

## Non-Typographical Corrections: Mike Palmer

Transcript Reference (page #, line #)	Change Requested
P8 L7	After “Thales, the signalling company” add “working on the same project but now as the supplier and not the customer”
P8 L12-15	“as well, a tram project, including a very large <b>project to transfer 860 signal cabins and centers to 12 new Regional Operations Centres (ROCs) by Network Rail who run the Rail Infrastructure in the UK</b> ”
P8 L25 to P9 L5	Add “ <b>I had responsibility</b> of the control centre, railcars <b>and the maintenance shops, all</b> rail infrastructure which included track, signals, plant, electrical, communications etc.”
P9 L5	Replace with: “And I <b>operationally</b> ran the <b>four subway</b> lines on the <b>TTC from 2014 to 2016.</b> ”
P9 L7	Replace “in the middle of that” with “ <b>During that time, we turned Line 4 Shepherd</b> ”
P10 L4	After maintenance – add “ <b>and capital expansion</b> ”
P10 L5	Replace “and so they hived it into three” with “ <b>and divided the network into three PPP companies.</b> ” (with a full stop)
P10 L9	Should read “ <b>So the resignalling projects on the Jubilee and Northern lines, and the Jubilee line 7 car project both came under Tubelines</b> ”
P10 L11	After metronet, should read “ <b>The other PPP Company running the other two groups of lines went bust and was bought out by London Underground in 2009.</b> ”
P10 L14	Replace with: <b>The PPS were a little different in that they were not design /build / fund / maintain but maintenance of the existing assets and funding / capital renewals and improvements.</b>
P11 L17	After “maintenance” add “ <b>and capital expansion</b> ”
P12 L8	Replace “and so if the train went past a train stop etc. etc.” with “ <b>So if a train passed a red signal (danger), the train stop is in an up position and triggers (via arm under the train) an emergency brake bringing the train in an unauthorised section to an immediate stop</b> ”
P12 L13	Should read “but it is a similar IS system and not the MS version.”
P12 L16	Replace with “ <b>In London, two inductive loops laying on the track pass its position and speed every second or so and receive permission from centralised computers on how far and how fast the train is permitted to travel.</b> ” (end of line 21)
P13 L6	Replace “movement with switches” with “control of switch movements”
P13 L13 -L15	Remove: “If you go in an area of the track for vital signalling, train separation and interlocking.” And replace with: “ <b>i.e. If you are in an area of the line – the ZC manages signals, train separation and interlockings.</b> ”
P13 L22	Replace from “and before it was—the first place it was opened” with “ <b>The first location it was put into service (which is why its relevant)</b> ” and then continue with “was actually etc. etc....”

P14 L2	After “two lines” change to “to have seltrac40 commissioned into service in the mid 80’s.”
P15 L13	After “introduced” replace with “Communication Based Train Control using inductive loops on two lines”
P16 L1	After “the TTC”, change to “delivered just under half of the line with brownfield CBTC and one greenfield section (The TYSSE extension)”
P16 L1 and L2	Replace entire sentence with “In that three years, my Project Director and I didn’t not get the contract out of the drawer once when we didn’t agree”.
P16 L6	After “getting” replace remainder of sentence with “the contract out as the last resort”.
P16 L8	Replace entire sentence with “When I left the TTC, the project was on time, was about to slip slightly, with 13 million dollars remaining in the project contingency funds”.
P16 L15	Replace whole sentence starting “So Ottawa” with “So Ottawa as a City was the interface for the P3 Constructor, around construction, commissioning and operations of the LRT” and had not done it before. I see the city as “new to this game” if you like”.
P16 L20	After project, replace with “which was run by the city and OC Transpo initially with Steve Cripps and subsequently Michael Morgan leading (when Steve returned to Toronto) and was a wide spread team from the US and Canada.”
P17 L11	Replace the sentence starting with “And they just” with “ <b>They had a very different culture and attitude towards the P3.</b> ”
P19 L13	Replace “And” with “ <b>Sometimes</b> ”,
P19 L18	After “which is not”, replace with “ <b>less prevalent in the UK or Europe</b> ”.
P20 L14	After “organisations”, add the words “ <b>appeared to</b> ”
P21 L18	Put “P3” in front of “rail construction”
P21 L13-15	Replace sentence starting “and I think” with “I think IO and Metrolinx would agree with that.”
P21 L15	Replace sentence starting “models change” with “ <b>P3 models are changing slightly around the P3 sharing risks with IO / MX</b> ”
P21 L17	Replace “people” with “companies”
P22 L21	After “and that” add <b>workload</b>
P23 L22	Delete “and” and start the sentence with “ <b>There was</b> ”

P24 L1	After brownfield - add <b>“projects”</b>
P24 L9	After converted – add <b>“to CBTC”</b>
P25 L7	Replace “the construction side” with <b>“the rail construction project”</b>
P26 L20	After “viewed” – add the word <b>“sighted”</b> and after “installed” add <b>“visible to Train Operators”</b>
P26 L22	After “day-in-the-life-of” – add <b>“workshops”</b>
P26 L24	After “with” add <b>“role”</b>
P26 L24 and 25	After <b>“role players”</b> replace with <b>“across the line to ensure the system was operable”</b> .
P27 L17	Replace “team” with <b>“Company”</b>
P27 L3	Delete “And” and start sentence with <b>“They.....”</b>
P27 L5	Add <b>“light”</b> before “rail”.
P27 L11	After “gap on” add “where the city were on <b>light</b> ” on rail experience
P27 L12	Before people - add <b>“new”</b>
P27 L16	After probably – add <b>“included”</b>
P27 L18	Replace from the start of line 18 with <b>“Contract in Vancouver to extend a line (the Broadway extension) ) we have to adapt the SOPs there. Whether that’s the right way to go, I think its about the transfer of risk again by getting etc etc</b>
P27 L23	Replace the sentence with <b>“And so the P3 would draft an SOP, OC Transpo comment on the SOP. We would list all comments and send them back to the P3. They would agree (and make the changes or disagree and send it back for further discussion. We would then either agree with their comment or amendment, or keep the comment open with this “ping pong” effect in writing the SOPs by both sides which was taking months and years to complete”</b>
P29 L1	After line – add <b>“and finished”</b> .
P29 L13	Replace “location” with <b>“yard (MSF)”</b>
P30 L7	Change “And the” to <b>“So”</b>
P30 L17	Insert “each day” before “from a low baseline”
P31 L3	Delete “planning”
P31 L8	After “emergency planning” add – <b>“for London Underground at the”</b>

P31 L21	Add after “more to” – <b>“retrospectively”</b>
P32 L10	After “Conops” – add <b>“/DITLOs”</b>
P33 L2	Replace “grew down” with <b>“changed”</b>
P33 L5	Change “operate” to <b>“complete”</b>
P34 L22	Please replace “killed” with <b>“failed”</b> and finish the sentence with “didn’t”. (delete remainder of text)
P35 L6	Delete “was” and add after commissioned <b>“safe and operable”</b>
P35 L8	Change “bodies” to <b>“trains”</b>
P35 L20	After “that” – add <b>“stage”</b>
P37 L18	Add after “just a” – <b>dotted</b>
P38 L23	Next sentence should read <b>“Each deep dive would be on a particular theme etc. etc.”</b>
P41 L3	After “being there.” Add – <b>makes it real.</b>
P41 L10	Add after “once,” – add <b>“after”</b>
P50 L4	Add <b>“system”</b> after “one”
P52 L24 and P52 L25	Replace “pay grade” with <b>“responsibility”</b>
P54 L21	Replace “copy signaling” with <b>“all stakeholders including rail construction who”</b>
P56 L21	After “maintenance manuals” – add <b>“is often last minute”</b>
P57 L12	After “integration” add <b>“for Parsons”</b>
P57 L18	After “as a” add <b>“operational”</b>
P59 L7	Replace from “where” with <b>“where regular meetings with EWC (Kiewit, Vinci and Eurovia) are held in a very open and transparent way”</b>
P59 L18	Delete <b>“and probably looking back at stage 1,”</b> and start a new sentence with <b>“We have.....”</b>
P61 L20	After “transferred over” replace with: <b>They were struggling with that particular software version from Thales.</b>

P62 L8-L10	Delete from “where the city table topped trial running” to the end of the sentence on line 10
P63 L14	Replace the start of the sentence with “ <b>I visited most of the stations which were finished or almost finished, partly to have</b> ” etc. etc.
P63 L21	Replace “station” with “ <b>line</b> ”
P65 L15 – L19.	Replace with “ <b>For you to get 90% reliability of an asset (or system as a whole) you calculate it through headway, journey time, punctuality number of delays below 5 mins etc – I didn’t have access to those figures.</b> ”
P65 L20-L24	Replace with “ <b>And I didn’t get to see the evidence of reaching 99% of steady reliability. You know it takes 1-5 years or so of steady improvements to reliability of 99% type of level.</b> ”
P66 L12	“ <b>on the TR rolling stock of 5 mins or over</b> ”
P66 L25	New sentence “The service level 1 headway on Line 1 in the AM peak is 3mins 22 secs using 15 trains.”
P67 L2	Replace paragraph with – “ <b>When the line opened, it was operated by 13 trains and managed a 4min and 8 sec headway – almost a minute adrift of where the headway should have been on opening.</b> ”
P67 L8	After “better at operating” – replace with “ <b>the service, become better at operating, being familiar with the systems and learning the tricks or what and what NOT to do.</b> ”
P68 L3	Replace “its going” with “ <b>They were trying to go from 0-100 overnight</b> ”
P68 L8	Delete “where”
P68 L13	After “have been” – add “ <b>made</b> ”
P68 L16	After “enough trains” add “ <b>for testing</b> ”
P68 L18	Before “access” – add “ <b>track</b> ”
P68 L23	After performance” <b>each requiring unique adjustments</b> ”
P68 L25	Delete “well”
P69 L2	At the end of the line add – “ <b>station stopping</b> ”
P69 L10	Replace “part” with “ <b>stage</b> ”
P71 L16	After “single LRVs” – add “ <b>as maintenance float</b> ”

P71 L19-L20	Replace whole sentence starting with “over” with <b>“13 trains was a hybrid of service level 1.”</b>
P71 L21	After “I believe” replace numbers with <b>“availability”</b>
P71 L24	Delete “if you move”
P72 L9	Replace “they” with <b>“RTM weren’t given access to the main line for testing”</b>
P72 L17	Replace “bring in” with <b>“talk to”</b>
P73 L3	After “And the work is” – add <b>“similar”</b>
P73 L5	Remove “And I was involved in etc.” and replace with <b>“And when I have been involved in people’s certification”, it is only a snapshot of the person’s competence, their skills, knowledge, experience and that they are safe.”</b>
P74 L17	Replace sentence with <b>“I have been involved in assessing people’s competence or quality threshold since 1989 for drivers or control room staff.”</b>
P75 L24	Replace from the start of the line with <b>“So you have a controlling mind for operations, a controlling mind for maintenance and they dictate the detail of how the operations and maintenance elements would function and look like.”</b>
P75 L1 and L2	Replace lines 1 and 2 with – <b>“Also, what alarm did you want to have for this particular event using alarm management standards.”</b>
P76 L3	Replace the paragraph with <b>“So, I’m familiar with the concept of a shadow running team context in relation to OC Transpo and a P3. I didn’t take the jobs I’m happily living in Canada. But as you know, a lot of P3s worldwide use a shadow operator with good effect as the pseudo Operator and Maintainer. I think its best practise BUT you still need to get the right people.”</b>
P76 L18	After “see”, delete and replace with <b>“where within OC Transpo or the RCP it would sit. I think in reality, I partially ended up trying to help the operator understand and articulate what they wanted”</b>
P76 L23 to P77 L1	Replace from “If you” with - <b>If you took the SCADA front end design as an example, I don’t believe that any operator were asked their opinion on anything until it was delivered. So OC didn’t have a voice”</b>
P77 L14	Replace “out everywhere” with <b>“all the time”</b>
P77 L19	Replace the second “you know” with <b>“P3s do not give you brilliant engineering across the spectrum. Because its all about money.”</b>
P78 L15	Replace “Was” with <b>“and”</b>
P78 L19	Replace “recruitment:” with <b>“system”</b>

P78 L19	Add <b>“when”</b> at the beginning of the sentence starting with “I was”
P78 L23	Replace “it” with <b>“the fleet”</b>
P81 L3	Delete “how it was going to be commissioned”
P81 L15	Between “the” and “door” – add <b>“front”</b> and replace “go” with <b>“take the train”</b>
P81 L19	Add <b>“zone”</b> before “controller”
P82 L3	Replace “service” with <b>“operation”</b>
P84 L3	Replace “a diagram” with <b>“the line”</b>
P85 L2	Replace “of a line” with <b>“the end of the line, we got the passengers off and trains went onto the extension and back with the rostered driver in their scheduled path including opening / closing of doors.”</b>
P86 L17	After “is” add <b>“during”</b>
P86 L18	After “maintainers” add – <b>“have usually been involved etc”</b>
P86 L22	After “set of” add <b>“success”</b>
P86 L23	After “extend” add <b>“trial running if”</b>
P87 L15	Add after “operate it” – <b>“in service”</b>
P91 L3	Replace “way above my paygrade” with <b>“not my responsibility”</b> (I used UK slang)
P92 L11	After “I think the” add- <b>“the stage 2”</b>
P93 L3	After “now” add- <b>“about RTM readiness”</b>
P94 L24	After “plagued” add – <b>“with failures”</b>
P97 L1	Add after “alarms”. <b>Then OC would be able to retrospectively apply the new standard to the stage one alarms, in batches of perhaps 50 alarms per software drop, so they could measure the reduction in alarm numbers and see the alarm system mature, ready for implementation by the stage 2 P3.</b>
P97 L22	After “maintain” add – <b>“managing alarms by exception – especially on parts of the system where there is a “hands off” approach”</b>
P100 L6	Replace after “have a” with – <b>“a higher standard or level of quality in general.”</b>
P100 L8	From the start of the line with – <b>“And so by applying client or industry standards early on in the project”</b> etc.

P100 L22	Replace starting from “it was “with “ <b>it was completing testing on single units first so when two units were coupled, the fault finding could focus on the consequential faults of coupling</b> ”
P101 L3	After “the signage” – add “ <b>installed</b> ”
P101 L8	After two-car add – “ <b>and more difficult to trace the reliability to an individual LRV, or the function of coupling made unreliable single LRVs even more unreliable</b> ”
P101 L10	Replace “but” with “ <b>and so reliable running</b> ” of two-car etc.
P101 L25 & P102 L1	Replace “both sides” with “ <b>between the LRV units as...</b> ”
P102 L4	Replace “cameras” with “ <b>monitors</b> ” and after “to” – add “ <b>check the platform and close the doors</b> ”
P105 L14	From start of line replace with “ <b>using track circuits, the trains would check that the guideway (track) was free of work vehicles and people before the first passenger trains entered service at 05:00AM</b> ”
P105 L18	After “the” add “ <b>ends of the line</b> ”
P106 L8	After “yard” add “ <b>zone</b> ”
P106 L17	The line should read –“ <b>that OC and RCP held out for 15 in service</b> ” etc. etc.
P106 L22	After “something” -add “ <b>positive</b> ”
P106 L24	After “lower base” add – “ <b>rather</b> ”
P109 L23	After “surprised” – replace the rest with – “ <b>that once the axle came off, the train served a station with customers getting on and off, departed in service crossing a highway and only derailling more of the train when the axle hit a facing switch beyond the station and bridge</b> ”
P110 L10	Change “components” to “contributory factors hadn’t occurred (and lined up with the other holes) then the accident won’t happen.”
P110 L13	After “track” add “ <b>systems</b> ” and after “100 percent” add “ <b>reliable and alarmed correctly to the right people in the control center</b> ”
P115 L12	Replace the line with “ <b>write the Con Ops, syndicate it to stakeholders for “buy in” and validate with end users</b> ”