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PSAP Test Plan

PSAP Name Goes Here

Enter Test Date Here

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1. Introduction

1.1. Purpose

The Purpose of this document is to prepare PSAPS for testing requirements for operation on the state of Washington NextGen9-1-1 network.

1.2. Assumptions

PSAPs will meet all the requirements outlined in the PSAP NG preparedness documentation

Carriers will meet all the requirements outlined in the Carrier to NG preparedness documentation for PSAP testing

Testing will be performed with Comtech TCS test lines.

PSAPs will have new trunk ports and trunk cards as applicable and not reallocated existing trunk capacity to Comtech TCS.

2. PSAP Test Scenarios

2.1. Test Scenario 1 – PSAP Operator to Answer an Incoming Call and Check Call Quality vs Legacy Network

Test Case Number:	Test Scenario 1
Test Case Coverage Area:	All State of Washington PSAP testing
Test Stage:	PSAP Testing on NG9-1-1 platform
Test Case:	PSAP Operator to answer incoming calls and check call quality in comparison to legacy network
Expected Results:	PSAP Operator answers call and is able to communicate with the 9-1-1 caller

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)
1	A 9-1-1 test call is initiated via a Comtech TCS test line	Call routes to the intended PSAP		☐ Yes ☐ No		
1.1	NG PSAP operator answers call and verifies Telephone number populates and NRF (No Record Found appears)	Communication established between 9-1-1 caller and PSAP operator and CBN and NRF appear		☐ Yes ☐ No		
2	Voice Quality is checked: 9-1-1 Test Caller speaks	PSAP Operator listens to quality of voice: Do they hear echo on NG9-1-1 line? Do they hear feedback on NG9-1-1 line? Is volume level good? Can they clearly hear call tester?	Echo? Feedback? Volume level? Call clarity?	☐ Yes ☐ No		

2.1	Voice quality is checked: PSAP Operator speaks	9-1-1 caller listen to quality of voice: Do they hear echo on NG9-1-1 line? Do they hear feedback on NG9-1-1 line? Is volume level good? Can they clearly hear PSAP Operator?	Echo? Feedback? Volume level? Call clarity?	☐ Yes ☐ No		
2.2	DTMF Test: 9-1-1 Test Caller lets Operator know they will be pressing a digit (9) and asks Operator to move their listening device away from their ear.	PSAP operator to listen to DTMF tone over the NG9-1-1 line. Is DTMF tone signal good?		☐ Yes ☐ No		
3	Additional 9-1-1 test call is initiated to Comtech TCS line via legacy trunks (dial 911)	Call routes to intended PSAP		☐ Yes ☐ No		
4	PSAP operator is alerted to calls in queue	PSAP operator can visually identify calls in queue		☐ Yes ☐ No		
5	PSAP operator places test call #1 on hold or if PSAP does not place calls on hold, skips and goes to step 6	Call placed on hold if this step applies		☐ Yes ☐ No		
5.1	PSAP operator answers test call #2 in queue	Communication established between second 9-1-1 caller and PSAP operator		☐ Yes ☐ No		
5.2	PSAP operator speaks with call #2 and compares call volume/quality of legacy call to that of the NG call.	PSAP Operator listens to quality of voice: Is call quality/volume level comparable to NG9-1-1 call?		☐ Yes ☐ No		
5.3	DTMF Test: Caller #2 let's Operator know they will be pressing a digit (9) and asks Operator to move their listening device away from their ear to compare with DTMF tone of NG call	PSAP operator to listen to DTMF tone over the legacy line to compare with NG9-1-1 line. Is DTMF tone signal comparable?		☐ Yes ☐ No		
6	PSAP operator releases call #2	Call released		☐ Yes		

				☐ No		
7	PSAP operator examines call #1 for hold time (if step 5 applies)	The elapsed hold time is displayed in call record (if step 5 applies)		☐ Yes ☐ No		
8	PSAP operator waits for system to alert call taker that call #1 is still on hold	After a pre-defined time the system will alert the PSAP operator of caller on hold		☐ Yes ☐ No		
9	PSAP operator selects call #1 and takes the call off hold	PSAP operator can communicate with caller #1		☐ Yes ☐ No		
10	PSAP operator ends call #1	Call disconnects		☐ Yes ☐ No		
Comments:						

2.2. Test Scenario 2 – Validate Policy Routing (Overflow Condition)

Test Case Number:	Test Scenario 2
Test Case Coverage Area:	All PSAP Testing
Test Stage:	PSAP Testing
Test Case:	Validate NG9-1-1 virtual trunks and CPE connections work as expected, via Alternate Routing Overflow routing testing. PSAP Vendor takes inbound NG9-1-1 trunks to the PSAP down one by one, until all are down.
Expected Results:	Each NG9-1-1 trunk to PSAP works as expected, until all NG9-1-1 trunks are down and PSAP will enable Alternate and overflow routing

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)

1	PSAP Vendor makes first inbound NG9-1-1 trunk to PSAP busy or ports are disabled from gateway. A 9-1-1 test call is initiated via a Comtech TCS line. Note: this step repeated for each NG9-1-1 trunk into PSAP, until all trunks are down.	In-bound calls will route via second or next trunk being tested NG9-1-1 trunk to PSAP, PSAP Operator validates communication with 9-1-1 caller and expected call data. Note: testing of all NG9-1-1 trunks is noted in actual results. All trunks must pass for this test case to pass.		☐ Yes ☐ No		
2	911 test call is initiated to PSAP via a Comtech TCS Line	Call attempts to reach PSAP and is diverted to Overflow routing partner		☐ Yes ☐ No		
3	Call is routed to Alternate routing partner	Alternate PSAP operator activates a button to accept call		☐ Yes ☐ No		
4	Alternate PSAP operator verifies Telephone number populates and NRF (No Record Found appears)	CBN and NRF		☐ Yes ☐ No		
5	Alternate PSAP disconnects 9-1-1 call	Ready for next Test Scenario		☐ Yes ☐ No		
6	PSAP Vendor brings all NG9-1-1 trunks back to operational state	Call completed		☐ Yes ☐ No		
Comments:						

2.3. Test Scenario 3 – PSAP Operator Calls Back a Short Duration or Abandoned Call

Test Case Number:	Test Scenario 3
Test Case Coverage Area:	Pilot PSAP testing only (Non-Pilot State of Washington PSAPS to test features once live on NG9-1-1 system)
Test Stage:	PSAP Testing

Test Case:	Call tester ends call before PSAP can answer to simulate a short duration or abandoned call. PSAP then attempts to call back test caller.
Expected Results:	PSAP operator sees abandoned or short duration call and follows existing PSAP standards and re-establishes communication with 9-1-1 caller.

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)
1	A 9-1-1 test call is initiated – Test Caller hangs up immediately after first ring.	Call rings to PSAP and tester hangs up before operator answers call.		☐ Yes ☐ No		
2	NG PSAP operator follows short/abandon call procedure) if ALI data verifies telephone or Call Back Number (CBN) populates and valid ALI display per type of call.	PSAP can see CBN of abandoned call		☐ Yes ☐ No		
3	PSAP operator activates call back feature	N/A		☐ Yes ☐ No		
4	PSAP operator communicates with caller	The PSAP operator is able to reconnect to the 9-1-1 caller	Caller ID of PSAP:	☐ Yes ☐ No		
Comments:						

2.4. Test Scenario 4 – NG9-1-1 PSAP Transfers a 9-1-1 Call to a Legacy PSAP

Test Case Number:	Testing Scenario 4
Test Case Coverage Area:	Pilot PSAP testing (optional for all PSAPS)
Test Stage:	PSAP testing

Test Case:	NextGen9-1-1 PSAP Transfers a 911 call to a Legacy PSAP. Next Gen9-1-1 PSAP hangs up and Legacy PSAP transfers call back to NextGen9-1-1 PSAP.
Expected Results:	The Legacy PSAP will receive the call and populate the 9-1-1 caller's information on their console. Legacy PSAP is able to transfer call back to NextGen9-1-1 PSAP and 911 callers information populates on their console.

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)
1	9-1-1 test call is initiated to NG PSAP via a Comtech TCS line	9-1-1 call routes to intended PSAP		☐ Yes ☐ No		
1.1	NG PSAP operator accepts the call	NG PSAP operator can communicate with 9-1-1 caller		☐ Yes ☐ No		
1.2	NG PSAP operator verifies Telephone number populates and NRF (No Record Found appears)	CBN and NRF		☐ Yes ☐ No		
2	NG PSAP operator determines call should be transferred.	Call is determine to be out of NG PSAP boundary		☐ Yes ☐ No		
2.1	NG PSAP operator selects the system transfer option and transfers the 9-1-1 caller	Transfer initiated	PSAP Transferred to: *Code used:	☐ Yes ☐ No		
2.2	NG PSAP operator remains on the line for Legacy S/R PSAP operator to accept the 911 call via assisted transfer.	NG PSAP operator remains connected to transferred call		☐ Yes ☐ No		
3	Legacy S/R PSAP operator accepts NG9-1-1 call transfer	9-1-1 call is transferred to correct Legacy S/R PSAP and can communicate with NG PSAP operator and 9-1-1 caller		☐ Yes ☐ No		

3.1	Legacy S/R PSAP operator verifies the Telephone number populates and NRF (No Record Found appears)	CBN and NRF		☐ Yes ☐ No		
4	NG PSAP operator asks Legacy operator to: Verify they can still communicate with 9-1-1 caller, and; once Legacy Operator confirms they can still communicate with caller, to transfer call back to NG9-1-1 PSAP	NG operator instructs Legacy PSAP operator of tests to perform.		☐ Yes ☐ No		
5	NG PSAP operator disconnects from call	NG PSAP disconnects and the transferred call doesn't drop		☐ Yes ☐ No		
6	Legacy PSAP operator confirms he/she can still communicate with 911 caller	9-1-1 caller remains on the line		☐ Yes ☐ No		
7	Legacy S/R PSAP operator selects the system transfer option and transfers the 9-1-1 caller to NG PSAP	Transfer initiated		☐ Yes ☐ No		
7.1	Legacy S/R PSAP operator remains on the line for NG PSAP operator to accept the 9-1-1 call	Legacy S/R PSAP operator remains connected to transferred call		☐ Yes ☐ No		
8	NG operator accepts 911 call transfer	9-1-1 call is transferred to correct NG PSAP and can communicate with Legacy S/R PSAP operator and 9-1-1 caller		☐ Yes ☐ No		
8.1	NG PSAP operator verifies Telephone number populates and NRF (No Record	CBN and NRF		☐ Yes		

	Found appears)			☐ No		
9	Legacy S/R PSAP operator disconnects from call	Legacy S/R PSAP disconnects and the transferred call doesn't drop		☐ Yes ☐ No		
10	NG PSAP confirms he/she can still communicate with 9-1-1 caller	9-1-1 caller remains on the line		☐ Yes ☐ No		
11	NG PSAP disconnects 9-1-1 call	Call completed		☐ Yes ☐ No		
Comments:						

2.5. Test Scenario 5 – NG9-1-1 PSAP Transfers a 9-1-1 Call to an NG9-1-1 PSAP

Test Case Number:	Testing Scenario 5
Test Case Coverage Area:	Pilot PSAP testing - All PSAPS - Depends on transfer partner PSAP status
Test Stage:	PSAP testing
Test Case:	NextGen9-1-1 PSAP Transfers a 9-1-1 call to a NextGen9-1-1 PSAP
Expected Results:	The NG PSAP will receive the call and populate the 9-1-1 callers information on their console

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)
1	9-1-1 test call is initiated to NG PSAP via a Comtech TCS line	9-1-1 call routes to intended PSAP		☐ Yes ☐ No		
1.1	NG PSAP #1 operator accepts the call	NG PSAP operator can communicate with 9-1-1 caller		☐ Yes		

				☐ No		
1.2	NG PSAP #1 operator verifies Telephone number populates and NRF (No Record Found appears)	CBN and NRF		☐ Yes ☐ No		
1.3	NG PSAP #1 operator determines call should be transferred.	Call is determine to be out of NG #1 PSAP boundary		☐ Yes ☐ No		
2	NG PSAP #1 operator selects the system transfer option and transfers the 9-1-1 caller to NG PSAP #2 either via *code or manual transfer	Transfer initiated	PSAP Transferred to: *Code or number used:	☐ Yes ☐ No		
2.1	NG PSAP #1 operator remains on the line for NG PSAP #2 operator to accept the 9-1-1 call	NG #1 PSAP operator remains connected to transferred call		☐ Yes ☐ No		
3	NG #2 operator accepts NG911 call transfer	9-1-1 call is transferred to correct NG PSAP and can communicate with NG #1 PSAP operator and caller		☐ Yes ☐ No		
3.1	NG PSAP #2 operator verifies Telephone number populates and NRF (No Record Found appears)	CBN and NRF		☐ Yes ☐ No		
4	NG PSAP #1 operator disconnects from call	NG #1 PSAP disconnects and the call remains up		☐ Yes ☐ No		
5	NG PSAP #2 confirms he/she can still communicate with 9-1-1 caller	Caller remains on the line		☐ Yes ☐ No		
6	OPTIONAL: If *code exists for NG PSAP #2 to transfer back to NG PSAP	Transfer initiated		☐ Yes		

	#1, NG PSAP #2 to transfer back to NG PSAP #1. Else – continue to step 7.			☐ No		
6.1	NG PSAP #1 operator accepts NG9-1-1 call transfer	9-1-1 call is transferred to correct NG PSAP and can communicate with NG PSAP #2 operator and caller		☐ Yes ☐ No		
6.2	NG PSAP #1 operator verifies Telephone number populates and NRF (No Record Found appears)	CBN and NRF		☐ Yes ☐ No		
6.3	NG #2 operator drops off the call	NG PSAP #2 disconnects and the transferred call doesn't drop		☐ Yes ☐ No		
6.4	NG #1 operator drops off the call	Call completed		☐ Yes ☐ No		
Comments:						

2.6. Test Scenario 6 – Establish Communications among the PSAP Call Taker, 9-1-1Caller, Third-Party Service Provider from PSAP Equipment

Test Case Number:	Test Scenario 6

Test Case Coverage Area:	All PSAP Testing
Test Stage:	PSAP Testing
Test Case:	Establish communications among the PSAP call taker, 9-1-1caller, third party service provider from PSAP equipment
Expected Results:	Enables PSAP call taker to establish conference sessions with other entities as required. The PSAP call taker initiates a conference session. The PSAP call taker will stay on the line with caller and dispatcher to assist the caller and the dispatcher.

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)
1	9-1-1 test call is initiated to PSAP by via a Comtech TCS line	Call routed to PSAP		☐ Yes ☐ No		
1.1	PSAP operator receives the call	PSAP operator communicates with 9-1-1 caller		☐ Yes ☐ No		
2	PSAP operator chooses conference call option	PSAP system provides conferencing option		☐ Yes ☐ No		
2.1	PSAP operator initiates call to another entity outside PSAP system	PSAP system indicates conference call		☐ Yes ☐ No		
2.2	PSAP operator verifies second entity answers and that the first caller and other entities can hear each other	PSAP operator verifies communication has been established with additional entity		☐ Yes ☐ No		
2.3	PSAP operator places call on hold via workstation	Verifies remaining two parties can still talk to each other		☐ Yes ☐ No		
2.4	PSAP operator rejoins the call and places original caller on mute	Verifies that caller cannot hear the PSAP operator and 3rd party		☐ Yes ☐ No		

2.5	PSAP operator re-engages with all callers and ends the call	PSAP operator confirms communication has been re-established between all parties		☐ Yes ☐ No		
3	PSAP operator verifies conference call displays in call records	Details of the call reflect in the PSAP system call record log		☐ Yes ☐ No		
Comments:						

2.7. Test Scenario 7 – Validate * Codes/ 1-Button Transfers/Manual Transfers

Test Case Number:	Test Scenario 7
Test Case Coverage Area:	All PSAP Testing
Test Stage:	PSAP Testing
Test Case:	Validate * codes/ 1-button transfers
Expected Results:	PSAP pressed each star code programmed on its CPE and call either transferred to another PSAP and/or to a non PSAP entity such as Poison Control. Will note each star code programmed for PSAP and which PSAP and/or non PSAP entity call reached when star code pressed.

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)
1	9-1-1 test call is initiated to PSAP via a Comtech TCS Line	Call routed to PSAP		☐ Yes ☐ No		
1.1	PSAP operator receives the call	PSAP operator communicates with 9-1-1 caller		☐ Yes ☐ No		
2	PSAP Operator presses star code # for	Call transferred to correct star code transfer point		☐ Yes		

				☐ No		
3	PSAP Operator presses star code # for	Call transferred to correct star code transfer point		☐ Yes ☐ No		
4	PSAP Operator presses star code # for	Call transferred to correct star code transfer point		☐ Yes ☐ No		
5	PSAP Operator presses star code # for	Call transferred to correct star code transfer point		☐ Yes ☐ No		
6	PSAP Operator presses star code # for	Call transferred to correct star code transfer point		☐ Yes ☐ No		
7	PSAP Operator performs manual transfer using 7-digits	Call transferred to correct transfer point		☐ Yes ☐ No		
8	PSAP Operator performs manual transfer using 10-digits	Call transferred to correct transfer point		☐ Yes ☐ No		
9	PSAP Operator performs manual transfer using 11-digits	Call transferred to correct transfer point		☐ Yes ☐ No		
10	Optional: PSAP Operator performs manual transfer using 8 and 12-digits ****Only applicable, if PSAP requires 9 to get outside line****	Call transferred to correct transfer point		☐ Yes ☐ No		
11	Verify DTMF Pass through on Transfer / Conference	Transfer / Conference to 3rd party agency that uses IVR option system (TSP, Language Line) and confirm that PSAP operator can navigate menu with DTMF tones		☐ Yes ☐ No		
Comments:						

2.8. Test Scenario 8 – Validate Policy Routing (Alternate Condition)

Test Case Number:	Test Scenario 8
Test Case Coverage Area:	All PSAP Testing
Test Stage:	PSAP Testing
Test Case:	Validate Alternate Routing
Expected Results:	PSAP will enable Alternate and overflow routing

Step	Test Procedure	Expected Result/Value	Actual Result/Value	Expectation Met?	Tested by	Tested on (mm/dd/yy)
1	ESInet Provider disables State of Washington connection to PSAP	In-bound calls will enter overflow mode		☐ Yes ☐ No		
2	9-1-1 test call is initiated to PSAP via a Comtech TCS Line	Call attempts to reach PSAP and is diverted to Alternate routing partner		☐ Yes ☐ No		
3	Call is routed to Alternate routing partner	Alternate PSAP operator activates a button to accept call	PSAP reached:	☐ Yes ☐ No		
3.1	Alternate PSAP operator verifies Telephone number populates and NRF (No Record Found appears)	CBN and NRF		☐ Yes ☐ No		
4	Alternate PSAP disconnects 9-1-1 call	Call completed		☐ Yes ☐ No		

5	ESInet Provider places PSAPs state of Washington connections back to normal.	Call routes to the intended PSAP – PSAP Operator/Vendor verifies calls over NG-1-1 trunks		☐ Yes ☐ No		
6	911 Tester places test call to verify NG9-1-1 trunks all back in order	Call routed to PSAP		☐ Yes ☐ No		
Comments:						

3. Additional Validation Tests for the PSAP Post Call through Testing

3.1. Validate Recording Capabilities

Test Case Number	PSAP System Capability Test Scenario #1
Test Case Coverage Area:	PSAP CPE Only
Test Stage:	Recommended Additional PSAP System Tests
Test Case:	Validate Recording Capabilities
Expected Results:	Obtain test session information to verify recording functions properly post state of Washington transition
Comments:	

3.2. Validate Logging Capabilities

Test Case Number	PSAP System Capability Test Scenario #2
Test Case Coverage Area:	PSAP CPE Only
Test Stage:	Recommended Additional PSAP System Tests
Test Case:	Validate Logging Capabilities
Expected Results:	Obtain test session information to verify recording functions properly post state of Washington transition
Comments:	

4. Back-Out Procedure for PSAPs

Test Case Number:	Back Out Procedure
Test Case Coverage Area:	All PSAPs
Test Stage:	PSAP testing does not Pass
Test Case:	Backing out of cut over to NG9-1-1 system
Expected Results:	It was identified prior or during testing that: a) PSAP did not meet all of their requirements for testing B) a wireless carrier did not meet all their requirements to complete testing or C) calls are not routing and/or data not available as expected. Comtech TCS logs a pre-Go Live trouble ticket to document trouble(s) encountered during testing.

Step	Test Procedure	Expected Result/Value	
1	Do all parties agree that PSAP can go live?	☐ Yes – **Proceed to step 9** ☐ No – **Proceed to step 2**	
2	Do PSAP, Comtech TCS and Vendors agree that a roll back to the Legacy S/R is required or is there an outstanding issue keeping the PSAP from going live?	☐ Rollback to Legacy S/R. **Proceed to step 3** ☐ Network stays up, but outstanding issues keep from going live. **Proceed to step 5**	Describe issue keeping PSAP from going live:
3	CPE Vendor begins roll back at PSAP	Disconnects state of Washington DS-1 connections	
4	CPE Vendor will remove the trunk cables from the state of Washington gateway devices and reconnect CPE Trunk cards to the Legacy S/R	Vendor completes manual (and or virtual) change of the trunks	
5	In conjunction with Step 2, state of Washington provider will enable routes to the Legacy S/R (Hairpin method)	9-1-1 calls are being sent to the Legacy S/R	
6	9-1-1 test calls are initiated to PSAP to ensure legacy S/R path is functioning	Call received at PSAP, each trunk line is validated	
7	Comtech TCS notes outstanding issue and creates an	Assignment of trouble for resolution. Incident #	Comtech TCS to send test results document to all

	incident ticket		parties noting the current PSAP status.
8	Once outstanding issues have been resolved, Incident ticket is closed.	PSAP is cleared to go live.	Describe steps taken to resolve issues:
9	PSAP is now live on state of Washington	Comtech TCS to send go-live notification	
Comments:			

5. Summary of Test Results and PSAP Testing Sign-Off

Summary of Test Results for (Name, county and state of PSAP tested): Total number of test calls made:			
Test Execution Completion Initial/Date: Test Date: Go-Live Date:	☐ PASS ☐ FAIL	Test Host:___ _____ Test Reviewer:___ _____	Date:_____ _____ Date:_____ _____

PSAP Authority:	
Signature:	Date:
Company:	

TCS Client Services Manager:	
Signature:	Date:
Company:	TCS

Test Host:	
Signature:	Date:

Company:	TCS

6. SAP Star (*) Code Attachment(s)

From state of Washington and/or PSAP Vendor (required attachment if PSAP chooses not to test all their star codes)