

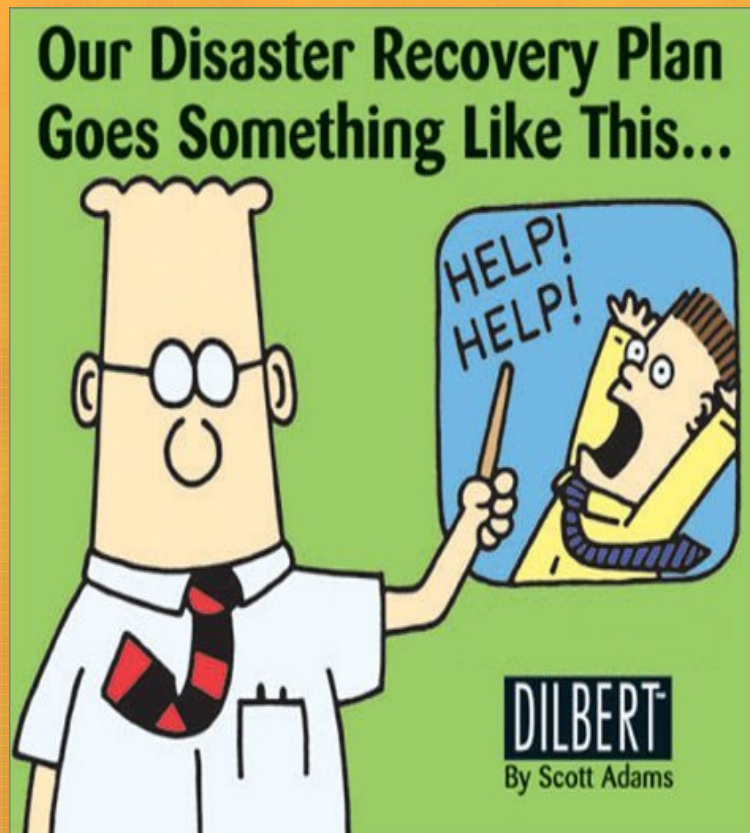
WABO

Emergency Management

Why us?

....And how do we do
it?

Disaster Recovery and Incident Command



- Every city should have an Comprehensive Emergency Management Plan
- This plan is suppose to prepare public and private entities for potential disasters and emergencies that strike.
- Each city should have an Emergency Management Coordinator and Emergency Operations Center
- ***BUT...Sometimes, all you can do is call for Help!***

BUT....Why Us?

When disaster strikes a community, there is an immediate need for structural and non structural safety assessments of building and sites-

- **Damage from events such as**
- **Earthquakes**
- **Floods**
- **Wind Storms**
- **Snow and ice storms**

Events like these can overwhelm the resources available at local levels

Damage Assessment Teams (DAT)

WABO Building Safety Emergency Responders

- Properly qualified and trained **code professionals** are needed to assist and enhance the recovery process during and after a disaster
- Those with the skills are called upon member of a DAT and will be looked upon to:
 - Perform Assessments
 - Disseminate Information to public and media
 - Identify utility problems as to life safety
 - Identify Hazardous Material issues
 - Along with Code and construction knowledge DAT needs to know ICS and NIMS
 - These teams need to be physically and mentally fit to handle the long hours and stress

Hotel Damage



Road Damage



Banking Disruption Federal Savings Building



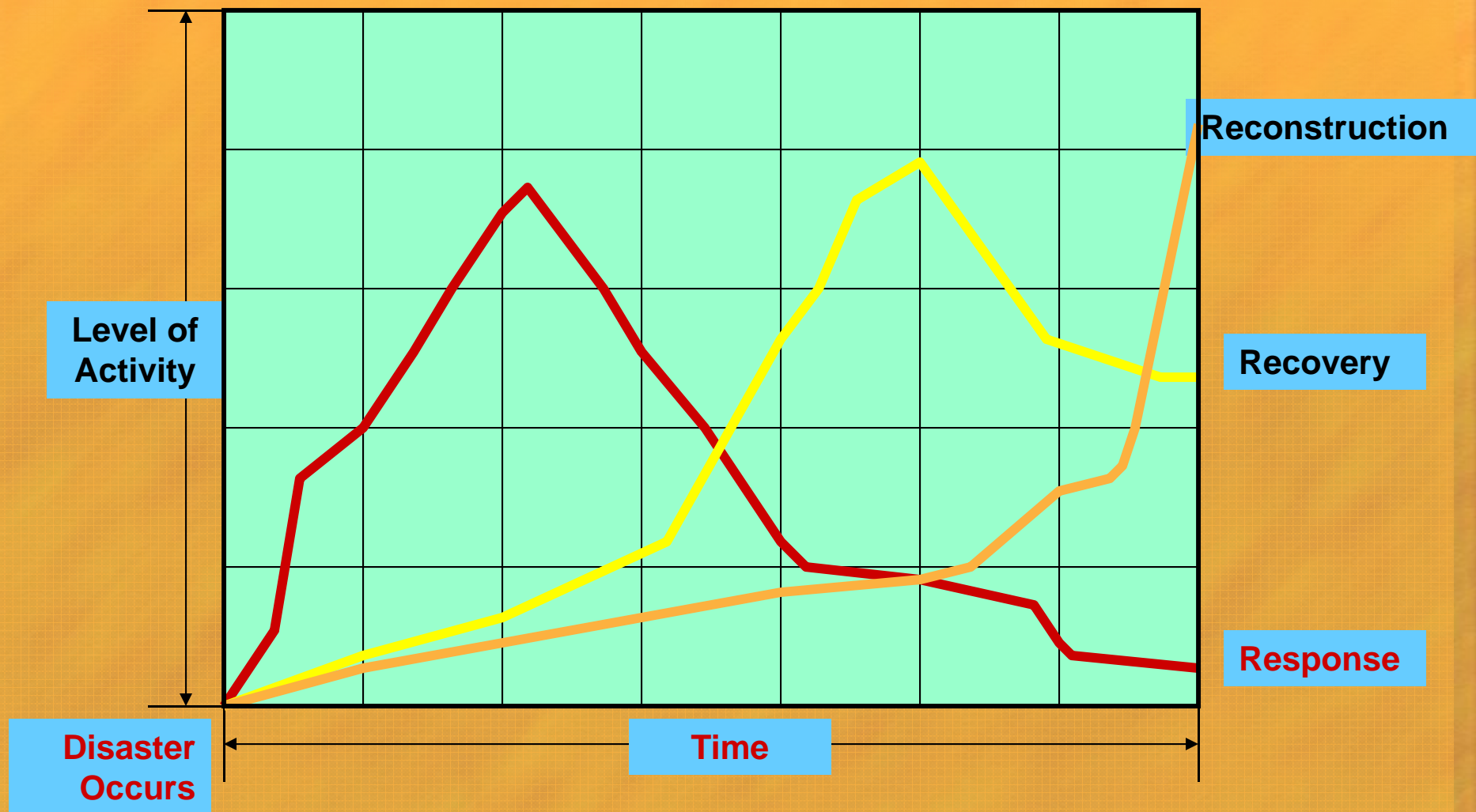
Retail becomes shut down



Bridge Closures



Emergency Transition Timeline



So how does this all work?

The Incident Command System

- It is the Federal Mandate used for Command, Control, and Coordination of a response
- It's a means to coordinate the efforts of individual agencies as they work toward the common goal of stabilizing the incident and protect life, property, and the environment
- ICS uses principles that have been proven to improve efficiency and effectiveness in a business setting and applies to the principles to emergency response

Incident Command

Figure 1 — Incident Command System Structure



- All DAT's through the Incident Commander will report to the Emergency Management in control of the event.

Management in a Disaster Situation is Needed To:



- Maintain the safety of the disaster workers-
- safety is the number one concern, accountability of team members is very important, members work in a buddy system always
- Provides for clear leadership and organizational structure, develops a chain of command, who to report to and functions
- Improve the effectiveness of rescue efforts, rescue response is prioritized based on rescuers safety

What types of Incidents use ICS?



- Every type of incident require the use of some type of Incident Command
- Most common are:
 - Hazardous Material Incidents
 - Earthquakes
 - Natural Hazards such as windstorms or snowstorms
 - Floods
 - Single and multi-agency law enforcement incidents
 - Fires
 - Private sector emergency management programs
 - Multi-jurisdictional and multi-agency incidents



ICS Structure

Figure 1 — Incident Command System Structure



Planning Section

- In smaller incidents, the Incident Commander is responsible for planning
- When the incident becomes larger, the IC can appoint someone as Planning Section Operations
- Planning Section includes:
 - ****Collection, evaluation, dissemination , and use of information about the development of the incident and status of resources***
 - * Functions can also include creation of the Incident Action Plan



Operations Section



- Responsible for carrying out the response activities in the Incident Action Plan
- Direct and coordinate all operations, ensuring safety of Operations Section personnel
- Assists the IC in developing response goals and objectives for the incident
- Implements the IAP- Incident Action Plan
- Requests resources through the IC
- Keeps the IC informed of situation

Logistics Section

- Responsible for providing facilities, services and materials
- Includes getting personnel to operate equipment for the incident
- **Takes on more significance in long term incidents such as flooding, earthquakes, power outages**
- This section is geared to support the Incident responders



Finance Section

- Critical for tracking incident costs and reimbursement accounting
- Unless costs and financial operations are carefully recorded and justified, reimbursement of costs is difficult
- Very important in a situation where the President declares an area a Disaster Area

Damage Assessment



Assessment is Accomplished in 3 Phases

1. **Rapid Evaluation or Assessment – (also know as Windshield Assessment)** Takes place within hours after an incident and focuses on lifesaving needs, imminent hazards, and critical lifelines.

This action is usually used to determine whether a detailed evaluation or engineering evaluation is needed.

‘continued’

“Windshield Survey”

- The first assessment conducted should focus on the people's needs..
- The primary focus is on the number of structures that sustained damage. Teams evaluate extent of damage and earmark a structure in one of following levels of damage: **Destroyed, Major, Minor, Affected** but **Habitable**, and **Inaccessible**.
- **And to collect damage information to determine if enough damage is present for a presidential declaration**

Assessment is Accomplished in 3 Phases

Detailed Evaluation is done (as a follow-up) by an individual (Structural Engineers/Geotechnical Engineers) with more training and expertise to conduct a careful full visual evaluation of damaged buildings and questionable situations. ***Most often it is used in those circumstances to require a structural engineering analysis to be conducted prior to re-use and re-occupancy of a structure.***

Engineering Evaluation done with detailed investigation of damaged buildings, involving the use of construction drawings, damage data, and new structural calculations.

Why Do Damage Assessment?

Conducting a local damage assessment enables local officials to:

- **Determine the severity and magnitude of the event**
- Quantify homes and businesses impacted by the disaster
- Determines whether local resources will be sufficient to effectively respond and recover from the event

Why do an assessment?

- provides local departments and agencies with information
- helps to make decisions on how to apply response resources
- provides state agencies and volunteer organizations with information
- media wants to know the impact and cost

Importance of Documentation



- Vital to document and communicate all information about the ***disaster situation and resource status***
- Efficient flow of information makes it possible for ***resources to be deployed effectively*** and for professional emergency services to be applied appropriately
- Documentation also assists with getting money after the incident

DISASTER DAMAGE INSPECTION REPORT

PRELIMINARY INSPECTION

FOLLOW-UP INSPECTION

ADDRESS

Immediate Action Required on Number _____ Date _____

Building Address _____

Use Group: ☐ Single Family ☐ Other _____

Construction Type: ☐ Wood Frame ☐ Masonry ☐ Other _____

1. Building Condition: ☐ Safe For Occupancy ☐ Habitable, Repairs Necessary
☐ Uninhabitable - Keep Out ☐ Demolition Recommended

2. Exterior Wall Condition: ☐ No Damage
☐ Windows Gone ☐ Siding Damage ☐ Holes In Wall
☐ Wall Bowed (which wall) _____ ☐ Wall Unsafe (which wall) _____
☐ Wall Gone (which wall) _____ ☐ Comment _____

3. Roof Condition: ☐ No Damage
☐ Holes In Roof ☐ Shingle Damage ☐ Structural Damage
☐ Roof Unsafe ☐ Roof Gone ☐ Comment _____

4. Foundation Condition: ☐ No Damage
☐ Crawl Space ☐ Basement ☐ Building Shifted
☐ Building Off Foundation ☐ Foundation Cracked (which walls) _____
☐ Comment _____

5. Floor Condition; First Floor: ☐ No Damage
Second Floor: ☐ No Damage
☐ Holes In Floor ☐ Floor Shifted ☐ Structural Damage
☐ Comment _____

6. Interior Bearing Walls: ☐ No Damage
☐ Shifted ☐ Structural Damage
☐ Comment _____

7. Heating System: ☐ No Damage
☐ Duct Damage ☐ Appliance Damage
☐ Comment _____

8. Plumbing System: ☐ No Damage
☐ Fixture Damage ☐ Piping Damage
☐ Comment _____

9. Electrical System: ☐ No Damage ☐ Fixture Damage
☐ Circuit Breaker Box Damage ☐ Comment _____

10. Utilities Condition: Gas ☐ No Damage Water ☐ No Damage
Electric ☐ No Damage ☐ Comment _____

11. Additional Comments: _____

Inspector _____ (SIGNATURE)

Inspector _____ (SIGNATURE)

How to Classify

- We must have a common way to call each classification
 - ATC 20/45 or Cal-Ema
- Remember we are doing the first assessment to ID
 - What is wrong
 - Where the problems are (LOCATION)
 - How bad is it

There are 4 degrees of damage:

- **Destroyed**
- **Major**
- **Minor**
- **Affected**

EARTHQUAKE DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Structure damage
- Broken Columns
- Foundation shift



EARTHQUAKE DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Chimney damage
- Few broken windows
- Cosmetic damage to siding



EARTHQUAKE DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Liquefaction
- foundations sunk
- walls are cracked
- sewer pipe is broken



WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Some shingle damage
- Few broken windows
- Cosmetic damage to siding
- Repairable



WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:

- One (1) wall damaged
- Section of roof missing or damaged
- Repairable



WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Substantial structural damage to walls, roof, etc.
- Repairable



MAJOR DAMAGE UNINHABITABLE

WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Total Loss
- Structure is compromised
- Not repairable



DESTROYED

FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Without basement: less than 12 inches on 1st floor.
- With basement: less than 12 inches.
- No structure damage



FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Without basement: 1-2 feet of water on 1st floor.
- With basement: 1-8 feet



FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Without basement: 2-5 feet of water on 1st floor.
- With basement: over 8 feet
- Collapsed basement wall(s)



FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Over 5 feet of water on 1st floor
- Basement full and over 2 feet of water on 1st floor.



Do's

- Wait for **ACTIVATION** by your **City or County** before you Start any Damage Assessment. Must be under Activation.

(FDNY firefighters self dispatched at shift change and made it very difficult to account for who was working in what area when the towers collapsed)

Do's

- Conduct visual inspection
- Look for waterline or debris lines to determine depth of structure damages
- Focus on degrees of damages and habitability. Do not become preoccupied with property value
- Be sensitive when discussing damages with property owner
- Only report disaster-related damages.

Do's

- Look for the perimeter of the damaged area.
Survey as many streets as possible
Detail addresses
- Optimum grid layout
- NOTE: We observe, we do not FIX

Focus on your own safety first

Next Step.....

Slide 44

g5

some comments on ATC 20?

gwright, 6/18/2012

HERE IS HOW ONE CITY IS PREPARING:

CITY OF EVERETT
BUILDING DEPARTMENT

**UTILITY MAPPING
TOOLS**

**FOR RAPID ASSESSMENTS AND
REPORTS**

MISSION (IBC 101.3)

Safeguard the public health safety and general welfare
through...safety to life and property

from fire and other hazards attributed to the built
environment

and to provide safety to the fire fighters and emergency
responders during emergency operations.

San Francisco 1906 (M 7.8)



San Francisco 1989 (M 7.1)



RESPONSE: Hour 1

- Loss of Communications
 - Phones
 - Internet
 - Equipment and Servers
- Chaos and Confusion
- Emergency Responders Dispatched

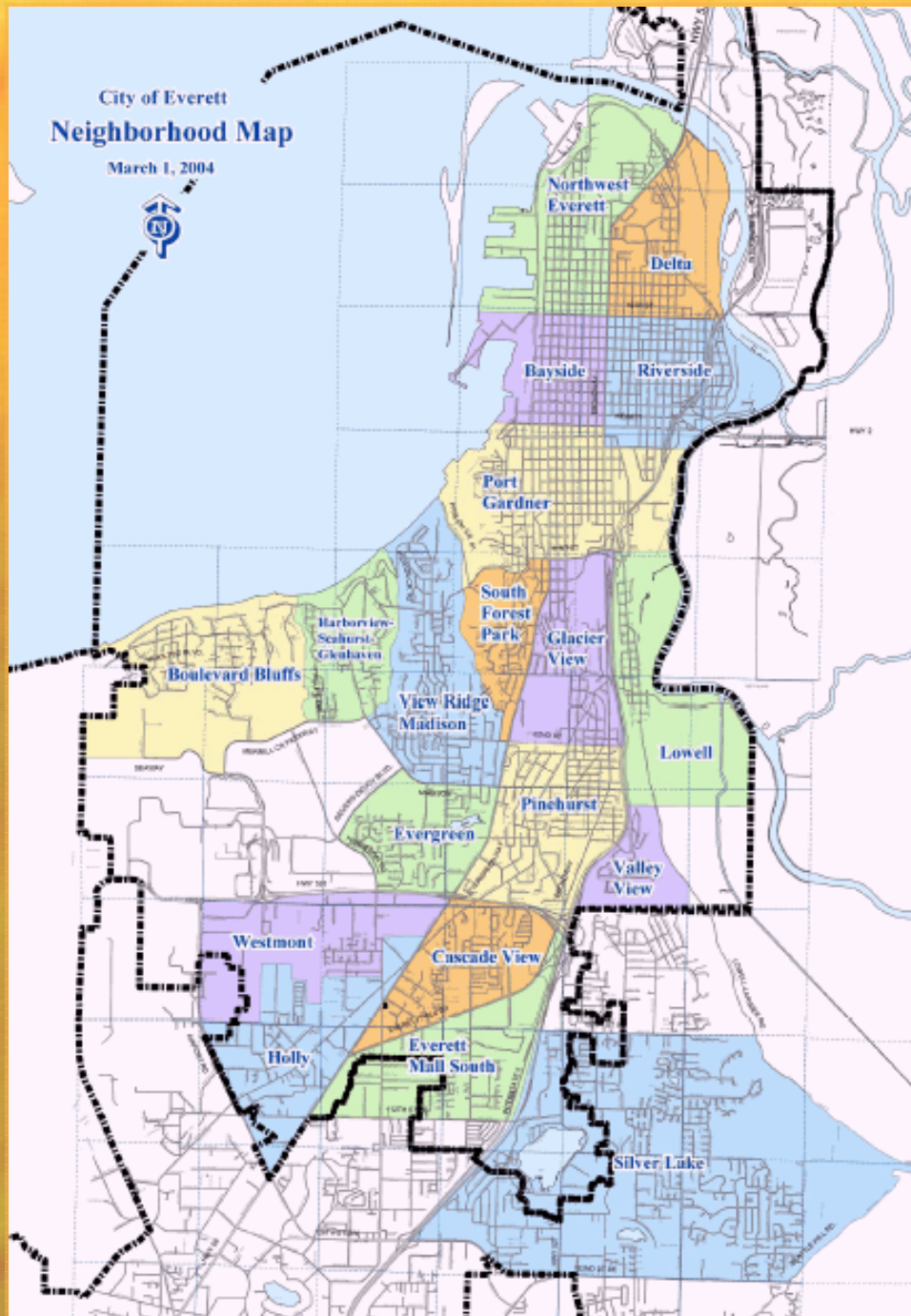
PLANNING: Hour 1

- Create mapping tools that are paper based (and paperless) to support emergency responders, media, public, and rapid assessments:
 - Incident Command Map
 - Atlas of Jurisdiction
 - Incident Map Book
 - Quarter Grid Inspection Maps

How do People See your City?

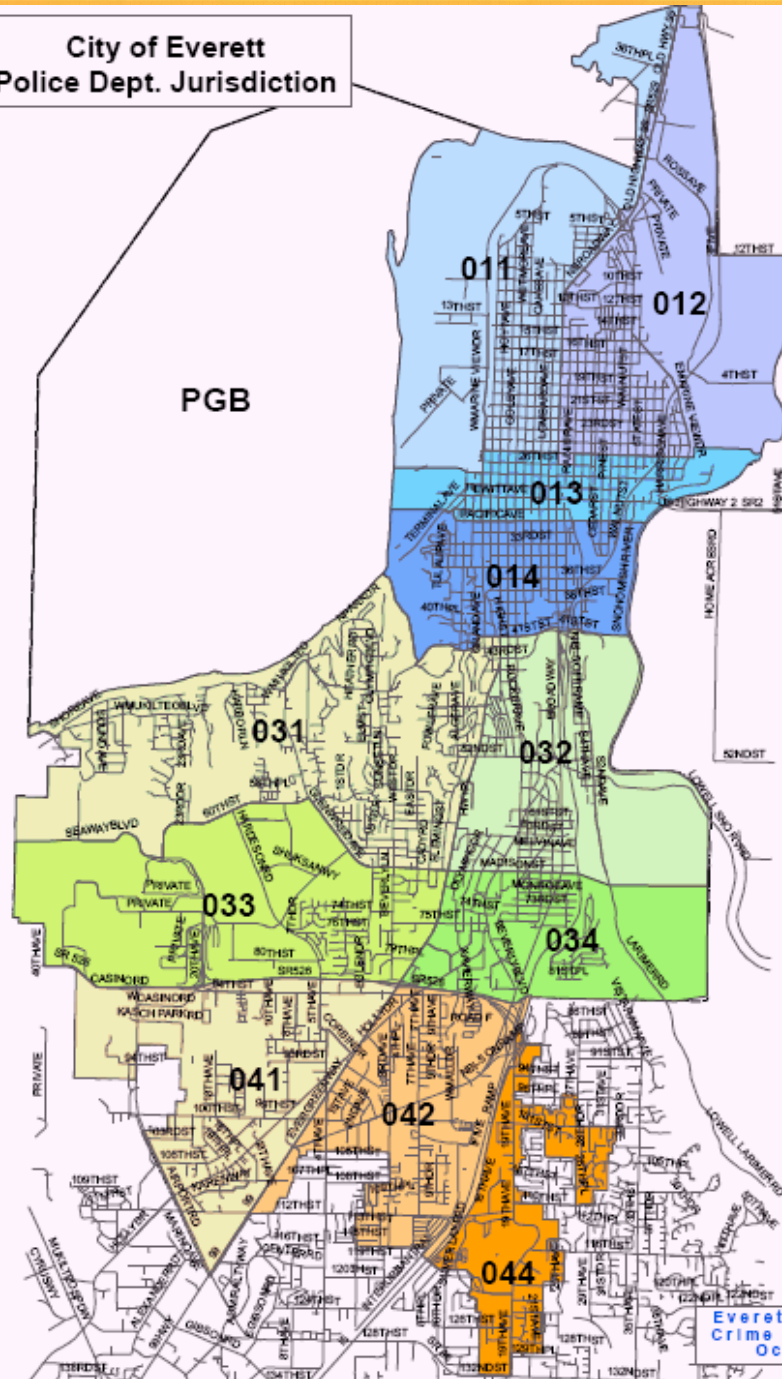
- Citizens
- Media
- Jurisdiction
 - Administration
 - Police
 - Fire
 - Planning
 - Neighborhoods
 - Public Works
 - Building Department
 - Emergency Management

Neighborhood Map



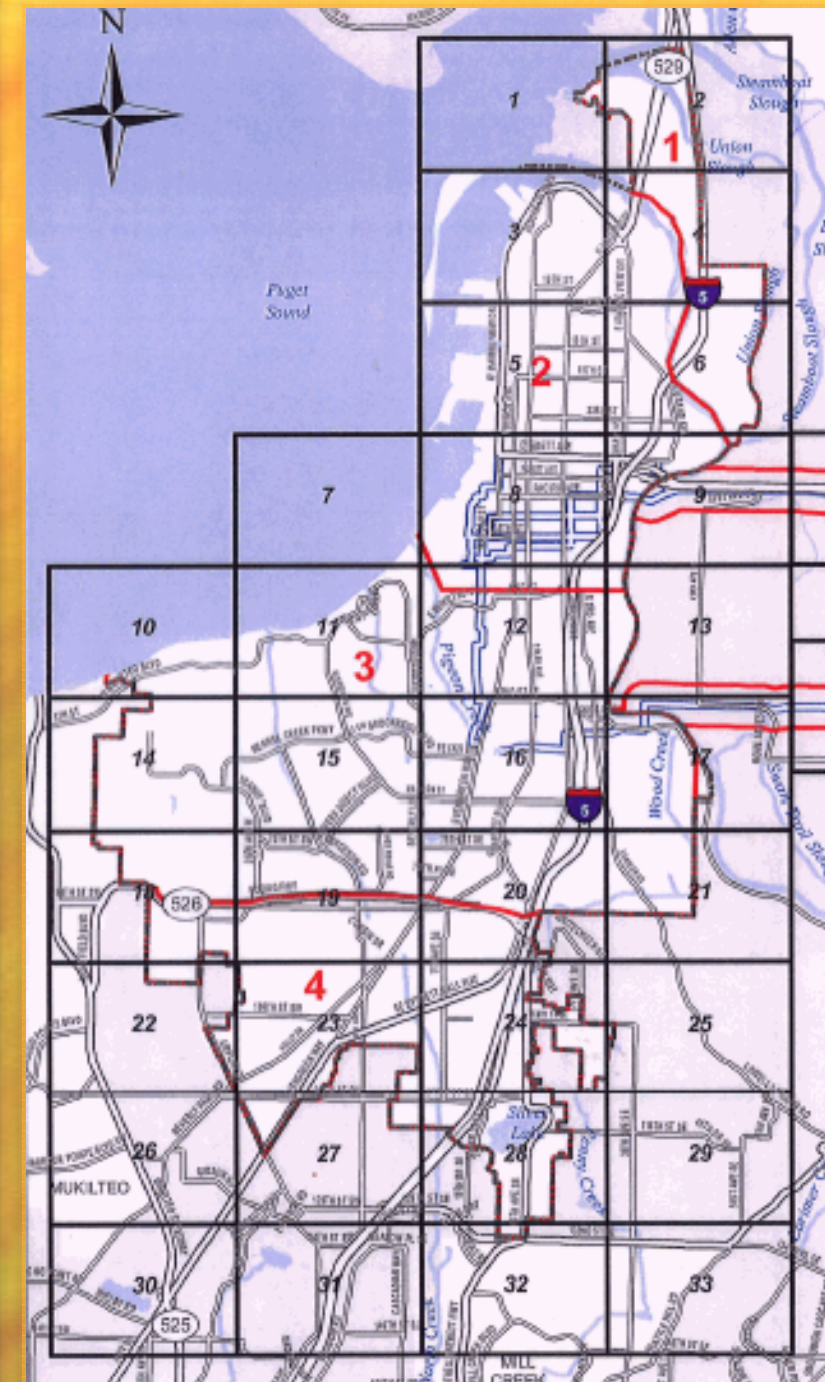


**City of Everett
Police Dept. Jurisdiction**



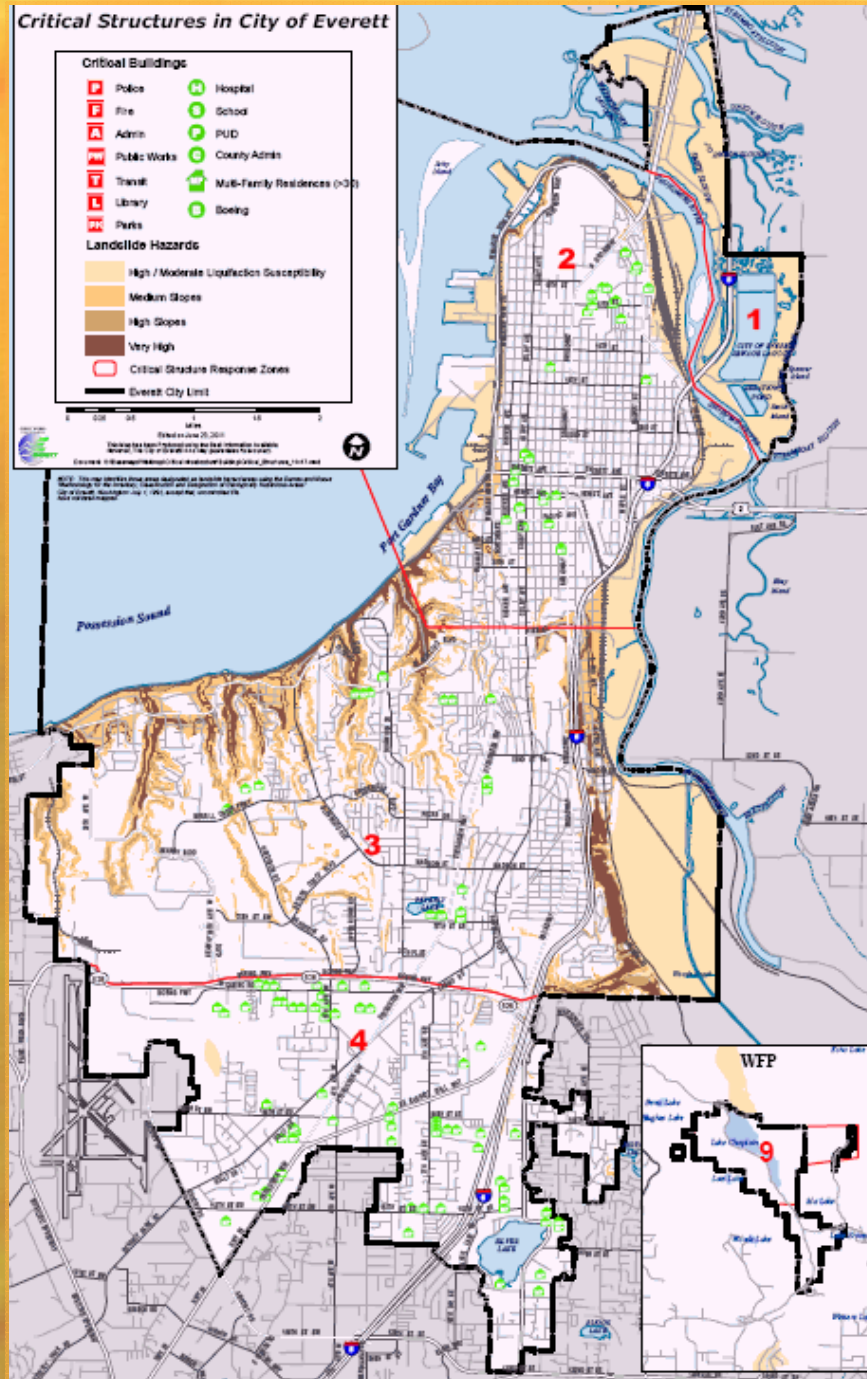
Everett Police Dept.
Crime Analysis Unit
Oct. 8, 2010

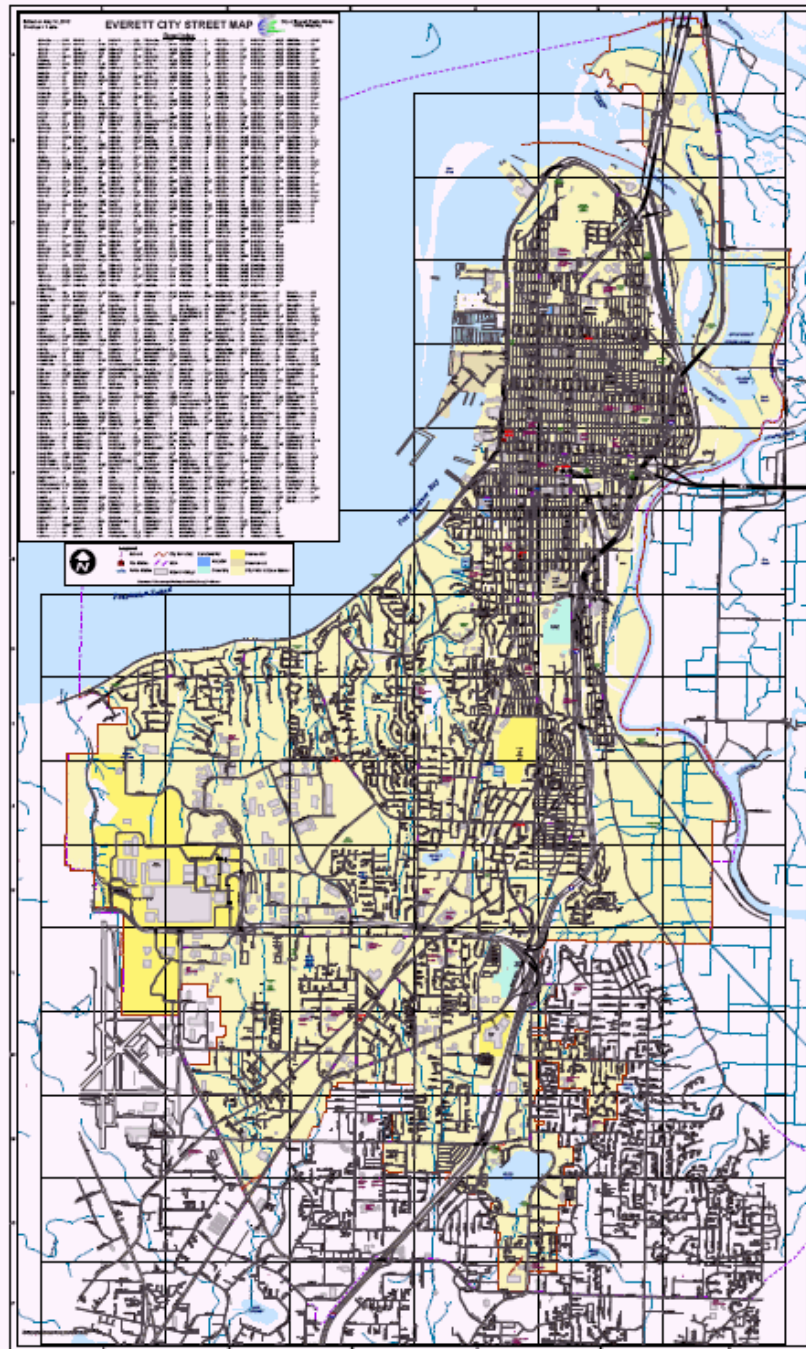
Police Map



Public Works Map

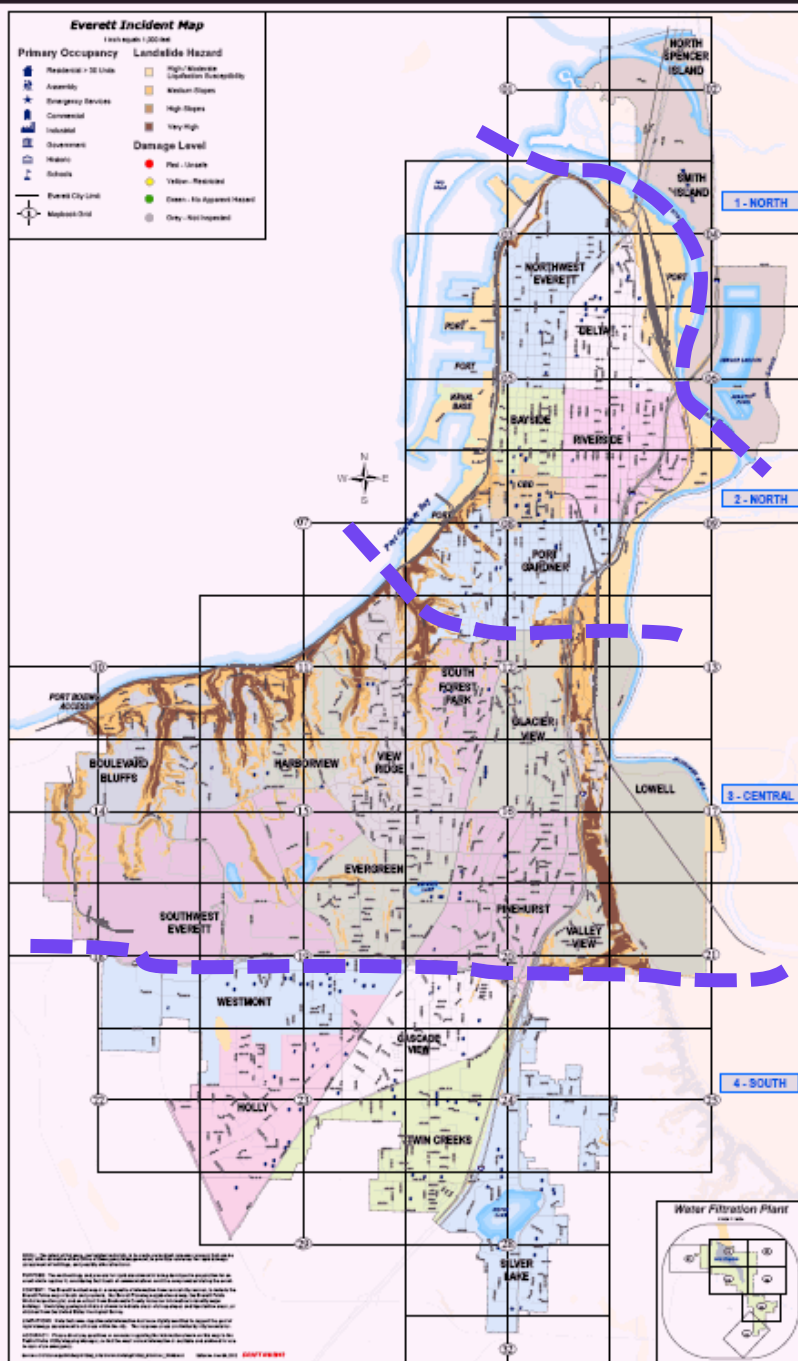
Critical Building Map



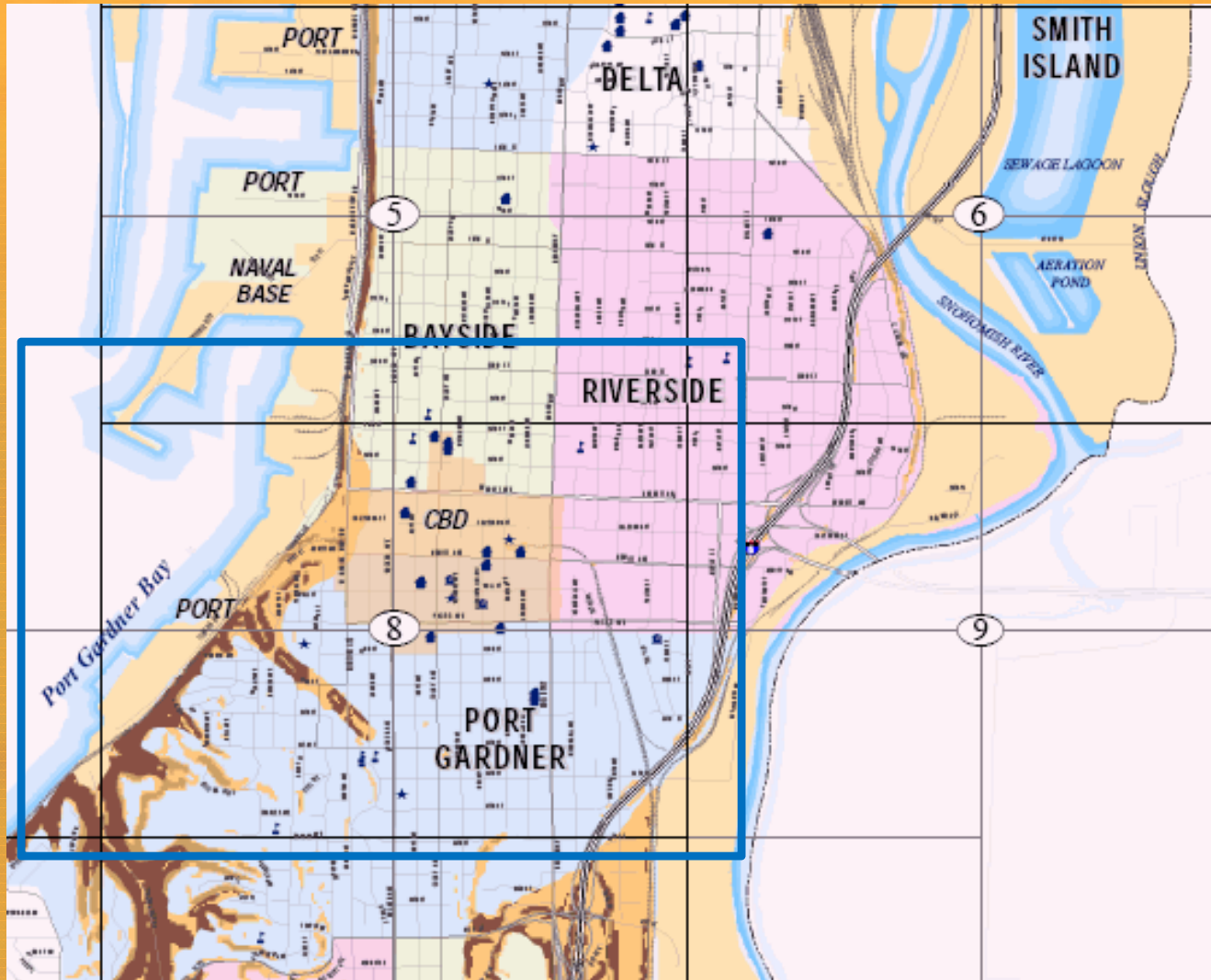


Citizen Map

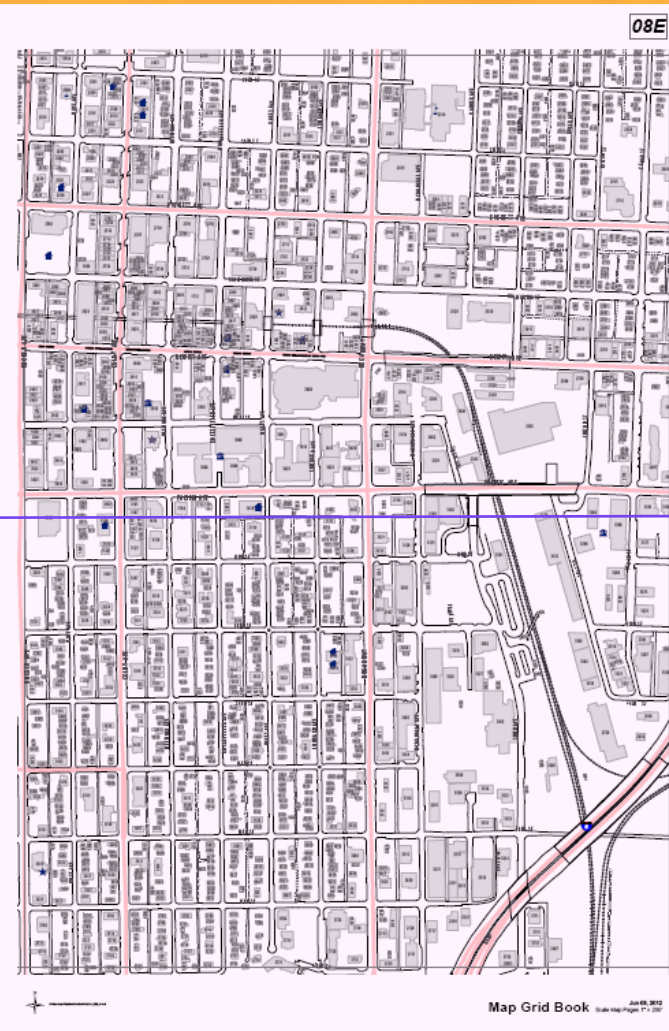
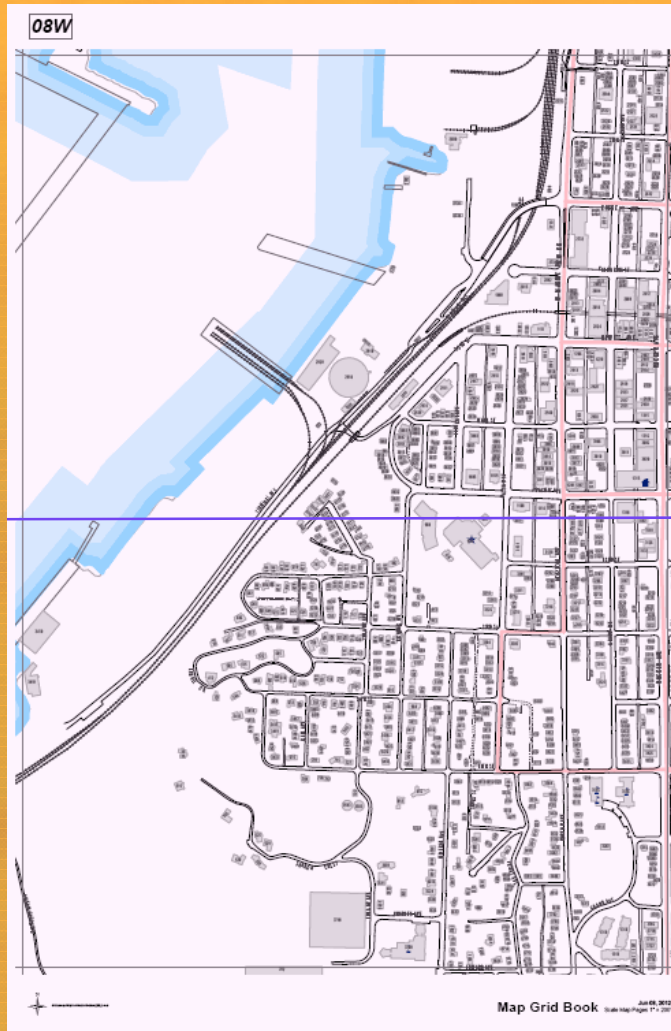
Incident Command Map



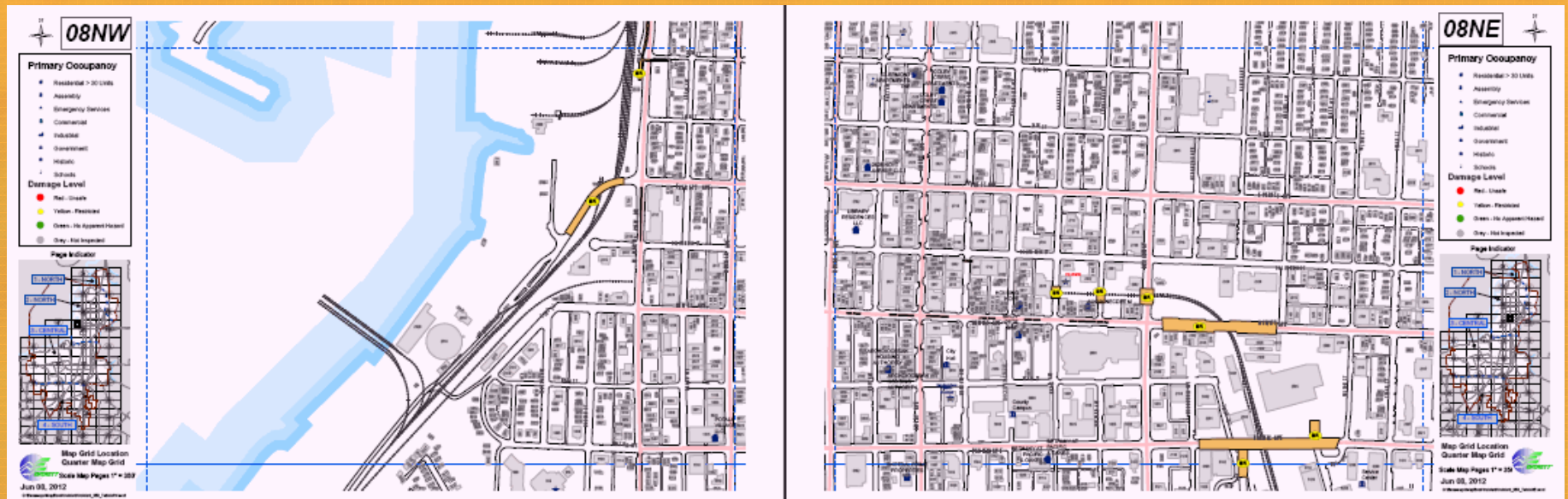
Detail: Incident Command Map



Atlas of Jurisdiction



Incident Quarter Grid Map Book



For smart phone, text, and Internet intake reports

08NE

Primary Occupancy

- Residential > 30 Units
- Assembly
- Emergency Services
- Commercial
- Industrial
- Government
- Historic
- Schools

Damage Level

- Red - Unsafe
- Yellow - Restricted
- Green - No Apparent Hazard
- Grey - Not Inspected

Page Indicator

1 - NORTH
2 - NORTH
3 - CENTRAL
4 - SOUTH

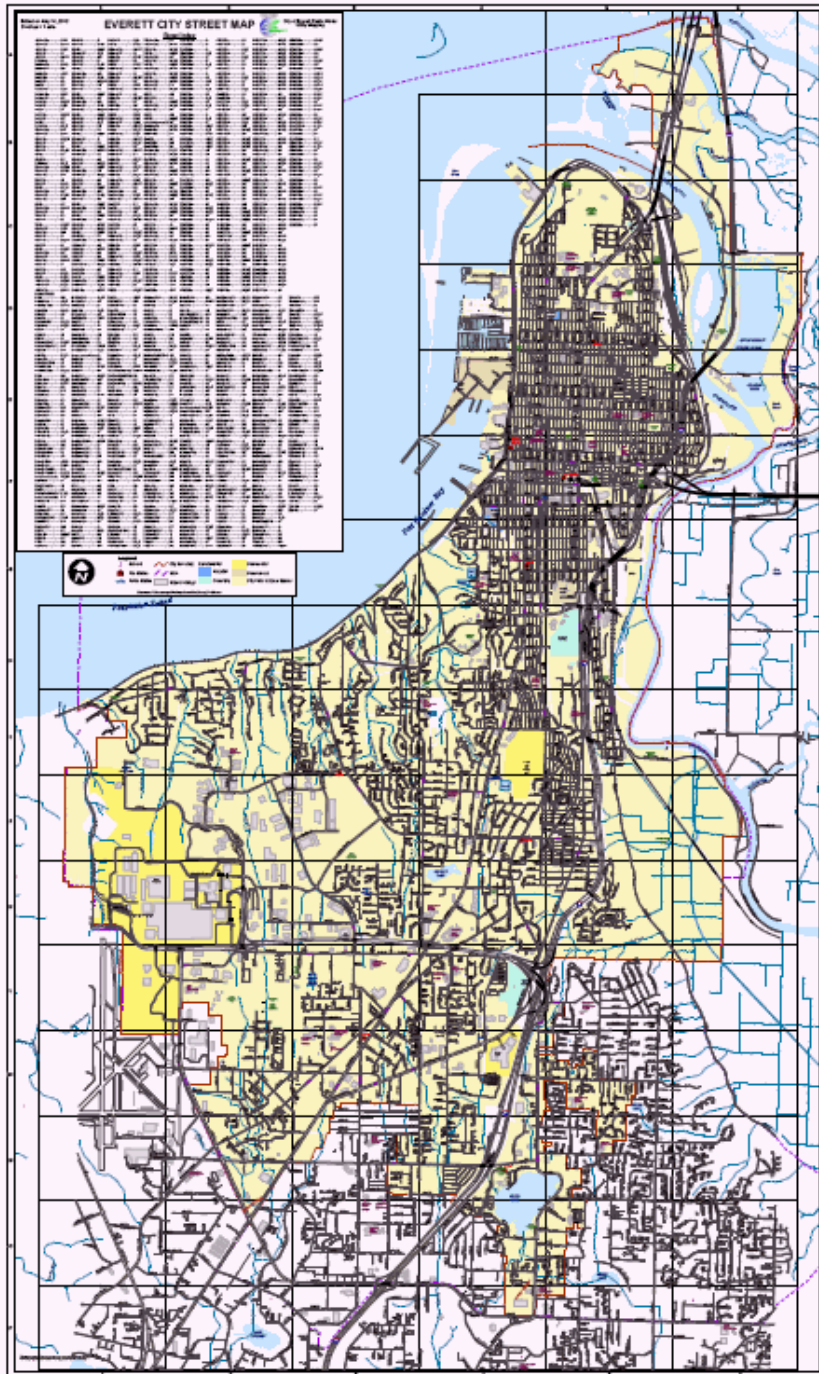
Map Grid Location
Quarter Map Grid

Scale Map Pages 1" = 35'

Jun 08, 2012

© 2012 mapmaker.com


Route Map



REPORTING: Hour 1

- Establish process for reporting tools that are paper based (and paperless) to support emergency responders, media, public, and rapid assessments:
 - Detailed ATC-20 inspections
 - Rapid ATC-20 inspections
 - Mobile Phone/Device Applications

Smart Phones/Tablets




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You are here: Home

Log in

Login Name

Password

 Log in

Welcome to the ROVER Ready Alliance web page.

Over 1500 people have acquired the ROVER software from here or the FEMA warehouse.


Rapid Observation of Vulnerability and Estimation of Risk (ROVER) is fast, free, mobile software for pre- and post-earthquake building safety screening. FEMA developed the software. Cal EMA has adopted it for use in post-earthquake building safety inspection. It implements de facto international standards for treating pre- and post-earthquake risk, using standard terminology and risk-management procedures.

<http://www.atc-rover.org/>

REPORTING: Hour 1

- Other Tools and Resources:
 - Windshield surveys: Police, Fire, Public Works
 - Citizen 911 calls
 - Trained CERT Volunteers

Windshield Surveys

Windshield Survey: Damages from Incident																																			
		Building Description Building Address _____ Building Name/Street Intersection _____ Neighborhood: _____																																	
Overall Damage <i>(excluding contents)</i> <input type="checkbox"/> None/Minor: 0 - 10% Green <input type="checkbox"/> Moderate: 11 -- 60% Yellow <input type="checkbox"/> Severe: 61 -- 100% Red		Specific Building Damage Information <i>(Check the appropriate column)</i> <table border="1"> <thead> <tr> <th></th> <th>None/Minor</th> <th>Moderate</th> <th>Severe</th> </tr> </thead> <tbody> <tr> <td>a. Building collapse</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>b. Off foundation</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>c. Building leaning</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>d. Exits Blocked</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>e. Chimney, parapet, other falling hazard</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>f. Ground movement or cracking</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>g. Other (specify):</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>			None/Minor	Moderate	Severe	a. Building collapse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. Off foundation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. Building leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. Exits Blocked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. Chimney, parapet, other falling hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	f. Ground movement or cracking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	g. Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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g. Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																
Primary exterior building materials: <input type="checkbox"/> Wood <input type="checkbox"/> Brick/Masonry <input type="checkbox"/> Concrete <input type="checkbox"/> Glass <input type="checkbox"/> Metal																																			
Date _____ Time _____ <input type="checkbox"/> AM <input type="checkbox"/> PM		Report Source Name: _____ Affiliation: _____ Phone/e-mail: _____																																	
Photo: <input type="checkbox"/> Yes <input type="checkbox"/> No		Photo Source: _____																																	

Citizen Report

- Modified Mercalli Scale?

- I. Instrumental: detected only by instruments.
- II. Very feeble: noticed only by people at rest.
- III. Slight: felt by people at rest. Like passing of a truck.
- IV. Moderate: generally perceptible by people in motion. Loose objects disturbed.
- V. Rather strong: dishes broken, bells rung, pendulum clocks stopped. People awakened.
- VI. Strong: felt by all, some people frightened. Damage slight, some plaster cracked.
- VII. Very strong: noticed by people in autos. Damage to poor construction. Alarm general.
- VIII. Destructive: chimneys fall, much damage in substantial buildings, heavy furniture overturned.
- IX. Ruinous: great damage to substantial structures. Ground cracked, pipes broken.
- X. Disastrous: many buildings destroyed.
- XI. Very disastrous: few structures left standing.
- XII. Catastrophic: total destruction.

REPORTING: Week 1

- Converting Paper Reports to Digital Displays and Reports:
 - Input Tools
 - Mapping Tools
 - Reporting Tools

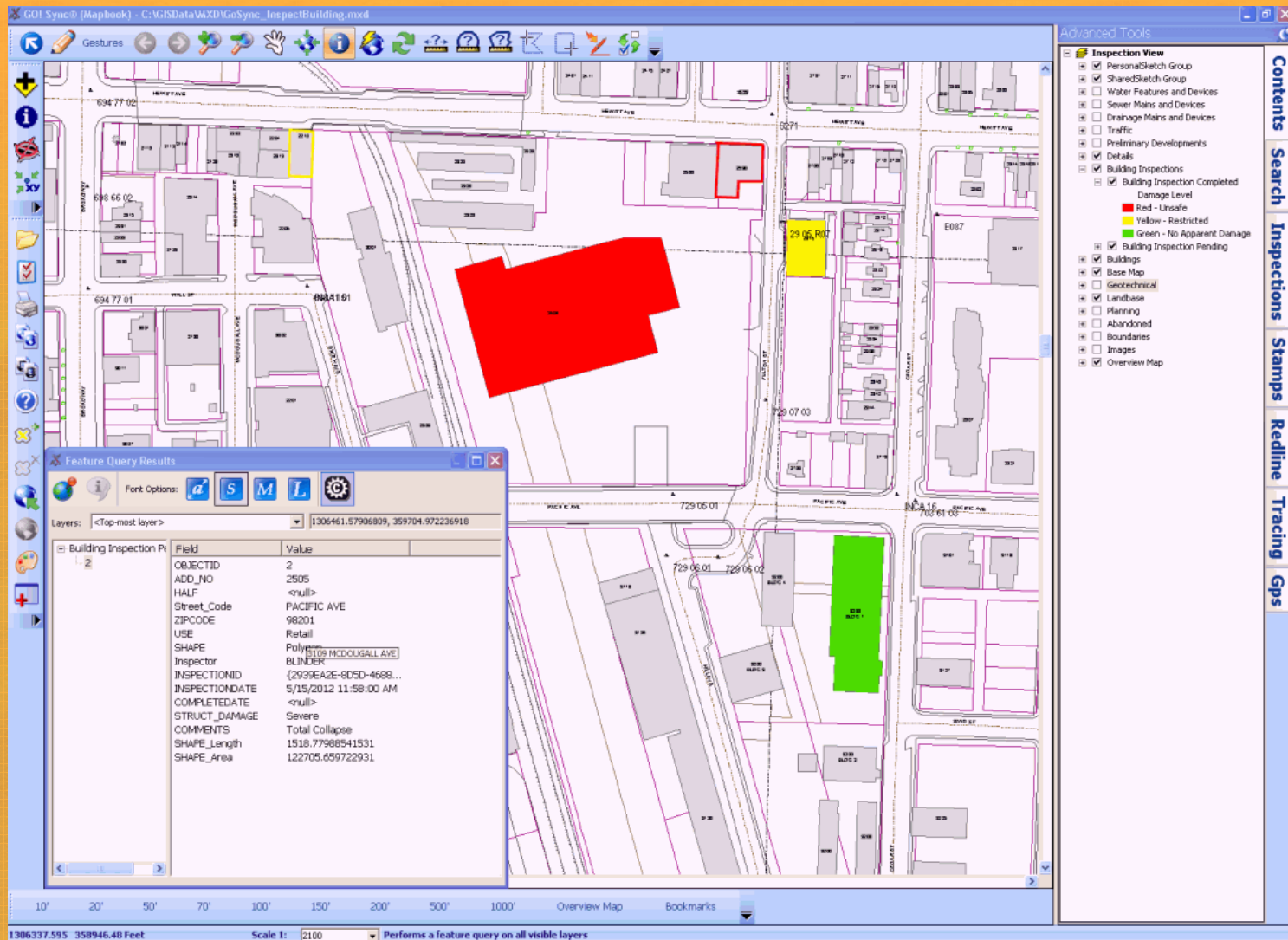
GoSync Inspection Input

The screenshot displays the GoSync software interface, which is used for managing inspection data. The main window shows a map of a detention vault area, with various features labeled such as 'DETENTION / WET POND', 'FOREST CT', and 'DETENTION VAULT'. The map includes property lines, street names, and various inspection points marked with labels like 'CB J9', 'DMH J08', 'DL J34', 'DL J47', 'DL J51', 'DL J52', 'DL J53', 'DL J54', 'DL J55', 'DL J56', 'DL J57', 'DL J58', 'DL J59', 'DL J60', 'DL J61', 'DL J62', 'DL J63', 'DL J64', 'DL J65', 'DL J66', 'DL J67', 'DL J68', 'DL J69', 'DL J70', 'DL J71', 'DL J72', 'DL J73', 'DL J74', 'DL J75', 'DL J76', 'DL J77', 'DL J78', 'DL J79', 'DL J80', 'DL J81', 'DL J82', 'DL J83', 'DL J84', 'DL J85', 'DL J86', 'DL J87', 'DL J88', 'DL J89', 'DL J90', 'DL J91', 'DL J92', 'DL J93', 'DL J94', 'DL J95', 'DL J96', 'DL J97', 'DL J98', 'DL J99', 'DL J100'. The map also shows a scale bar and a north arrow.

On the right side of the interface, there is a table titled 'Detention Vault Inspection' with the following data:

**** INSPECTION DETAILS ****	
Inspector	BLINDER
Inspection Started	03/09/2012 02:56 PM
Date Inspection Complete	
**** GIS INFORMATION ****	
Tumms ID	DDF3694J02
GIS_ID	DDF39
Facility Type	DV
Owner	City Of Everett
Area Designator	Separate Area
NPDES Outfall	MS4 (Stormwater Conveyance)
**** INSPECTION ****	
Structural Damage	
Operational Problem	
Pipe Problem	
Excessive Sediment	
Trash and Debris	
Sediment Depth	
Control Structure Structural Damage	
Control Structure Gate Damage	
Map Change	None
Work Order Number	20110396
**** COMMENTS ****	
Underwater?	
Comments and Inspection Details	

Building Assessment Reporting



Challenges

Mapping updates to departmental GIS systems are not made consistently or concurrently by all impacted departments:

- Building addresses
- New annexes
- Neighborhood names
- Street names
- New and existing bridges

WABO
BUILDING SAFETY EMERGENCY RESPONDER

Type	Duties/Limits	Min. Qualifications ^{a, b, c, d, e, , f}
4	Single family residences and accessory structures	ICS 100 Any ICC certification ATC 20, ATC 45 or Cal EMA First Aid/CPR
3	Wood-framed multi-family and small commercial structures up to 3 stories	ICS 100 Certified Residential Plans Examiner or Certified Residential Building Inspector ATC 20, ATC 45 or Cal EMA First Aid/CPR
2	<u>Non-structural evaluation:</u> All multi-family and commercial structures. <u>Structural evaluation:</u> Multi-family and commercial Structures up to 5 stories.	ICS 100 Certified Building Plans Examiner or Certified Inspector or Certified Building Inspector or Registered Architect ATC 20, ATC 45 or Cal EMA First Aid/CPR
1	<u>Structural evaluation only:</u> Multi-family and commercial structures over 5 stories, and complex structures.	ICS 100 Registered civil or structural engineer ATC 20, ATC 45 or Cal EMA First Aid/CPR