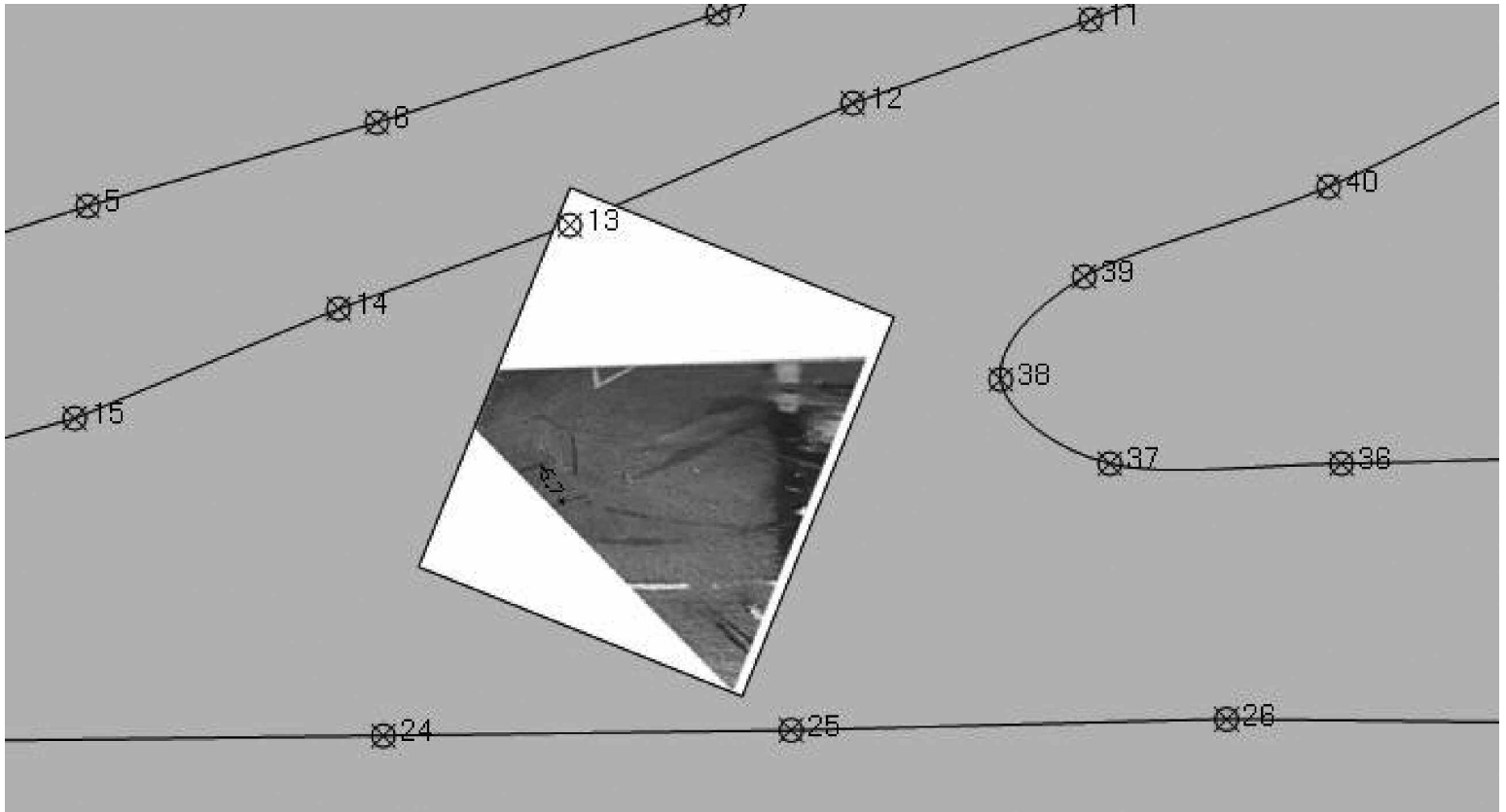


Creating the Scene

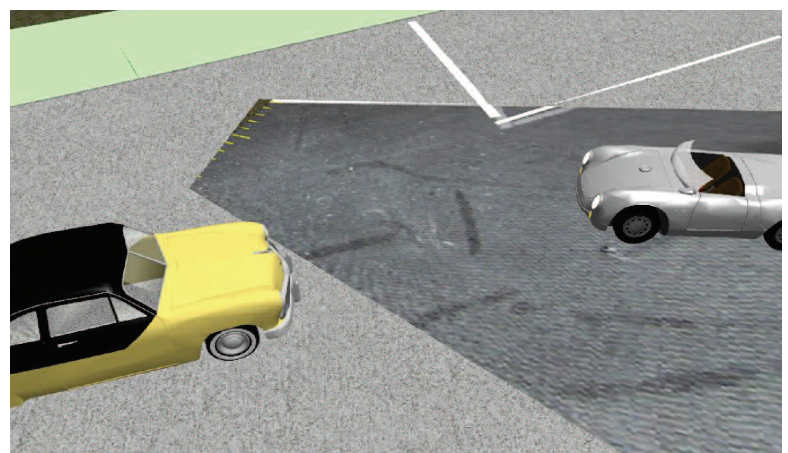
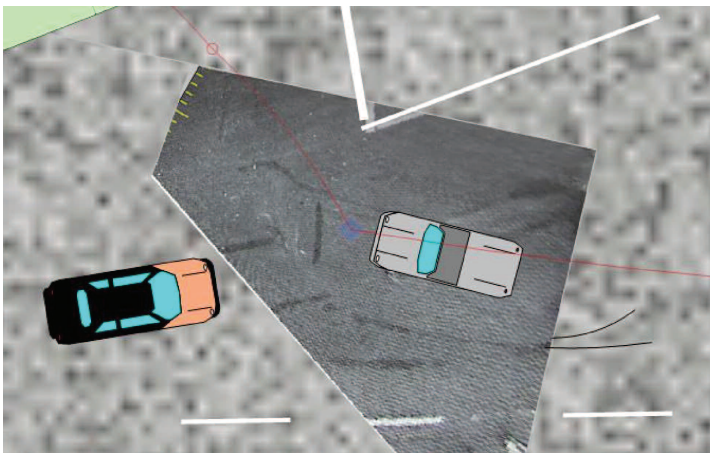
The James Dean Reconstruction Part II

Creating a diagram of the roadway was challenging because of the crudeness of the original diagram (hand drawn; not to scale) and lack of measurements in any type of standard format (baseline or triangulation). Therefore, we measured the scene geometry using a Nikon total station, and removed the recent improvements of the traffic island and turn bay, leaving the original shape of the intersection. To that basic geometry, we inserted the top down rectified photo of the scene.



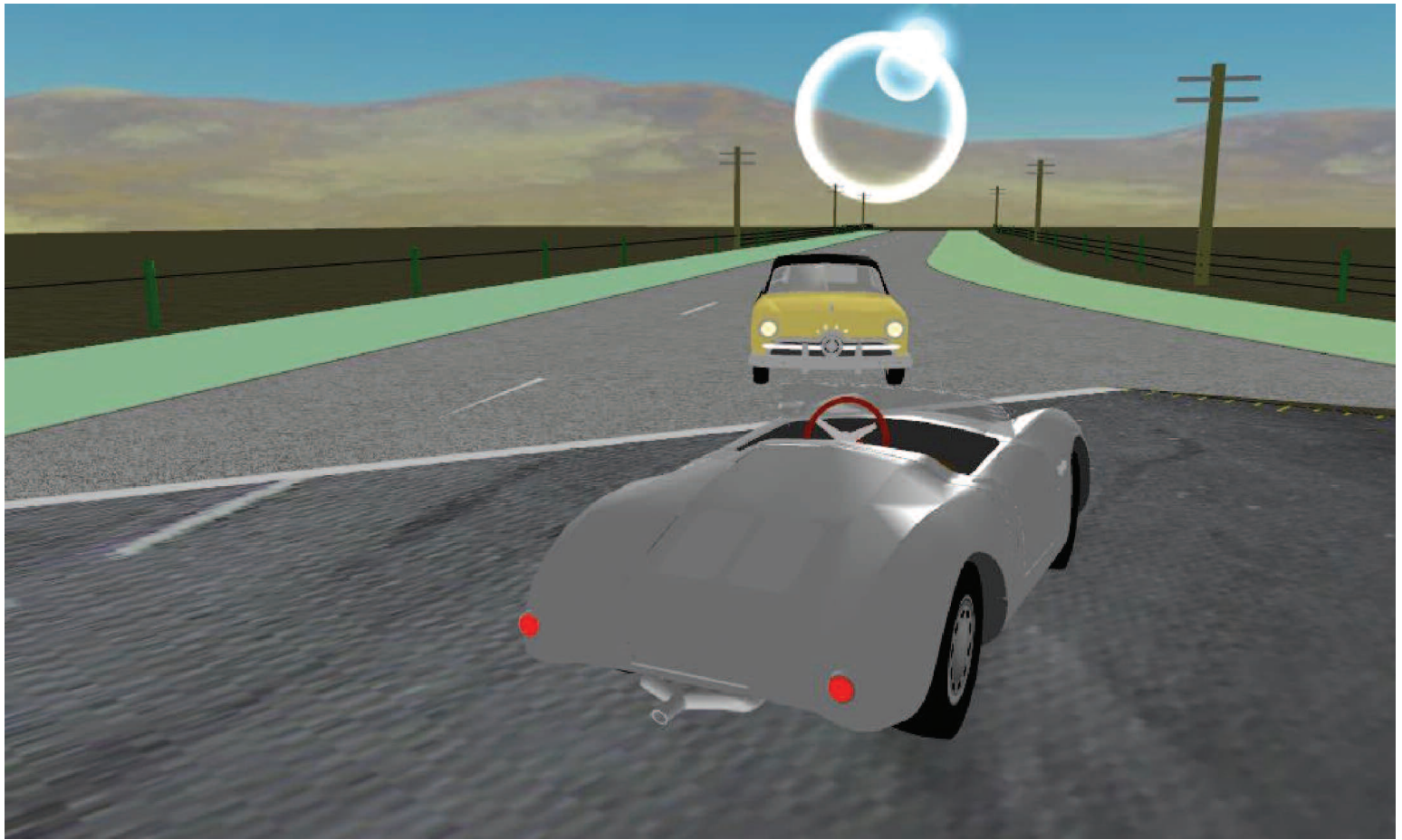
The challenge was to find the correct position on the scene to place the photograph. The correct position was found by using many references in the old photographs that were, to-date unchanged, and moving the transformed photograph until all references were in agreement.

The models were easily obtained as our VS modelers simply found the precise models in another format and used our internal system to generate them in the Vista FX format, in 2D and 3D for placement on the scene. The Vista system allows users to place models that automatically scale to the scene.



▲ This image from Vista FX shows vehicles on the rectified scene photo being positioned on their actual tire marks. The 3D scene (above, right) shows the same vehicles as precise 3D models.





To build the 3D scene that is the background for the animation, we used textures included in Vista FX for asphalt, grass etc. We also added in a new skybox to have the hills near the crash scene appear as the skybox. We simply took photographs from Cholame, California website and created a new skybox.

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Calculating speeds was done using the Conservation of Linear Momentum process. The Vista FX graphical momentum solution was employed as shown (right). The vehicles were positioned at maximum engagement, and then the approach and departure vectors were simply dragged into position.

This analysis was very sensitive to approach and departure angle variations and the graphical, realtime calculation update provided by the Vista FX Momentum tool really made the process much easier than any other method. I constantly checked the Delta V calculation while adjusting the vectors and post impact deceleration rates. I wanted the Delta V's to make sense when comparing Momentum calculated Delta V's to crush based Delta V's. The Delta V's were really quite high (31 mph Ford and 63 mph Porsche) but when one looks at the damage of each vehicle, and especially the Ford, given the 2:1 mass disparity, it makes sense. I suggested a range of speeds based on the fact that there is a some uncertainty in the accuracy of the photo rectification process, and the estimated Delta V's from crush.

Join us in the next Crash Files issue for the conclusion of the James Dean Crash Reconstruction story.

