Young Crossrail Programme — Appendix1: Detailed Summary of Young Crossrail Programme

Initiative	Description of event	Outcome / impact
British Science Week	The team generally ran one to two events during the week. Previously this has included bespoke STEM workshops engineering master classes and careers talks, speed networking events and raising aspirations workshops aimed at girls. Young Crossrail also provided support to partner schools through the volunteering programme for initiatives the school already had in place.	The Schools who were supported by Young Crossrail considered that British Science Week was effective in celebrating STEM and in particular, showcasing the variety of job roles and careers within STEM industries.
National Women in Engineering Day (NWED)	Young Crossrail ran several engagement events with partner schools to coincide with NWED. Focused campaigns provided an opportunity for Crossrail to showcase inspirational and passionate women working on the project who in turn encouraged more young women to follow in their footsteps. The events were supported by Young Crossrail ambassadors and all partner schools with girls in attendance were given the opportunity to participate. The events were primarily aimed at girls from years 7-9 as it was considered aiming at this age group, provided an opportunity to influence GCSE subject choices. Typically events included speed networking, career talks and hands-on activities. In particular, speed networking and having the chance to meet women on the project including apprentices and graduates proved to be some of the most popular activities the team ran.	The comments below outline what some of the students enjoyed about the NWED events at Crossrail: *'I learnt that women can work as engineers'* *'Listening to all the different types of engineers talk about how fun the profession is'* *'I used to think engineering was all male, but now I realise more women are getting involved'* *'Meeting the CEO was highly memorable, exciting and a great opportunity'* Feedback from partner schools was equally positive: *"The Young Crossrail Programme provided fantastic support for the girls at Elizabeth Garrett Anderson with some amazing Crossrail women coming through the doors to engage with the girls. Crossrail and engineering has had such a big profile at the school and that has been down to the Young Crossrail Programme. We will build on the resources, ideas and information to help advise girls about careers in engineering and construction."*

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		Paul McIntyre, Elizabeth Garrett Anderson After the 2016 NWED event, 100% of students rated the day as excellent and felt that the engineering profession was a desirable career choice.
Tomorrow's Engineers Week	Tomorrow's Engineers week aims to bring the engineering industry alive for young people. Past events have included cross-industry initiatives hosted by members of the TIEP group including TfL, the London Transport Museum, Thames Tideway and others. In 2014, a CPD session aimed at STEM teachers took place at the London Transport Museum. The session enabled teachers to find out about career pathways into the engineering industry and an opportunity to network with transport and infrastructure professionals including apprentices and graduates. Interactive workshops were delivered for partner school students and generally included activities aimed at challenging misconceptions in the industry. On occasion site visits were arranged and students Sessions focused on bringing the Crossrail project to life by showcasing some of the innovative and technical aspects of the project. One session focused on structural engineering, aided by a resource pack produced by Tomorrow's Engineers. The session aimed to give students an overview of structural engineering, including some of the techniques Crossrail used to monitor ground movement. Students had a chance to think like engineers by building their own structures and were challenged to build the strongest structure in competition with their peers. A graduate engineer also spoke to students about his role on the project and shared his reasons for becoming an engineer.	Young Crossrail events organised as part of Tomorrow's Engineers Week were highly regarded and received strong support from Young Crossrail partner schools and volunteers. In 2015, 75% of students said that they had learnt a lot about what engineers do. In addition to this 80% of students said that a career in engineering would be a desirable career path. Some of the students commented about their perceptions of the engineering industry: *"the event has made me more eager to do engineering in the future"* *"In the future I hope to become an engineer"* *"I now understand the challenges engineers face to a greater extent than I did beforehand"* *"the event has changed my perceptions. Before today, I thought engineering was just mechanics, therefore I thought engineers only fixed cars"*

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Corporate Work Experience Scheme	The Corporate Work Experience Scheme was a structured programme for partner school students. Young Crossrail developed the programme which included an initial assessment session for cohorts of students across participating schools which enabled the team to recruit genuinely interested, motivated and engaged students on to the project. The session also provided a chance to understand student's areas of interest and assisted with matching students to suitable hosts. In 2014/15 the corporate work experience scheme was mapped to the BTEC Level 2 Award in Work Skills in order to add value to the overall scheme.	Volunteers that had shown interest in hosting a student were invited to the assessment sessions with schools to ensure that the process was mutually beneficial to the volunteer and the student. Hosts were assisted with interviewing students which enabled them to identify if any students in particular would be a good match within their team. Host feedback was positive and with many commenting that this process was an excellent way to ensure students were keen and interested before they are placed with a team. On average students gave their work experience placement 4.6 out of 5. Similarly, since the scheme began in 2013, 98% of students have rated the work experience as good or excellent. 96% of hosts rated their experience of hosting a work experience student as either good or excellent.
First Lego League (FLL)	The First Lego League is an organised schools project which provides school teams an opportunity to work together to design, build and programme a robot to complete a series of set challenges. The team work together for approx. ten weeks culminating in a regional competition and potential for further participation in a national competition. Crossrail's Project Delivery Partner, Bechtel were key sponsors of the FLL and provided a selection of Young Crossrail partner schools an opportunity to take part. Over a three year period (2013 – 2015), five partner schools took part in the FLL with one partner school awarded regional champion.	The event was popular with partner schools, and in particular Greenwich UTC who had the time and resources to allocate to the initiative being a construction focused school. Volunteers were also positive about supporting the FLL as they had a chance to lend engineering expertise during the hands-on robot building aspect of the competition as well as assisting students with improving employability skills which were a core part of the programme. Students are able to take on a role within the team i.e. computer programmer, designer, report writer etc. This enabled students to work both independently and as a team. The event is well organised and has relevant links to STEM, particularly in applying engineering concepts to real life.

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Skills events – Skills London & Skills Show	Young Crossrail worked closely with colleagues from the External Affairs Directorate, including designers, copyrighters, videographers and marketing professionals to determine the theme and the messaging for each year's exhibition stand. Themes were chosen based on the stage of the project at the time, e.g. tunnelling, civils etc. relevant to Crossrail. The Crossrail exhibition stands generally had an interactive element to them as well as a series of factual panels with information. For example, iPads, robots, puzzles, hands on activities and even a digger were all used on the stands at various events. The team had learnt from attending careers fairs and observing other company stands that those with an interactive element attracted a larger number of visitors. Initial internal discussions and planning meetings began in late July at a quieter time for the programme which coincided with schools breaking for the summer. Volunteers were recruited to support the shows from across the project, many of whom were apprentices and graduates. Recruitment of volunteers took place in October and briefings were delivered by the Young Crossrail team to ensure that the key messages were understood by all and could be cascaded to visitors at the exhibition.	Crossrail's attendance at these events became more and more popular amongst visitors. The numbers of students engaged during the shows increased year on year and a sense of positivity about the project and careers in the industry also grew. From 2008, Young Crossrail engaged with over 15,000 young people, teachers and parents and volunteers dedicated over 950 hours of their time inspiring the next generation at Skills Show events. Volunteers were on hand to share their experiences, talk to young people about career and apprenticeship opportunities and help with interactive activities on the stand. Many of the volunteers returned each year showing strong engagement with this particular event amongst ambassadors. The Skills shows were highly successful and should be considered by future project as they have significant impact.
Teacher Industrial Partners Scheme	Crossrail were approached by the Institution of Mechanical Engineers to act as a pilot for the first scheme which was rolled out in 2014. Crossrail hosted three teachers in 2014, followed by a further two teachers in 2015 and two in 2016, a total of seven teachers.	Feedback from teachers was positive with many commenting that they had been able to begin integrating what they had learned into schemes of work and project based learning in lessons, further embedding STEM across the curriculum. The teachers from the 2016 cohort commented on their experiences at Crossrail:

Initiative	Description of event	Outcome / impact
	Young Crossrail organised the placements which took place over a 1-2 week period. The placements generally took place in July, as this was a quieter time for schools and the Young Crossrail Programme. The placements involved engaging colleagues from across different areas on the project seeking a few hours of their time to meet with the teachers to share enthusiasm, knowledge and information about the work they do on the project. Volunteers based on a work site were encouraged to offer the chance for teachers to see some of the construction works taking place on site.	*We felt that we experienced even more than we anticipated during the placement. We are much better prepared and enabled to implement the ideas and suggestions to our schools as a result of spending a brief but information packed week at Crossrail. We were particularly fascinated by the plethora of fantastic careers within the construction and transport industries. We felt inspired and privileged to have been at Crossrail and in turn to inspire young people especially those who are marginalised to take an interest and eventually forge a career path within these industries. Crossrail has made a transforming impact on our own professional Teaching Practice.* Marcia Mendoza & Lee O'Neill, STEM Teachers
Rail Week	Rail Week is a new initiative for 2016, spearheaded by the Young Rail Professionals network. The week aims to unite industry in promoting careers in the rail sector through events, workshops and site visits. Crossrail worked in partnership with Project Delivery Partner, Bechtel to run an informative event for partner schools. Two schools were engaged in the day, one school from each organisation. Year eight students were given the opportunity to view Crossrail's Farringdon site as well as a speed networking activity with Project Managers, Architects, Cost Engineers, BIM specialists. The objective of the day was to provide an overview of the different types of career paths available within Rail and wider infrastructure.	Data was not collected for Rail Week as this was a one-off event in 2016 only.