Case Study

Project: Track Renewal Animation - Coventry Nuckle

Client: TXM Rail

Introduction

In support of their tender submission, TXM Rail commissioned D2's Visualisations team to produce a construction sequence Animation, showing the methodology required to deliver the Coventry Nuckle Project. Our Visualisations team approached this with a combined use of Animation and Gaming software, to create the final video.

Deliverables

The Scope for our Visualisations team was to provide an Animation to support the renewal works for the Coventry Nuckle tender submission. The Animation comprised of 4 Key areas, with pre works to be included at a less detailed level.

The pre works included, the installation of compound, the removal of siding 3 track, the renewal of the Neck Shunt, the installation of the head shunt and the installation of the new platform 5. All of the pre works were Animated in an indicative format, with no plant movements being displayed, as this was not critical to the project. The installation of the compounds and new platform 5 were displayed as the constructed build dropped into position, with all track works being Animated in accordance with TXM's installation process, excluding all plant, with added particle effects to demonstrate the burning of the rails.

Area 1 to 4 was the significant part of the Animation, with track renewals taking place in these areas. The renewal process for all Areas had the following procedure:

- Burning of the tracks
- Removal of sleepers and tracks in 6m sections
- Excavation of area
- Re-Ballasting of area
- Switches & Crossings (S&C) installation using PEM LEMs
- Plain line track install
- Top ballast
- Tamping

The Animation of these works showed plant movements, with an initial detailed Animation of the first routine.

Client Testimonial

"We worked very closely with D2 on the production of an Animation for a tender we were working on. We have worked with D2 previously and knew that they could Animate our vision for the delivery methodology and really capture how we would plan to deliver the works. We had a strategy session with the team discussing areas of sites we would want to Animate, the types and number of plant vehicles we would require and the key focus points which we'd like to get across with the Animation. We then put together a strategy document detailing the staging of the works and D2 produced the Animation.

The attention to detail throughout the works was excellent. The D2 team would have regular conference calls at each stage to ensure that what was being produced was in line with the requirements. The final product was of exceptional quality and showed perfectly how we would deliver the project."

Fin Gregory, Project Manager

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Challenges and Solutions

The main challenge on this project was the scale of the Animation. A typical Animation request covers a single renewal. This project involved the single largest Animation D2 had undertaken, as it consisted of a total of 9 separate Animations (5 Indicative Animations and 4 Renewal Animations), which needed to be Animated in detail in line with the programme.

To overcome the complexity of this Animation, we needed to target 2 main criteria; how to manage the amount of Animation that needed to be provided and the complexity of such a large programme.

To manage the amount of Animation required, we split the project in to its sub-areas, which were then condensed to component Animations. These component Animations, were then divided for each area. This gave us the ability to review and update these without a large knock on effect to the whole area Animation, streamlining the workflow, allowing it to pass from the Animation team, to the gaming environment team and finally to post production.

The understanding of the programme was the second issue on the projects complexity. For this, we used a technique that has been proven before on previous projects. The lead Planner from TXM provided the team with video recordings showing the plant movements. These videos were a run through of the programme, with markers being moved up and down a printed line diagram.

A further challenge, was one that we made for ourselves. As a business, D2 strives to deliver the highest quality product. To do so, we reviewed our current processes and decided to adopt techniques used in the gaming industry,

By adopting the software platforms used for generating PC Games, we were able to bring the scene environment to life. This is something rarely considered. By introducing a more realistic environment and lighting package, we were able to showcase the Animation visuals, emulating today's high-end visual media.

Benefits

D2's Visualisations team provided multiple benefits across a myriad of project stakeholders. With regards to construction sequencing, the Animation brought the programme to life. For the Planners, it provided a method to understand any potential issues with the programme and highlighted plant clashes, which can easily become lost within a traditional programme. For all other departments, it provided clear insight into the programme, without the need to decipher a Gantt Chart.

It additionally provided a platform for both the General Public and end user to view the proposal. For the end user, it provided confidence in TXM's deliverables and for the Public, it removed over complicated engineering with a simple visual, allowing the information to be relayed in a format that was much easier to understand.