
Session 8:
Design Flexibility in Rural and Developing Settings



The Context Sensitive Solution
for Washington County
State Aid Highway 21



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INTRODUCTION

- When
- Where
- What
- Why
- How and How Different



WHEN

- 1998
- Ten Years After
- New Flexible Standards
- Natural Preservation Route



Natural Preservation Route


County Road 21 St. Croix Trail Study

What is a Natural Preservation Route?

Route must be on a County State A&H Highway.
Route possesses scenic, environmental, geological, or historic characteristics.

Examples:
Routes along lakes, rivers, wetlands, or through forests or hilly, rocky or bluff terrain.
Route must be designated by the Minnesota Commissioner of Transportation.


Current NPR mileage:
• 30,000 miles of County State A&H Highway in Minnesota
• 114 miles designated as Natural Preservation Route
• CSAH 21 is the only Natural Preservation Route in Washington County (5.5 miles).



What does NPR status mean?

NPR status allows more flexibility in the design of a project:

- Reduced shoulder width
- Reduced clear zone width
- Lower design speed
- Allows use of guard rail and retaining walls to reduce construction impacts.





WHERE

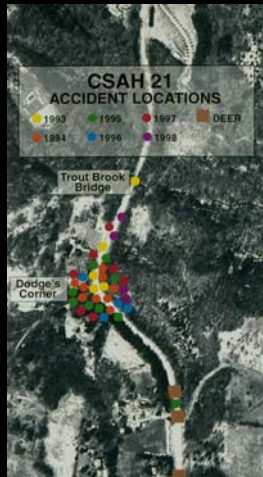


- St. Croix River Valley
- National Wild and Scenic River
- Afton State Park
- Historic Territorial Military Road
- Scenic and Recreational Use
- Rural *and* Developing



WHAT

- Substandard Highway
- Substandard Bridge
- AND/OR**
- Sublime Experience
- Threatened Nature



WHY

- Accident Rate
20.64 vs 6.37 for 2-Lane Rural
- Bridge Rating
13.8 (from 0-100) Replace
- Responsibility of County



HOW

- CSS as NEPA Process
- Stakeholder Engagement
- Values not Standards
- Informed Consent
- Targeted Improvements



Issues/Comments Received

Roadway/Bridge

- ☒ Curve is too dangerous
- ☒ Bridge is too narrow
- ☒ Trees too close to the road.
- ☒ Ditches are dangerous
- ☒ Traffic travels too fast
- ☒ Save trees particularly across from the Park
- ☒ One comment to do nothing

Bikes/Pedestrian

- ☒ Unsafe for bicyclists and pedestrians
- ☒ Bike route should be considered

Agency Comments

- ☒ Water quality to Trout Brook must be addressed
- ☒ Bridge is preferred over box culvert to minimize change in Trout Brook stream bed
- ☒ Off road trail is not warranted

Project Goals

- ☒ The curve and bridge are unsafe and should be fixed
- ☒ Accommodate bicyclists and pedestrians if possible
- ☒ Minimize impacts to adjacent properties and environment

HOW DIFFERENT

Stakeholder Engagement

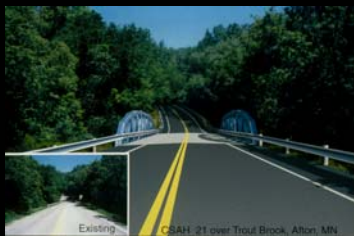
Stakeholders defined the issues, developed the goals, resolved conflicts, and directed solutions.

Multiple venues

On-site visits critical



Design Options



HOW DIFFERENT

Form criteria suggested by Stakeholders

Form options developed by professionals

Form options evaluated by Stakeholders

Form options rejected by Stakeholders



Design Options



HOW DIFFERENT

Material criteria suggested by Stakeholders

Material options developed by professionals

Material options evaluated by Stakeholders

Material options rejected by Stakeholders



Design Options



HOW DIFFERENT

Form and Material criteria suggested by Stakeholders

Form and Material options suggested by Stakeholders

Form and Material options evaluated by Stakeholders

Preferred Form and Material selected by Stakeholders



Design Options



HOW DIFFERENT

Innovative Stabilization

Hard or Soft solutions offered

Soft solution selected



Existing CSAH 21 over Trout Brook, Alton, MN



HOW DIFFERENT

Understated appearance

Views to park and creek maintained

Wide enough for pedestrians and bicyclists

Enhanced trout stream

Strong support

Financially prudent



HOW DIFFERENT

Commitments were kept

Accidents down dramatically

Support continues



Multi-Modal



Environmentally Sensitive





Rural Aesthetic



Fun!

