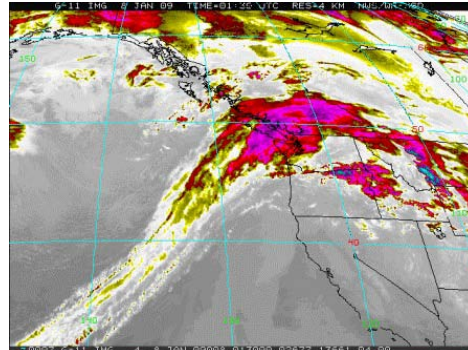


Multi-agency Coordination for Direct Storm Management with Limited Resources

Tony Leingang
Olympic Region Freeway Operations

Paula Hammond
Secretary of Transportation

Kevin Dayton
Olympic Region Administrator



Overview:

- **Moving Washington** – Operating our systems efficiently using ITS is a critical component for WSDOT
- **Western Washington State** – Typical Winter Weather
- **Olympic Region Statistics**
- **Limited Resources** – At the Traffic Management Center, In the Maintenance Division
- **The Storm Management Center (SMC) Concept**
- **Activating and Operating the SMC**
- **Conclusions**

Moving Washington – Operating our systems efficiently is a critical focus for WSDOT

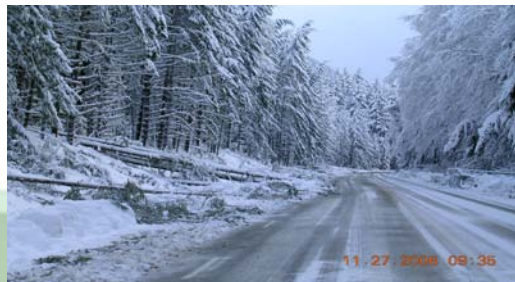
Strategies for Success:

- ✓ Traffic Management Centers (TMC)
Efficiently Managing Intelligent Transportation Systems (ITS)
- ✓ Ongoing Traffic Incident Management (TIM) Training & Coordination
 - Washington State Patrol (WSP)
 - WSDOT Incident Response Team (IRT) & Maintenance Forces
 - Fire, EMS, Ecology, Local Law Enforcement, Transit, Towing etc.
- ✓ Joint Operations Policy Statement (JOPS) with WSP



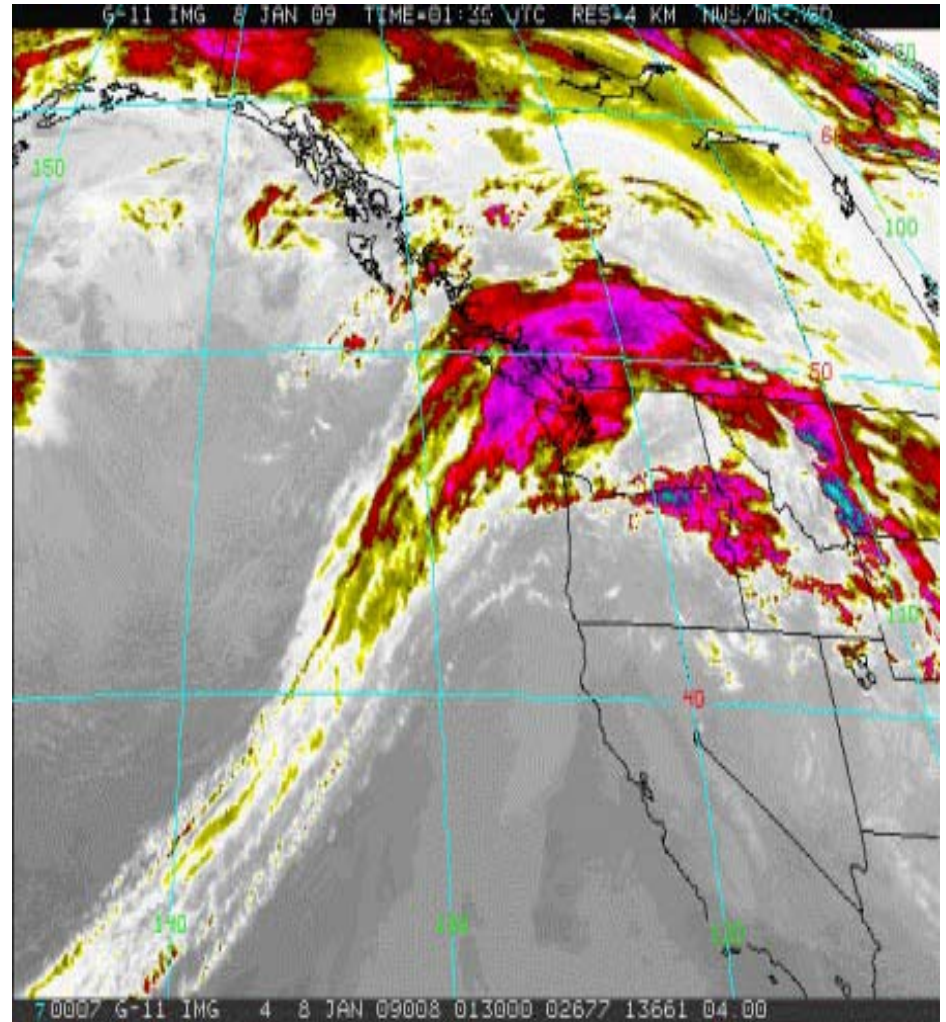
Western Washington State – Typical Winter Weather

- We Get Almost All Kinds!
 - Flooding, Slides, Snow & Ice, Wind, Tornadoes, Tsunami, Potential for Major Earthquakes
- Often 2 or 3 Major Events Each Year
- Difficult to Predict Severity
 - New Coastal Doppler Radar Helps
 - Information Coming in From 100 Miles Offshore
- Planning for winter is a year-round activity in Western Washington



Western Washington State – Typical Winter Weather

- Atmospheric Rivers – The “Pineapple Express”
 - More Frequent in Neutral Years
- El Niño
 - Warmer and Drier Winters
- La Niña
 - Cooler and wetter winter than normal
 - Increased storminess
 - Increased precipitation
 - Increased frequency of significant cold-air outbreaks
 - Considerable month-to-month variations in temperature, rainfall and storminess.



Olympic Region Statistics

TMC Controlled ITS Equipment:

- 97 CCTV cameras (68 PTZ, 26 fixed, 3 portable)
- 95 Data Stations (*Wavetronix / RTMS / Loop / Video*)
- 20 Highway Advisory Radio Fixed Transmitters
- 4 Highway Advisory Radio Portable Transmitters
- 42 Highway Advisory Signs and remotely activated Flashing Beacons
- 23 Permanent Variable Message Signs
- 7 Remote Activated Portable Variable Message Signs
- 21 Ramp meters (and counting)
- 15 RWIS Stations

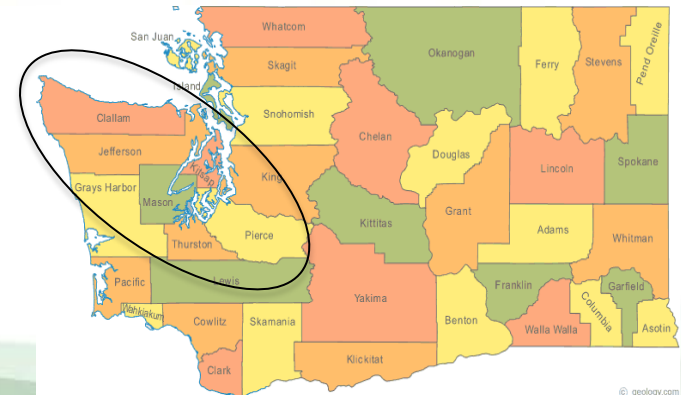
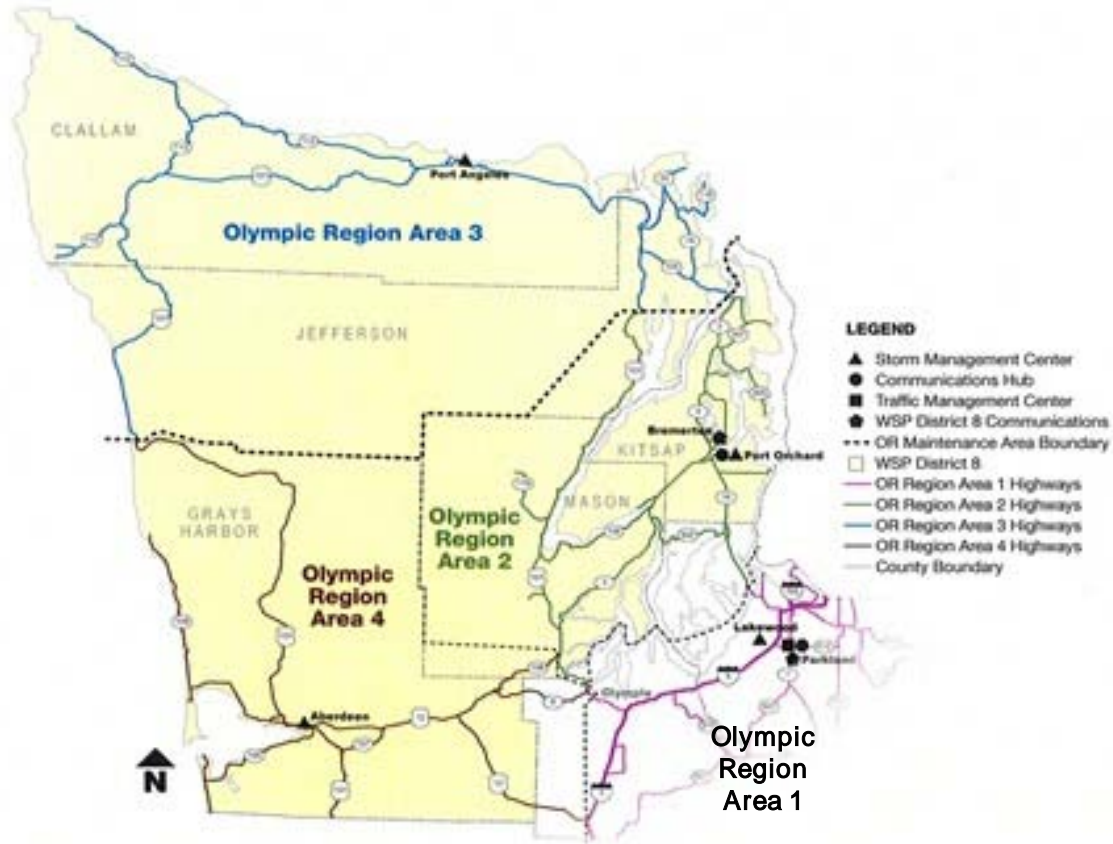
Covering:

2907 Miles of State Highways (344 Miles of Interstate 5)

3120 Miles Pierce County Roads, Signs, & Signals*

459 Miles of City of Lakewood Roadways*

*Paid WSDOT FTE by Local Agency partnership for After Hours Calls



Limited Resources – At the Traffic Management Center, In the Maintenance Division

Typical TMC staffing for our 24/7 Operation

- Two operators, One Supervisor 5 AM to 9 PM Weekdays
- Two operators nights and weekends
- 2011 Olympic Region TMC Radio Log:
 - 14,257 initial calls
 - 42,741 subsequent actions
- When big storms hit, the TMC is a very busy place and easy to get overwhelmed
- Limited staffing means calling others in, extended shifts (12 on, 12 off)

Maintenance forces and equipment are not funded at optimum levels for major storm response

- Must balance the funding each year to meet year-round needs
- Dual use of equipment to save dollars



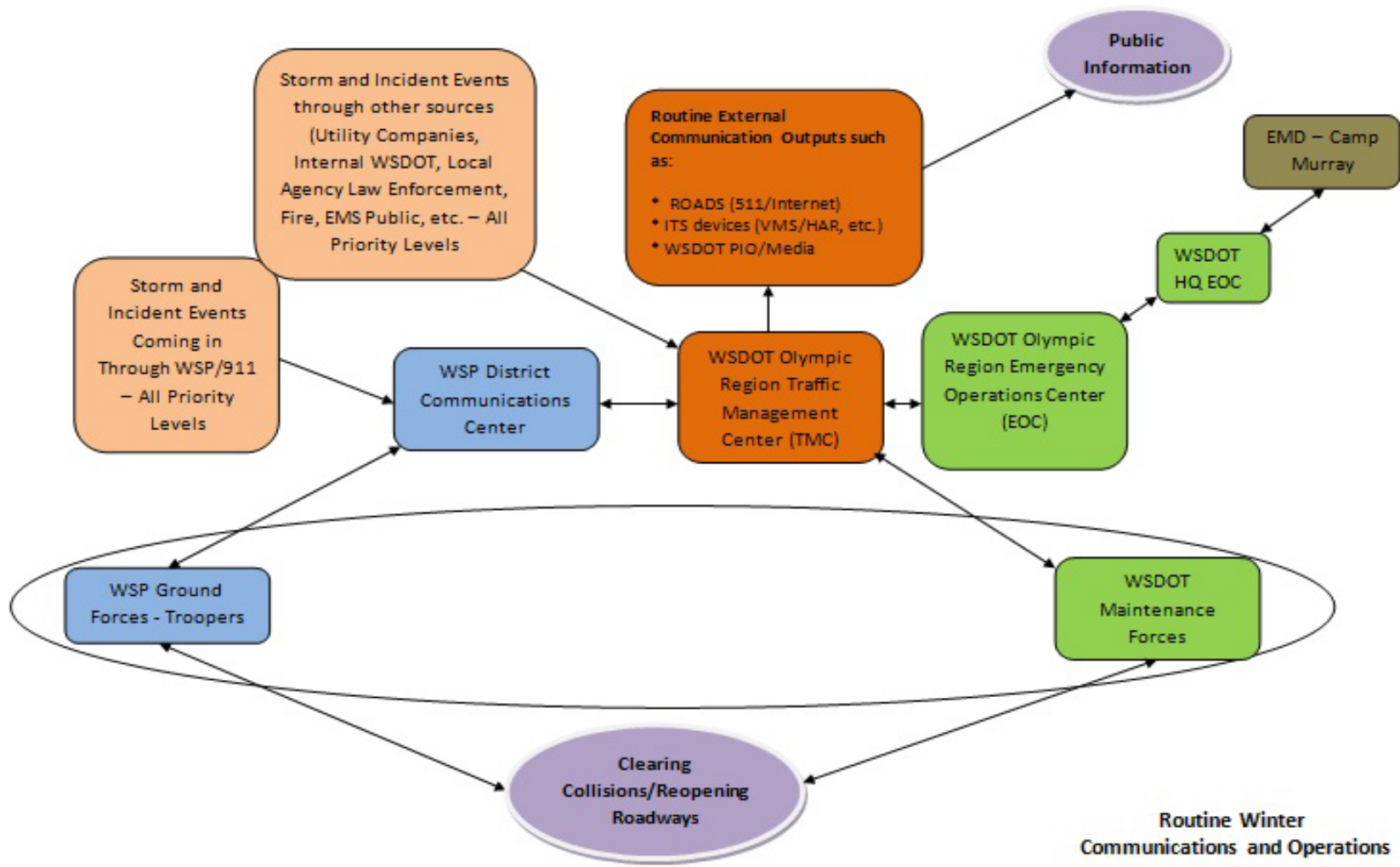
Inside the Control Room at the Olympic Region TMC

Solution: Develop a concept to prioritize multiple high-priority incidents to maximize efficiency

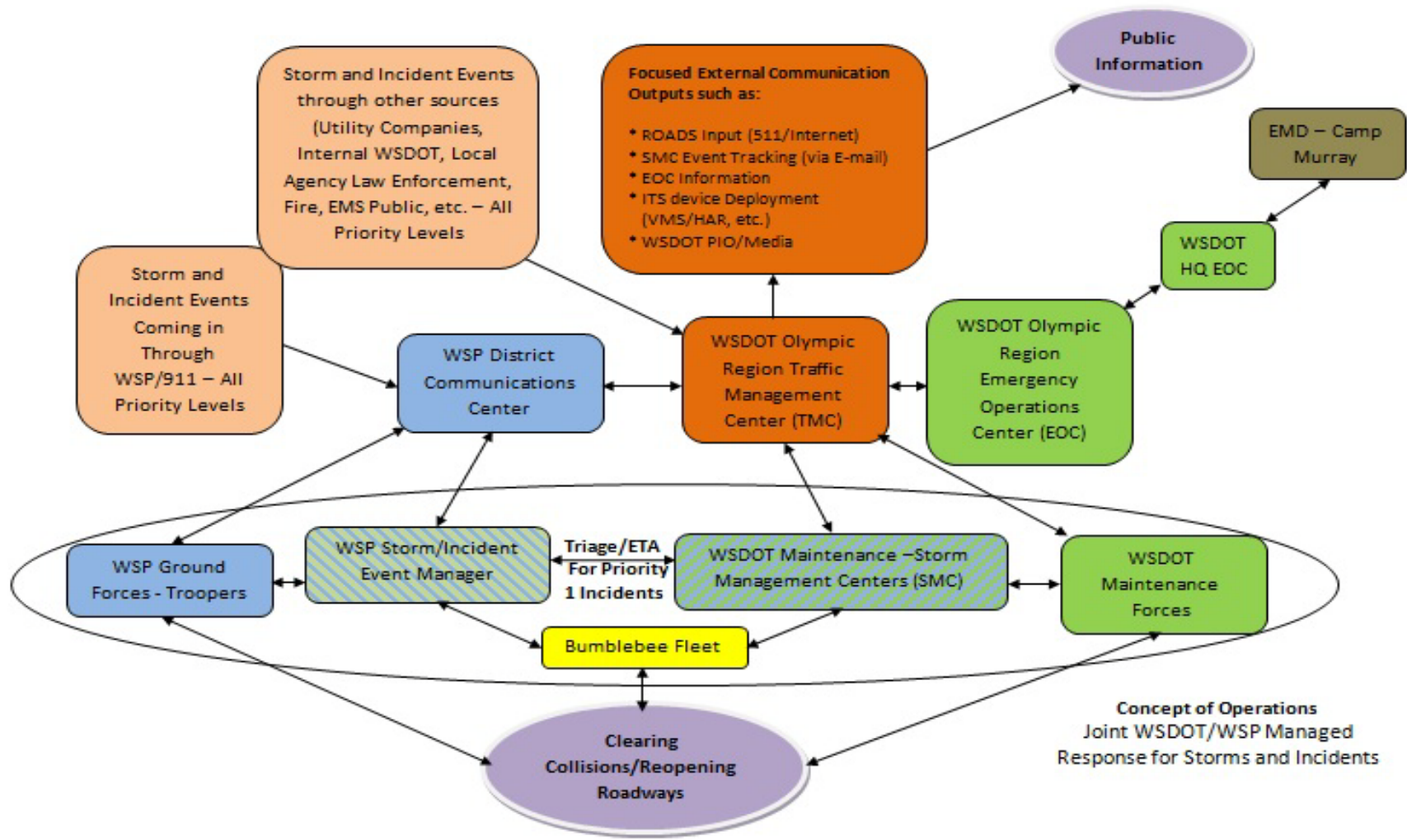
The Storm Management Center (SMC) Concept

- Actively prioritizes and manages incidents
- Is scalable
- Multi-agency management physically working together (Includes Utility Companies)
- Aligned chains of command
- Works well when typical resources are overwhelmed
- Allows TMC staff to focus on ITS systems and improved public information

The Storm Management Center (SMC) Concept



The Storm Management Center (SMC) Concept



Activating and Operating the SMC

Some Ground Rules: A Priority Response System

- **Priority 1:** WSDOT will respond immediately
- **Priority 2:** WSDOT will respond as soon as possible, taking into consideration any Priority 1 calls first
- **Priority 3:** WSDOT will respond as soon as possible, taking into consideration any Priority 1 or 2 calls first

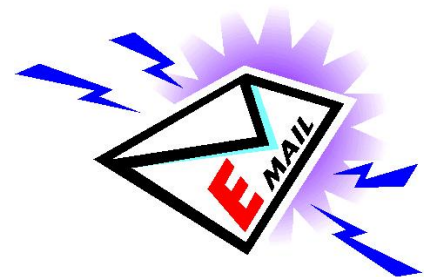


Activating and Operating the SMC

Comm. Protocols Change to Reduce Telephone & Radio Traffic

Low-Tech Solution: “ Subject Line Only” Email

- 911 Calls Come In
 - WSP Communications Leads/Develops Initial “ Subject Line” Email
- Calls to TMC or Other Locations
 - Forwarded to WSP/SMC for Triage
- Email Subject Line Coded by WSP
- Sent to Appropriate Email Distribution Group
 - to Include WSP, SMC, and TMC Staff
- Field Crews Directed by SMC
- WSP Troopers Directed by WSP Command Staff
- SMC Tracks/Returns Email When Clear
- TMC Staff Updates WSDOT Systems/Notifies WSP



Activating and Operating the SMC

- “ Subject Line Only” Email: Intentionally Limited to 29 Characters
- **IIII DDDD RRR MP XXX.X CCCC***
- Definitions:
- **I = Incident Type**
- Examples:
- **PR** (Priority Response, snow & ice event) **WATER** (Water over the roadway)
- **TREES** (Tree(s) down only & blocking) **PWR** (Power lines down only & blocking)
- **TRPWR** (Tree(s) & power lines down blocking) **SLIDE** (Landslide, mudslide, debris blocking)
- **DD** = Cardinal direction (NB, SB, EB, WB, Both, Ramp)
- **RRR** = State Route
- **MP** = Milepost
- **XXX.X** = Milepost to the nearest tenth of a mile as reported
- **CCCC** = Last four digits of the WSP CAD log for the incident
- * = More information on the incident can be found within the CAD log

Activating and Operating the SMC

Examples with literal interpretation:

- “Subject Line Only” Email: **PR1 NB 5 MP 120.5 1234*** would mean –
“A priority response is needed relative to snow/ice conditions for a collision on northbound I-5 at milepost 120.5. Reference CAD log #1234. More information can be found on this incident within the CAD log entry.”
- “Subject Line Only” Email: **TRPWR Both 101 MP 261.2 5678** would mean –
“Trees and power lines are down blocking both directions of US 101 at milepost 261.2. Reference CAD log #5678 for more information.”

Activating and Operating the SMC

Inbox - Microsoft Outlook

File Edit View Go Tools Actions Help

New Reply Reply to All Forward Send/Receive Search address books

Search Inbox

Mail

Favorite Folders

- Inbox (2)
- Sent Items

Mail Folders

All Mail Items

- Mailbox - Leingang, Tony
 - Deleted Items
 - Drafts
 - Inbox (2)
 - Infected
 - Junk E-mail
 - Outbox
 - quarantine
 - RSS Feeds
 - Sent Items
 - Search Folders
- Archive Folders
 - Deleted Items
 - Sent Items
 - Search Folders
- Mail Archive
- PreFwyOpsArchive

Inbox

From	Subject	Received	Categ...
Krikava, Douglas Accident cleared, area plowed and treated. -----Original Message----- From: Jennifer.Stepp@wsp.wa.gov [mailto:Jennifer.Stepp@wsp.wa.gov]	RE: PR1 BOTH/RAMP SR12 MP10 0034	Thu 1/19/2012 1:23 AM	
Karrie.Cheek@wsp.wa.gov SP014W692SP014. INCIDENT TYPE: NON-INJURY COLLISION CAD LOG: LSP1201190056	JACKKNIFED SEMI NON INJURY COLLISION N5 JN MP99 THURST...	Thu 1/19/2012 12:56 AM	
Krikava, Douglas Correction, trucks in route, eta 5 minutes. -----Original Message----- From: Jennifer.Stepp@wsp.wa.gov [mailto:Jennifer.Stepp@wsp.wa.gov]	RE: PR2 SR12 MP9.5 0079 *	Thu 1/19/2012 12:52 AM	
Krikava, Douglas Trucks on scene. -----Original Message----- From: Jennifer.Stepp@wsp.wa.gov [mailto:Jennifer.Stepp@wsp.wa.gov]	RE: PR2 SR12 MP9.5 0079 *	Thu 1/19/2012 12:49 AM	
Jennifer.Stepp@wsp.wa.gov CO1 Jennifer N. Stepp X255 WSP Bremerton Communications <end>	PR2 SR12 MP9.5 0079 *	Thu 1/19/2012 12:48 AM	
Clawson, David WSDOT Logo Olympic Radio Incident Report	Road Closure on I-5 at mp 99	Thu 1/19/2012 12:47 AM	
OR-TMC@WSDOT.WA.GOV WSDOT Alert Update DATE/TIME: January 19, 2012 12:45 a.m. DESCRIPTION: Collision blocking all lanes northbound I-5 and 2 left lanes blocking southbound on I-5 near 93Rd Ave Sw beginning at 12:35 AM on January 19, 2012 until	WSDOT ALERT Update: I-5 93RD AVE SW	Thu 1/19/2012 12:45 AM	
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Woodruff, Scott Here's a rough estimate for what we have spent the past few days.	RE: Storm totals!	Wed 1/18/2012 11:55 PM	

PR1 BOTH/RAMP SR12 MP10 0034

Activating and Operating the SMC

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File Edit View Go Tools Actions Help

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- Archive Folders
- Deleted Items
- Sent Items
- Search Folders
- Mail Archive
- PreFwyOpsArchive

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Calendar

Contacts

Tasks

Notes

Folder List

Shortcuts

Inbox

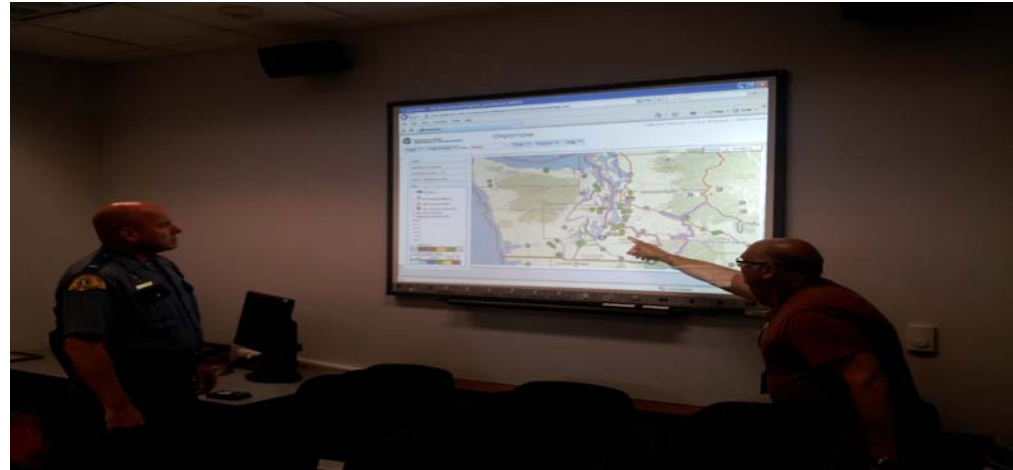
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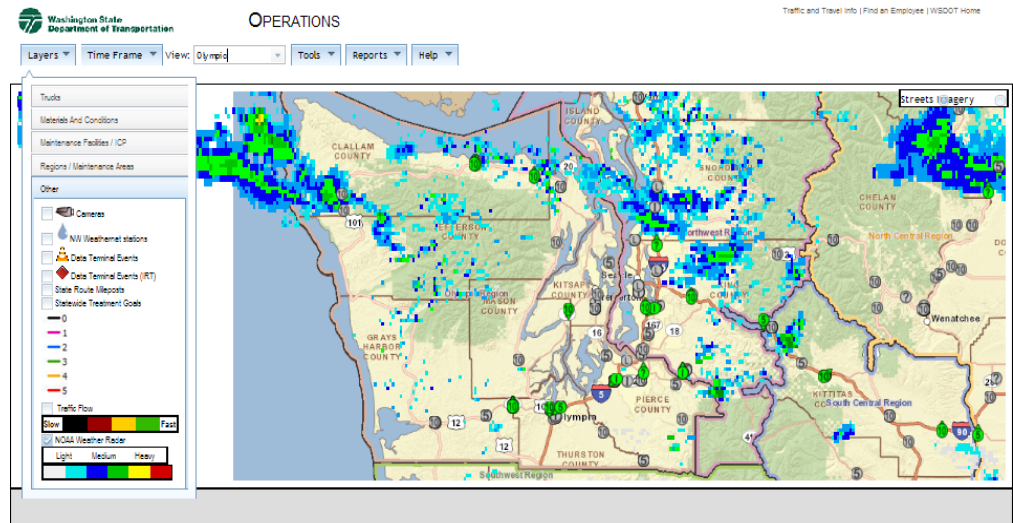
Activating and Operating the SMC

WSDOT Operations AVL Page

- Most of Fleet Outfitted with GPS/Materials Tracking Equipment
- Roadway Treatment Status Uploaded to the WSDOT Operations AVL Page
- Near Real-time Location
- Manages Asset Deployment
- Incident Response Team (IRT) Trucks Outfitted
 - Provides field responders “on-scene” information



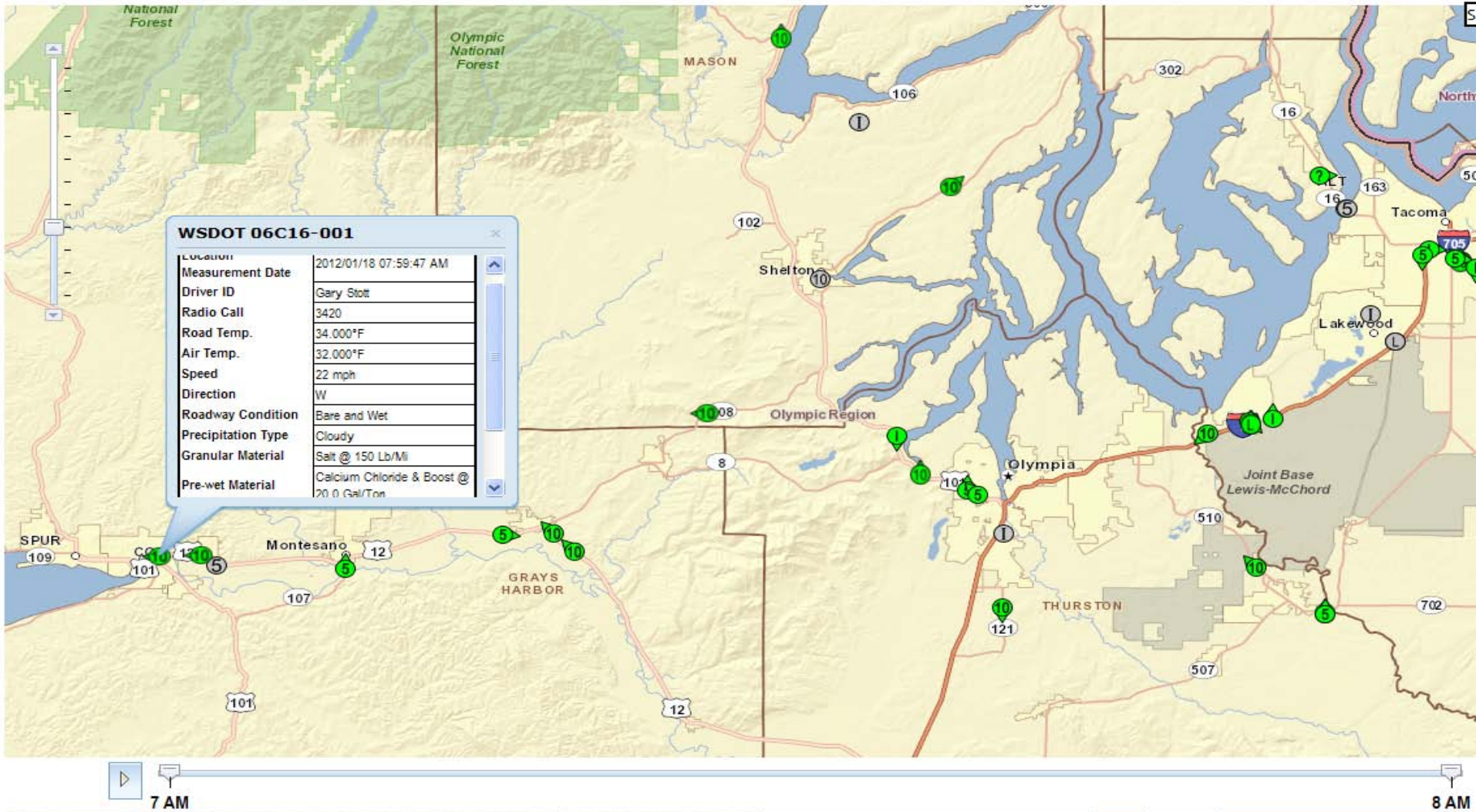
Inside the Activated SMC



NOAA Weather Radar Layer
“ On”

Activating and Operating the SMC

Layers ▾ Time Frame ▾ View: ▾ Tools ▾ Reports ▾ Help ▾



Activating and Operating the SMC

Layers ▾ Time Frame ▾ View: ▾ Tools ▾ Reports ▾ Help ▾

WSDOT 08C85-005

Location Measurements	
Date	2012/01/18 07:59:55 AM
Driver ID	Brandon Miller
Radio Call	3112
Road Temp.	35.000°F
Air Temp.	33.000°F
Speed	18 mph
Direction	N
Roadway Condition	Compact Snow
Precipitation Type	Snow
Granular Material	Combo @ 200 Lb/Mi
Pre-wet Material	Enhanced Salt Brine @ 20.0 Gal/Ton

 7 AM

 8 AM

Activating and Operating the SMC

The “ Bumble Bee” Fleet

- Mission: Get Traffic Moving so Larger Equipment Can Treat the Area
- Dual-use Vehicles: Sander/Hoppers on Flatbeds
- Assigned in Urban Areas to Work with WSP Field Troopers
- Outfitted with WSP Radios/Laptops
- Designed to Attack Spot Locations



Typical “ Bumble Bee”

Activating and Operating the SMC

Recap: Typical Chain of Events

- Normal Operations, Forecasts Indicate Severe Weather Soon
- Managers Meet/Determine SMC Activation as Appropriate
- Strategically Locate Staff & Equipment
 - Utility Companies & Hood Canal Bridge
 - Congestion Hot Spots
- Activation Must Be Declared - Communications Protocols Change
- SMC/Communications Hub Staffed
- Triage/Prioritize/Clear
- Communicate with TMC/Provide Enhanced Use of ITS & Traveler Information Tools
- Deactivation Declared - Return to Normal Operations



Conclusions

- **SMC' s /Communications Hubs Provide a Central Location for Active Storm/Incident Management**
- **SMC' s Are a Great Tool to Augment Limited Staffing at TMC' s When Overwhelming Circumstances Occur.**
- **The SMC Concept Takes TMC Staff Out of the Middle/ Places Response Prioritization Responsibility with the Decision Makers in Charge**
- **SMC Activations Allow TMC Staff to Focus on More Efficient, Timely, and Accurate ITS Deployment and Traveler Information**

Thank You!



Photo courtesy of Trooper Guy Gill – WSP District 1

Any Questions?