Minnesota TH 61
North Shore Scenic Drive

Setting

Minnesota's Trunk Highway 61 (TH 61), North Shore Scenic Drive, runs northeasterly along the rocky and heavily forested edge of Lake Superior, for more than 150 miles, from the regional trade center of Duluth to Canada. TH 61 is both a scenic highway and tourist destination, as well as a vital interregional and international trade corridor for northeastern Minnesota. As such, it passes through 19 small communities, large tracts of state and national forest resources and recreation areas, eight state parks, numerous rivers, streams, historic sites, markers and points of interest, many safety rest areas, wayside parks and campgrounds, an Indian reservation, and a national monument.

Visitors who travel along the North Shore Scenic Drive hope to experience the magnificent landscapes, the cascading rivers, the rugged shorelines, and the breathtaking vistas along with the other natural and cultural resources and history that abound along this Lake Superior region. The characteristics that draw visitors to this region are so unique that Minnesota's TH 61 North Shore Scenic Drive was recently designated and distinguished as an "All-American Road" in the National Scenic Byways Program.

Problem to be Solved

TH 61 required reconstruction to replace the pavement. The basic cross section of two lanes each direction of travel was sufficient, but an effort was made to upgrade the facility to modern design criteria.

The challenge in doing so was to develop an alignment that met the needs of both visitors to the area as well as local residents and business owners. Aside from being a tourist and recreational driving destination, within an environmentally challenging area, the North Shore Scenic Drive must provide adequate safety, mobility, and access for local residents, businesses, recreation areas, and commercial trucking while accommodating bicyclists, pedestrians, and rail crossings. Balancing transportation, community, environmental, and stakeholder needs along this corridor was a tremendous challenge.

Stakeholders

The overall project required coordination with 19 communities, state and national forests, eight state parks, and an Indian reservation. For this segment of TH 61 North Shore Scenic Drive, coordination with local residents and business owners, the community of Good Harbor Bay, and a state park was necessary.

CSD/CSS Approach

Minnesota's approach to the project focused on stakeholder involvement to fully understand all issues, flexibility in application of geometric design criteria, a commitment to avoid rather than mitigate adverse impacts, and to look for opportunities to enhance the project given its unique characteristics.

The Minnesota Department of Transportation's (Mn/DOT's) reconstruction and realignment of TH 61 along Lake Superior's Good Harbor Bay illustrates a context sensitive design approach that balanced transportation, community, and environmental needs without requiring exceptions to geometric design

standards. This project also illustrates context sensitive design that did not arise out of contentious public involvement and controversy but rather out of proactive project management and involvement of stakeholders.

Design Flexibility and the Application of Design Criteria

The project designers and stakeholders applied the flexibility already inherent in the AASHTO Green Book by selecting a 55 mile per hour (mph) design speed rather than a 70 mph design speed that was initially selected and used for preliminary alignment investigations. The lower design speed was considered appropriate for the project's unique circumstances (transportation needs, terrain, land uses, valued resources, etc.) and maximized the flexibility to find the best roadway alignment balance point among the corridor's safety, mobility, social, economic, and environmental goals.

"Above minimum design values should be used where feasible, but in view of the numerous constraints often encountered, practical values should be recognized and used."

Mn/DOT referenced both the AASHTO Green Book and the ITE Traffic Engineering Handbook as technical information supporting their selection of a lower design speed.

The specific effects of a lower design speed were to allow the highway alignment to be shifted and design flexibility to be accomplished without the need for exceptions to geometric design standards. Full lane widths and shoulder widths and appropriate roadside design for safety was possible for the alignment based on the lower design speed. Finally, the effect of the lower speed resulted in Mn/DOT saving considerable construction costs by avoiding extensive rock cuts.

Stakeholder Involvement

Mn/DOT's District One staff made key commitments early in the project development process:

- To work closely with local communities and stakeholders to establish a highway corridor vision . . . a safe and aesthetic highway that enhances the local communities through which it passes.
- To make context appropriate design decisions along this corridor.
- To apply design flexibility to preserve historic, natural, and scenic corridor qualities.

Meetings and discussions with the stakeholders resulted in an articulation and common understanding of these transportation, community, and environmental stakeholder objectives:

- Improve roadway safety and traffic flow.
- Meet current and future transportation demands.
- Improve pavement quality.
- Improve an existing limited-use safety rest area facility.
- Minimize right-of-way and construction impacts and costs.
- Remain consistent with north shore corridor visioning and management goals.
- Enhance the scenic and visual qualities of the corridor.
- Preserve historic and traditional views and vistas from the highway.
- Preserve and enhance public access to the lakeshore.
- Avoid adverse impacts to residential and commercial property owners.
- Avoid adverse impacts to the environment and state parkland.
- Reduce erosion along the lakeshore and Cutface Creek.

Design Enhancements – Fitting the Context

The alignment shift enabled the design to avoid conflicts that would have required mitigation. Specifically,

impacts to a state park and relatively high cost and visually obtrusive rock cuts were avoided.

Mn/DOT went beyond avoidance, though. Consistent with Mn/DOT's context sensitive commitments and proactive stakeholder involvement, consensus was reached in determining project purpose and need to balance transportation, community, and environmental objectives. Specifically, a consensus was reached that selecting a lower design speed appropriate for the project characteristics would provide the flexibility to shift roadway alignment and balance project objectives without requiring exceptions to geometric design standards. As part of the overall project, given the vision of the stakeholders and importance of the route as a resource, Mn/DOT seized the opportunity to enhance the environment by the following actions:

- Alignment shift provided additional space to enable the expansion and reconstruction of the Cutface Creek Rest Area.
- Mn/DOT undertook the stabilization of a shoreline erosion problem.
- Cutface Creek bank stabilization was accomplished.

Lessons Learned

This project demonstrates the importance of establishing key basic design criteria consistent with the context. It also demonstrates a not well understood principle, that lower design speeds in rural areas need not be considered less safe than higher design speeds.

Other lessons learned include the importance of working closely with stakeholders, and taking the opportunity to not only mitigate or avoid, but to enhance the environment as part of design and construction of a transportation project.

An overriding lesson learned was that proactive project management and stakeholder involvement, in combination with appropriate and context sensitive design flexibility, accomplished project benefits that might otherwise be foregone:

- Geometric standards for the design speed were met without exceptions.
- Safety and mobility improvements were added with the alignment shifts.
- Right-of-way impacts and costs were minimized.
- Unnecessary construction impacts and costs were minimized (rock cuts, disposal, etc.).
- The goals of the scenic north shore corridor vision were met.
- Original and valued vistas of Lake Superior were preserved.
- Public access to the lakeshore was preserved and enhanced.
- Improvements to the limited-use safety rest area were added.
- Eroding areas were stabilized along the alignment shift.
- State park impacts and rock cuts were minimized by the alignment.
- The alignment fit the land forms and context physically and visually.

The application of appropriate and context sensitive design flexibility during project development led to a successful balance of transportation, community, and environmental needs that are served by the constructed project. The constructed project also met four key measures of design excellence: 1) community acceptance, 2) environmental compatibility, 3) engineering and functional credibility, and 4) financial feasibility.

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