

OSAC RESEARCH NEEDS ASSESSMENT FORM



Title of research need: Determination of the Size of the Smallest Detail Required for Tire and or Shoe Comparisons

Describe the need: Only anecdotal evidence exists of the minimum, effective resolution required when recording shoe and/or tire impressions and marks. Without knowing the size of the smallest detail required for comparison, there is no way to verify if the current standards for recording such impressions will capture the required level of detail.

Keyword(s): Shoe impression, tire mark, tire track, minimum resolution, digital imaging, digital capture, photography, fine detail, evidence

Submitting subcommittee(s): VITAL and Footwear & Tire **Date Approved:** 06/16/2021

(If SAC review identifies additional subcommittees, add them to the box above.)

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

Yes, standard guidelines for the capture of shoe print/ tire track images should address the need to capture a sufficient level of detail for meaningful comparison analysis.

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

No.

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

“Effect of Photographic Technology on Quality of Examination of Footwear Impressions”, Herbert Blitzer, Richard Hammer, Jack Jacobia, Journal of Forensic Identification, 2007. “The Mount Bierstadt Study: An Experiment in Unique Damage Formation in Footwear”, T.W. Adair, J. Lemay, A. Mcdonald, R. Shaw, R. Tewes, Journal of Forensic Identification, 2007.

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at <https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest>? Is your research need identified by NIJ?

No.

5. In what ways would the research results improve current laboratory capabilities?

Current research is limited to comparisons to film-based capture methods (equivalent to 35mm film, but not 120mm film, etc.), even though digital imaging is now in widespread use. The definition of minimum resolution enables the purchase of appropriate equipment as well as definition of appropriate capture settings.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

It is known that reproduction of fine detail is directly related to the capture settings. Understanding the lower limit of resolution required for comparison will enable VITAL to create appropriate guidelines and standards.

7. In what ways would the research results improve services to the criminal justice system?

Images with insufficient resolution may prevent an examiner from being able to include or exclude a source from an examination. Without knowing what resolution is needed, images may be taken/recorded/captured at resolutions that are either too low (which require recapture) or too high (which use excessive amounts of storage).

8. Status assessment (I, II, III, or IV):

I

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	I	III
Existing current research is being conducted	II	IV

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.