



- A tool to analyze **public perception** of existing and proposed highway views.
- A tool to compare the **relative value** of highway design and management choices as perceived by the public.
- A tool for **decision-making** about highway design and management decisions.
- A **monitoring system** for travelers' visual experience.

AIMS Objectives

To develop and test instruments and protocols that MN/DOT can use to understand and document how travelers perceive the attractiveness of highway corridor landscapes.

To provide MN/DOT with information about travelers' perceptions of the relative attractiveness of different design and management characteristics of Minnesota highway corridor landscapes.

To provide MN/DOT with information about *travelers' perceptions* of qualities related to highway corridor attractiveness: maintenance, naturalness, safety.



AIMS complementary two-phase process:

Phase I - focus groups in vans
HIGH construct validity

- Travelers select views (traveler n= 63)
- Many views selected, described, and rated (view n= 732)
- View characteristics are selected and described while traveling

Phase II – web-based survey of driver sample
HIGH MN driver population representativeness
HIGH MNDOT decisionmaking support

- Responses to MN/DOT selected, specific characteristics of views
- Simulations control on all other highway characteristics (view n= 117)
- Quantitative data on several dimensions for standard statistical analysis
- Many drivers sampled (driver n=1000)

AIMS Phase 1 (1999-2001)

Nassauer, J.I., Borich T., Ladjahasan, N. 2001. **Aesthetic Initiative Measurement System for the Minnesota Department of Transportation.** Institute for Design Research and Outreach, and Center for Transportation Research and Education, Iowa State University, Ames, Iowa.

Nassauer, J. I. and Larson, D. 2004. Aesthetic Initiative Measurement System: A means to achieve context sensitive design. **Transportation Research Record.** No. 1890: 88-96.

AIMS Phase 2 (2005)

Nassauer, J.I., Larson, D., and Dayrell, E. – work in progress. To view progress, check:

Landscape ecology, perception, and design lab
University of Michigan School of Natural Resources and Environment

<http://www-personal.umich.edu/~nassauer>

AIMS 1 Characteristics

- Generates data that are **location specific**.
- Involves **local people**.
- Involves **MN/DOT staff with local people**
- Has high **construct validity**.
- Some **focus** on particular highway characteristics by route selection.
- Generates **qualitative and quantitative** measurements of highway aesthetics.



While participants rode in vans along selected routes, they were asked:

- When they noticed anything they saw as attractive or unattractive, record it and call out: **VIEWNOTE**
- At the next listening post, we asked the person who made the viewnote: "What did you see?"
- Then we asked everyone in the van to rate the attractiveness of that view on a **5-pt. Scale**
- Then we asked the person who made the viewnote: "What did you find attractive or unattractive?"

Route selection

Route selected by MN/DOT staff as:

- Typical, control route, OR
- Representing design or maintenance characteristics of interest (Collective Image Zone)

Route selected to:

- Discourage viewer fatigue
- Include **Listening Posts** every 7 - 12 miles.

Within each route, we selected Collective Image Zones

- Selected because they display many highway characteristics of interest for MNDOT decisionmaking, **(the experimental treatment)**
- Compared with segments that make a good "normal" comparison with those highway characteristics of interest **(the experimental control)**

1999 Focus Topics

- **Urban Routes** - establish a baseline for monitoring and future comparisons
- Duluth, Rochester, Minneapolis-St. Paul routes
- **Topics:**
 - Planting design
 - Design of bridge and wall structures
 - Vistas from the highway

Training of MN/DOT AIMS Phase 1 Team

- Derek Fredrickson, Rod Garver, Pat Huston, Walter Leu, and Jim Miles - D1
- Kimberley Bruch, Terry Condon, and Barb Tayeb - D6
- Rebecca Novak - D7
- Christine Kujala and Ted Ulven - Metro
- Scott Bradley, Eileen Jordahl, Sarma Straumanis, Jeff Stellrecht, and Paul Walvatne - OES
- Rob Williams - OTS

Viewers in Vans (n=63)

Recruited to represent stakeholders or viewers of interest, including:

- Locals and tourists/travelers
- Rural and non-rural backgrounds
- Commuters and non-commuters
- Roughly even split of genders



Three routes for 1999 AIMS 1

Rochester - 62.5 miles.

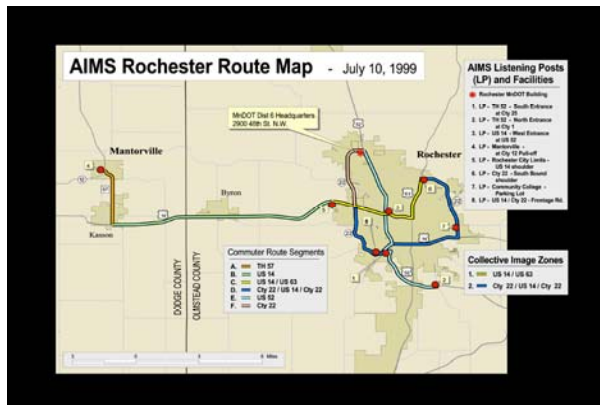
TH 52 to US 14 to TH 57 to US 14 to US 63 to Cty 22 to US 14 to Cty 22

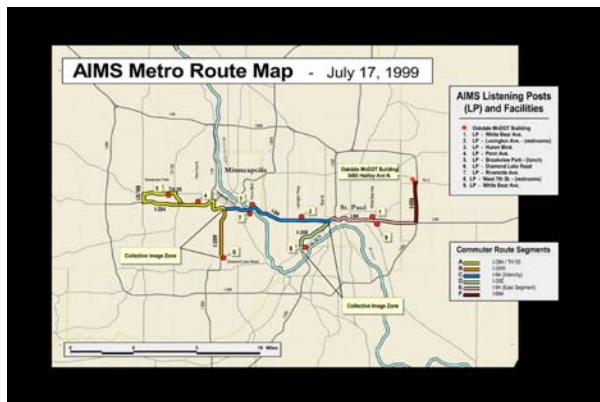
Twin Cities - 60.5 miles.

I-694 to I-94 to I-394 to US 169 to TH 55 to TH 100 to I-394 to I-35W to I-94 to I-35E to I-94

Duluth - 66.5 miles.

TH 194 to US 53 to I-535 to US 2 to I-35 to TH 23 to TH 210 to TH 45 to Cty 61 to I-35





Data from participants :

- What they noticed as attractive or unattractive
- What they found attractive or unattractive about what they noticed
- Attractiveness of the noticed view on a 5-pt. scale compared with the entire highway corridor along this route

Attractiveness and Number of Viewnotes



#1 for Attractiveness Good fit of highway with context

- Panoramic views of river valleys or distant hills, focal views of landscapes or landmark buildings or bridges
- Accounts for very high attractiveness ratings of the most views



#2 for Attractiveness
Good design within the right-of-way

- Aesthetic characteristics of planting or structural elements (railings, bridges, walls).
- People noticed the architectural character of the most attractive structures
- Good design was noted as attractive in both very attractive and less attractive highway segments



#3 for Attractiveness
Good maintenance

- Noticed as part of the attractiveness of all but the very most attractive views
- People valued landscapes that were well-mown, trimmed, had no trash, no rust, no peeling paint, structures in good repair
- People valued a highway in good condition



#4 for Attractiveness
Nature

- People mentioned nature only in association with landscape views that rated between 4 and 4.9 - very attractive.
- Wildflowers, exposed bedrock outcroppings, rolling hills, and wildlife were consistently identified as attractive.
- Wetlands were not always seen as attractive.



#5 for Attractiveness
Attractive context

- Highway segments where the highway location or design was not a good fit with its context generally rated low (<3.)
- However, even where the highway was not a good fit with its context , the **attractive context was recognized** and valued.



#1 for Unattractiveness Poor maintenance

- Powerfully provokes unattractiveness in **landscapes of varying attractiveness**
- **Unmown, weedy**: accounts for unattractiveness of views that may be attractive overall.
- **Unmown, weedy, rusty, trashy, deteriorated, rough**: accounts for unattractiveness of views that tend to be unattractive overall



#2 for Unattractiveness Poor design

- Most likely to contribute to unattractiveness of an overall attractive landscape view (e.g., an "ugly" sculpture).
- **Lack of plantings** frequently described as unattractive in otherwise attractive views
- In less attractive views, lack of plantings made the view look harsh or monotonous
- In least attractive views, poor design was apparent in use of **unattractive materials**: chain link fence, painted concrete

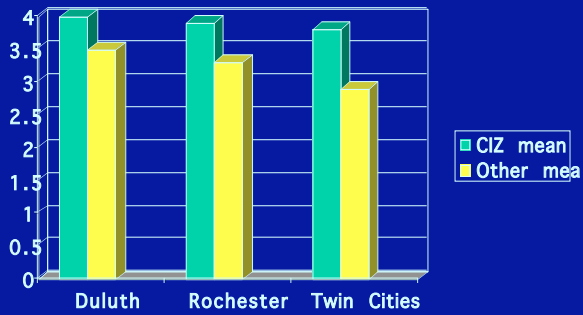


#3 for Unattractiveness
Poor fit with context

- Poor siting of buildings, highway, signs, or plantings to **block attractive vistas**
- **Signs too close** to the road or too many signs
- **Incompatible land uses** (like antennae farm, excavation, or junkyard)
- Was noted as unattractive in both attractive and unattractive highway segments



Collective Image Zone attractiveness compared with other segments



Duluth CIZ Attractiveness

- Mean attractiveness = 4.0
- Architectural character of the tunnel and adjacent walls and railings
- Good fit of the bridge and pedestrian overpass with the attractive landscape context



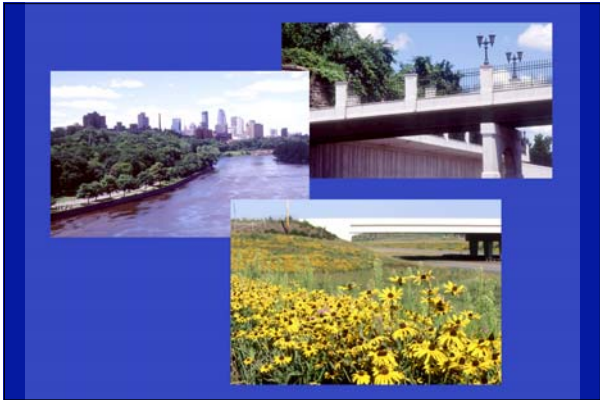
Rochester CIZ Attractiveness

- Mean attractiveness = 3.86
- Planting design that focused on attractive elements of surrounding vistas and screened out less attractive features
- Vistas of rolling hills and landmark buildings



Twin Cities CIZ Attractiveness

- Mean attractiveness = 3.76
- Long vistas
- Architectural details of railings, walls, and bridges
- Planting design and maintenance
- Overpasses that were rusty or needed paint reduced attractiveness.



Recommendations from AIMS 1

- To achieve a high foundation of attractiveness and avoid perceptions of unattractiveness, **invest in maintenance**.
- Views of the landscape context create the very most attractive views from the road. Both highway location and design with the right-of-way should **intentionally open or screen views**.
- All segments of urban highways should be part of a **comprehensive planting design strategy**.
- All structures in the right-of-way should meet a **minimum aesthetic quality of materials**.
- Be aware that the public's perceptions of highway attractiveness may be related to their **perceptions of naturalness and safety**.

Going forward with AIMS 1

- Establish additional baseline data for rural highways, gateway highways, or other types
- Identify additional CIZ themes and collect new data only in CIZ's to be compared with baseline data
- Periodically gather baseline data on the same routes to monitor public perception

Improving on AIMS 99

- Use more lead time to recruit more and more diverse participants
- Use AIMS 99 as a baseline to conduct shorter AIMS surveys with more detailed feedback along the entire route.
- Use the AIMS 99 data to determine what additional data - more detailed, different topics, etc. - would be most useful for MNDOT decisions

AIMS Phase 2 in process

- Focusing on fit with context, planting design and maintenance, wall materials, and bridge rails –themes identified in AIMS Phase I and important future MN/DOT decisions.
- Expands inquiry to both rural and urban highway contexts.
- Web-based survey of licensed Minnesota drivers (18 or older): a systematic, statistically representative sample (approx. n=1000).
- Ratings of perceived attractiveness, maintenance, naturalness, and safety.
- Responses to simulations of ideas as well as implemented design and maintenance

The nearby landscapes are shown again in the blue box on the left. Do any of the roadside landscapes on the right look like they ARE NOT COMPATIBLE with those nearby? Please click beneath any roadside landscape you perceive as incompatible with the nearby landscapes on the left. You may click more than one image.

| Nearby landscapes | |
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| | <input type="radio"/> All images are compatible with the landscape views |

The nearby landscapes are shown again in the blue box on the left. Do any of the roadside landscapes on the right look like they ARE NOT COMPATIBLE with those nearby? Please click beneath any roadside landscape you perceive as incompatible with the nearby landscapes on the left. You may click more than one image.

Nearby landscapes



Not compatible



Not compatible



Not compatible



Not compatible



Not compatible

All images are compatible with the landscape views
