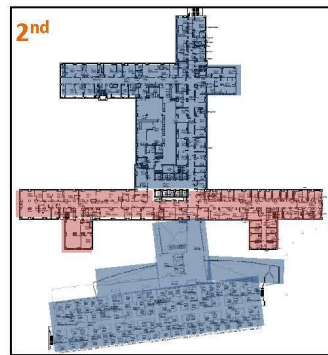
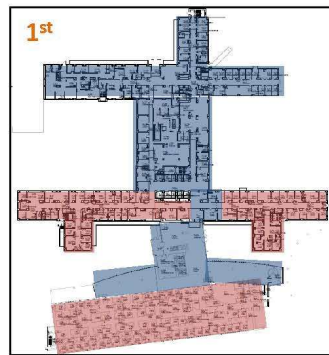


VA Jamaica Plain Campus

1.1M square feet

17 levels





**Original
Impact
2/14/16⁸**





Study included:



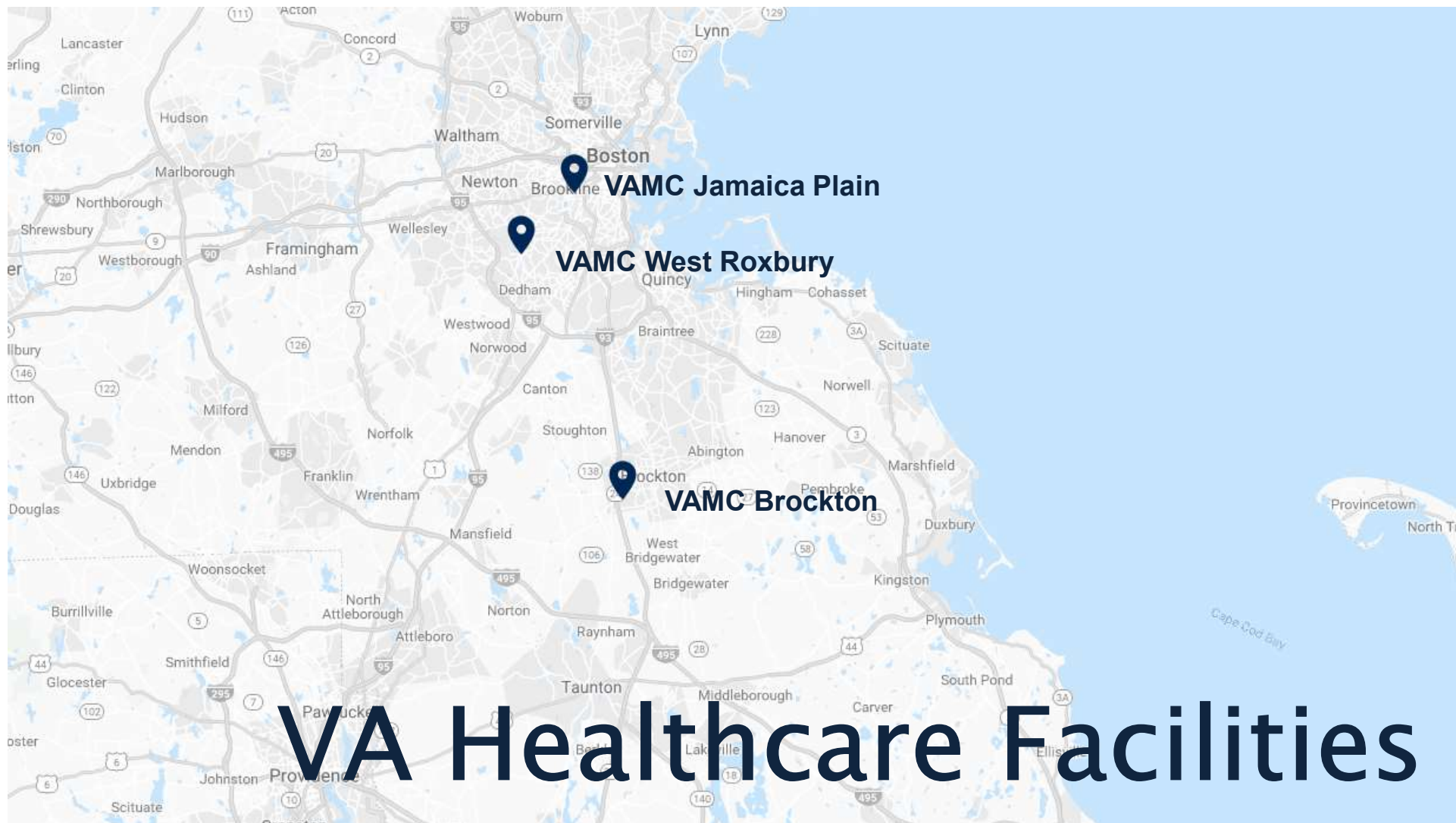
2.7 million s.f.



3 campuses



46 buildings



VAMC Jamaica Plain

VAMC West Roxbury

VAMC Brockton

VA Healthcare Facilities



Key areas:

- Site
- Functional Areas
- Building Envelope
- Structural Systems
- Utilities and Building Services
- Building Systems
- Security Systems





Key Vulnerabilities:

- **Critical / healthcare facility**
- **Weather**
- **Acts of terrorism / violence**
- **Failing building systems**
- **Fire / explosion**
- **Epidemic / pandemic**
- **Single points of failure**



ANALYSIS

QUALITY

Codes / VA Guidelines:

1.3 Applicable Codes, VA Guidelines and Standards

- International Building Code (IBC) 2015
- International Mechanical Code (IMC) 2015
- National Electrical Code (NEC), NFPA 70, 2017
- National Fire Alarm and Signaling Code, NFPA 72, 2016
- International Plumbing Code (IPC), 2015
- NFPA 101 Life Safety Code, 2015
- NFPA 13: Standard for the Installation of Sprinkler Systems, 2016
- NFPA 14: Standard for the Installation of Standpipe and Hose Systems, 2012
- NFPA National Fire Codes with the exception of NFPA 5000 and NFPA 900
- NFPA 99 Standard for Healthcare Facilities Code, 2015
- OSHA Standards 29 CFR
- Energy Policy Act of 2005 (EPAc)
- 248 CMR: Board of State Examiners of Plumbers and Gas Fitters, 2009
- Joint Commission on Accreditation

VA Requirements listed in the Architectural Design Manual (August 1, 2014) :

- American National Standards Institute (ANSI)
- American Society for Testing Materials (ASTM)
- ASHRAE Standard 170-2008 shall determine indoor design temperature setpoints
- ASHRAE Standard 90.1 - 2007 shall be used as a baseline for computing energy savings.
- ASHRAE/IESNA/ASHE Standard 170 - 2008: Ventilation of Health Care Facilities
- ANSI/ASHRAE Standard 62.1 - 2007: Ventilation for Acceptable Indoor Air Quality
- ASHRAE Standard 15-2007: Safety Standard for Refrigeration Systems
- ASHRAE Guideline 1.1 - 2007: HVAC & R Technical Requirements for the Commissioning Process
- ASHRAE Guideline 0 - 2005: The Commissioning Process
- NFPA 70 E - Standard for Electrical Safety Requirements for Employee Workplaces, 2012 or 2015
- NFPA 80 - Standard for Fire Doors and Other Opening Protectives, 2016

The Veterans Administration Design Manuals :

ARCHITECTURAL

- ARCHITECTURAL DESIGN MANUAL FOR NEW HOSPITALS, REPLACEMENT HOSPITALS, AMBULATORY CARE, CLINICAL



















Communication

**“The single biggest problem in communication
is the illusion it has taken place.”**

- George Bernard Shaw

Communication Tools

Risk Probability			Risk Severity Impact				
			Scale				
			Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Is expected to occur in most circumstances	Frequent	5	5A	5B	5C	5D	5E
Will probably occur	Likely	4	4A	4B	4C	4D	4E
Might occur at some time in the future	Occasional	3	3A	3B	3C	3D	3E
Could occur but is doubtful	Seldom	2	2A	2B	2C	2D	2E
May occur but only in exceptional circumstances	Improbable	1	1A	1B	1C	1D	1E

Communication Tools

Assessment Risk Index	Criteria	Accountable Organizations/Depts.
5A, 5B, 5C, 4A, 4B, 3A	Unacceptable under existing circumstances and requires immediate action	
5D, 4C, 4D, 3B, 3C, 2A, 2B	Manageable under risk control and mitigation	
5E, 4E, 3D, 2C, 2D, 1A, 1B	Acceptable after review of operation. Requires continued tracking and recorded action plans	
3E, 2E, 1C, 1D, 1E	Acceptable with continued data collection and trending for continuous improvement	

Communication Tools

Risk #	Risk Statement				Probability	Severity	Potential Mitigation	Opinion of Cost to Mitigate	Remarks
	Location	Equipment	Deficiency	Consequences/Hospital Services Impacted					
2.13	Building 8		Stormwater runoff enters building during heavy storm events.	Water can damage/impact ability of boiler plant systems to function. Causing main hospital facilities to be non-operational.	4	A	Site regrading and provide stormwater improvements.	\$870,000	
8.5.1	Site and undefined area of surrounding neighborhood	Service Entrance Cable	Damage to service entrance	Loss of communications on entire campus, No access to patient data and operations systems.	4	A	Contract for diverse service. Recommend "dark Fiber" loop between W. Roxbury/Brockton/Jamaica Plain. Insure that cable feeding the campus follows a separate path than the existing.	\$1,310,000	Cable cut has recently occurred.

Communication Tools

VA Mitigation Study Analysis - Campus and Category

Cost Opinion by Campus and Severity

SMLxL ● 0-Low ● 1-Slight ● 2-Medium ● 3-High



Cost by Location and Building

Campus ● Brockton ● Jamaica Plain ● West Roxbury



results

information

Key Takeaways

Takeaways

the facts

- Organization / Coordination

- Rigorous analyses

- Communication

- Applies to every facility, large or small

outcome

knowledge



Questions?