

NCHRP Study 20-24 (30)

Performance Measures for
Context Sensitive Solutions –
A Guidebook for State DOTs

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CSS - A Business Philosophy

- Project designed collaboratively with community and regulatory agency stakeholders
 - Fits its physical setting
 - Supports community values
 - Preserves scenic, historic, aesthetic & other resources
 - Maintains safety and mobility

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CSS Measurement Challenge

No "best practices" models
+
Each project is unique
+
CSS crosses disciplines and phases of project delivery
=
Tough area to measure!

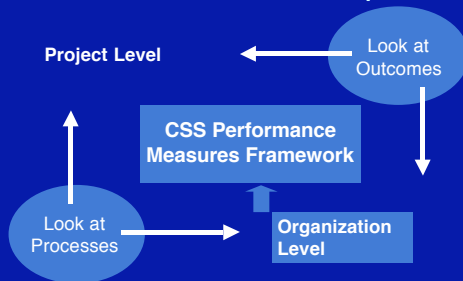
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Why Measure?

- Make CSS state of the practice not state of the art
- Strengthen agency leadership support of CSS principles
- Maintain focus on strategic CSS goals
- Strengthen trust with stakeholders and customers

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Framework Concept



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Project Level

- CSS principles rooted at project level
- Work for one or many projects
- Foster team commitment
- Apply at milestones in project delivery
- Strengthen stakeholder trust

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Guiding Concepts for Project Measures

- Collaborative self-assessment
- Integrate measures into project development process as an aid
- Develop tailored consensus-based concepts to measure against
 - Problems and needs for all projects
 - Project vision or goals

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Project Level - Key Process Focus Areas

- Use of multi-disciplinary teams
- Public engagement
- Project problems and needs
- Project vision or goals
- Alternatives analysis
- Construction and maintenance

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Project Measures – Key Outcome Focus Areas

- Meeting project problems and needs
- Achievement of project vision or goals
- Stakeholder satisfaction
- Quality assurance review

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Organizational Level

- Used to assess performance of entire organization
- Fewer in number than project-level measures
- Rely on central reporting of data
- Vital resource for senior management
- Monitored on regular schedule

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Organization Measures - Key Process Focus Areas

- Training
- Manuals
- Policies
- Motivation

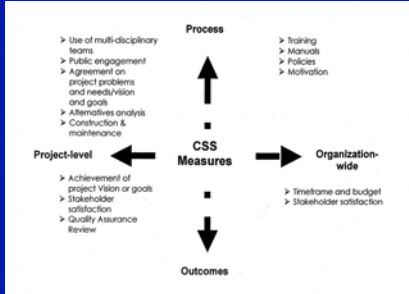
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Organization Measures - Key Outcome Focus Areas

- Environmental stewardship
- Timeframe and budget
- Stakeholder satisfaction

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Matrix of CSS Measures



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- Performance Measures for Context Sensitive Solutions - A guidebook for State DOTs: http://trb.org/publications/nchrp/nchrp_w69.pdf

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Case Study Examples

- Cost/Benefit Data
- Performance Measurement

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AZ Route 179 Needs Based Implementation Plan

Cost/Benefit

- Save time & \$ by involving entire community in planning & design from the beginning
- Single, continuous process using same team throughout

Performance

Measures

- Trust restored
- Held up as a model for future local/regional planning processes by ADOT, counties, FHWA, Forest Service

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CA Highway 1 Median Barrier

Cost/Benefit

- Slip form technology/innovative design solution-installed at less than 1/3 the cost of traditional barrier

Performance

Measures

- Reduced potential for cross-median collisions. When struck, little maintenance required
- Members of public interested in residential

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CO Berthoud Pass Mountain Access Project-Arapaho NF

Cost/Benefit

- Reduced template of roadway from planned 80 feet to 65 feet. Resulted in \$30 million savings + reduced impact to forest

Performance

Measures

- Placement of snow storage area/sedimentation basins yielded 90% recovery of winter traction sand - improved water quality

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CO Castlewood Canyon Historic Bridge Project

Cost/Benefit

- Use of innovative materials & methods warranted \$300,000 federal research funds
- CO saved over \$500,000 in rehabing the structure rather than replacing it

Performance Measures

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CO I-25 New Pueblo Freeway

Cost/Benefit

- Public involvement process developed sense of community & trust and agreement to land acquisition
- Area that had 2 interchanges will now be served by one resulting in \$100 million savings

Performance Measures

- EIS completed more quickly than average

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WY Yellowstone National Park - Grand Loop Road

Cost/Benefit

- Approach to minimizing impacts is saving \$
- Proactive approach by construction staff has yielded \$ savings, e.g. during construction personnel eliminated proposed timber crib wall-saved \$400,000

Performance Measures

- Customer survey of stakeholders and members of the road team, conducted after design contract package is completed and again upon construction completion

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IL Prairie Parkway Phase 1 Preliminary Engineering Study

Cost/Benefit

- More thorough evaluation of alternatives at earlier stage than usual yielded higher level of understanding-led to eliminating 1 of 3 initial screening phases and yielded several \$100 thousand & 3 months time savings

Performance Measures

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NJ Route 31 Section 6E/6F

Cost/Benefit

- Numerous simple, low cost elements had a dramatic effect on aesthetics and functionality of the improvements but none of these features added significant cost to the project

Performance Measures

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MN TH 38 Edge of the Wilderness National Scenic Byway

Cost/Benefit

- Collaboration of stakeholders set the stage for cost-effective joint ventures & stewardship
- Cost savings thru spot location flexibility in design solutions
- Reconstruction was advanced by at least 10 years

Performance Measures

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MT Going-to-the-Sun Road Rehabilitation - Glacier NP

Cost/Benefit

IDIQ contract to a single prime contractor will allow cost/savings & quality control

Polymer injections to stabilize existing road base will avoid removal of existing pavement structure & yield cost savings

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Performance

Measures

TN SR 73 Gatlinburg

Cost/Benefit

Performance

Measures

- A measure of success will be the use of the CSS process model on other projects in TN, even those that are underway

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VA Route 33 Bridge Replacement Project

Cost/Benefit

- Widening project: alt. through town was selected-less costly in \$ and environmental impact than a bypass
- Project used as springboard to redevelop business

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Performance

Measures

- Increase in sales & property taxes

WA SR 20 Deception Pass State Park - Replacement of Guardrail

Cost/Benefit

Performance Measures

- Drivers will be polled- success will be if...drivers feel there is minimal visual change; drivers feel the new system was built in the CCC style; drivers think the stone masonry looks like the original bollards; and if # of severe accidents is reduced

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