



# The Freeway Roadside Environment: Testing Visual Quality at the Road Edge

Scenic highways and byways are prized segments of the American highway system. Transportation planners preserve and conserve scenic corridors, primarily in rural areas and countrysides. Yet Americans travel about about 2.3 billion miles per day on urban freeways and highways (1998, FHA). The quality and character of freeway roadsides in cities may have significant affects on our driving behavior, and can also impact our quality of life.

What is the preferred view from the road? A University of Washington study provides scientific insights about what visual environments people value as they travel urban highways. Why is this information important? Many urban freeways have become commercial corridors. Research outcomes can help us develop roadside design practices that meet the needs of both the business community and freeway users while managing a public resource.

## Public Preferences

Measuring preference is a way to evaluate the public value of a natural resource. We are not always conscious of our response to visual input. People respond physiologically to visual information that they encounter for less than 0.3 seconds. Therefore, understanding driver preferences can help us isolate elements of roadside views that may be important to driver aesthetics, and influence driver performance and safety.

**PREFERENCE STUDY** – Six base images were digitally edited to show freeway roadsides with different amounts and arrangements of vegetation. 400 drivers and 115 business people completed surveys and rated each of the images for how much they liked the roadside scenes (scale of 1=not at all to 5=very much).

**LOW AND HIGH RATINGS** – Ratings were averaged for each of the 36 scenes. Scenes with the lowest and highest mean ratings differ significantly in visual content. While both depict commercial corridors, trees effectively screen views of buildings and products from drivers in the highest rated scenes. A three point

preference difference (on a scale of 5) indicates how much trees and reduced views of built settings contribute to public perceptions of roadside visual quality.



Highest rated scene  
Mean 4.54

Lowest rated scene  
Mean 1.43





**Category A:**  
**Harsh Edge**  
Driver Mean: 1.53  
Business Mean: 1.67



**Category B:**  
**Prominent Buildings**  
Driver Mean: 1.74  
Business Mean: 1.80



**Category C:**  
**Ornamental Frame**  
Driver Mean: 2.78  
Business Mean: 2.96  
(t-test, sig p<.05)



**Category D:**  
**Tree Buffer**  
Driver Mean: 2.87  
Business Mean: 2.95



**Category E:**  
**Tree Screen**  
Driver Mean: 3.87  
Business Mean: 3.85

## Roadside Perceptions

Image ratings were also analyzed to reveal the clusters or categories of scenes that people respond to in similar ways. Five visual categories were identified.

**MEAN RATINGS** – Generally, preference ratings for categories increase with the presence of vegetation in the roadside setting. Categories A and B were rated the lowest. In these, adjacent commercial land uses are fully visible. Categories C and D were rated similarly, at about the middle of the scale. In C and D vegetation interrupts the visual prominence of urban build-up and frames the views beyond the road. Category E, rated highest by far, depicts scenes with background buildings that are screened by trees, though one can still see glimpses of commercial settings beyond. While the presence of plants boosts preference, their configuration or composition in the roadside setting also appears to be important. Roadside viewers are sensitive to the relative balance of natural content to built content—preferring a blended arrangement of plants and buildings.

**COMPARING DRIVERS AND BUSINESS** – Business owners often pay premium real estate prices for highly visible land adjacent to high volume roadways. In this study business people and drivers varied little in their judgments of visual quality. The only significant difference in ratings between the two groups was for Category C. Freeway frontage owners should consider how to incorporate these shared preferences into the roadside presentation of their businesses.

## Roadside Planning & Design

People value trees and other vegetation in the roadside environment! Drivers react negatively when roadside vegetation is completely removed to enhance visibility of adjacent businesses. The results of this study suggest other approaches are preferred by the public. First, well maintained vegetation can serve as a green “frame” to momentarily focus the driver’s eye on roadside commerce. Also, driving is a demanding activity, requiring that drivers respond to large quantities of information. Carefully presenting businesses and their products using vegetation frames may help drivers to more easily distinguish individual businesses within an unceasing stream of complex roadside information.

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PROJECT DIRECTOR: Kathy L. Wolf, Ph.D.; Center for Urban Horticulture, University of Washington

### For more information, contact...

Phone: (206) 616-5758; Fax: (206) 685-2692

E-mail: [kwolf@u.washington.edu](mailto:kwolf@u.washington.edu); Web site: [www.cfr.washington.edu/enviro-mind](http://www.cfr.washington.edu/enviro-mind)

