



**Slides Supporting Oral Comments on
Urban Visibility Assessment Plan**

**Public Comments Session
CASAC Meeting
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INTERNATIONAL

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Comments prepared on behalf of UARG

**Text of Oral Statement by Anne E. Smith on UVA Plan
made during Public Comments Session of April 2, 2009, using this slide deck**

Yesterday, in my comments on the ISA, I provided new evidence that the “VAQ preference studies” that the ISA reviews all share a fundamental flaw. The flaw derives from the way these studies have asked people an “either/or” type question about whether the VAQ in photographs is unacceptable or not. The UVA Plan relies on studies using this same flawed methodology.

EPA is vague on whether its UVA will rely on the existing studies discussed in the ISA or on new studies that it may be in the midst of performing now. Even if it does intend to use new, yet-to-be-completed studies, they also will be fundamentally flawed if they also rely on the use of an either/or question about unacceptability as a way of determining the level of VAQ at which a NAAQS standard should be set.

The fix to the problem that my research has identified in not to just make sure the survey covers the full range of real-world visibility, as one member of the CASAC panel suggested yesterday. Rather, the fix is to ask people to report the *strength* of their preferences for visibility of varying levels. That is, the survey design should eliminate question such as “Is this visibility acceptable or unacceptable?” and instead ask the survey respondents to express “how strongly” they dislike the visibility conditions that they see in each photograph.

The graph on Slide 2 illustrates that this problem lies not in the survey respondents’ abilities to understand what they are seeing, but in the fact that the questionnaire asks them to judge the conditions in terms of “unacceptability.” This figure also comes from CRA’s new study that I summarized in my comments yesterday. The figure shows responses to a set of questions in the VAQ preference studies that occur just before they start to ask the respondents if the visibility in each photograph is unacceptable or not. In this earlier portion of the survey, people are asked to give a numerical score (on a scale of 1 to 7) about the “quality of the visibility” in each photograph. The figure shows that when we did “Test 2” -- which showed only the relatively high visibility photographs from the original set shown in “Test 1” -- respondents did *not* automatically assign very low numerical scores to the mid-range visibility conditions. It was only their unacceptability scores that came next that were so dramatically higher.

Yesterday, after I showed the dramatic shifts in unacceptability scores over 3 test variants, one CASAC member suggested the result was because people tend to be duped into misunderstanding the true range of visibility if the survey instrument doesn’t show it to them. But the figure in Slide 2 shows that this is not what is happening. The respondents seeing foreshortened ranges of VAQ did a very good job of scoring the photographs much like their counterparts who were shown a broader range of visibility conditions. The

average numerical scores in Test 2 simply never fall in to the range below 3 – it appears that the respondents to Test 2 were preserving those lower scores for the worse visibility conditions that they were never asked about. The serious differences in their responses only appeared when the questionnaire then asked them to make judgments about whether the visibility conditions in those same photos were acceptable or unacceptable.

The numerical scoring results are thus more robust indicators of peoples’ views about the VAQ, but they also do not identify “strength of preference”. That is what is needed in order to glean insights about where it might make sense to establish a VAQ standard.¹

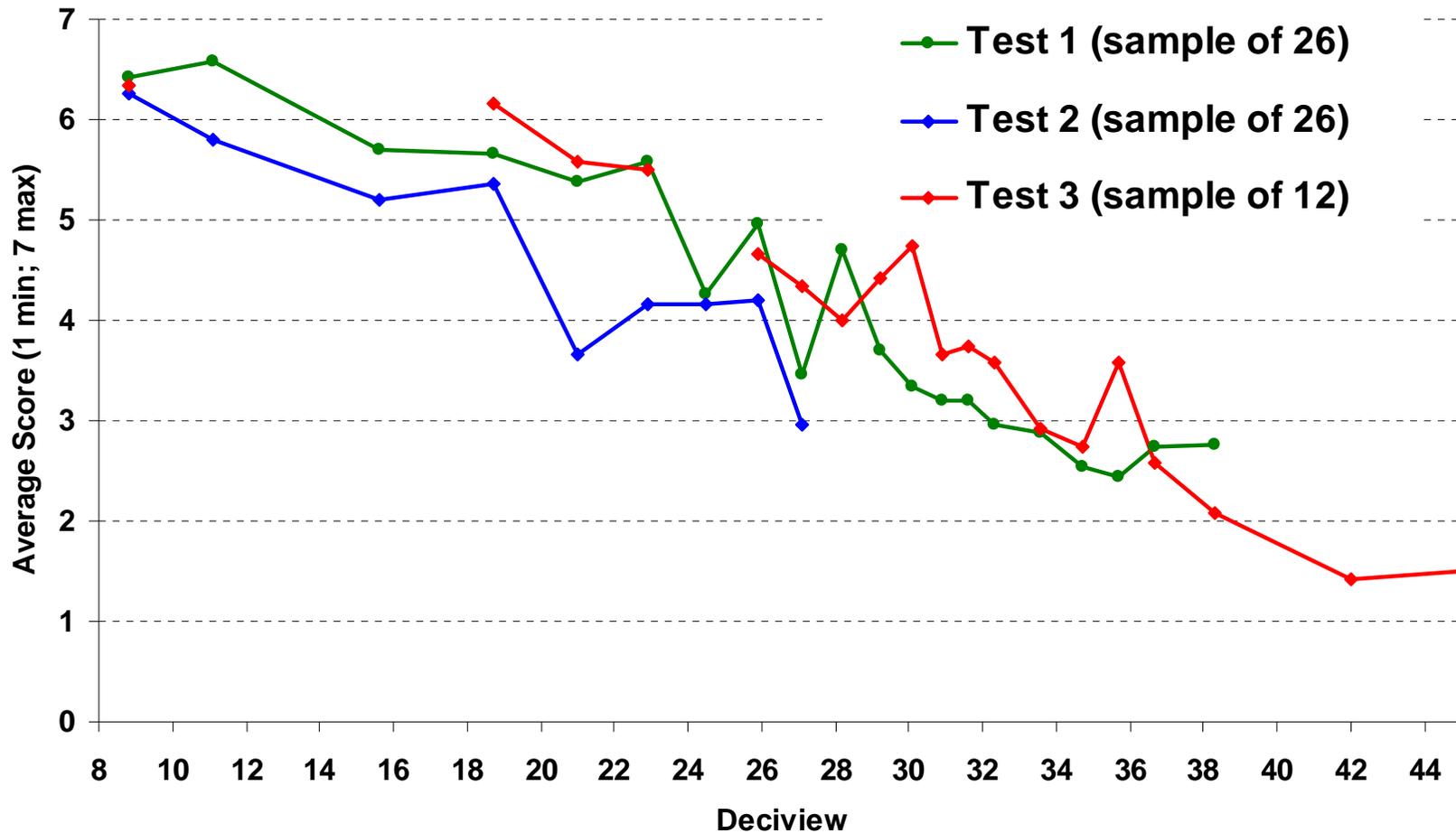
Finally, I was asked yesterday whether my results were published in a peer-reviewed manner. Our research was only initiated during this comment period, motivated by our thoughts while reviewing the VAQ preference studies described in the Draft ISA. We have only just finalized our report documenting the research, and have not had time yet to draft a paper for submission to a journal. However, Slide 3 shows that *none of the existing US VAQ preference studies that EPA is citing meets that bar of peer-reviewed publication* – and those studies were completed between 6 and 18 years ago. If EPA does complete any new preference studies for the UVA, those will be utterly new and certainly unpublished before being used in the UVA.

CRA has written a full report with comparable depth and more extensive detail about individual responses than any of the existing US VAQ Preference Studies. I gave a copy of the report to Dr. Stallworth this morning to make available to all.

¹ Visibility willingness-to-pay studies do provide the requisite strength of preference information, and do so in a monetary metric. However, there may be alternative methods that can provide usable strength of preference information without any monetary aspect to the responses, if one wishes to avoid the willingness-to-pay concept. Personally, I consider valuation studies preferable to these VAQ preference studies, albeit highly problematic in their own ways.

Numerical Score Results Imply People Can Tell How the Range of VAQ in the Survey Relates to the Range of VAQ in the Real World

Scores for “the quality of visibility” for each photograph, on a scale of 1 to 7 (1 = “very poor”, 7= “very good”)



The US VAQ Preference Studies Are Not Peer-Reviewed

- Denver -- *conference proceedings*
- Phoenix -- *contractor report*
- Washington DC -- *contractor report*
- British Columbia -- *peer-reviewed journal paper*

- New studies for the UVA *not even completed*