

Front-End Evaluation at the North Carolina Transportation Museum

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Introduction

The North Carolina Transportation Museum at Historic Spencer Shops is located on the site of what was once Southern Railway's largest steam locomotive servicing center. During the shop's peak years, the facility employed over 2,500 people, and workers turned out one completely rebuilt steam engine per day. The advent of diesel locomotives in the late 1940s meant the demise of Spencer Shops, and donations from Southern Railway in 1977 and 1979 transferred ownership of the site to the State of North Carolina. The first permanent exhibits to tell the story of inland transportation in the Tar Heel State were installed during the early 1980s.

Federal funds were obtained from the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) to restore the roundhouse. Once the roundhouse is restored, its exhibits will communicate the story of Spencer Shops and include a wide range of topics and artifacts. With thirty-seven bays, it is one of the largest roundhouses still standing in the United States and is listed on the National Register of Historic Places.

A front-end evaluation was conducted to assist with the formidable task of programming the 110,000-square-foot roundhouse and to provide data for researchers and exhibit designers. The following objectives were developed for this project: (1) determine if pre-existing or natural traffic flow patterns were present in the roundhouse; (2) evaluate visitor interest in proposed research topics; and (3) obtain visitor reactions, insights, attitudes, and expectations concerning proposed roundhouse programming.

Methodology

The front-end evaluation, carried out during April and May 1993, was divided into three separate studies with different methods. The project was designed to collect both qualitative and quantitative data. The three studies employed small to moderate sample sizes, and staff for the project consisted of the author and NCTM staff members.

Study 1: Traffic Flow Patterns

The observation procedure used to obtain data for the traffic flow study employed a roundhouse floor plan (Figure 4.1) to plot the path taken by visitors. Five staff members, trained in the use of this instrument, collected data from unobtrusive locations outside the structure. Visitors were encouraged during site orientation to visit the roundhouse.

Study 2: Visitor Interest in Railroad Topics

Visitor interest in eight different railroad topics was assessed during the site visit using a Likert scale survey where 1=not interested and 5=very interested. The survey also contained a demographic section. After pre-testing the instrument, NCTM staff members conducted the survey using random sampling techniques.

Study 3: Visitor/Volunteer Insights, Attitudes, and Expectations

Focus group methodology was employed to obtain feedback on proposed roundhouse programming. Four groups, consisting of Spencer residents, teachers, retired Spencer workers, and equipment restoration volunteers, were interviewed after touring the roundhouse. A written transcript and video tape were produced during the sessions.

Results

Study 1: Traffic Flow Patterns

A total of 91.2 percent of visitors (N=87) entered the roundhouse. Many visitors (41 percent) toured only the first sixteen bays that do not have outside doors, and only 18 percent of visitors traversed the complete length. A surprising 29 percent entered the structure through a back door between bays three and four. Only 6 percent of study participants visited a large washroom scheduled to contain a major exhibit.

Study 2: Visitor Interest in Railroad Topics

Visitor responses were all above the mid-point of the scale (3.0=Interested) with the lowest mean score of 3.3 for "The Spencer Worker at Home." The topic receiving the highest mean score (4.4) was "Tools, Equipment, and Machinery used in the Roundhouse," while the topic "Tasks Performed in the Roundhouse" ran a close second with a mean score of 4.3. The sample size for this part of the study (N=68) was small, but the demographics compared well with other larger samples obtained in earlier NCTM studies.

Study 3: Visitor/Volunteer Insights, Attitudes, and Expectations

The responses given by focus groups provided important clues to their insights, attitudes and expectations. Safety was a recurrent theme throughout the sessions and may indicate visitors feel anxious or insecure about being in the structure. Participants wanted to have a guided tour or guards stationed at several points in the roundhouse. They were interested in railroad technology and tasks performed in the roundhouse and wanted to see, feel, and hear what it was like to work in there. Frequently mentioned visitor services included multiple bathrooms, water fountains, and seating. While everyone wanted greater access to rolling stock, they were also concerned with safety and preservation. Comments from equipment restoration volunteers were very different from other groups. They were concerned with visitor impact on restoration work and safety.

Discussion

The three studies produced meaningful results and have influenced roundhouse programming and design. With only 18 percent of study participants walking the length of the roundhouse, precise orientation and signage will be necessary for successful visitor usage. This concern was also cited by focus group participants who felt multiple orientation areas and clear signage would be required in the roundhouse.

Programmers were delighted to learn that 29 percent of study participants elected to enter the structure from a rear door. Using this as the main entrance will prevent visitors from crossing numerous railroad tracks, and access will be simpler for handicapped visitors and safer for all.

Data from the railroad questionnaire suggest that visitors are very interested in technical aspects of the site. Focus groups also emphasized this same interest with comments such as, "The roundhouse tells the history of transportation in North Carolina and how it changed."

Restoration of rolling stock has occurred in the roundhouse for a number of years, and most focus group participants indicated this was an extremely important aspect of the tour. On the other hand, restoration volunteers told us

they were concerned with the impact that daily visitation would have on equipment restoration. This information allowed designers to draft a plan where visitors would walk around the outside of the restoration area and view the work from an elevated walkway.

This study produced recommendations for many of the problems faced during early roundhouse development, and provided the NCTM with a better understanding of its audience. Research is underway to determine visitor knowledge, misconceptions, and interest in railroad artifacts.

Figure 4.1: Floor plan used to plot traffic flow patterns in the 37-bay Spencer roundhouse.

