

Windshield Survey Assessment (City ISA) and Drill Prep

October 3, 2024
Jim Oberhofer KN6PE



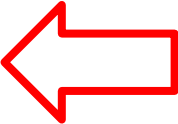
Topics for tonight

1. Earthquake Response Plan
2. Cupertino Department of Public Works
3. Looking for problems
4. Drill introduction – what's the plan?
 - Our 19 October scenario
 - Process
 - Message Passing



Earthquake Response Plan

When an earthquake occurs, what's our plan?

1. Take care of yourself, family, surroundings
2. Determine your Mike-Mike report
3. Check into the CARES net, pass your Mike-Mike results, available?
4. Windshield Survey Area (WSA) assessment 
5. Infrastructure Safety Assessment
6. Field deployment – C469, ARKs, Fire Stations, Community access points...



Where are we going with this?

Cupertino DPW, Service Center

- The Service Center is staffed by about 70 employees (2020).

Streets Division

- 142 Center Lane Miles of Streets
- 9645 Traffic Related Signs
- 2200 Storm Drain Inlets
- 3200 Streetlights
- 480 Park/Parking Lot Lights
- Sidewalks, Curbs & Gutters

Grounds Division

- 19 Parks and Open Space Areas
- 9 Cupertino Union School District Athletic Fields for Youth Sports Programs
- Maintain all playgrounds in accordance with California Playground Safety Requirements
- Waterfowl Management
- Provide Support to Park and Community Services Programs

Trees and Right of Way Division

- Maintain 22117 Tree Assets
- 53.5 Acres of medians and ROW areas
- Coordinates with Streets Maintenance division on root inspections of effected trees
- Community outreach
- Tree planting events
- Median renovations

Facilities and Fleet Division

- 45 Buildings, 205,000 sq. ft.
- 102 vehicles, 600 pieces of equipment
- Blackberry Farm pool
- Civic Center fountains
- Small tenant improvement projects
- Fleet – maintenance operations, and Recreation and Community Services
- Facilities – Civic Center, Recreation & Community Services, and corporation yard.



The situation

Cupertino DPW, Service Center

- The Service Center is staffed by about 70 employees (2020).
- Staff commute times (good traffic days)
 - 10-15 minutes for 26% of the close-in staff
 - ~20 minutes for 18%, and
 - ~30 minutes for 56%.
- *The best time for an earthquake* would be during the normal Service Center day shift when staffing is at its fullest.
- For an *earthquake* after hours and weekends (~75% of the week-hours), Service Center employees will make every effort to report to work to help with its response.
- Given that 74% of the staff resides at least 20 minutes away on a good traffic day, it is possible that Service Center resources will not be immediately available.



Windshield Survey Area Assessment

Definition

1. Perform right after an earthquake.
2. Report on the state of city-managed roads used by Public Safety (SO, Fire, EMS) and Cupertino Public Works.
(Road conditions permitting, confirm all 142 miles of City Streets)
3. Report on assets of interest (and obvious problems), such as;
 - City facilities
 - Other public-congregating spaces
4. Report problems to the EOC and Public Works to jumpstart the city's response activities.



What we will be doing

This is...

1. A drive-by windshield survey
 - looking for obvious problems
 - not getting out of the car to walk the area
2. Attempt a full roads assessment (time and traffic conditions permitting)
3. A cursory facility assessment (still standing? Anything out of the ordinary?)
4. We report what we see.

This is not...

1. A detailed inspection of bridges, roads, buildings
 - We are not trained for it



The city's immediate interest

Access

- ...to and from Fire Stations (SCCFD #71, #72, #77, SJC #15)
- ...to and from Hospitals (Kaiser on Homestead)
- ...on all major roads throughout the City
- ...on all I-280 and Rt 85 overpasses
- ...on all residential streets

Facilities

- city facilities
- public-occupying spaces (schools, etc.)



Access – What could go wrong?

Things that will cause access problems...

1. Utility pole/Street light/tree problems
2. Road problems
3. Bridge problems

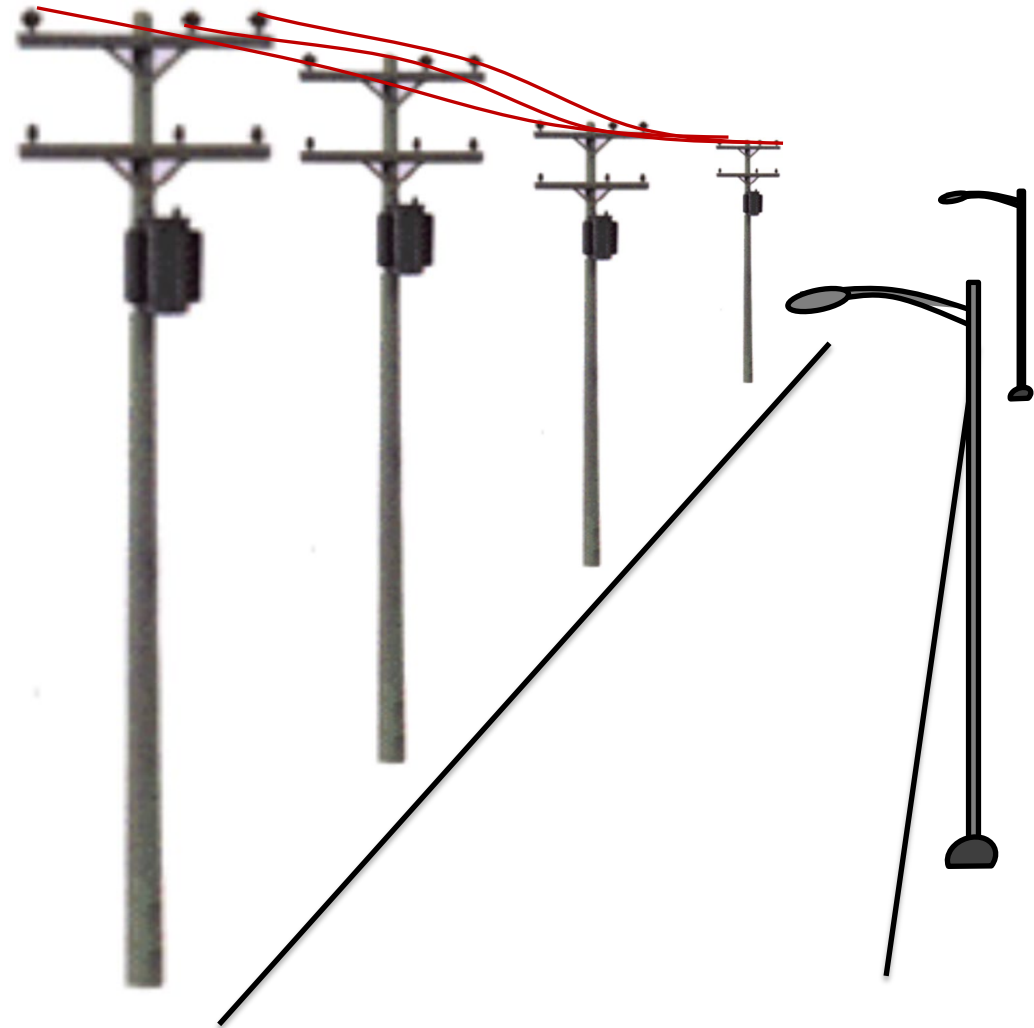


Utility Poles

Things to look for

Life is good!

- All power poles are upright.
- No wires on the ground.

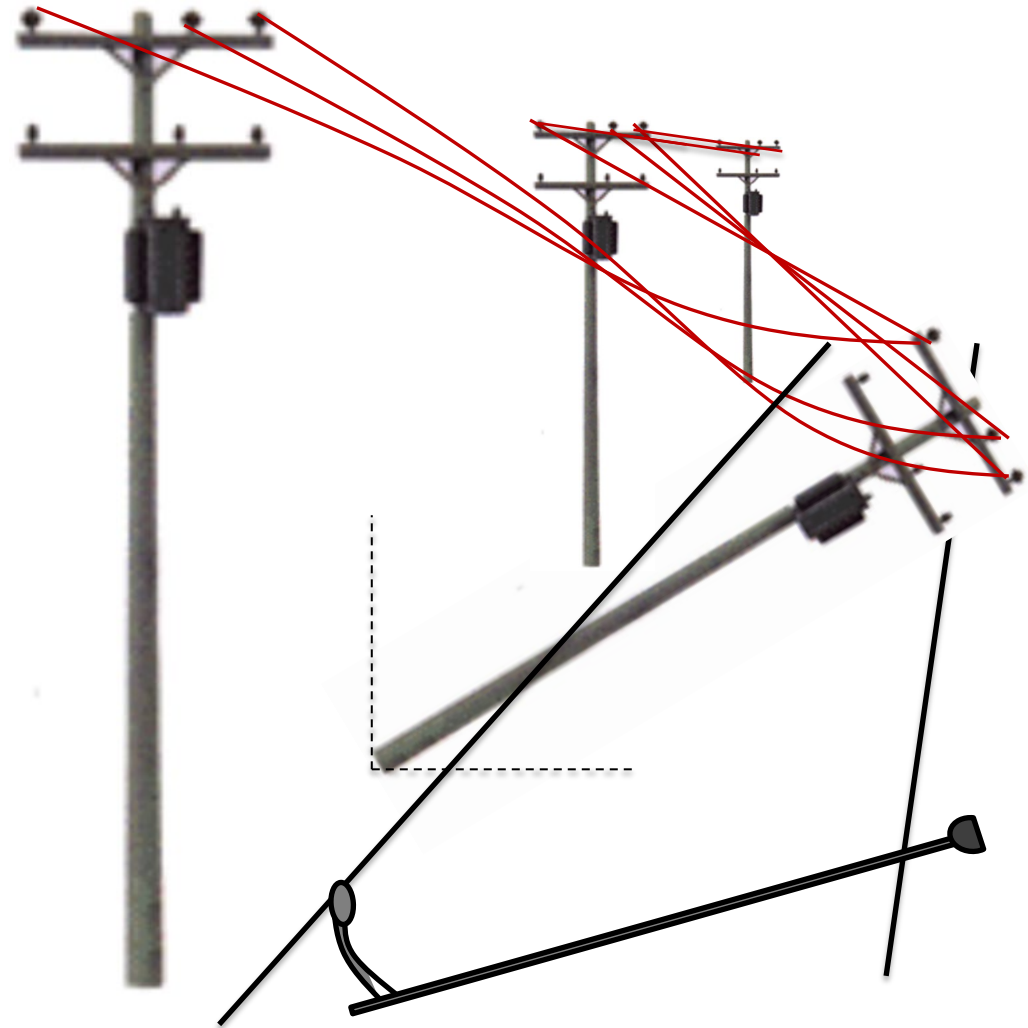


Utility Poles

Things to look for

Problems

- Utility poles are...
 - On the ground, or
 - at an angle off the normal vertical alignment.
- Wires holding the pole from falling
- Wires in the streets
- Street lighting poles bent or on the ground



Anticipated local road damage

1. Extreme road deformation of pavement
2. Road breaks from underground utility damage
3. Damaged transitions at bridge abutments



Road deformations

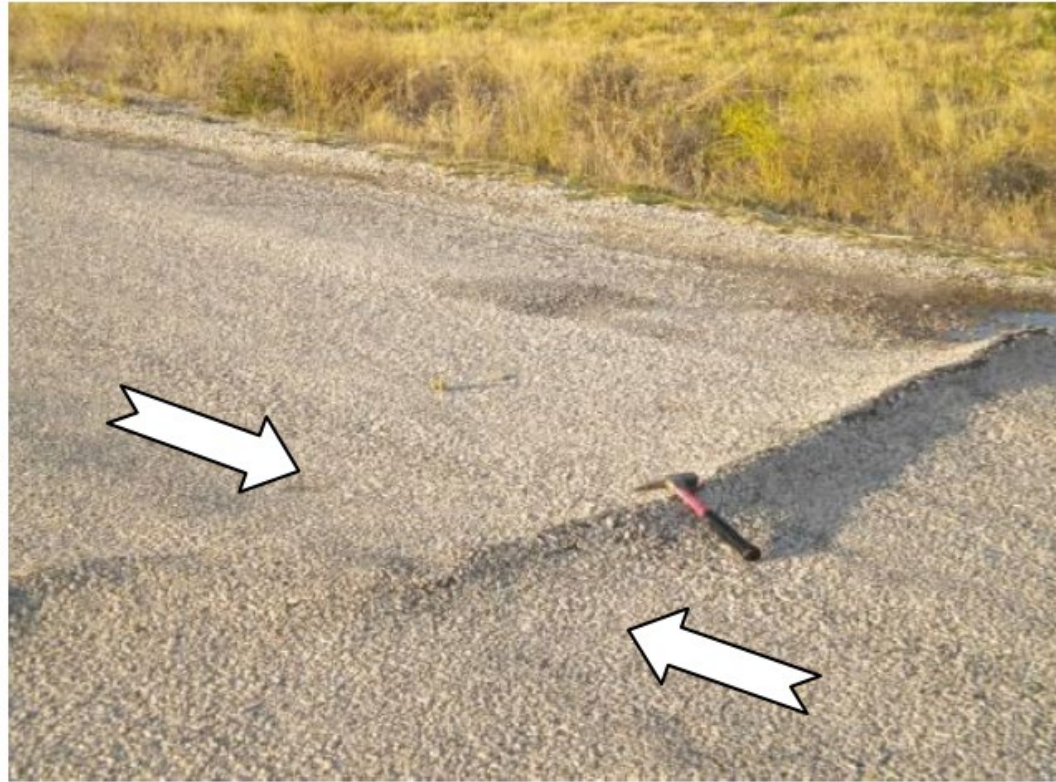
Three kinds of stress to roads

- **Tensional stress**... stretches rock
- **Compressional stress**... squeezes rock
- **Shear stress**... slippage and translation



Road deformations

Compressional stress; squeezes rock and roads



Road deformations

6.0 West Napa Earthquake, August 24, 2014

Shear stress; causes slippage.

“After slip” is “creeping” that takes place along a fault after an earthquake.



Road deformations

7.1 Ridgecrest Earthquake, July 5, 2019



Google earth

Image © 2019 DigitalGlobe

Cupertino ARES/RACES

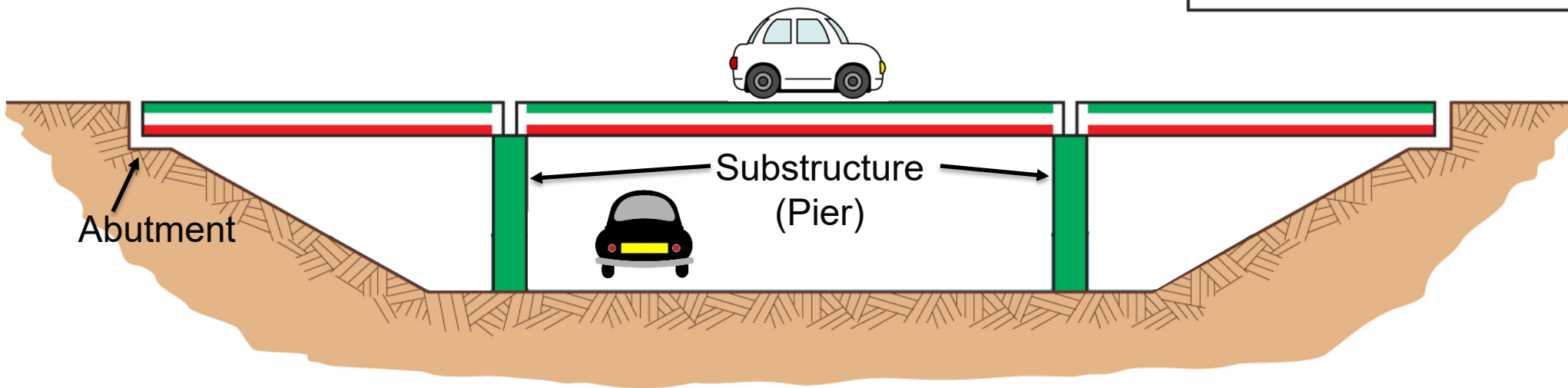


Beam Bridges

Tension and Compression

All I-280 and Rt 85 overpasses are beam bridges.

- A beam carries vertical loads by bending.
- As the beam bridge bends, it undergoes horizontal compression on the top.
- At the same time, the bottom of the beam is subjected to horizontal tension.
- The supports carry the loads from the beam by compression vertically to the foundations.

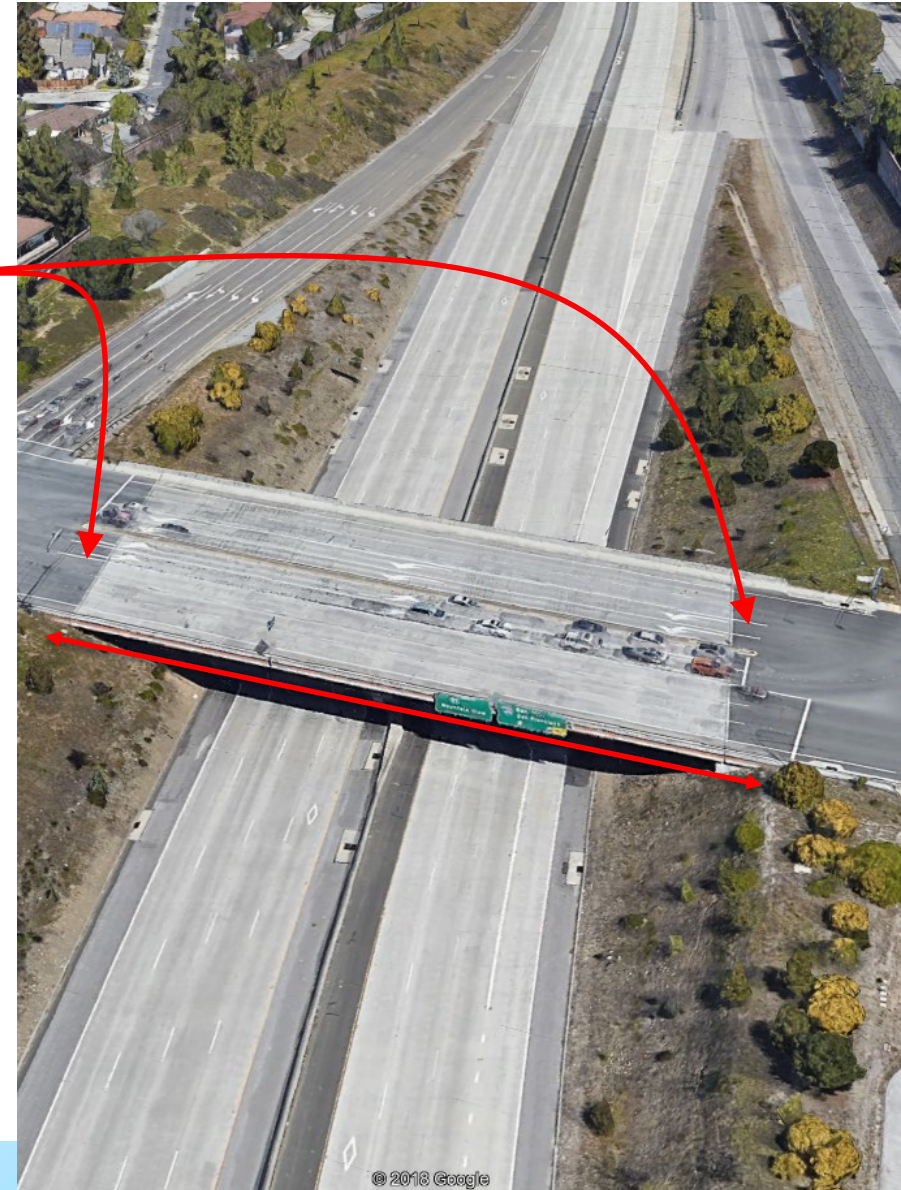


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Bridge Damage

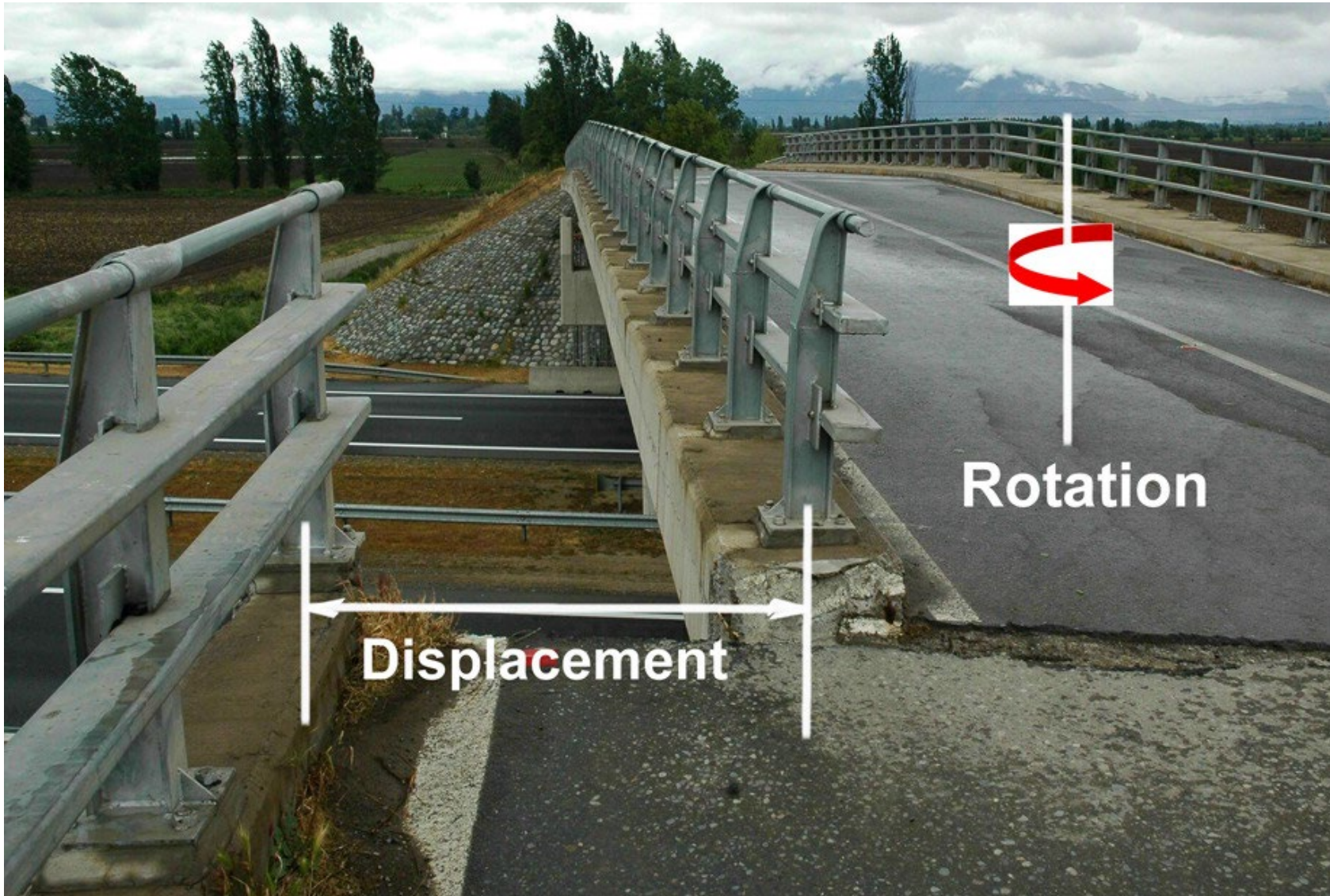
What to look for

1. Bridge is still standing
2. Subsidence where the road meets the bridge deck (abutment)
3. Road / bridge deck misalignment
4. Obvious cracks on the bridge deck



Bridge Damage - Road / bridge deck misalignment

Chilean 2010 earthquake



Structure Damage

Light Damage

- Superficial Damage
- Broken Windows
- Cracked or fallen plaster
- Main damage is to contents



Moderate Damage

- Large amount of cracking on exterior
- Small cracks around doors and foundations
- No outward sign of structural damage



Heavy Damage

- Partial or full collapse
- Building is off the foundation
- Structural damage to the building
- Look at the horizontal and vertical lines



Cupertino ARES/RACES

Drill Prep

1. What's the plan?
2. Our 19 October scenario
3. Drill Objectives
4. Message Passing



2024 CCC Earthquake Exercise

***** THIS IS DRILL TRAFFIC *****

Saturday, 0700. 7.2 earthquake on the Hayward Fault shakes the Bay Area. This is considerable and from individual observations, there has been mostly moderate and some heavy damage. Fortunately, the timing of this resulted in almost no traffic on city streets.

0730, City Manager issues a proclamation of an emergency.



How do we do this?

How likely is this this kind of scenario?

- See the [2024 Earthquake Risks](#), May 2024 CARES Training

Our marching orders:

- Provide a view on the state of the city by:
 - ✓ Mike-Mike Reports
 - ✓ City infrastructure (streets & facilities) assessment
 - Infrastructure Safety Assessment

Understanding the mix of things we need to do:

- Field deployment
- Message passing
- Stay safe and healthy



2024 CCC Earthquake Exercise

19 October 2024

Objectives

1. Perform the Windshield Survey Area (WSA) Assessment
2. Focus on access and critical city facilities
3. Report WSA findings to the DOC and DPW



2024 CCC Earthquake Exercise

19 October 2024

Concept – CARES

This will be a communications Operational Exercise based on a scenario involving an earthquake during a pandemic.

1. This drill is part of a larger CCC Exercise to be run out of Creekside ARK.
2. The drill will occur over a 3-hour period on Saturday 19 October 2024.
3. CARES communications will be coordinated on our standard nets.
4. WSA maps are updated with city facilities, schools, and places.
5. CARES responders check into the Emergency Net, receive WSA assignments, and deploy from their homes.
6. CARES Responders will deploy with either a with home buddies or to a location to meet up with a buddy.
7. Voice message traffic will be informal and include task completion or problem reports
8. QuickCapture reports will be passed for all simulated problem reports.



Have a home buddy?

... recruit other household members as your Buddy

What are your options?

1. Get them sworn in as a Cupertino DSW.
 - Coverage is good for 5 years.
 - Do it now before we need it! Contact Ken for sign-up details.
2. For driving assignments, do nothing.
 - They ride with you and are covered under your automobile insurance policy



Perform the WSA assessment

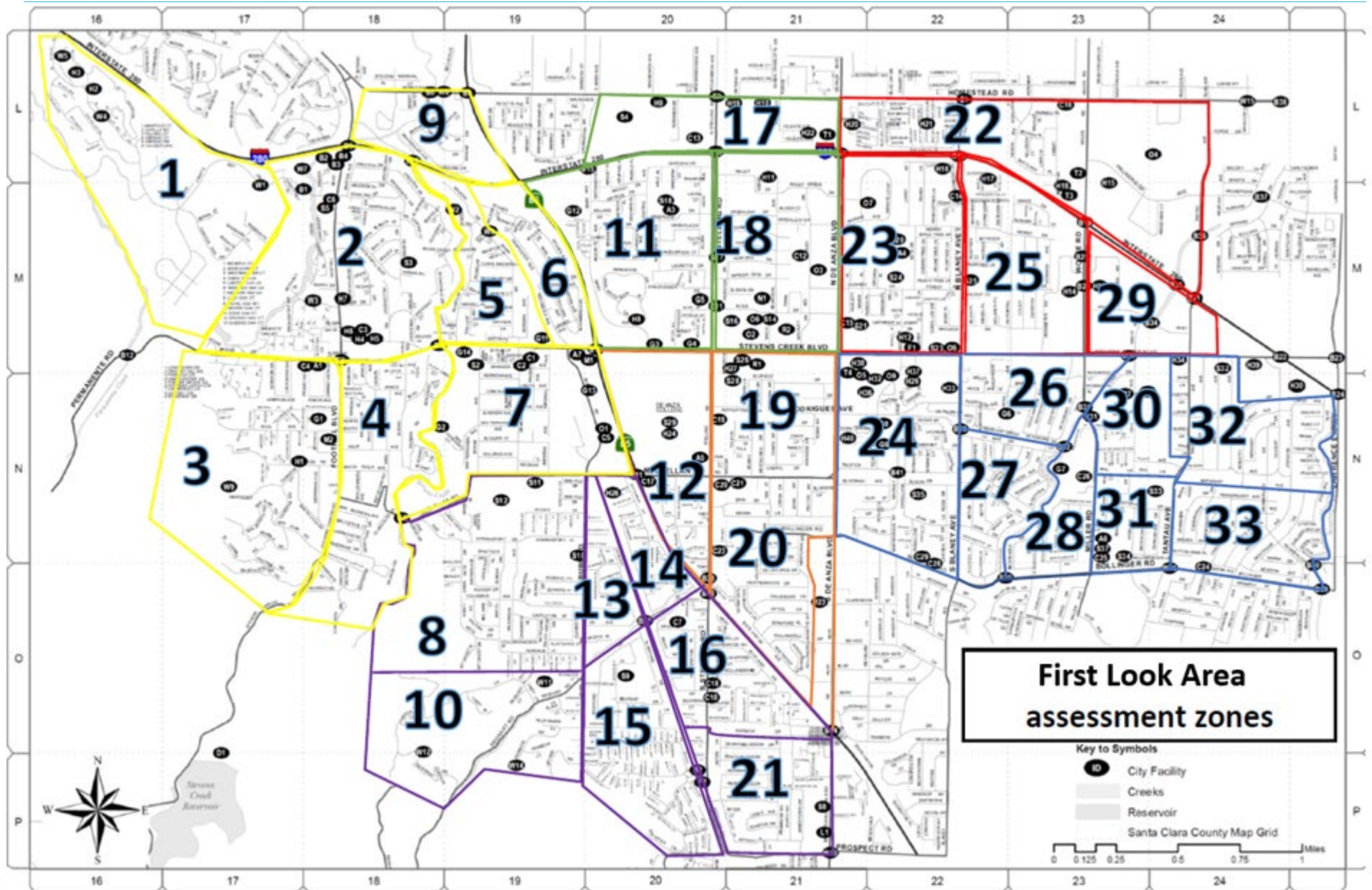
Process

In general,

1. The Windshield Survey Assessment is a process where Citizen Corps will look at all 142 miles of Cupertino streets and critical city facilities.
2. CCC divides the city into 6 ARK zones. The WSA Assessment process further divides the city into 33 *Areas* (different from the ARK door-to-door 88 canvas areas).
3. The **WSA Map Book** contains 33 area maps and is available to all CCC members.
4. When assigned an Area, the field responder pulls that map page.
5. Follow all standard message passing procedures.
6. The field responder reports to Net Control when they start an Area, with Odometer.
7. When done; report percent covered and Odometer. State if your Area streets are all clear or there are access problems (trees down, landslides, roads blocked, damaged)
8. **Report immediately** any discovered life-threatening issues (down power wires, smoke, fires, gas leaks, etc.).
9. Create and send a QuickCapture report as part of the problem reporting.



WSA Map Book

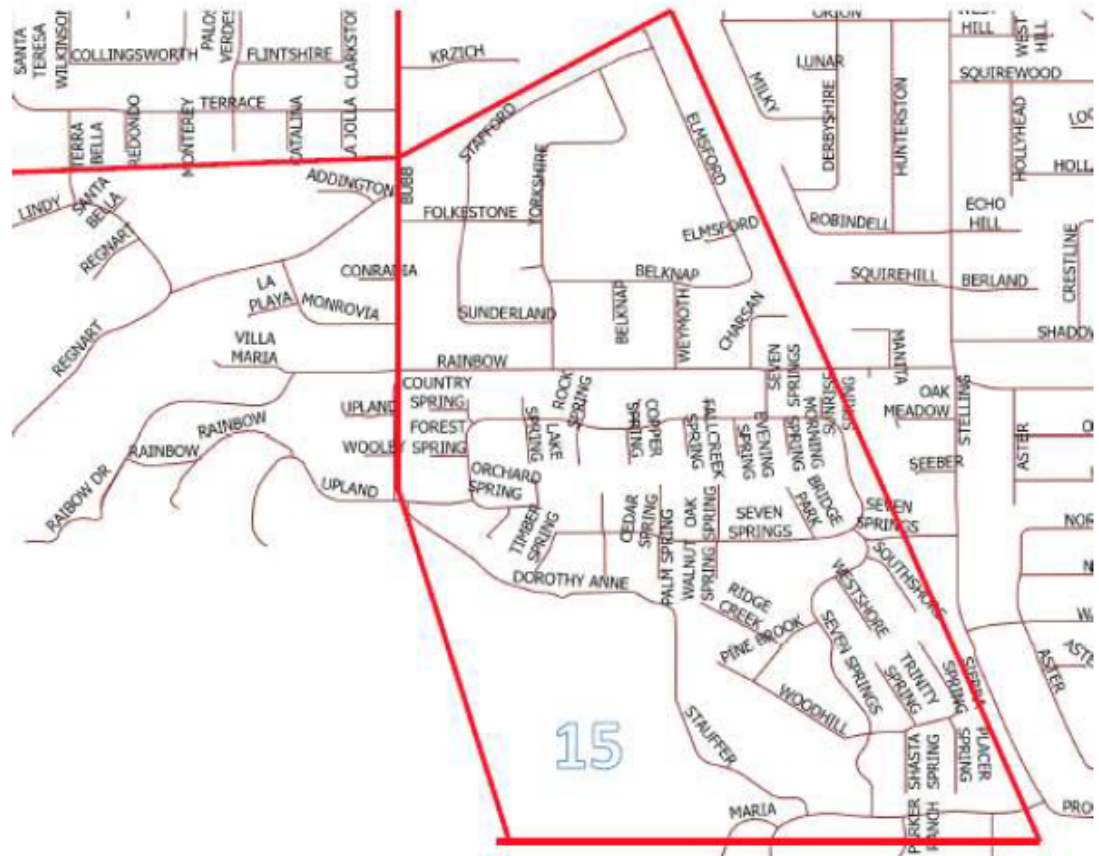


WSA Map Book

- **Front page:** Map of the target Area. Includes an area for recording problems or observations to be passed in.

2.10 Zone 2 / Area 15

Name:		Activation #:		Date:	
Area: 15	Time/Start:	Stop:	Odometer/Start: (last 3 digits)	Stop:	



- **Back page:** city's items of interest in this Area that you should see in your area.

Detailed Areas of Interest

Zone 2 / Area 15, continued

Idx	ARK Zone	WSA	ID	Type	Description	Address
26	Z2	A15	A2	ARK	Regnart ARK	
30	Z2	A15	F2	FireStation	Seven Springs Fire Station #2	21000 Seven Springs Pkwy
35	Z2	A15	S9	School	Regnart Elementary	1170 Yorkshire Dr



Perform the WSA assessment

Process

Specifically...

1. Check into the Resource Net.
 - Give your Mike-Mike report.
 - State your availability for a field assignment.
2. Shift supervisor will make WSA assignments to:
 - Make suggestions on which Areas are close to you.
 - Members with built-in buddies
 - Two individuals willing to meet up
3. On receiving a WSA assignment, pull the **WSA Map Book** page for your assignment.
 - Your Tactical Call will be “Area ##”
 - Develop a rough plan to drive the area streets
 - Set up your mag mount or other external antenna on your vehicle
 - With your buddy, decide who drives and who navigates
4. We will operate on one net.



Perform the WSA assessment

Process

Specifically...

5. Tell Net Control when you start the assessment.
6. Inspect all streets within your assigned area. For side streets/dead ends, if you can see all the way down the street to confirm it is drivable, then no need to drive it.
7. Drive each street and look for access problems:
 - Utility pole, Street lights, trees down
 - Road problems
 - Bridge problems
 - Major structure problems
8. **Report immediately** any life-threatening or dangerous situations: power lines down, fires, smell of gas, etc.
9. **Report when completed** the assigned area
 - The WSA Area just surveyed, odometer, then either...
 - all roads are passable, or
 - One or more roads are not passable: poles or trees down, landslide, etc.
 - If you have time, then let NCO know you are willing to take another assignment.



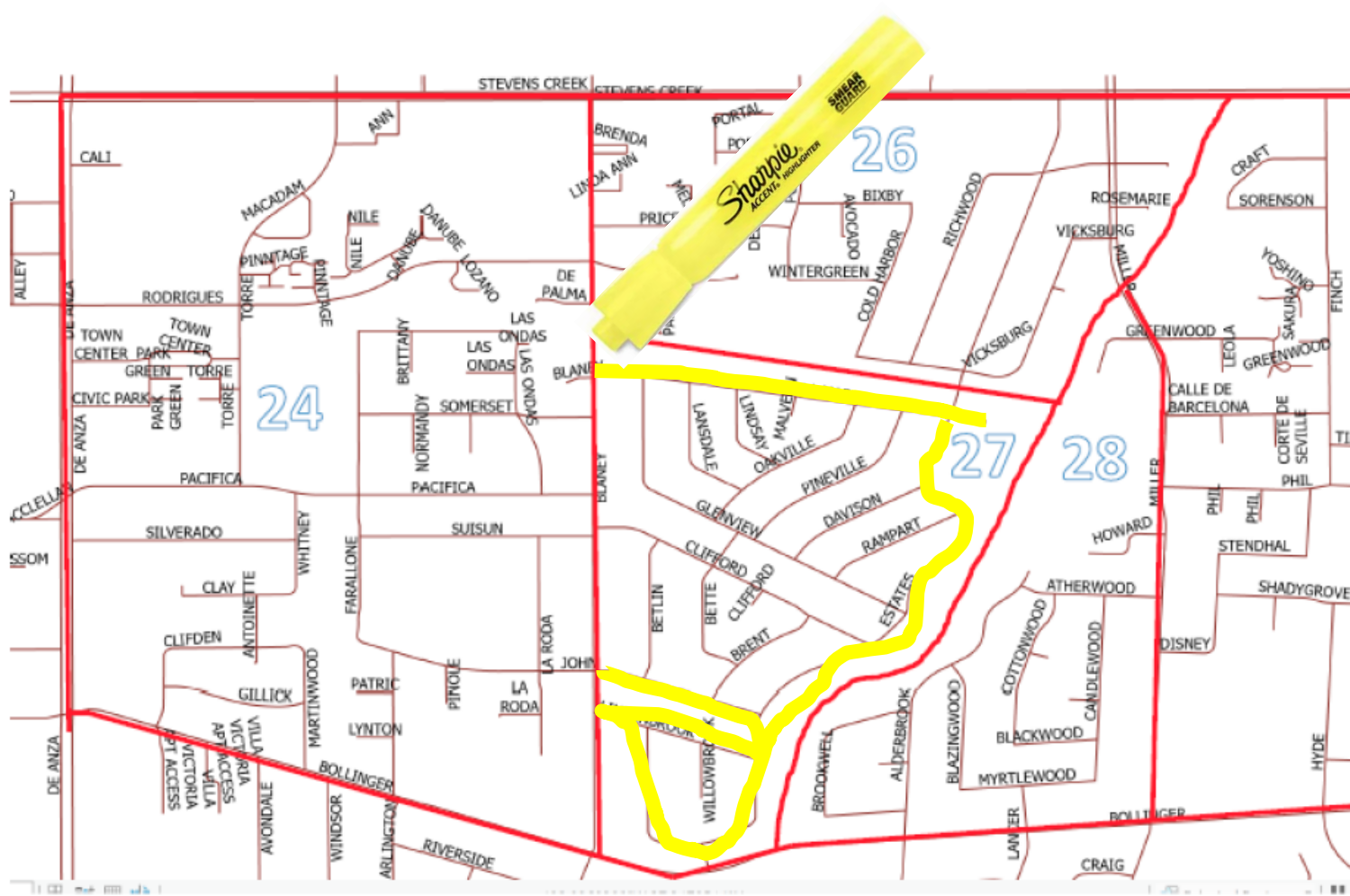
Perform the WSA assessment Process

Marking the map

10. You were assigned Area 27
11. Your tactical call is *AREA 27*
12. Fill in the header
13. Mark the roads checked, such as with a yellow highlighter
14. When done, write down the stop time and ending odometer

2.20 Zone 6 / Areas 24, 26, 27, 28

Name: <i>Jim Oberhofer, KN6PE</i>	Activation #: <i>CUP-24-18T</i>	Date: <i>10/19/2024</i>
Assigned Area: <i>27</i>		
Time/Start: <i>0916</i>	Stop:	Milage/Start: <i>312</i>
		Stop:



Notes, Problems

Report your findings to the EOC

Making Reports

Starting an WSA Assessment

You: Net Control, KN6PE. Starting Area 15, Odometer 3 1 2. KN6PE

- or -

You: Net Control, KN6PE. Starting Area 15, by bicycle. KN6PE

NCS: KN6PE, Copy. Your tactical call is "AREA 15"

Completed an WSA Assessment

Net Control, AREA 15. Completed Area 15, Odometer 3 1 7. All roads passable. KN6PE

Completed an WSA Assessment, with problems

Net Control, AREA 15. Completed Area 15, Odometer 3 1 7. Problem #1: Tree blocking road at 1234 Rainbow Avenue. KN6PE

Not completed, discovered a life-threatening problem (*what is it, location?*)

You: Net Control, AREA 15, with EMERGENCY Traffic.

-- See the Handbook, Informational Messages!



Areas of Interest

Summary

1. Traffic control: lights flashing or totally out
2. Streets blocked or obstructed by fallen utility poles, streetlights, trees
3. Utility poles leaning off vertical (risk of falling)
4. Road deformations – bulges, cracks, sink holes
5. Bridges – visible damage
6. Unusual potholes
7. Vertical or Horizontal land displacements
8. City buildings with obvious structural problems
9. Water main, sewage main, storm drain breaks
10. Observed smoke, fires
11. Observed strong smell of gas



Field References

All field reference manuals are up on the CARES Website, here...

<https://www.cupertinoares.org>

- > Docs and References
 - > Field References
 - > Message Handling

Field Communications Handbook

Cupertino ARES/RACES

January 2022



Process Resources

www.cupertinoares.org > Resources >
Windshield Survey > *Process*.

Look for the
[Windshield Survey Area Map Book](#).
Download and print a 2-sided copy if possible

Windshield Survey Area Map Book

Cupertino Amateur Radio Emergency Service
A component of SOP Part 2, Section 7.7 Windshield Survey Procedure

October 2, 2024

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Timeline

Earthquake Exercise

Saturday, 19 October

- 07:00 Simulated earthquake
- 06:30 Simulated City Manager declares a state of emergency
- 08:00 Activate the Resource Net. Take MM reports
- 08:15 Pass MM summary to the DOC
- 08:30 All WSA assignments are made
- 09:45 Teams report area completions, simulated incidents. As teams complete an area, they may be offered another area to do
- 11:00 End of Exercise, begin demob
- 11:30 drop off your paperwork at Creekside ARK by 11:30
- 1200 Secure



Homework! What you can do now

1. Download and make a copy of the map book.
<https://www.cupertinoares.org/docs/SOP-P2-WSA-Map-Book-2024.pdf>
2. Buy a yellow highlighter if you do not have one.
3. Identify the 5 closest areas to your home.
4. Pick a couple of AREAs around where you live and try driving them.
5. Think about and be ready to report **one** of the following:
 - No problems found
 - Tree blocking a street or similar access issue
 - Problem with one of the assets on the back page
 - Life-threatening problem
6. Later, we will need your feedback on this exercise!



Thank you

Any Questions?

