Context is a human construction that incorporates scientific, social scientific, artistic, and humanistic data in both separate and aggregated/integrated formats. Context is that combination of physical elements, ecological systems and cultural and social practices that define specificity of place, i.e., that in aggregate, establish a commonly understandable realm and in particular, its critical constituent elements. Context includes more than the parameters of the environment currently encompassed by legislation.

What are challenges to Context inherent in transportation projects?
- Disruption of continuity and integrity of physical fabric
- Disruption of community
- Disruption of sustainability of cultural and social practices
- Disruption of sustainability of natural systems
- Enhanced mobility at the cost of multimodality, access to destinations
- Diminished aesthetics, value

What is Context Sensitive Design? How can it be evaluated?
In transportation projects, can context be pre-assessed as a part of determination of project scope is? What histories, cultural narratives, technologies and scientific knowledge are needed and how can they be brought into play in the formal resolution of a project scope?

How is adverse impact measured and assigned dollar value as an estimate before the fact? Are, for example, cost-savings measured by the difference between costs incurred by anticipating adverse impacts to context versus cost of mitigation after the fact? Is mitigation inherently less cost effective than design because of inflexibilities or incompleteness induced by the lack of a flexible and comprehensive approach?

What constitutes adverse impact on context? Project scoping should involve processes to build consensus about: (1) the impacts on context to be considered, (2) the basis for analyzing them, (3) the information that will be used, and (4) the stakeholders that care.

Teaching:
Practice is Multi-disciplinary:
Professional Curricula are Disciplinary > financial models of University in conflict with educational models

Dual degrees
Certificates

Research: Transcending Boundaries
Multidisciplinary Teams and the Direction of the Research

Multiple Vocabularies, conceptual bases
Multiple non-parametric variables and/or the connectedness (composition) of design

Science, Engineering – quantitative measures
Perceptual, Political – qualitative measures
Curricular Opportunities/Challenges: University of Minnesota

Undergraduate: Multiple degrees affected

CSD course as part of infrastructure/transportation minor for professional (and non-professional) engineering, urban studies and design students based in course offerings at basic level of issues involved:

- Infrastructure systems
- Hydrology – surface and subsurface interactions
- Geomorphology – landforms and soils
- Wildlife and plant ecology – landscape structure, habitat
- Landscape architecture – site and regional design
- Architecture – materials, scale and proportion
- Historic preservation: American vernacular landscapes and architecture
- Planning process and land use
- Municipal and property law, real estate
- Cultural anthropology
- Sociology
- Public health – toxins, obesity
- Urban affairs – public processes

Context Sensitive Design (CSD): Curricula/Courses/Research

Curricular Solutions:

Graduate

- Master of CE/MURP
- MLA/MURP

Grad/Post-grad/Professional

Civil Engineering · Planning/Public Policy · Supply Chain Management

- CE 5211 Traffic Engineering (3 cr.)
- STAT 3021 or equivalent
- CE 3201 Intro to Transportation Engineering
- PA 6202 Networks and Process, Transportation, Land Use, and Design (4 cr.)
- OMS 6072 Managing Technologies in the Supply Chain (4 cr.)
- CE 6214 Transportation Systems Analysis (3 cr.)
- PA 6202/Geography 5372 American Cities II (4 cr.) *No prerequisites
- OMS 6056 Managing Supply Chain Operations (4 cr.)

Value of CSD: Design as Scoping/Pre-emption of Mitigation = Streamlining?

Studio/Workshop and Research

Highway segment:

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Project Contents Affected</th>
</tr>
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<tbody>
<tr>
<td>Planning Process, communicating, prioritizing, managing project objectives, stakeholder objectives; architecture, design and budget</td>
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<tr>
<td>Planning, Programming, Scheduling, Workshops</td>
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<td>Websites, Newsletters</td>
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<tr>
<td>Other Public/Secondary Infrastructure</td>
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<tr>
<td>Data Sets (GIS, Surveys, Studies)</td>
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<td>SCA5, Mapping Source of Impact Determination</td>
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<tr>
<td>Legal Geographies</td>
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<tr>
<td>Cost/benefit evaluation</td>
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Context Sensitive Design (CSD): Curricula/Courses/Research