



Department of the Environment, Transport and the Regions

**MULTI MODAL STUDY**

**A453 NOTTINGHAM TO M1 JUNCTION 24**

**WORKING PAPER NO 13**

**Opportunities For Improving The  
Visual Presentation Of Scheme Options**

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Prepared for:  
Government Office for the East Midlands  
The Belgrave Centre  
Stanley Place  
Talbot Street  
Nottingham  
NG1 5GG

Prepared by:  
Pell Frischmann Consultants Limited  
Clarendon Chambers  
32 Clarendon Street  
Nottingham  
NG1 5LN

## A453 MULTI-MODAL STUDY

### WORKING PAPER No 13

#### OPPORTUNITIES FOR IMPROVING THE VISUAL PRESENTATION OF SCHEME OPTIONS

##### **Purpose of this Working Paper**

The A453 multi-modal study, like other similar studies, is being conducted with an uncompromising inclusive approach to consultation. It has been suggested by the Project Management Group that many of the consultees being included in the consultation process do not have formal technical training and often find it difficult to understand information presented visually on traditional engineering drawings.

Pell Frischmann were asked at the PMG meeting on 21<sup>st</sup> March 2001 to look into this issue and to present a brief paper on the options available for alternative approaches to the visual presentation of information. This paper presents the findings of the quick desk study carried out. In the short time available in preparing this paper it has not been possible to collect and assemble examples of the various alternatives discussed and it is suggested that a specific workshop be set up in conjunction with the M1 study team to demonstrate the mediums considered most likely to find favour within the cost constraints likely to be imposed. A focus group approach would confirm the degree of acceptability of each alternative.

##### **Purpose of Improved Visual Presentations**

The reason for seeking improved presentation mediums is to address three principal issues associated with the development of scheme options and to obtain informed feedback from all stakeholders on the basis that all have a similar understanding of the scope of the Option in terms of

- The physical form and scale of the infrastructure associated with the Option
- The likely impact of moving vehicles (road and rail)
- The environmental impact of the whole on its surroundings.

##### **Mediums Available for Presentations**

The mediums available for presenting information in visual form to potential respondents fall under six production headings.

1. Conventional pen and paper images
2. Still photographic representation
3. Video photography
4. Computer generated likenesses
5. Virtual reality images
6. Scale models

There are several ways in which each medium can be used, and these are set out on the accompanying table together with comments on their use, effectiveness, and advantages/disadvantages. It is difficult to be prescriptive about the costs of each alternative as they are so very scheme specific. However, an indication of the quantum of the various costs has been provided to give some guidance on the likely scale of investment that would be required to implement any one of them.

**ALTERNATIVE FORMS AVAILABLE FOR VISUAL PRESENTATION**

<b>Ref</b>	<b>Description of Form of Presentation</b>	<b>Most Effective Use</b>	<b>A - Advantage, D - Disadvantage C - Comment</b>	<b>Generalised Cost Indication</b>
<b>1</b>	<b>Pen and Pencil</b>			
1/1	2D Scale Engineering Plan	Demonstration of the scale and size of an option within its plan setting. Usually in colour these days.	D - Can be deemed to be more advanced than a preliminary design D - Not easily understood by the layman A - Can be presented at various scales A - Can easily be annotated to add to description A - Easily reproduced A - Easily changed	Excluding associated design work:-  Costs in the low hundreds Say £100- £500 per drawing
1/2	2D Scale Engineering Drawing	Demonstration of a particular feature	D - Can be deemed to be more advanced than a preliminary design D - Not easily understood by the lay person A - Can be presented at various scales A - Can easily be annotated to add to description A - Easily reproduced A - Easily changed	Excluding associated design work:-  Costs in the low hundreds Say £100 - £500 per drawing
1/3	3D Artistic Impression	Demonstration of a particular feature usually for aesthetic reasons	D - Relies on the artist for accuracy of information D - Artistic licence with colours etc can lead to unrepresentative solution A - Softer image than an engineering drawing. A - Opportunity to include future date images . eg. mature trees A - Can easily be annotated to add to description	Commissioning an artist is very variable, and the amount of engineering needed by each artist can vary enormously.  Costs in the low thousands Say £2,000 - £4,000 per location

<b>2</b>	<b>Photography</b>			
2/1	Photograph of similar feature in a different geographic location	Demonstration of a particular feature such as a bridge or a vehicle type	<p>D - Not always easy to find a similar feature in a similar location as the subject.</p> <p>A - Does show real image understood by most people</p> <p>A - Can easily be annotated to add to description</p> <p>A - Easily reproduced</p> <p>D - Not easily changed</p>	<p>Excluding any travel costs associated with finding and reaching a similar feature and location</p> <p>Costs vary according to size and quality</p> <p>Say £150 - £500 for professional shot</p>
2/2	Aerial photo-mosaic to replace plans	Create a base plan relevant to the area. Can apply lines and objects to represent options	<p>D - Requires specialist equipment to achieve a true scale</p> <p>A - Much easier to read and understand than an OS plan</p> <p>A - Can be produced at almost any scale</p> <p>A - Can easily be annotated to add to description</p> <p>D - Is time constrained by new developments</p> <p>D - Dependant upon fine weather for good quality images</p>	<p>Costs are very much dependant upon the size of the area required and economies of scale apply to cover costs of flight preparation.</p> <p>Costs in 10's of thousands</p> <p>Say £10,000 - £15,000 for A453 corridor [to be confirmed]</p>
2/3	Oblique aerial photographs	Display a particular area or large feature Can apply lines and objects to represent options	<p>D - Requires specialist equipment to achieve a good picture</p> <p>A - Much easier to understand than a drawing</p> <p>A - Can be produced at almost any scale</p> <p>A - Can easily be annotated to add to description</p> <p>D - Is time constrained by new developments</p> <p>D - Dependant upon weather for good quality images</p> <p>A - Can be reproduced easily</p>	<p>Costs are very much dependant upon the size of the area required and economies of scale apply to cover costs of flight preparation.</p> <p>Costs in high thousands</p> <p>Say £5,000 - £10,000 for several shots in the A453 corridor [to be confirmed]</p>

2/4	Photo-montage of superimposed scene	Demonstrate impact of a proposed feature within its existing setting Requires associated survey and design to accurately position the new feature within the photographic image	A - easily understood by lay person D - Requires quite accurate design information to create a good image. A - Can easily be annotated to add to description A - Can be reproduced easily	Costs depend upon complexity of feature to be modelled and superimposed, and upon distance to view. Costs in low thousands for professional image, can produce simpler in-house image much cheaper. Costs around one thousand Say £800 to £2,000
<b>3</b>	<b>Video</b>			
3/1	Video footage of similar feature in a different geographic location	Demonstration of a particular feature such as a bridge or a vehicle type with constantly changing camera position and moving images to highlight effects	D - Not always easy to find a similar feature in a similar location as the subject. A - Does show real image understood by most people A - Easily reproduced A - Can include noise effects, but D - reproduced sound volumes in a different setting can be very misleading C - Can include voice over to assist with descriptions but this can also lead to bias.	Good video is a professional art and costs depend upon length of time and quality of video required, especially if voice-over and edited scenes are to be included. But, simple video can be produce very cheaply and be reasonably effective. Costs in high thousands Say £5,000 to £8,000
3/2	Aerial video footage	Display of a large area or a long route or corridor	A - Does show real image understood by most people A - Easily reproduced C - Can include voice over to assist with descriptions but this can also lead to bias	Costs are very much dependant upon the size of the area required and economies of scale apply to cover costs of flight preparation. Good video is a professional art and costs depend upon length of time and quality of video required, especially if voice-over and edited scenes are to be included. But, simple video can be produce very cheaply and be reasonably effective. Costs in high thousands Say £5,000 to £12,000

<b>4</b>	<b>Computer</b>			
4/1	Rendered images of the feature	Display a proposed feature either in isolation or within its existing or proposed setting	<p>A - can often be produced as a side effect of the computer based design, albeit with some enhanced work</p> <p>A - enables several options to be seen alongside each other.</p> <p>D - can be very un-lifelike unless time and effort is input to the rendering</p> <p>D - Does not carry the authenticity of photographs and is often not trusted as an independent medium</p>	<p>Costs vary with size of model and complexity of the feature. A single image maybe simple to do, a complex transport interchange may take several weeks to model</p> <p>Costs in thousands Say £1,000 to £10,000</p>
4/2	3D models with associated 'drive-thro'	Display a proposal as a solid object or series of objects such that they represent real life images which can be viewed from without or within from a still or moving eye-point.	<p>D - can be very un-lifelike unless time and effort is input to the rendering</p> <p>D - Does not carry the authenticity of photographs and is often not trusted as an independent medium.</p> <p>A - enables several options to be seen alongside each other</p> <p>A - Animation can include people and vehicular movement to show more real effects</p>	<p>There are now some very lifelike software packages on which to build 3D models, but there are also some relatively cheap packages that create very good model.</p> <p>Costs vary according to size and complexity of the model and software</p> <p>Costs in the high thousands Say £7,500 to £15,000</p>
4/3	On Screen traffic simulation	To demonstrate interactive simulation of the behaviour of traffic at a junction or small network.	<p>D - Still a very young art, not readily understood even by some professionals</p> <p>A - Does show immediate response to changes made to a junction layout or signal timing or the like.</p> <p>A - Particularly useful to demonstrate the interaction of cars and trams.</p> <p>D - needs the support of a traffic model and the data collection associated with building a model</p>	<p>Costs are difficult to estimate as this particular medium is almost always produced as a bi-product of the traffic model to which it is associated.</p> <p>Costs in low thousands for simple network</p> <p>Say £2,000 to £5,000</p>

<b>5</b>	<b>Virtual Reality</b>			
5/1	Computer simulation of the real world	To enable a participant to participate in the scene that has been modelled as if they were actually at the scene	D - requires very specialised modelling techniques. D - requires either a special headset for individual viewing or special glasses for communal viewing. D - very limited number of service providers	Costs are prohibitive at this time
<b>6</b>	<b>Scale Model</b>			
6/1	Tabletop representation of the feature	Display a single feature or an entire scheme	A - Can include removable sections to show effect of new and different proposals. D - the human eye can be misled by vertical scale when viewing a plan scene from above. An exaggerated scale can offset this effect. D - Once selected scale is fixed. D - Can be heavy and expensive to transport. D - subject to damage through regular re-location	Costs dependant upon level and quality of finish required to surface texture and obviously to size and scale of feature to be depicted.  Costs in low thousands  Say £3,000 to £5,000 for desk size model