

Piccadilly Line Wheel Protection Plan Strategy

In 2015 and 2016 the Piccadilly line experienced very extensive damage to the train wheelsets. The resulting loss of train availability resulted in a very poor train service on the entire line for over a month.

Following the experience of 2018, the Network Operations team wants to take a different approach where various mitigations are implemented with a view to finding the right balance between high numbers of trains lost due to wheel flats and impact on the customer service.

This “Wheel Protection Plan” has been developed to provide guidance particularly during the Black and Red Days of the Leaf Fall season. It is not expected to be used as a ‘stand alone document’ but with consideration and in conjunction with other service arrangements, Network and Line plans.

BAU Support to support a full service (77 trains for Autumn 2019):

- Autumn timetable with the following 30mph TSRs in place from 7th October until 22nd December
 - Arnos Grove to Cockfosters
 - North Ealing to south Harrow
 - Boston Manor to Hounslow West
- Update of communication board with Met Office report (twice a day / 7 days per week) and reminder of driving techniques.
- Line Information Specialist: Providing regular and ad-hoc information updates to the train operators: Met Office Weather forecasts reports, TSRs, defensive driving.
- DRMs, TTOs and Train Operators live feedback on condition of the track. This will confirm the efficiency of the mitigations or the need for further action.
- Concession to run up to 16 units with flats.

The following mitigations should be used on Red days:

1. T/Ops Reminder: Through radio and Information board update.
2. DRMs to run with first trains and regularly during the low adhesion risk period to feedback on rail adhesion Conditions.
3. SM and DOE to review the possibility of extra run of the Rail Adhesion Train (Consider TTOs meal break)
4. Review the need of additional jet washer run: 12 hours notice needed to be used in Engineering Hours.

In addition to the above, the following mitigations are to be used on Black days:

1. Service Suspension between Rayners Lane and Uxbridge during the low adhesion period. (Providing the Met Line is available). All media (station board, ESUB, to be updated accordingly and TDM to be informed. Service resumption should be planned after a RAT run and DRM confirmation of the improved conditions.

In addition to the Service suspension, please note:

- The first train out of Uxbridge runs on untreated rails between Uxbridge and Rayners Lane. The Service Manager will make sure that the T/Op is aware of the weather conditions and is reminded of defensive driving techniques as the train will run on untreated rails.
Trains involved: (M-F train 360, 05:16 departure, Sat train 277, 05:16 departure, Sun train 360, 06:44 departure). These trains stabled at Uxbridge will be instructed to brake early using the lowest brake rate between Uxbridge and Rayners Lane as the next train is 10 minutes behind. On Sundays it is possible that the train will delay the Metropolitan line train behind it.
- In addition, on Sunday, Trains 337, 340, 341 & 342 run from Acton Town to Uxbridge and back on untreated rails. (First treatment will be provided by the Met Line). Those first four trains from Acton run before the Met line RAT has treated the rails between Rayners Lane and Uxbridge.
On Red days: those first 4 trains out of Uxbridge may not run as they will not be protected by Sandite.
Contact should be made with the Met Line Service Manager, to confirm the availability of the Met Line RAT. The Piccadilly Line Service Manager can then decide whether to:
 - Run these as booked from Northfields to South Harrow and then pause in South Harrow Sidings until their booked eastbound path,
 - Leave the trains in Northfields Depot, leaving there in time to pick up their booked path at Acton Town Eastbound,
 - Run all the way to Uxbridge with DRMs to assess the rail adhesion conditions.

Degraded Mode

- When flats start affecting the service availability (73 or below) the following will be deployed:
 - Additional Jet washing (engineering hours)
 - Increase coverage of the RAT (when and where possible)
 - Review the recovery rate with Fleet: Are the number of flats increasing or decreasing? Rayners Lane to Uxbridge remains suspended until the recovery rate is greater than the damage rate.
 - Put in place up to 50% service reduction to maintain headways within TSRs.
 - Liaise with communication team for deployment of resilience communication plan
- All of the above will be challenged by review of:
- The Met Office weather forecasts (Yellow or Green with confirmation)
 - The season progress (early – mid – late)
- Strike event: Review mitigations deployment.
 - Asset Failures: Review mitigations deployment.

Piccadilly Line ACCAT User Guidance – 1 year of operation (2019)

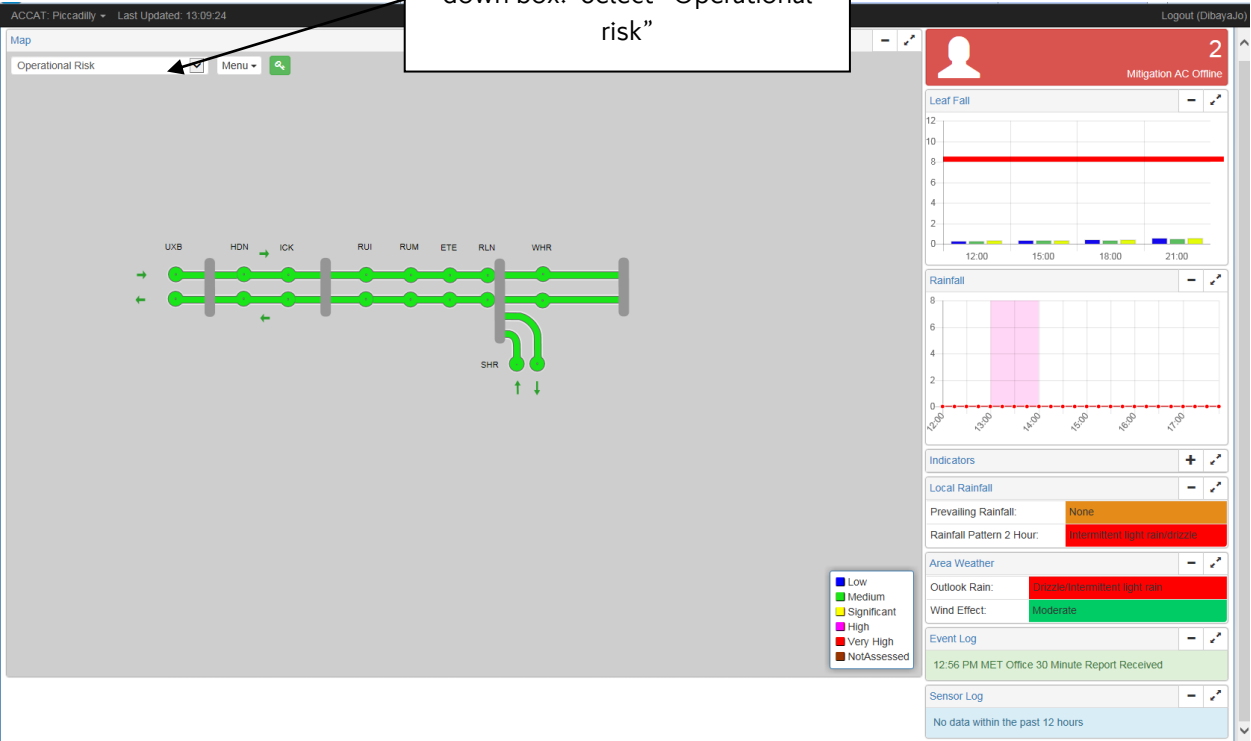
ACCAT: Adhesion Controller Condition Assessment Tool.

In order to help mitigate the risk of high levels of wheelset damage across multiple trains, the ACCAT will support the DOE (Duty Operation Engineer) for the deployment of certain mitigations:

1. Recommend RAT (Rail Adhesion Trains) runs
2. Generate a “Suspend PL Service between Uxbridge and Rayners Lane” in response to a triggered logic.

The DOE (Duty Operation Engineer) using the ACCAT takes on the role of Adhesion Controller (AC).

Click here which will reveal a drop down box. Select “Operational risk”



The screenshot shows the ACCAT web interface. At the top, it says 'ACCAT: Piccadilly' and 'Last Updated: 13:09:24'. Below that is a 'Map' section with a search bar and a dropdown menu. The dropdown menu is open, showing 'Operational Risk' selected. The map displays the Piccadilly Line with stations UXB, HDN, ICK, RUI, RUM, ETE, RLN, WHR, and SHR. A legend at the bottom right indicates risk levels: Low (blue), Medium (green), Significant (yellow), High (orange), Very High (red), and NotAssessed (brown). On the right side of the interface, there are several data panels: 'Leaf Fall' (a line graph showing a red line at 8), 'Rainfall' (a bar chart showing a pink bar at 14:00), 'Indicators' (a table with 'Local Rainfall: None', 'Prevailing Rainfall: None', 'Rainfall Pattern 2 Hour: Intermittent light rain/spray', 'Area Weather: Outlook Rain: Drizzle/intermittent light rain', 'Wind Effect: Moderate'), 'Event Log' (a table with '12:56 PM MET Office 30 Minute Report Received'), and 'Sensor Log' (a table with 'No data within the past 12 hours').

Each AC has been given a login and password to access ACCAT. Only the AC can respond to the ACCAT prompts.

There will be 2 actions required from the AC:

1. Confirm or Decline the RAT runs following a prompt by the ACCAT. If the recommendation is not followed, it is expected that the AC will document the reason (availability, weather, etc....)
2. Confirm or Decline the Line part suspension following a prompt by the ACCAT. Once applied, the service suspension shall be retained for a minimum of 2 hours. Even if the trigger conditions cease to exist within this time, the ACCAT shall not generate any prompt recommending restoration of service operation until the minimum retention period has elapsed.

Both actions will require the AC to liaise with the Service Manager to confirm the operational suitability of the mitigation.

The Service Manager can access a “read only” version of the ACCAT.

The Piccadilly ACCAT has logic optimised for 1973 TS. In consequence it is possible that the Piccadilly line ACCAT will at times give a more adverse recommendation for Piccadilly line trains between Rayners Lane and Uxbridge than that shown on the SSR ACCAT display used by the DOME.

Most of the data inputs into the ACCAT System are automatic, for example weather forecasts, rainfall updates, leaf fall forecasts. Others are added by the DOME (for example confirming that the Met line Rail Adhesion train has run as booked and track team reports).

Additional Supporting documents:

- Piccadilly Line Emergency Plan
- Piccadilly Line Autumn Plan (of which this forms an appendix)
- RAT Train Operation (Appendix of the Piccadilly Line Autumn Plan),
- Formal Incident Management Processes (Line and Network)
- Network Autumn Weather Contingency Plan