

# Surface Transport Weather Plan

Version 0.5



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## 0. VERSION/CHANGE CONTROL

This plan should be reviewed annually or where there is a substantive change in content. The annual review is the responsibility of the plan owner or their nominated deputy. The plan owner is the Head of Control Centre Operations; however the business activities identified within the individuals 54321/321 process lies with the accountable managers within individual business areas.

Version	Description of Changes Made	Changes Made by	Date	Approved by
0.1	New document – Version 0.1	Jason Thomas	18/08/18	Monica Cooney and Nick Owen
0.2	321 update - Version 0.2	Monica Cooney	16/5/2019	Nick Owen
0.3	Annual leave review – Version 0.3	Monica Cooney	14/9/2020	Monica Cooney
0.4	Annual review – Version 0.4	Gareth Bek	04/11/2021	Monica Cooney
0.5	Update to Small Risk process	Gareth Bek	01/03/2022	

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## **1. Introduction**

- 1.1 This Weather Plan explains how Surface Transport operational teams will effectively respond to weather incidents which may have an impact on Surface Transport operations, contractors, our people, passengers, and users of the TfL transport network.
- 1.2 In line with the Healthy Streets approach, Surface Transport Operational teams play a vital role in keeping London moving. All efforts need to ultimately focus on continually improving performance - reducing disruption and ensuring the safety of Pedestrians, Pedal cycles, Passengers, our People and Contractors. Should a significant weather incident occur, we need to be able to respond decisively to control the impact of the situation effectively. The actions that are required in these circumstances will depend on the nature and the extent of the incident, as well as the timely and robust application of the principles and processes contained within this and the various related plans.

## **2. Purpose**

- 2.1 The purpose of this plan is to provide a consistent and structured approach to the management of weather incidents affecting the Surface Transport network. This plan will enable operational teams across Surface Transport to understand, to respond or to prevent serious weather-related impacts in whatever form they might take and to protect the interests of Surface Transport, our staff, its customers, stakeholders and TfL as a whole. This approach will also enable us to be able to send targeted communications to customers outlining the proactive steps we are taking to ensure their journey is safe.

## **3. Scope**

- 3.1 A 54321 Working Group comprised of subject matter experts from across TfL have been key contributors to this plan
- 3.2 Asset Operations, Bus Operations, Cycle Hire, River Services, Emirates Air Line, DLR, Trams, and VCS among others, (See full list of Action Owners in Appendix C) have a 54321/321 plan for preparations and actions for an weather event in the period leading up to its forecasted arrival. Day 1 is the day of the weather event itself. Day 5 is 4 days prior to the commencement of forecast weather.
- 3.3 Each business unit will have a single, role specific point of contact who will act as the primary owner of the actions for their individual 54321/321 plan. The single point of contact may change on a daily basis and it is up to the individual business units to update the master status board with the single point of contact on a daily basis. The Control Centre Duty Manager (CCDM) will take overall responsibility and chair meetings as well as brief Duty Silvers (DS), Senior Management Team (SMT) and the LU Senior Operating Officer (SOO) to ensure all areas are aligned and updated.
- 3.4 The ST 54321/321 plans do not preclude any other contingency weather plans which stakeholders may have and should be read in conjunction with the individual plans and processes each area already has in place.

3.5 The ST 54321/321 plans covers the following weather types

- 54321 – Snow, Ice and Freezing Rain
- 321 – Heavy Rain
- 321 – Strong Winds
- 321 – Hot Weather

#### **4. 54321/321 Plans**

- 4.1 The 54321/321 plans provide the Network Management Control Centre (NMCC) with a network-wide view of weather preparedness with links to individual 54321/321 action plans in order to review any outstanding actions.
- 4.2 Business area representatives (See Appendix C) have overall responsibility for ensuring that all actions are completed on their individual 54321/321 action plans.
- 4.3 All 54321 action plans are in the form of Excel spreadsheets held on a SharePoint area maintained by CCDM and NMCC Business Logistics team. Everyone in TfL has access to the SharePoint area, edit access is provided to action owners only. Only Subject Matter experts have edit access.
- 4.4 The responsibility lies with the business area representative to monitor and drive the 54321/321 action plans, ensuring that any concerns are escalated and communicated to the relevant stakeholders, and that support is given as required to help resolve any issues. Where a command structure has been invoked, the responsibility lies with the Silver Commander to drive actions. Overall ownership of this plan sits with the Head of Control Centre Operations.
- 4.5 The CCDM will utilise various communication tools including heads up and incident reports to update key internal and external stakeholders in regards to the preparedness for weather impacts as well as the operational impact on Day 1 itself.

#### **5. Weather Forecasts**

- 5.1 Until -mid-2022, TfL has contracted MetDesk to provide a five-day forecast depicting hazards expected on each day.
- 5.2 A hazard matrix is included within the forecast to show when certain weather conditions will be expected. See figure 1 and 2 which are the matrix's applicable to Surface Transport. Action Owners will have individual triggers for their 54321/321 action plans but the hazard matrix red (RAG) status will provide guidance to the CCDM to confirm with business area representatives whether to invoke the overall Surface 54321/321 plan. The trigger points for activation of the 54321/321 plans are risk (amber) or strong risk (red).
- 5.3 Pan TfL Forecasts are received by Action Owners two times per day at approximately 03:00am and 11:30am. This forecast will also be distributed by e-mail by the NMCC when the 54321/321 process is activated. Action Owners are responsible for ensuring NMCC have

the right contacts to ensure activation emails are sent to the right people. For Rail and Sponsored Services we activate on the LU triggers (besides high temperatures).

- 5.4 Asset Operations will contact the forecaster directly if additional information is required.
- 5.5 Triggers are reviewed annually as part of our lessons learned process.

**Fig.1 Met Desk Hazard Matrix**

		No Risk	Small Risk	Risk	Strong Risk	
London Underground	Heavy Rain per hour	No rain impact expected	>10mm per hr	>15mm per hr	>20mm per hr	>20mm per hr
	Heavy Rain accumulation &	No heavy rain accumulations expected	>15mm in 24 hrs	>25mm in 24 hrs	>35mm in 24 hrs	>35mm in 24 hrs
	Strong Wind	Gusts below or reaching 40mph	Wind/Gusts between 40 and 50mph	Wind/Gusts between 50 and 65mph	Winds/Gusts >65mph	Winds/Gusts >65mph
	Rail Ice	No Risk	Small Risk	Risk	Strong Risk	Strong Risk
	Rail Snow	No settling snow	>0-1cm	>1-5cm	>5cm	>5cm
	High Temperatures	<24C	24C to 26.9C	27C to 30.9C	>=31C	>31C
	Lightning Risk	No Lightning	Lightning Risk	Lightning Risk	Lightning Risk	Lightning Risk
	Heavy Rain per hour	No rain impact expected	>10mm per hr	>15mm per hr	>20mm per hr	>20mm per hr
	Heavy Rain accumulation &	No heavy rain accumulations expected	>15mm in 24 hrs	>25mm in 24 hrs	>35mm in 24 hrs	>35mm in 24 hrs
	Strong Wind (Spring, Summer, Autumn)	Gusts <50mph	Gusts 50-55mph	Gusts 55-60mph	Gusts >60mph	Gusts >60mph
Surface Transport	Strong Wind (Winter)	Gusts <55mph	Gusts 55-60mph	Gusts 60-65mph	Gusts >65mph	Gusts >65mph
	Road Snow	No settling snow	<1cm	1-3cm	>3cm	>3cm
	High Temperatures	<25C	25C to 28.9C	29C to 30.9C	>=31C	>=31C
	Strong Wind (Spring, Summer, Autumn)	Gusts <50mph	Gusts 50-55mph	Gusts 55-60mph	Gusts >60mph	Gusts >60mph
	Heavy Rain per hour	No rain impact expected	>10mm per hr	>15mm per hr	>20mm per hr	>20mm per hr

-	-	No Risk	Small Risk	Risk	Strong Risk
	Freezing Rain	No Risk	Small Risk	Risk	Strong Risk

## 6. Weather Desk

- 6.1 The role of the Weather Desk, staffed by Asset Operations, is to provide a central control function between the NMCC and Highway Maintenance and Projects Framework (HMPF) contractors. NMCC will pass information regarding weather related impacts to the Weather Desk who in turn liaise with the contractor control centres. For non-snow events, i.e. Heavy Rain and Strong Winds, the contractors take the lead on assigning specific resources to incidents, rather than the NMCC or Weather Desk.
- 6.2 The Weather Desk will be available remotely for Small Risk and Risk events, while for Strong Risk the Desk will stand up within NMCC.
- 6.3 The availability of the Weather Desk for Heavy Rain events are shown below in Figure 2. The desk is activated by phoning the AO On Call phone number. The activation of the Weather Desk should be discussed in the Operational Meetings at 09:00, including discussing the forecast and likelihood of impacts requiring a coordinated response. If circumstances necessitate the AO On Call should be contacted to consider activating the Weather Desk.

**Fig.2 Weather Desk Triggers**

	Monitor	AO Advise on Existing Resource	AO Identify Additional Resource	Weather Desk Availability
Green (No Risk)	Yes			
Yellow (TfL) (Small Risk)	Yes	Yes		
Yellow (MO) (Small Risk)	Yes	Yes	Yes	Yes (remote)
Amber (Risk)	Yes	Yes	Yes	Yes (remote)
Red (Strong Risk)	Yes	Yes	Yes	Yes (in person)

- 6.4 In addition, Asset Operations will advise on contractor resource. This will be in the form of an email sent on Day 2 to NMCC. Discussions should take place on the regular operational calls between NMCC and AO if the 321 Weather Plan is not activated.

## 7. 54321 – Snow/Ice/Freezing Rain

- 7.1 Should the CCDM be advised that there is either a Risk or a Strong Risk of ice, snow or freezing rain the CCDM will seek advice from relevant Subject Matter Experts (SME) within business units to validate the risk and then activate the 54321 process. Business area



representatives may also consult with the CCDM and advise of potential risks which may be used to trigger the 54321 process. When the 54321 process is activated this will be managed as a level 2 incident. When it has been confirmed there is a Risk/Strong risk that impacts one area in Surface then the 54321 process will be activated, if an area is not impacted by the weather event they will advise NMCC of this via email. They may still however benefit from joining operational meetings from Day 3 in case the forecast changes.

- 7.2 Day 1 is the day on which the forecasted risk condition will begin. In the event that the period of risk begins overnight then the preceding day will be Day 1 in order that actions can be completed in time.
- 7.3 On initiating the process a 54321, an email will be sent by the CCDM advising of the date of Day 1, the period of disruption and that Day X of the plan should be launched. The operational readiness of each business area should be reported on by their representative at the 09:00 operational call which begins on day 3.
- 7.4 The CCDM will monitor email communications from business areas, providing support and escalating concerns as necessary. These updates will be used in stakeholder communications, highlighting preparedness actions and operational readiness.
- 7.5 Whilst the 54321 process is ongoing, further alerts will be sent by CCDM every morning following receipt of the forecast. If the forecaster identifies that the risk level has changed at any other point, additional updates will be distributed accordingly.
- 7.6 Due to the inherent uncertainty with forecasting the 54321 process can be initiated on any day of the process. Similarly, Day 1 may also change mid-process, leading to either skipping forward or repeating a day as necessary.
- 7.7 Spikes of weather events should be treated as a continuous bad weather event where possible, in order to minimise duplication. Where forecasts indicate a second winter event this should be treated as part of the existing 54321 scenario with the process rolled back to Day X accordingly.
- 7.8 Where the period of risk is forecasted to last more than a single day, Day 1 will be repeated and all Day 1 actions will need to be completed again where necessary.
- 7.9 The 54321 process will be withdrawn at the end of the period of risk once all action owners have resumed a good service or when forecasts indicate that the risk trigger levels are no longer reached.
- 7.10 Upon conclusion of a 54321 period, the CCDM will send a formal notification email to stand down all business areas. Following this, the lessons learnt process will be initiated by the CCDM.



- 7.11 At Day 3 should severe weather still threaten Surface Transport service delivery, CCDM will consult with DS to consider setting up a level 3 command structure communicating the decision to all stakeholders and action owners.
- 7.12 On Day 3 and 2 the CCDM will send a notification to all business areas for a 0900 54321 meeting. On Day 1 there will be a 09:00 and a 15:15hrs if required.
- 7.13 Operational meetings will be chaired by the CCDM (or SMT/Silver if a command structure is stood up) to agree a plan for Day 1 and identify critical actions and allocation of additional resources.
- 7.14 CCDM or Silver will inform the ST SMT (or ST Gold if a command structure is stood up) of output from operational calls via a Heads Up email and telephone call if appropriate.
- 7.15 To ensure alignment the CCDM or SOO will attend the other's conference call if either has **NOT** invoked their 54321 plan. If both ST and LU plans are simultaneously invoked, CCDM & SOO should liaise & confirm actions post conference call at the earliest opportunity.
- 7.16 TDM will begin to draft customer information based on Day 3 conference call. This will include appropriate messaging for both LU and Surface modes.
- 7.17 At the conclusion of the Day 1 severe weather event, should there be an ongoing impactful weather or another risk event forecast within 5 days, the 54321 process should be rolled back to the appropriate day see points 7.7 and 7.8 .
- 7.18 At the conclusion of the Day 1 severe weather event, if the network continues to face ongoing weather issues affecting service delivery the CCDM and DS will review actions to ensure a timely return to BAU network service.
- 7.19 Upon conclusion of a 54321 period, the CCDM will send a formal notification email to stand down all action owners and commence the lessons learnt process as per 7.10 above.

## **8. 321 – Strong Winds/Heavy Rain/Hot Weather**

- 8.1 The 321 process for Strong Winds/Heavy Rain and Flooding and Hot Weather begins on Day 3 due to the scale of risks and actions associated with these weather types.
- 8.2 All other operational process steps remain the same as the 54321 with conference beginning on day 3. Communications requirements and processes will differ according to the type of weather and its predicted and actual customer impact.
- 8.3 Please note the communications requirements may be different depending on the weather type.

## **9. 321 – Prolonged Hot Weather Activities**

- 9.1 In the event that London enters a prolonged period of hot weather lasting longer than 3 days of continuous Risk, a state of business as usual will be reached.
- 9.2 Surface Transport will remain at Day 1 in the 321 process, with the assumption that Day 1 activities will continue to be carried out by the business. At this point a weekly conference call will take place on Wednesdays at 0900 unless the CCDM decides that a more frequent call is required. Action areas will also be expected to report directly to NMCC on an exception process.
- 9.3 This business as usual state will continue until the risk status drops below Small Risk for 3 days or more, at which point the 321 process will need to be deactivated. This is to avoid continually stopping and starting the 321 process.
- 9.4 The exception to this will be a Strong Risk, which must always have a conference call on Day 1, to ensure readiness of response for both customer and staff welfare to this extremity of temperature.
- 9.5 The CCDM can also request a 321 Conference Call at any time they feel there is an operational need to hold one.
- 9.6 For 3 or more consecutive days of Small Risk of high temperatures, Surface Rail may request the 321 process be activated. This is due to heat within the rails being unable to dissipate, especially if the days are followed by warm nights.

## **10. Small Risk Weather Events**

- 10.1 Upon receipt of a forecast that indicates a Small Risk for any type weather, the CCDM is to send a heads up for information only. For Strong Winds/ Heavy Rain / Hot Weather, this should be sent on Day 3, or for Snow events this should be sent on Day 5. If the forecasted weather event is fewer than 3 or 5 days in advance, the heads up should be sent immediately.
- 10.2 Asset Operations On Call will send an email to NMCC advising of existing resource for Small Risk on Day 2. This should be confirmed in advance between NMCC and AO on the 0715, 0900 and 1515 Operational Calls. The CCDM should then send a further heads up, advising of this resource and to demonstrate appropriate steps have been taken to prepare for the small risk.

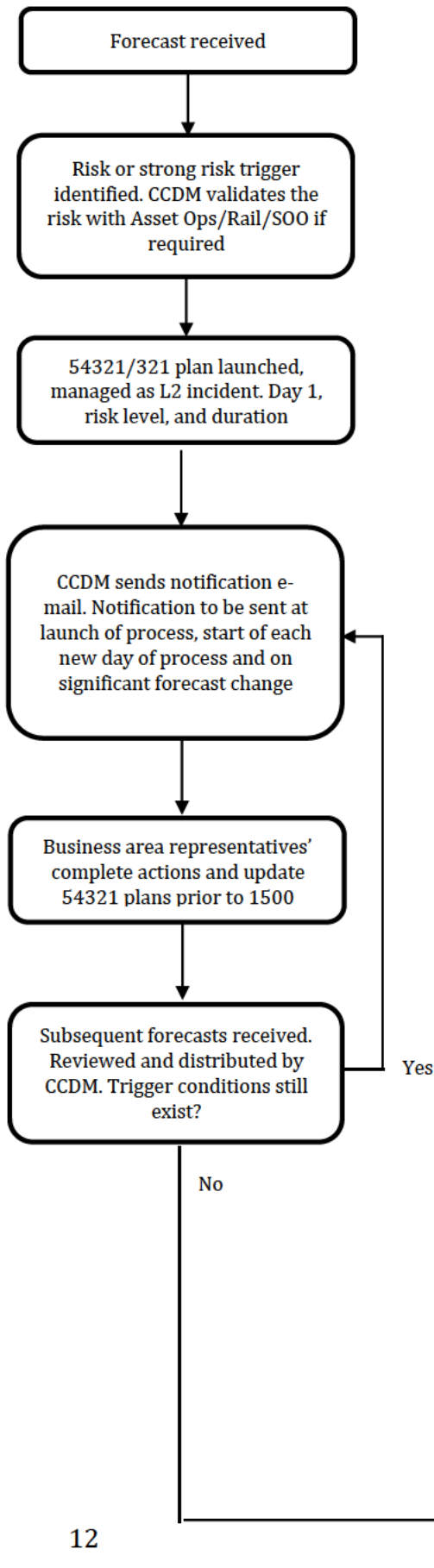
## **11. Surface Transport Incident Management Protocol**

- 11.1 This plan should be read and in conjunction with the ST Incident Management Protocol and run in parallel to the Incident Command Checklists. The ST Incident Management Protocol sets out arrangements for responding to and recovering from incidents, applying subsidiarity to allow decision making at the lowest appropriate level and coordination at the highest level.

- 11.2 The 54321/321 plan allows the Incident Management Protocol to be applied at any stage of the process and at any level from 1-4.
- 11.3 An incident command structure can be set up at any stage of the 54321/321 process, but an action to consult with the Duty Silver to consider setting up a command structure has been built into the plan at Day 3 to provide assurance that an alternative view is taken into account.
- 11.4 For further information about the Incident Management Protocol, please refer to the documentation on the Incident Management Protocol SharePoint site.

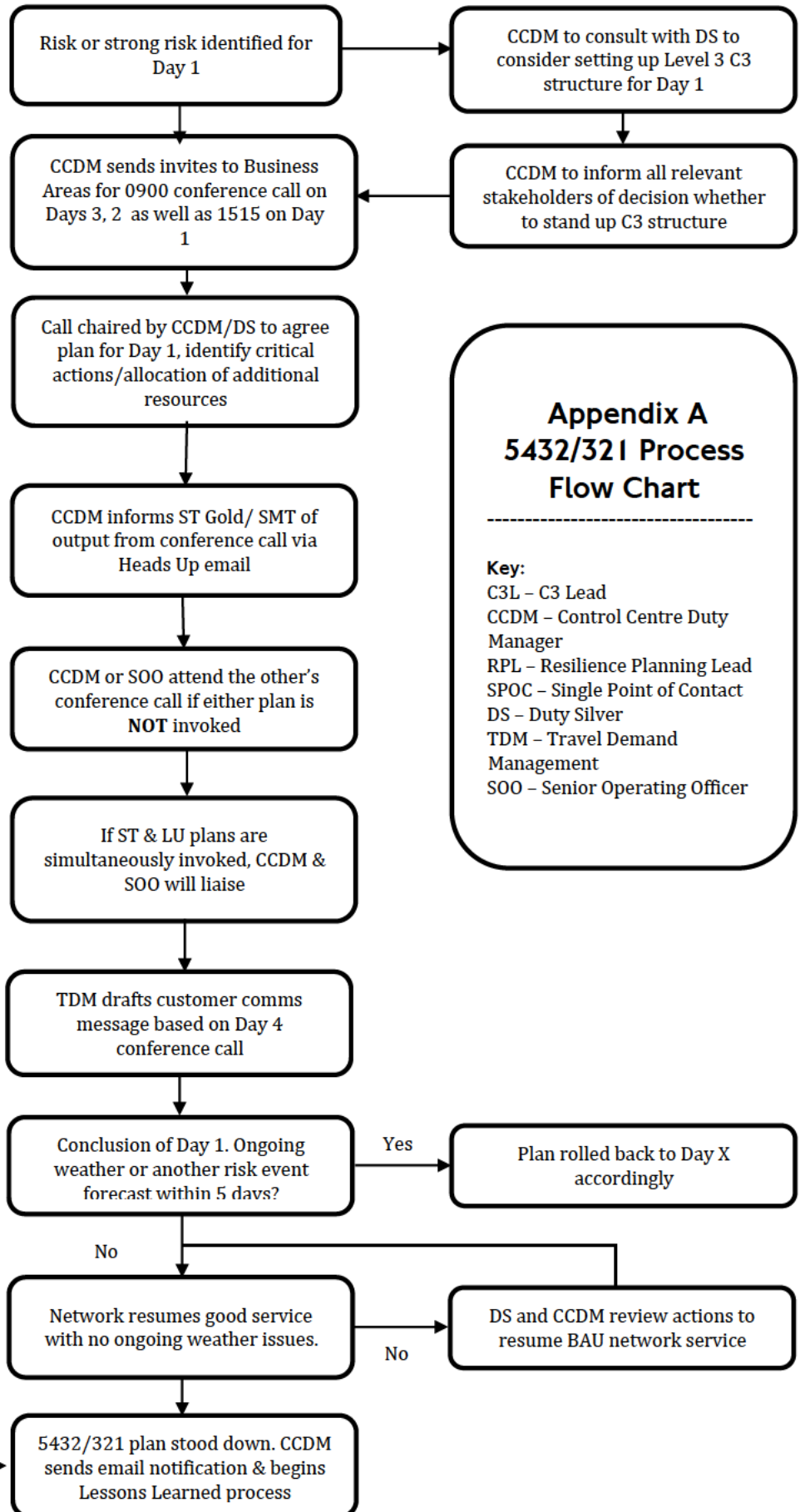
## Launch and action tracking

### Days 5 and 4



## C3 Team, conference calls and

### conclusion of process Days 3, 2, 1



## Appendix A 5432/321 Process Flow Chart

### Key:

C3L – C3 Lead  
CCDM – Control Centre Duty Manager  
RPL – Resilience Planning Lead  
SPOC – Single Point of Contact  
DS – Duty Silver  
TDM – Travel Demand Management  
SOO – Senior Operating Officer

## **Appendix B - Administration of 54321 /321**

### **Conference Calls / Microsoft Teams**

The CCDM or Silver will chair all conference calls on Microsoft Teams

- Held: Day 3 and 2 Conference calls will be held at 0900 on weekdays. On Day 1 there will be a morning call and a 1515 if required.
- Attendees: All impacted Action Owners, Duty Silver if a command structure is in place
- Agenda: The following items are a non-exhaustive list of items which may be included in the conference call agenda: Weather Forecast \* situational update \* Action Owners mitigations of risk and concerns over the Day 1 weather event \* Identify critical risks and issues \* Formulate plan for Day 1 \* Resource allocation \* Command structure consideration \* London Underground Update \* Senior Management Team update \* Boroughs/Local Authorities update \* Weather Desk activation \* TfL contractors update \*

### **54321/321 Exercising and Training**

The 54321/321 plans will be reviewed yearly after the winter maintenance period (1 October to 30 April) and prior to the following maintenance period. All lessons learned from invoking the 54321 plan will be fed into the ST lessons learned process to provide continuous improvement and this will form the basis of the yearly review.

The Resilience & Partnership Lead working alongside the Business Logistics Manager (Training and Exercising) will make an assessment of the effectiveness of the 54321 plan at the time of first yearly review, reporting to the Head of Control Centre Operations. Output from this report will be shared with stakeholders and will feed into the lessons learned process. Upon completion of the report, the administration of the plan will be handed over to the C3 Lead.

The plan will be exercised prior to the winter maintenance period by implementing an up a mock winter weather event and invoking the plan. Any issues will be fed into the lessons learned process and where appropriate, plans will be amended.

A launch pack has been produced which will introduce TfL employee to the 54321 plan. This will form a part of the training for employees that have a role in the 54321 process. Further training will be rolled out as appropriate to supplement an effective working knowledge of all plan stakeholders.

26 October 2018

## **Appendix C – Who is covered by this plan**

### **Departments**

Asset Operations

NMCC

CPOS

River Services and Piers

Woolwich Ferry

Emirates

Cycle Hire

Bus Operations

Dial-a-Ride

Victoria Coach Station

London Overground

DLR

Trams

E-Scooters

Travel Demand Management

Employee Communications and Engagement

## **Appendix D - Abbreviations**

BAU - Business as Usual

C3 Command, Control and Communications

C3L – C3 Lead

CCDM - Control Centre Duty Manager

DaR - Dial-a-Ride

DS - Duty Silver

EAL - Emirates Airlines

LO - London Overground

NMCC - Network Management Control Centre

RPL Resilience Planning Lead

SMT - Senior Management Team

SOO - Senior Operating Officer

SPOC - Single Point of Contact

ST - Surface Transport

TDM - Travel Demand Management