## ROADSIDE DESIGN TO REDUCE TRAFFIC NOISE

Wilbur H. Simonson Chief, Roadside Branch Bureau of Public Roads

This is a supplemental report on abatement of highway noise with special reference to roadside design. It is a record of information as of 1958, to supplement information already published in HRB Bulletin 110 (publication 363, 1955), and in the Report of the Committee on Roadside Development (pp. 41-44, publication 419, 1956). This committee is interested in factors that make for safe and pleasant driving as well as pleasant residential living along highways because highway landscape development is concerned with the complete development of the highway right-of-way and its environment. One of these factors is traffic noise emanating from the highway to the surrounding area and to dwellers on abutting property.

A primary responsibility of highway engineers is that of providing transportation service to highway users. This responsibility has now broadened to include the effect of traffic noise on the motorist and on roadside dwellers. It is important that highway planners, locaters, and designers analyze the economic effect of traffic noise upon abutting property uses and values, and then do everything possible in the early planning and design stages of their work to suppress noise which emanates from the highway.

In 1955, HRB Bulletin 110 outlined (a) what may be done by the highway engineer to make traffic noise less objectionable to people living along the highway, and (b) what further research is needed for evaluating highway noise abatement methods. Roadside tests are needed to evaluate the effectiveness of barriers such as walls, embankments, and buffer-planting to abate noise. Reports on comparative field tests would assist the highway engineer in abating traffic noise that is objectionable to roadside dwellers on major highways.

This resume of published information (1956-1958) on the problem of community noise should be helpful to those interested in the abatement of highway noise. A supplemental list of references is included so that the reader may have an opportunity to explore for himself the latest published information.

The period 1956-1958 evidenced an increasing interest in transportation noise and an increasing interest on the part of a noise-conscious public trying to do something about the control of noise—a big problem in cities and in most communities. The highway engineer desiring to keep informed on trends in the field of outdoor noise will no doubt find helpful this resume on articles published since a similar progress record was reported on pp. 41-44 of the HRB-1956 Annual Report of the Committee on Roadside Development.

## Supplemental References 1956-1958

Commission

Technical Library

- 1. "Noise, Man and Community." Noise Control, 4:3,7 (May 1958).
- 2. McGregor, H. N., and Bollinger, R. H., "Car Noise Reduction." Noise Control, 4:3,32 (May 1958).
- 3. Nikeska, B. E., "Noise in the Modern Home." Noise Control, 4:3,38 (May 1958).

- 4. Goodfriend, L. S., "Noise in the Community." Noise Control, 4:2,22 (Mar. 1958).
- 5. Simonson, W. H., "Planning and Planting for Sound Abatement." Ann. Meeting, Amer. Soc. Agric. Eng., Michigan State Univ., mimeo (June 1957).
- 6. Hardy, H. C., "Engineering and Zoning Regulation of Outdoor Industrial Noise." Noise Control, 3:3,32 (May 1957).
- 7. Perkins, E. T., and Stelling, C. A., "The Connecticut Turnpike, Safety, Health, and Welfare Through Roadside Development." Landscape Architecture, 47:3,402, Illustrated (Apr. 1957); also HRB Report of Committee on Roadside Development, pp. 33-44 (1957).
- 8. Knudsen, V. O., "Community Noise." Noise Control, 2:4,12 (July 1956).
- 9. Veneklasen, P. S., "City Noise Los Angeles." Noise Control, 2:4,14 (July 1956).
- 10. Bolt, R. H., "Criteria for Neighborhood Noise Control." Noise Control, 2:4,20 (July 1956).
- 11. Salmon, V., "Surface Transportation Noise A Review." Noise Control, 2:4,21 (July 1956).
- 12. Finch, D. M., "Surface Transportation Noise." Noise Control, 2:4,28 (July 1956).
- 13. Blucher, W. H., "City Planning for Noise Control." Noise Control, 2:4,51 (July 1956).
- 14. Loye, D. P., "The Legal Aspects of Noise Control." Noise Control, 2:4,56 (July 1956).
- 15. "The AMA 125-Sone New-Vehicle Noise Specification." Noise Control, 2:3,13 (May 1956).
- 16. "Progress in Exhaust Silencing." Noise Control, 2,3,18 (May 1956).
- 17. Nelson, C. E., "Truck Muffler Design." Noise Control, 2:3,24 (May 1956).
- 18. Richards, K. M., "Vehicle Noise Legislation: A Paradox of Perplexities." Noise Control, 2:3,28 (May 1956).
- 19. Lippman, S. A., "Tires in Automotive Vibration Problems." Noise Control, 2:3, 41 (May 1956).
- 20. Wason, R. A., "Quiet Replacement Truck Mufflers—Product in Search of a Market." Noise Control, 2:3,44 (May 1956).
- 21. Hadley, W. C., "Motorcycle Noise Testing in Bermuda." Noise Control, 2:3,47 (May 1956).
- 22. "Roadside Design to Reduce Traffic Noise." HRB Report of Committee on Roadside Development, pp. 41-44 (1956).
- 23. Kibbee, L. C., "A Practical Approach to the Truck Noise Problem." Preprint 569, Soc. Auto. Eng., Portland, Ore. (Aug. 1955).
- 24. "Abatement of Highway Noise and Fumes." HRB Bull. 110, 47 pp. (1955).
- 25. "Selected Bibliographies on Vehicle Noise and Fumes." HRB Bibliography 22, 10 pp. (1958).