

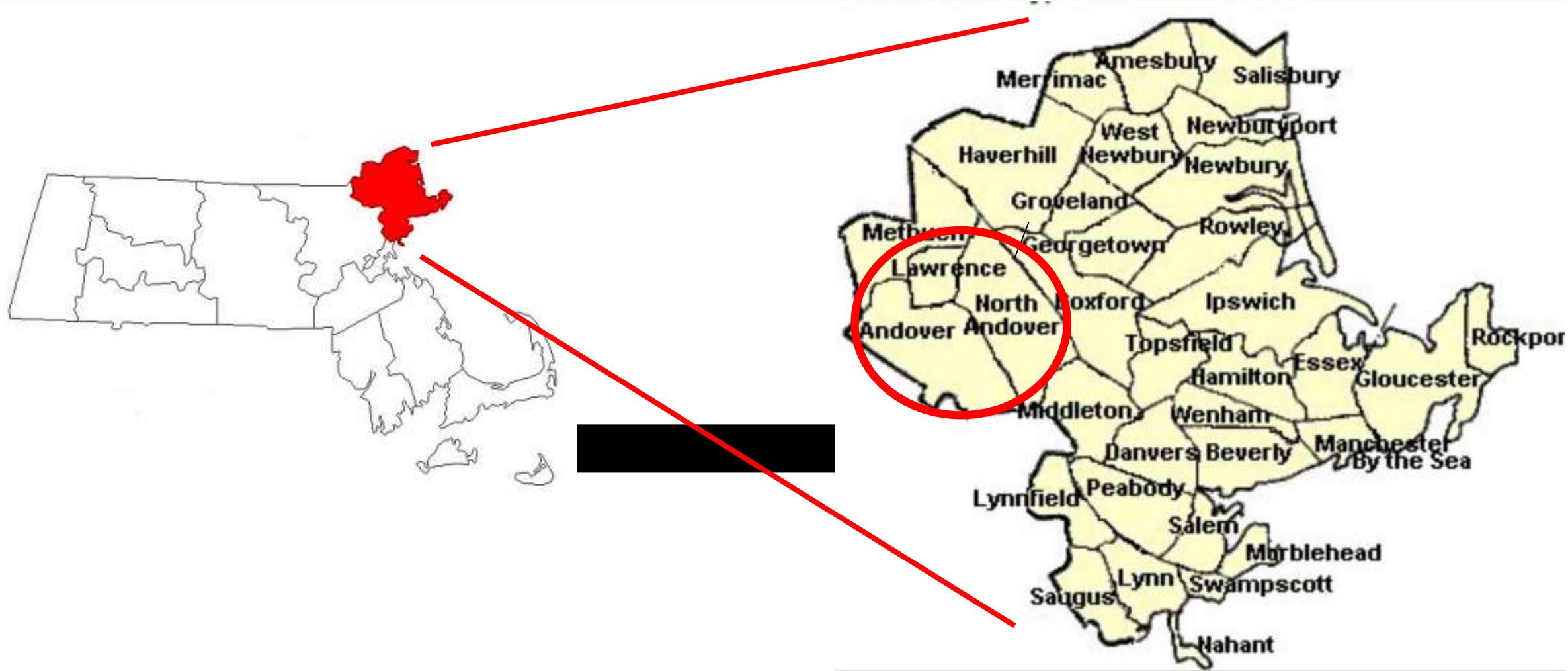
# Merrimack Valley Gas Line Disaster

## Merrimack Valley Gas Line Disaster September 13, 2018

Impacted Communities:  
**Lawrence, MA**  
North Andover, MA  
Andover, MA



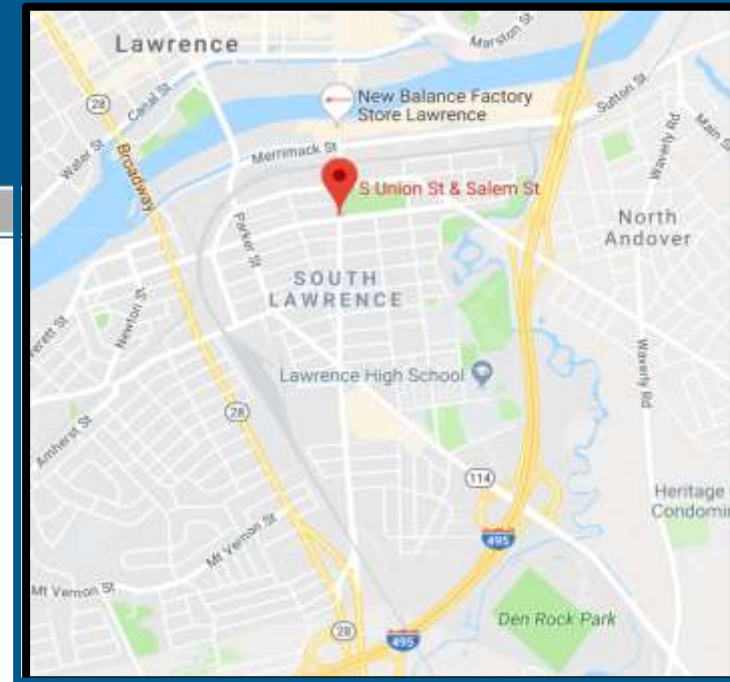
# Merrimack Valley, Massachusetts



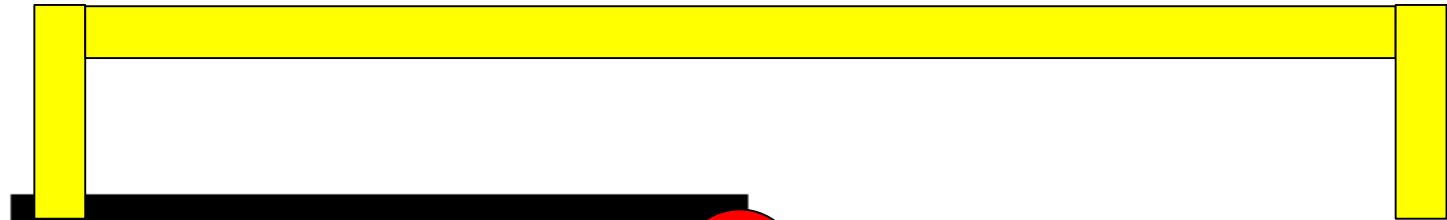
# Merrimack Valley, Massachusetts

	LAWRENCE	NORTH ANDOVER	ANDOVER
Hispanic	79%	6.0%	3.7%
White	15.5%	62.8%	79.4%
Non-English Speaking	77.9%	16.4%	17.9%
Owner Occupied Housing	28.4%	73.9%	79.6%
Median Household Income	\$39,627	\$105,661	\$143,292
Persons in Poverty	24.2%	5.1%	4.4%

# Merrimack Valley Gas Line Disaster: Causation



New Polyethylene  
Pipe Being Installed



Existing Cast Iron  
Pipe



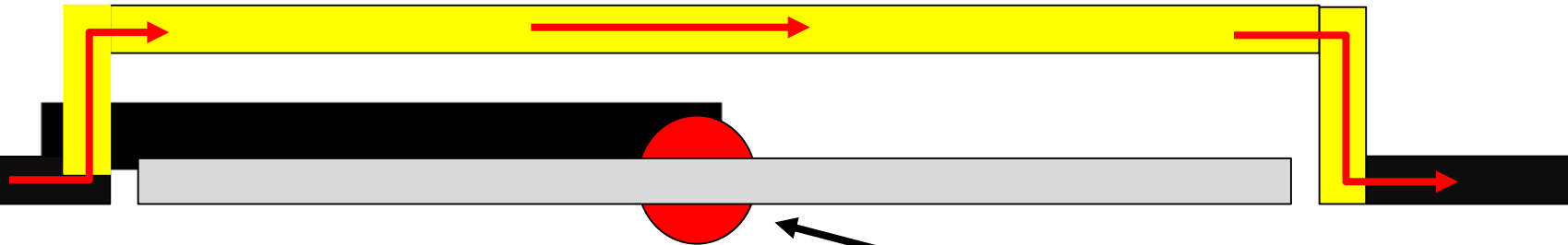
Pressure Sensor: Maintains .5  
lbs. per square inch in pipe



# Merrimack Valley Gas Line Disaster: Causation



New pipe connected. Sensor in old pipe not disconnected. Pressure increased from .5 to at least 75 lbs per square inch.

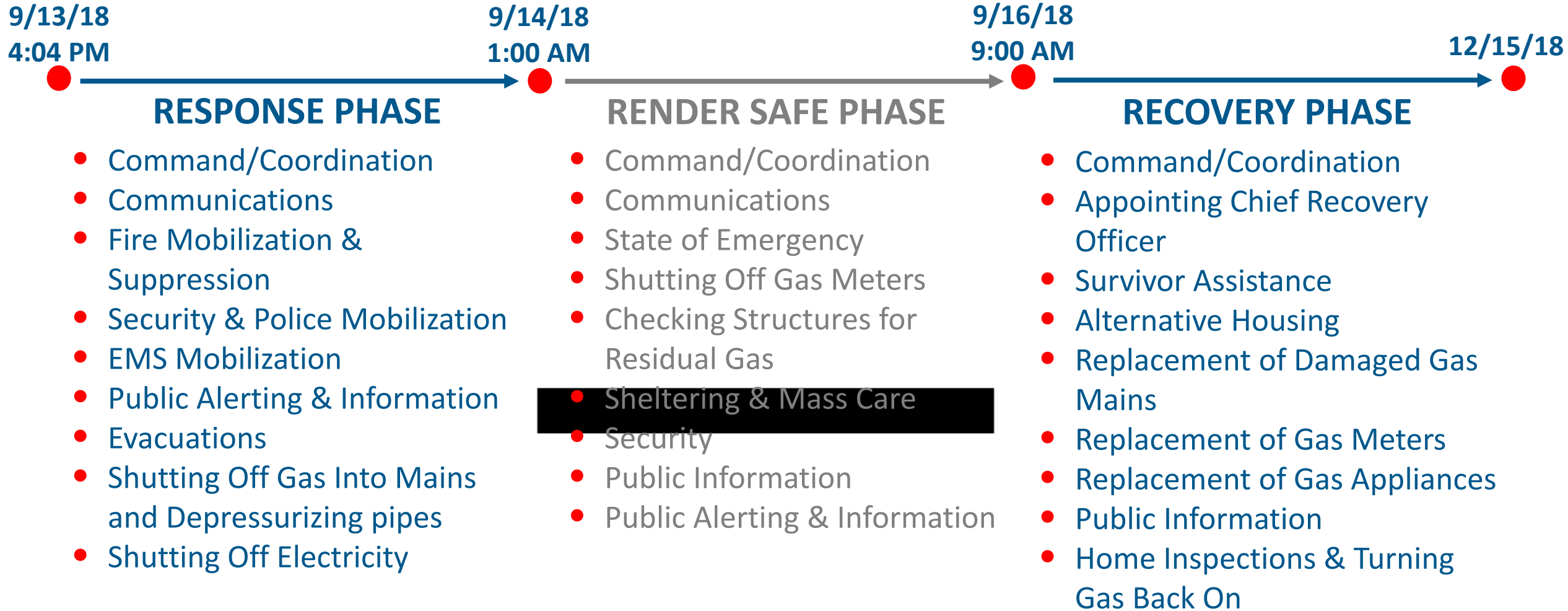


Pressure Sensor: Pressure fell to zero in old pipe. Sensor called for more pressure.

# Merrimack Valley Gas Line Disaster: Timeline

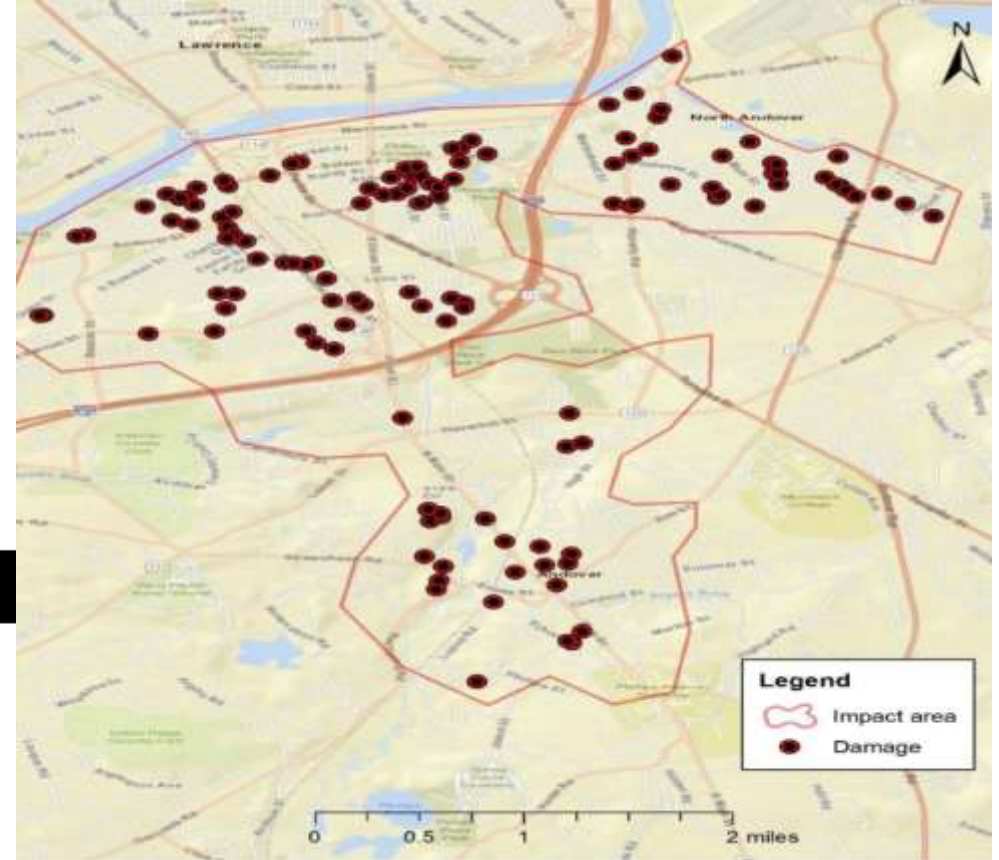
- 9/13
  - 4:04 PM Columbia Gas Command Center in Ohio Receives Alarm of Rise in Gas Pressure
  - 4:05 PM Columbia Gas Command Center in Ohio Receives Second Alarm of Rise in Gas Pressure
  - 4:06 PM Columbia Gas Notifies Columbia Gas Technicians in Lawrence of Rise in Gas Pressure
  - 4:11 PM First 9-1-1 Call. 120 Structures Damaged by Fire. 5 Structures Destroyed by Natural Gas Explosions.
  - 4:35 PM Columbia Gas Technicians in Lawrence Shut Off Sensor and Begin Manually Shutting 14 Regulators (Valves) that Control Flow of Gas into System
  - 5:00 PM Local Authorities Begin Calling for Evacuations
  - 6:00 PM Electricity Shut Off to 18,781 Customers in Area
  - 6:07 PM State Broadcasts Wireless Emergency Alert Advising Residents to Evacuate
  - 6:15 PM FBI Advises Public That Fires/Explosions Are Not Due to Terrorism
  - 7:20 PM All fires in Lawrence, North Andover and Andover are Extinguished or Under Control
  - 7:24 PM All 14 gas regulators feeding gas into the system are shut down
- 9/14
  - 1:00 AM Gas mains are depressurized. House-to-house work of shutting off meters begins.
- 9/16
  - 9:00 AM Communities Deemed Safe. Electricity Restored. Evacuation Orders Lifted.

# Merrimack Valley Gas Line Disaster: Timeline



# Response Phase

- 100 to 120 Simultaneous Structure Fires
- 5 Homes Demolished by Explosions
- 25 Injuries
- 1 Fatality





# Response Phase: Mutual Aid

## Fire Mobilization

- 15 Regional Task Forces
- 180 Responding Departments
- 167 Engines, 65 Ladder Trucks

## Police Mobilization

- 660 Law Enforcement Officers
- 140 Responding Departments

## EMS Mobilization

- 54 ALS & BLS Ambulances



# Response Phase: Command and Coordination

## Local Incident Command

## Regional Coordination of Tactical Resources

## Unified Regional Command/Coordination of Restoration and Recovery Efforts

## State Coordination and Resource Support Throughout Incident

Lawrence EOC

Fire Staging & Tactical Command

Andover EOC

Police Staging & Tactical Command

N. Andover EOC

EMS Staging & Tactical Command

Unified Command/Policy Group

State Emergency Operations Center (SEOC)

# Response Phase: Evacuations

## Evacuations (18,000 Gas Customers)

- All of South Lawrence
- All Columbia Gas Customers in Andover
- All Columbia Gas Customers in N. Andover

## Evacuation Orders Communicated By:

- Wireless Emergency Alerts (English & Spanish)
- Reverse 911
- Social Media
- Press Conference
- Media Advisories
- PA Systems on Police Cruisers



# Response Phase: Evacuations

## Lawrence

- Three Evacuation Assembly Points (EAP's) in Evacuation Zone (for residents with Critical Transportation Needs)
- Six buses transporting evacuees from EAP's to Reception Centers
- Two Reception Centers/Shelters Outside Evacuation Zone

## Andover

- One Reception Center/Shelter

## North Andover

- One Reception Center/Shelter



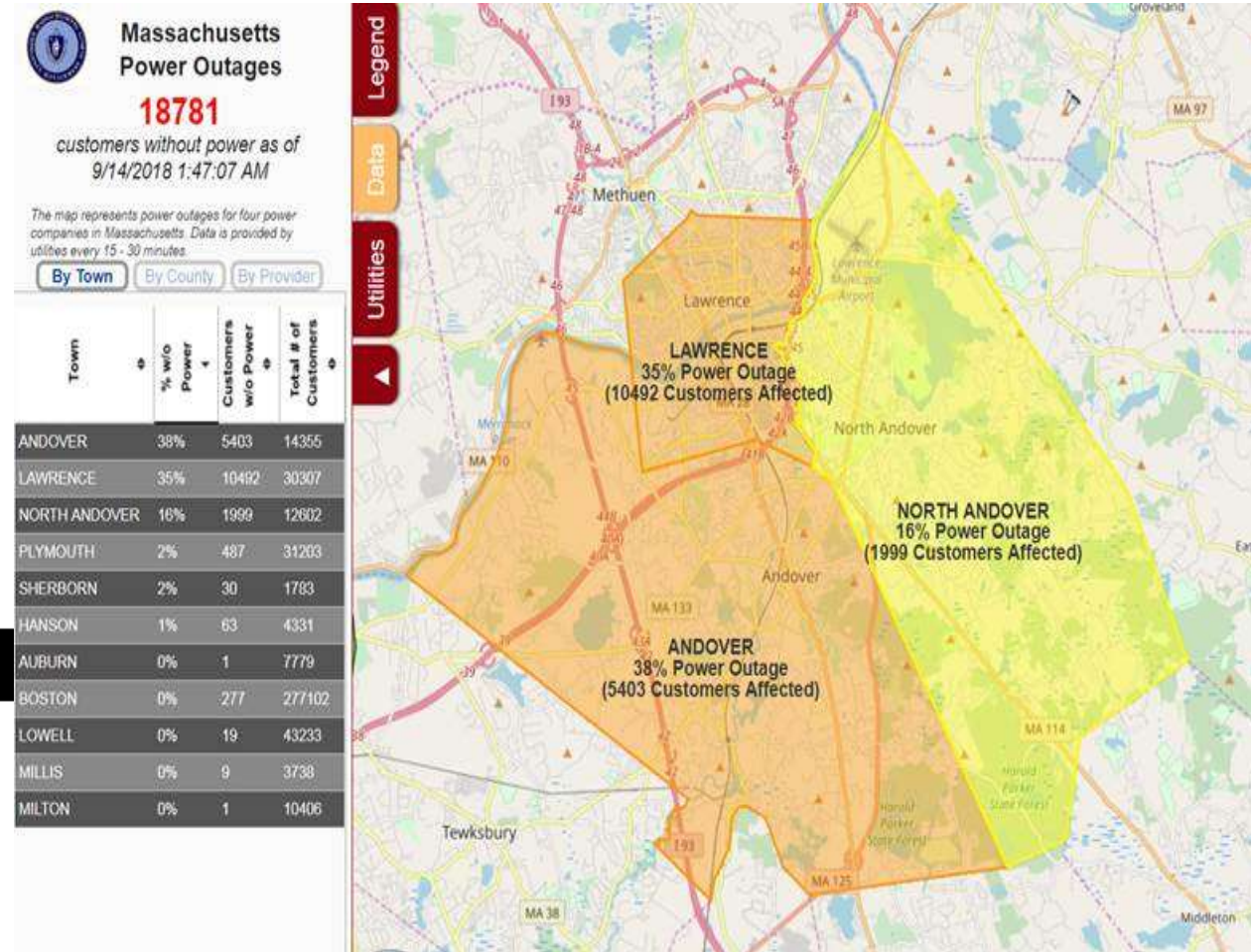
# Response Phase: Reducing Risk

## Gas

- Gas workers manually closed 14 valves that allowed gas into the main lines (completed at 7:24 PM)
- Depressurized main lines (completed by 1:00 AM)

## Electricity

- Shut off electricity to 18,781 electricity customers in the 3 communities

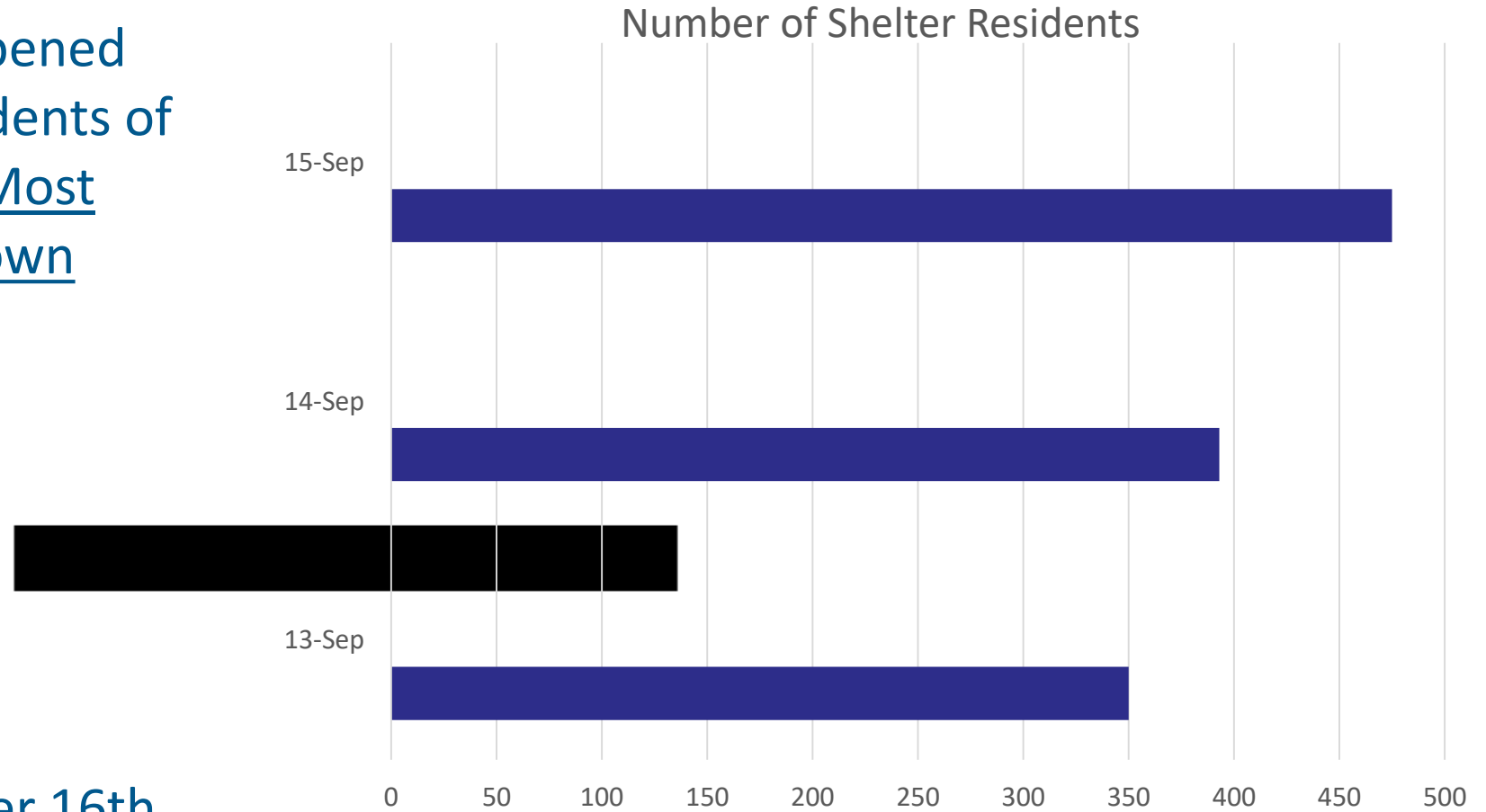


# Render Safe Phase

Red Cross and communities opened shelters for evacuees and residents of damaged/destroyed homes. Most displaced people found their own accommodations.

- Lawrence: 3 shelters
- Andover: 1 shelter
- N. Andover: 1 shelter

Transitioned to hotel accommodations on September 16th



# Render Safe Phase

Goal: Shut off gas service to 8,000 gas meters (10,000 residential units) and check all impacted structures for residual gas.

## Challenges:

- Gas company command and control
- Too few gas company workers
- Security
- Gaining access to locked structures

## Plan

- Bring in overhead management team from other company
- Bring in gas workers from other companies
- Augment gas workers with firefighters
- Add police officers to teams
- Hire locksmiths



# Render Safe Phase

Door to door work started at 1:00 AM on September 14<sup>th</sup> and was completed by 7 AM on September 16<sup>th</sup>

Service shut off to 7342 residential meters (10,000 residential units)

- 4271 in Lawrence
- 1638 in Andover
- 1214 in North Andover

Service shut off to 685 business meters





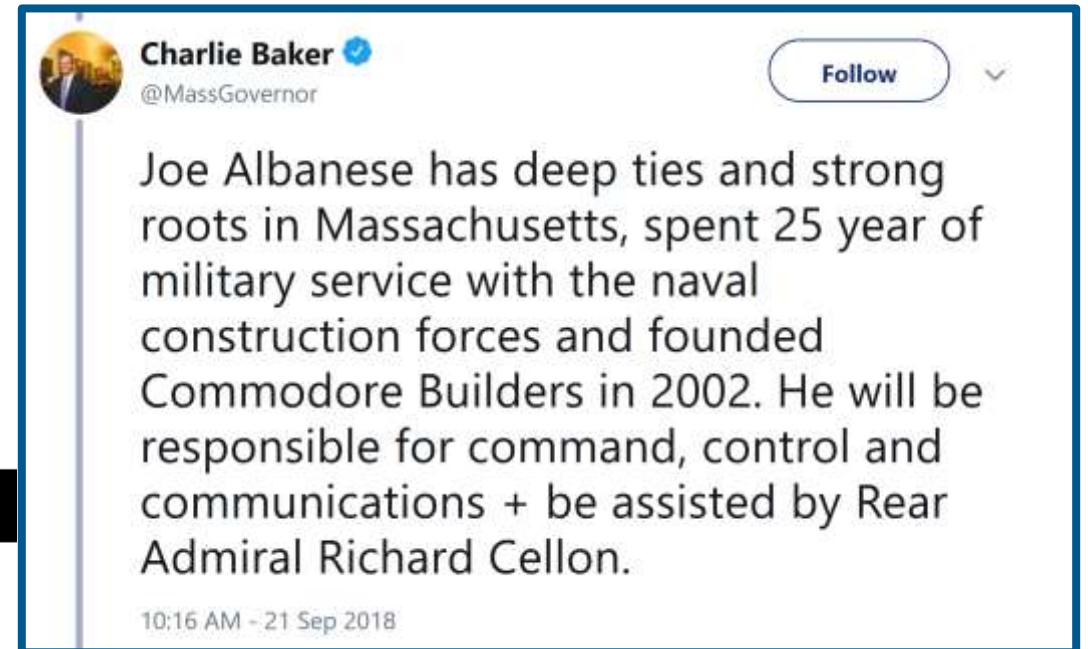
# Render Safe Phase

## Public Information and Alerting



# Recovery Phase

- Governor appoints Chief Recovery Officer
- Joint Field Office/Command Center established in Lawrence. Closed in late December.
- Daily Command and General Staff meeting/call with Policy Group
- Daily Briefing Package distributed to stakeholders



# Recovery Phase: Survivor Assistance (Immediate Needs)

## Recovery Resource Center

- Operated Sept 16-21, 2018
- Served over 3,000 people
- Staffed by numerous NGO's and government agencies, including:
  - Red Cross and Salvation Army
  - Dep't of Mental Health
  - Dep't of Transitional Assistance
  - Division of Insurance
  - Housing & Community Development
  - Local faith based organizations
  - Lawrence, Andover, N. Andover
  - Columbia Gas
  - Local and state emergency mgt



**BAKER-POLITO  
ADMINISTRATION TO OPEN  
RECOVERY RESOURCE  
CENTER FOR THOSE  
IMPACTED BY COLUMBIA  
GAS LINE INCIDENT**

 Arlington Middle School  
150 Arlington St.  
Lawrence, MA

Salvation Army served 7600 meals and handed out \$70K in grocery cards between 9/14 and 9/20.

## Recovery Phase: Survivor Assistance (Immediate Needs)

United Way 211 Operated a Virtual Recovery Resource Center to connect impacted individuals and families with information and service providers

- 24/7 Call center and website
- Bilingual operators
- Over 5,000 calls and 2,000 website hits in first two weeks



# Recovery Phase: Assistance to Impacted Individuals and Families

## Greater Lawrence Disaster Relief Fund

- Established by Governor and Impacted Communities
- \$10M from Columbia Gas
- \$3.1M from other sources
- \$12.3M paid out to impacted individuals and families (as of [REDACTED] 1/15/19)

**Governor Charlie Baker, Local  
Officials Announce Essex County  
Community Foundation**

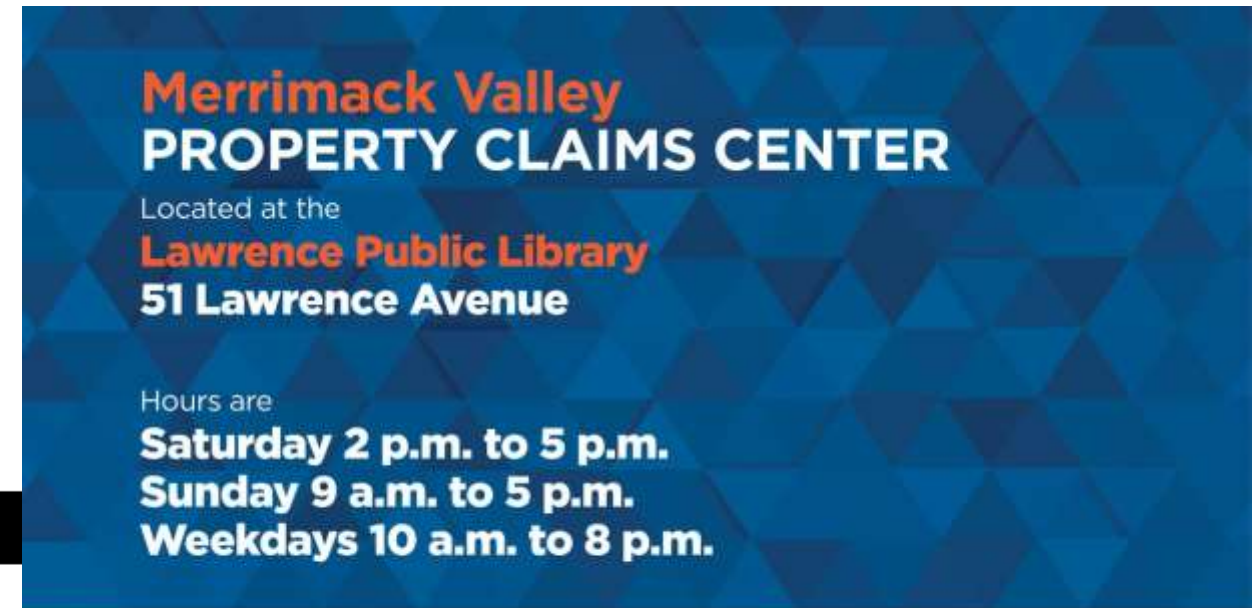
**GREATER LAWRENCE  
DISASTER RELIEF FUND**



# Recovery Phase: Assistance to Impacted Individuals & Families

## Columbia Gas Claims Process

- Claims centers opened in each impacted community
- Mobile claims/customer assistance vans
- Call center with toll free number
- 24,983 claims filed
- \$99.8M paid out (as of 4/15/19)
  - \$31M to businesses
  - \$8.6M to 1,515 landlords to reimburse for lost rent



**Merrimack Valley**  
**PROPERTY CLAIMS CENTER**

Located at the  
**Lawrence Public Library**  
**51 Lawrence Avenue**

Hours are  
**Saturday 2 p.m. to 5 p.m.**  
**Sunday 9 a.m. to 5 p.m.**  
**Weekdays 10 a.m. to 8 p.m.**

# Recovery Phase: Assistance to Impacted Businesses

## \$3M Emergency Loan Fund for Impacted Businesses

- Managed by area banks
- Up to \$50K per business
- No interest & no payments for first 6 months

## Small Business Administration Economic Injury Declaration

- Low interest disaster loans to impacted businesses
- Up to \$2M per business



# Recovery Phase: Home Mitigation Measures

## Operation Hot Plate

National Guard activated. Door to door distribution of 7,439 electric hotplates



## Operation Temporary Heat

Columbia Gas purchased 24,000 electric space heaters, but electrical inspectors deemed most homes unsuitable for the devices. Risk of fire too great.

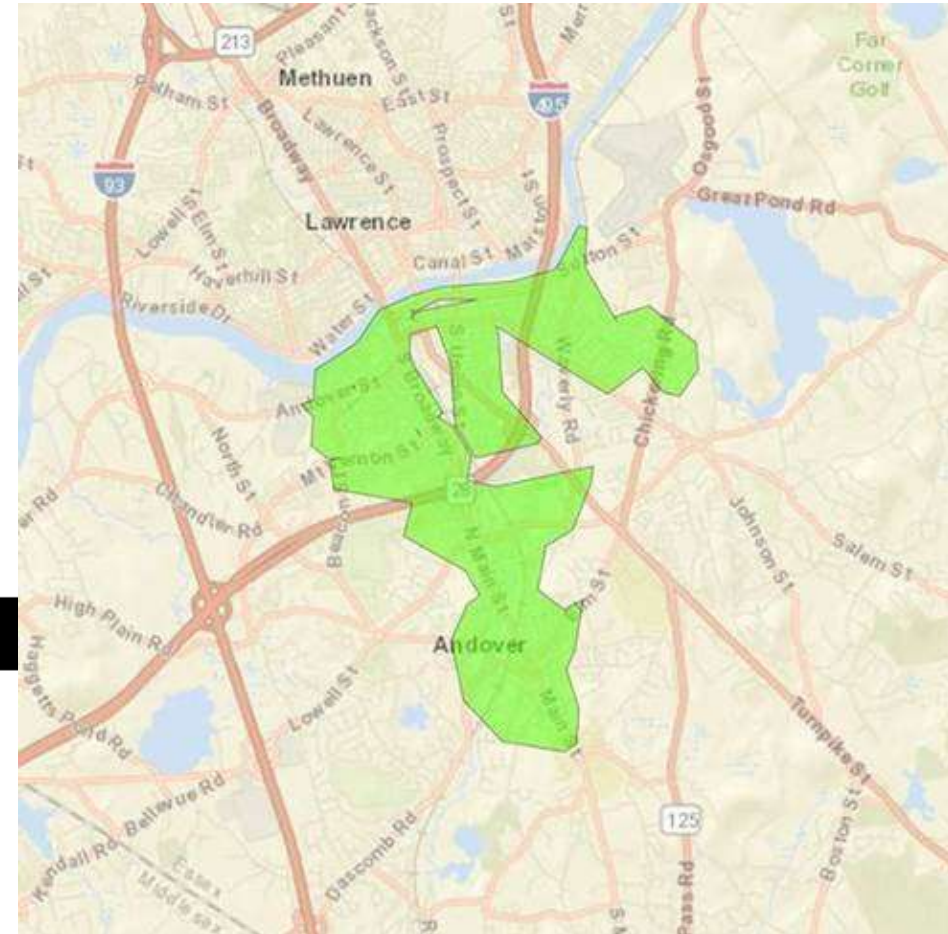




# Recovery Phase: Process For Restoring Gas Service

## Restoration of Gas Service to Non-Impacted Customers

- 10,132 Columbia Gas customers shut off their own meters on 9/13 even though they were not on the over-pressurized lines
- Each of these meters had to be inspected and turned on by Gas Company technicians
- Service fully restored on 9/22



# Recovery Phase: Process For Restoring Gas Service

## Exterior Work

- Construction crews inspect all main line pipes and replace those that are damaged
- Construction crews replace all service lines

## Interior Work

- Technicians visit every metered structure to assess damage to gas meter(s), interior gas pipes and appliances
- Technicians replace meters, interior pipes and appliances
- Technicians relight meters

**PATH TO SERVICE RESTORATION**  
GENERAL OVERVIEW

**MAKING YOUR HOME OR BUSINESS "HOUSE READY"**

- **Assessment**  
A team will visit your home or business to assess your natural gas appliances and piping and review options.
- **Repairs and Installation**  
Upon completion of repairs, we will test natural gas lines for safety, install appliances and you will receive warranty information.

**MAKING YOUR HOME OR BUSINESS "GAS READY"**

- **Main Line Replacement**  
The main gas line that brings gas into the area has been replaced on your street.
- **Service Line Replacement**  
The line connecting your home or business to the main line has been replaced.
- **Meter Installation**  
The gas meter that measures gas and regulates flow into your home or business has been installed.

**NATURAL GAS SERVICE RELIGHT**

To restore natural gas service to your home or business, **all work inside and outside must be completed.**

You may hear the terms **House Ready** and **Gas Ready**.

**House Ready** means all work inside your home or business is complete and tested, with at least one gas appliance safety checked and available for relight.

**Gas Ready** means all work outside your home or business has been completed.

**Once Gas Ready and House Ready, a Columbia Gas representative will visit your home or business, perform final safety checks and restore your natural gas service.**

**STAY CONNECTED**  
Contact Us at Any Time

**HELPLINE**  
1-866-388-1219

**PROPERTY CLAIMS**  
1-800-590-5571

[ColumbiaGasMA.com](http://ColumbiaGasMA.com)  
[Facebook.com/ColumbiaGasMA](https://Facebook.com/ColumbiaGasMA)  
[Twitter.com/ColumbiaGasMA](https://Twitter.com/ColumbiaGasMA)

**Columbia Gas**  
A Valisure Company

# Recovery Phase: Process for Restoring Gas Service

## Exterior Work

- Construction crews replaced 43.3 miles of older cast iron mainline pipe
- Construction workers inspected and requalified 12.3 miles of newer polyethylene mainline pipe
- Construction crews replaced 6100 service lines (smaller lines connecting mainline pipe to meters)



# Recovery Phase: Restoring Gas Service

## Interior Work

- Replaced 8,000 gas meters
  - 7342 residential meters (10,000 residential units)
  - 685 businesses
- Heat
  - Temporary Repairs (if possible)
  - Winterize heavily damaged homes
  - Ultimately replace all gas boilers and furnaces (work still ongoing)
- Replace all gas hot water heaters
- Replace all gas ranges and ovens
- Replace all gas dryers



# Recovery Phase: Mutual Aid

## Emergency Management Assistance Compact (EMAC)

Interstate compact used to secure Pipeline Inspectors from 9 states: AZ, CT, MN, NH, NY, OH, OR, PA, VA

## Massachusetts Public Works Mutual Aid Agreement

Intrastate mutual aid agreement used [REDACTED] to secure building, gas, electrical, housing and health inspectors from other cities and towns in Massachusetts



# Recovery Phase: Emergency Housing

## Goal: Build Capacity to Provide Emergency Housing for 5000 Families

- Objective #1: Secure 3000 to 5000 hotel rooms within 30 miles
- Objective #2: Establish 5 trailer communities in the three communities, with 500 Recreational Vehicles (RV's)
- Objective #3: Lease 160 apartments in the Greater Lawrence area
- Objective #4: Establish a congregate shelter (shelter of last resort) for up to 1000 people

MASSACHUSETTS EMERGENCY MANAGEMENT AGENCY

FOR IMMEDIATE RELEASE:

October 5, 2018

### CONTACT

Christopher Besse, Massachusetts Emergency Management Agency

[christopher.besse@state.ma.us](mailto:christopher.besse@state.ma.us)



**Baker-Polito Administration, MEMA, Local Officials and  
Columbia Gas Announce Housing Options for Impacted  
Customers Who Choose Not to Remain in their Homes During  
Restoration Efforts**

*Impacted Columbia Gas customers who choose to be placed in alternative housing  
should call Columbia Gas' Claims line: 1-800-590-5571*

# Recovery Phase: Emergency Housing

## Housing Task Force Established

- Staffed by Columbia Gas, contractors and Governor's Office
- Briefed Command & General Staff twice daily

Hospitality company (Empire Hospitality) hired to support a 24/7 hotline, secure hotel rooms and apartments, and assign impacted customers to emergency housing

## Massachusetts Emergency Management Agency tasked with:

- Establishing and overseeing ~~contractor-operated trailer~~ sites
- Establishing and overseeing a contractor-operated congregate shelter for 1000 people
- Establishing and overseeing a contractor-operated pet shelter

## Recovery Phase: Emergency Housing

### Contractor support for Housing Task Force

- Total Families Placed: 2280  
(2272 families have returned  
to their homes as of 4/15/19)
- Cost of Emergency Housing  
Mission: \$145.5M

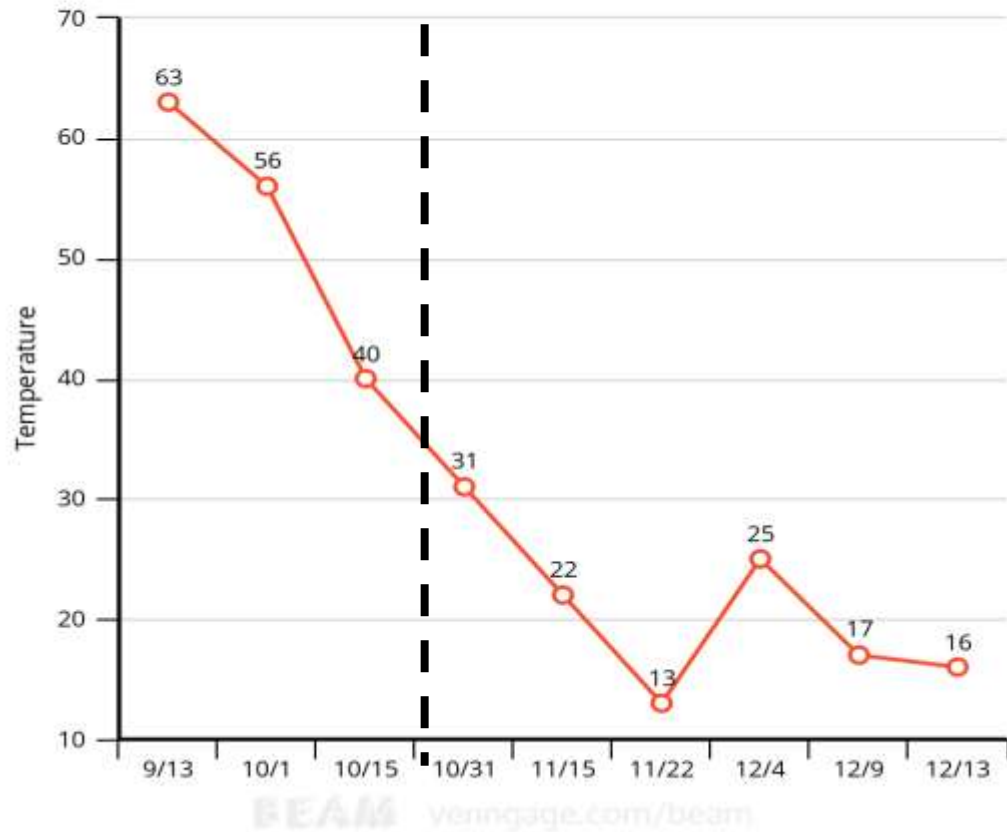


McKinsey & Company

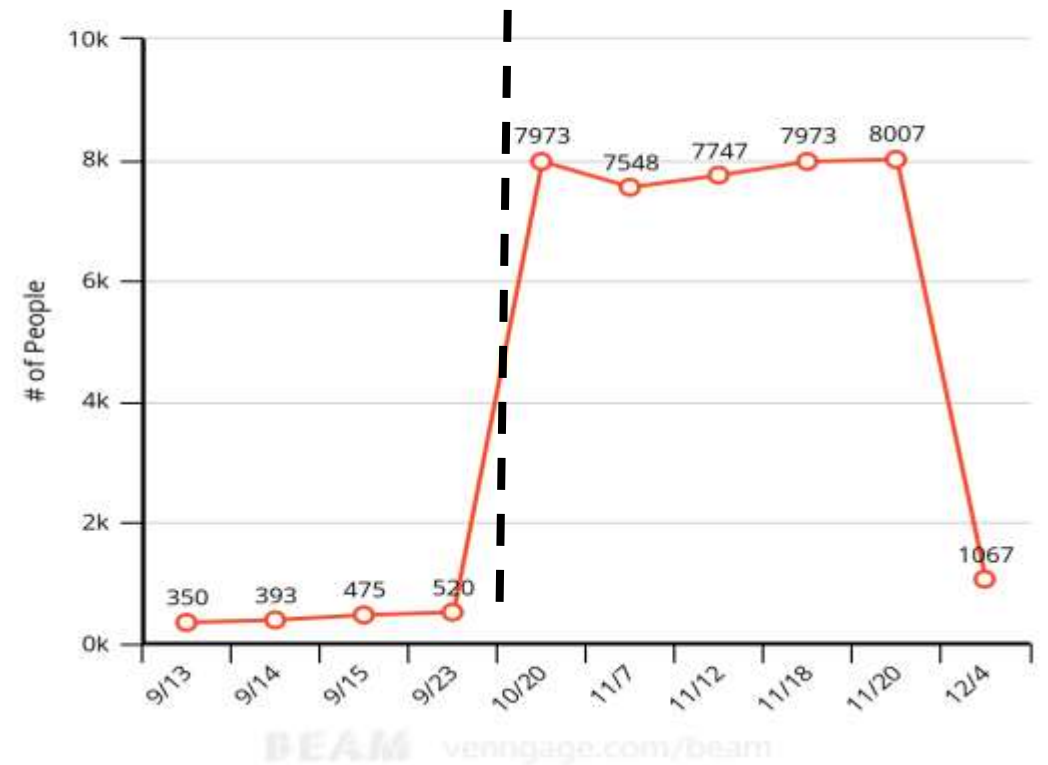


# Recovery Phase: Emergency Housing (Falling Temperatures Drove People Into Emergency Housing)

## Low Temperatures



## Number of People in Emergency Housing



# Recovery Phase: Emergency Housing (Hotels)

## Hotels

- +/- 6300 hotel rooms booked over 3 ½ months
- Peak One Day Occupancy: 1,862 families (6,236 individuals)
- Contracted with Uber/Lyft to provide transportation
- Per diems provided to cover food and incidental costs
- Challenges
  - Finding enough rooms w/in 30 miles
  - Getting kids to school
  - Getting people to vacate rooms
  - Cost: \$65M



# Recovery Phase: Emergency Housing (Hotels)

**Problem:** Too many hotel rooms occupied by emergency workers

**Solution:** House emergency workers on a cruise ship in Boston Harbor

- Grand Celebration
- Bahamas Paradise Cruise Lines
- 733'
- 750 State Rooms
- 1496 Passengers
- 670 Crew Members

Business

## Columbia Gas Moving Workers To Leased Cruise Ship

The company said the move will free up hotel rooms for Andover, North Andover and Lawrence residents who remain without gas.

By Dave Copeland, Patch Staff | Oct 12, 2018 1:59 pm ET



# Recovery Phase: Trailers

## 5 Trailer (RV) Communities Established

- 515 trailers leased from two companies
- Peak one-day occupancy: 1,762 people in 376 trailers

## Challenges

- Finding suitable locations
- Hospitality/Customer Service
- Trailer Service/Maintenance
- Security
- Weather
- Cost: \$50M
  - \$5.5M in leasing costs
  - \$45M in operating costs



## Recovery Phase: Trailers

Pemberton Park, Lawrence  
99 Trailers



South Common Park, Lawrence  
248 Trailers



# Recovery Phase: Trailers

Sullivan, Lawrence  
75 Trailers



Grogan Field, North Andover  
60 Trailers

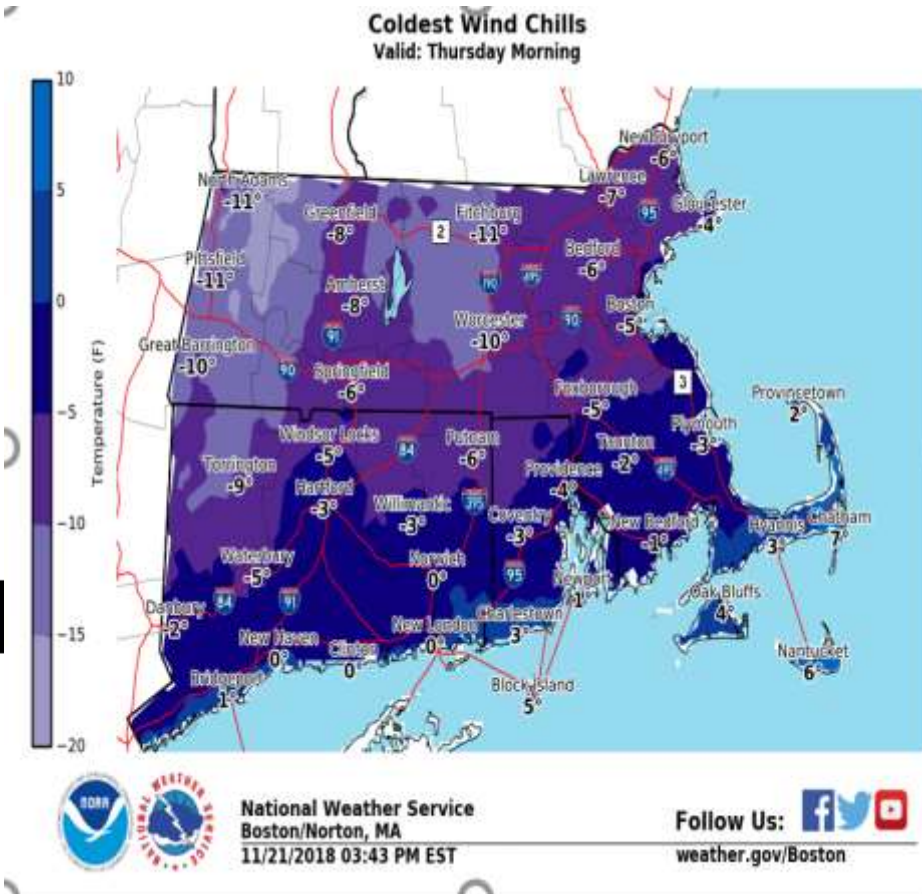


# Recovery Phase: Trailers

Recreation Park Road, Andover  
32 Trailers



# Recovery Phase: Trailers





# Recovery Phase: Winterizing Trailers



## Recovery Phase: Trailers - - Contractor Support

**DEPLOYED  
RESOURCES**

- Site Maintenance
- Support Services (Laundry, Water, Fencing)
- Trailer Service (Wastewater, Fresh Water, Dumpsters)

 **HAGERTY**

- Customer Service
- 24/7 Resident Care
- Trailer Assignment and Familiarization
- Restocking Supplies in Trailers

**STRATEGOS  
INTERNATIONAL**

- 24/7 Unarmed Site Security
- ID Checks/Access Control

# Recovery Phase: Congregate Shelter

## Congregate Shelter (Shelter of Last Resort)

- Maximum Capacity 1,000 People
- Available in the event of a weather-triggered surge, or if demand for emergency housing exceeded capacity (hotel rooms, trailers, apartments)
- Largely unused: 242 guests, 2704 meals served

## Challenges:

- Finding a suitable location
- Cost: \$30M



## Recovery Phase: No Federal/FEMA Assistance

Governor Baker requested an Emergency Declaration on November 19

- Request sought 75% reimbursement for costs of emergency protective measures:
  - Police, Fire, EMS overtime;
  - Evacuations
  - Sheltering

FEMA formally denied the request on December 19<sup>th</sup>.

- Existence of a responsible third party (Columbia Gas) was the likely reason for the denial.



# Merrimack Valley Gas Line Disaster

**Kurt Schwartz**

