State of Georgia

Department of Transportation

Context Sensitive Design Online Manual

Context Sensitive Design Online Manual

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Atlanta, Georgia 30308

Georgia Department of Transportation

This document was developed as part of the continuing effort to provide guidance within the Georgia Department of Transportation in fulfilling its mission to provide a safe, efficient, and sustainable transportation system through dedicated teamwork and responsible leadership supporting economic development, environmental sensitivity and improved quality of life. This document is not intended to establish policy within the Department, but to provide guidance in adhering to the policies of the Department.

Your comments, suggestions, and ideas for improvements are welcomed.

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DISCLAIMER

The Georgia Department of Transportation maintains this printable document and is solely responsible for ensuring that it is equivalent to the approved Department guidelines.

Revision Summary

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List of Effective Chapters

Document	Revision Number	Revision Date
List of Effective Chapters	2.0	12/29/16
Table of Contents	2.0	12/29/16
Acronyms and Definitions	2.0	12/29/16
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Glossary of Acronyms and Terms

Acronyms

3R - Resurfacing, Restoration, and Rehabilitation

AASHTO – American Association of State Highway and Transportation Officials

ACCG – Association County Commissioners of Georgia

ADA – Americans with Disabilities Act

ADT – Average Daily Traffic

ARC – Atlanta Regional Commission

ASCE – American Society of Civil Engineers

CalTrans – California Department of Transportation

CATEX – Categorical Exclusion

CE – Categorical Exclusion

CEQ – Council on Environmental Quality

CFR - Code of Federal Regulations

CIA – Community Impacts Assessment

CORSIM – Corridor Simulation (Software)

CSD – Context-Sensitive Design

CSRA - Central Savannah River Area Regional Development Center

CSS – Context-Sensitive Solutions

CTE - Center for Transportation Excellence

CVRD - Coosa Valley Regional Development Center

DCO - District Communications Officer

DEIS – Draft Environmental Impact Statement

DOT – Department of Transportation

DDOT – District Department of Transportation (Washington, DC)

EA – Environmental Assessment

EAB - Environmental Analysis Bureau

EIS – Environmental Impact Statement

EPA - Environmental Protection Agency

FONSI – Finding of No Significant Action

FHWA - Federal Highway Administration

GDOT – Georgia Department of Transportation

GEFA – Georgia Environmental Facilities Authority

GEMA – Georgia Emergency Management Agency

GEPA – Georgia Environmental Policy Act

GIS – Geographic Information Systems

GPTQ - Georgia Partnership for Transportation Quality

GRTA - Georgia Regional Transportation Authority

ISTEA – Intermodal Surface Transportation Equity Act

ITE – Institute of Transportation Engineers

LOS – Level of Service

MTRDC - McIntosh Trail Regional Development Center

MGRDC - Middle Georgia Regional Development Center

MOA - Memorandum of Agreement

MOU - Memorandum of Understanding

MPO – Metropolitan Planning Organization

MUTCD –Manual on Uniform Traffic Control Devices

NEPA - National Environmental Policy Act

NHPA - National Historic Preservation Act

NOI - Notice of Intent

OEL – GDOT Office of Environment and Location

OTIA – Oregon Transportation Investment Act

ROD - Record of Decision

SAFETEA-LU – Safe and Efficient Transportation Equity Act – a Legacy for Users

SHPO - State Historic Preservation Officer

SIA – Social Impacts Assessment

SPLOST – Special Purpose Local Option Sales Tax

SRTA – State Road and Tollway Authority

TRB - Transportation Research Board

TEA21 – Transportation Equity Act for the 21st Century

TSIS - Traffic Software Integrated System

WSDOT – Washington State Department of Transportation

Definitions

AASHTO Green Book – American Association of State Highway and Transportation Officials (AASHTO), published Policy on Geometric Design of Highways and Streets. The Green Book is currently in its 5th Edition. Click here to jump to the AASHTO Bookstore to order a current copy of the AASHTO Green Book.

Access Management – Involves providing (or managing) access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed.

Advisory Committee – A representative group of stakeholders meeting regularly to discuss issues, have their comments and points of view recorded for later review, and seek consensus over project issues. *Purpose*: Provides a forum for stakeholders to regularly express their opinion on project issues and direction in a collaborative environment; for stakeholders to work together to reach consensus on project issues; and for the project team to monitor community reactions to project activities.

Advisory Signing – Signs that warn drivers of potential hazards.

Aesthetics – Consideration and/or evaluation of the sensory quality of resources (e.g. sight & sound).

Americans With Disabilities Act (ADA) – A federal law that was enacted in 1990 for the purpose of ensuring that all Americans have the same basic rights of access to services and facilities. The ADA prohibits discrimination on the basis of disability. To effect this prohibition, the statute required certain designated federal agencies to develop implementing regulations.

Arterial – Functional classification for a street or highway that provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.

Average Daily Traffic - The average 24- hour volume, being the total volume during a stated period divided by the number of days in that period, normally a year or the number of days the road is actually open to public travel.

Brainstorming – A meeting or session that involves open discussion amongst a group of people. *Purpose*: Brainstorming sessions, often used to resolve conflicts, are intended to produce as wide a variety of ideas as possible. Ground rules for brainstorming sessions include: encourage all ideas; keep discussion of ideas to a minimum; generate as many unique ideas as practical; build on ideas of others; record ideas as they are offered (transcript, flip chart, online presentation, etc.) See: Free- Wheeling and Round Robin, two brainstorming techniques.

Capacity – The maximum number of vehicles which has a reasonable expectation of passing over a given section of lane or roadway during a given time period under prevailing roadway and traffic conditions.

Categorical Exclusion (CE or CATEX) – Under the National Environmental Policy Act, a CATEX is an action that normally does not require the preparation of an Environmental Assessment or an Environmental Impact Statement.

Centerline – (1) For a two-lane road, the centerline is the middle of the traveled way; and for a divided road, the centerline may be the center of the median. For a divided road with independent

roadways, each roadway has its own centerline. (2) The defined and surveyed line shown on the plans from which road construction is controlled.

Charette – A meeting format used to define issues, analyze problems and alternative solutions and to reach consensus on the approach to be taken. *Purpose*: Resolve a problem or issue within a specific time period and when a range of solution options are required; define values and expectations.

Choker – Permanent structures that cause roadway to narrow, used for traffic calming.

Clear Zone – Area that extends beyond the right-or-way of a freeway and is clear of any structures or elements that may potentially be struck if a car leaves the freeway. The extent of the clear zone depends on several factors, such as the design speed or slopes.

Collaborative Task Force – a group assigned a specific task, with a time limit for reaching a conclusion and resolving a difficult issue, subject to ratification by official decision- makers. Its membership usually involves local people or representatives from interest groups, appointed by elected officials or agency executives. *Purpose*: Helps solve a specific problem, working strenuously toward consensus and presenting a strong and unified voice.

Collector - Functional classification for a street or highway that provides a less highly developed level of service than an Arterial, at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.

Community – While a community may be defined based on proximity to a project, or city, county, or neighborhood delineations; a broader definition acknowledges that a community may be based on common characteristics or interests, such as religion, ethnicity, income strata or concern for the economic viability of a region.

Community Impact Assessment (CIA) - The process that evaluates the potential impacts of proposed transportation projects on a local community and its sub-populations throughout the transportation decision- making process. The goal of CIA is to focus on the quality of life of the community.

Corner Radius – The radius of a circle used to fillet the curb line at an intersection.

Corridor Continuity - The overall coordination and sequence of visual features, as experienced by the roadway user (WSDOT, 2005).

CORSIM – a comprehensive microscopic traffic simulation, applicable to surface streets, freeways, and integrated networks with a complete selection of control devices (i.e., stop/yield sign, traffic signals, and ramp metering). It simulates traffic and traffic control systems using commonly accepted vehicle and driver behavior models. (FHWA). Additional information about CORSIM can be found online at: http://ops.fhwa.dot.gov/trafficanalysistools/corsim.htm

Critical Length of Grade – That combination of gradient and length of grade which will cause a designated vehicle to operate at some predetermined minimum speed. A lower speed than this is unacceptable and usually requires that an auxiliary climbing lane be provided for slow-moving vehicles.

Cross Section – The transverse profile of a road showing horizontal and vertical dimensions.

Culvert – Any structure under the roadway with a clear opening of 20 feet or less measured along the center of the roadway.

Curve Widening – The widening of the traveled way on sharp curves to compensate for the fact that the rear wheels of a vehicle do not follow exactly in the track of the front wheels.

Curvilinear Alignment – A flowing alignment in which the majority of its length is composed of circular and spiral curves. Cut Section – That part of the roadway which, when constructed, is lower in elevation than the original ground.

Delphi Technique – A consensus-building technique in which interaction between members of a group is anonymous. Participants respond to several rounds of surveys, each round of survey questions builds upon the previous. Participants are only informed of the group's collaborative opinions. Additional information on using the Delphi Technique to build consensus can be found online at:
http://www.eagleforum.org/educate/1998/nov98/focus.html

Design Exception – Process to approve a section of a project that does not meet initial design criteria. Permission must be obtained whenever a new construction or reconstruction project (excluding maintenance resurfacing projects and 3R projects) contains design features that do not meet the current AASHTO publications, *A Policy on Geometric Design of Highways and Streets (Green Book)* and *The Policy on Design Standards - Interstate System*, as adopted by the FHWA. For interstate projects, the FHWA will be the agency that grants design exceptions. For all other projects, both Federal and State funded, the Chief Engineer grants design exceptions. Refer to Chapter 8 of the GDOT Plan Development Process.

Design Speed – A speed selected for purposes of design and correlation of the physical features of a road that influence vehicle operation. It is the maximum safe speed that can be maintained over a specified section of the road when conditions are so favorable that the design features of the road govern.

Design Variance - Whenever a new construction or reconstruction project contains nonstandard items that are not controlling criteria or which do not meet GDOT policy/guidelines, a design variance must be requested from the Chief Engineer. Refer to Chapter 8 of the GDOT Plan Development Process.

Design Vehicle – A selected motor vehicle, the weight, dimensions, and operating characteristics of which are used as a control in road design.

Design Vehicle Turning Radius – The turning radius of a Design Vehicle, used primarily to determine the minimum radius used in the design of turning and intersecting roadways.

Design Volume – A volume determined for use in design, representing the traffic expected to use the road.

District Communications Office – The Office of Communications for each GDOT District keep the public informed of all Georgia DOT's planning, road construction and maintenance activities through news releases, questions-and-answers sheets, fact sheets and public service messages for radio and television. Also provides guidance to the district's work units on media. It reports on

all newsworthy events for the Department's employee newsletter LET'S GET PERSONNEL and the Department's MILEPOST magazine.

Embankment – A raised earth structure on which the roadway pavement structure is placed. Enhancements – Aesthetic additions to a project, such as trees or streetscaping.

Environmental Assessment (EA) – A document prepared for actions in which the significance of the environmental impact is not clearly established. Should environmental analysis and interagency review during the EA process find a project to have no significant impacts on the quality of the environment, a Finding of No Significant Impact (FONSI) is issued.

Environmental Impact Statement (EIS) – a full disclosure document that details the process through which a transportation project was developed, includes consideration of a range of reasonable alternatives, analyzes the potential impacts resulting from the alternatives, and demonstrates compliance with other applicable environmental laws and executive orders. (FHWA, 2005)

Environmental Justice – The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Expectancy – The driver's readiness to respond to events, situations, or presentation of information. Expectancy is primarily a function of the driver's experience. (WSDOT, 2005).

Facilitation – The guidance of a group in a problem-solving process by a facilitator who is neutral in regard to the issues and topics under discussion and provides procedural help in moving toward consensus and a conclusion. *Purpose*: Focuses task energies on a specific task or limited issue; discussion is structured without controlling content because the open process is the focus, not the outcome; discussion is kept to the topic with new issues identified and reformulated as they arise, saving time; all points of view receive a hearing and consideration.

Free Flow – Traffic flow which is not impeded.

Free-Wheeling – A brainstorming technique in which ideas are shared in a free-form way. In a session involving free-wheeling, ideas are often recorded as they are offered (on a flip chart, incorporated into an online meeting, etc). (See Brainstorming, Round Robin)

Focus Group – A group typically representing a cross section of the community who attend a facilitated meeting with carefully tailored agenda, a set of questions to guide the discussion, a discussion facilitator, eight to twelve participants and a minimum of presentation materials to set the context for discussion. *Purpose*: Gauges public opinions, which provides guidelines for further thinking and analysis; provides input on issues and concerns.

Frontage Road – An access roadway that is parallel to a highway and is located between the highway and adjacent businesses.

Functional Classification – The grouping of streets and highways according to the character of traffic service that they are intended to provide. There are three highway functional classifications: arterial, collector, and local roads. All streets and highways are grouped into one of these classes,

depending on the character of the traffic (i.e., local or long distance) and the degree of land access that they allow.

Geometric Design – The arrangement of the visible elements of a road, such as alignment, grades, sight distances, widths, slopes, etc.

Georgia Environmental Policy Act of 1991 (GEPA) – This act (Senate Bill 97) passed during the 1991 session of the Georgia Legislature, requires the evaluation and disclosure of environmental effects of proposed state (funded) actions. In general, a proposed action by a government agency must be assessed by the responsible official (the Commissioner is the responsible GDOT official) of that agency to determine and document whether or not the proposed action may significantly affect the quality of the environment. In the event of a determination of a significant adverse effect, the act requires an evaluation of the pros and cons of alternatives that would avoid the adverse impact as well as measures to minimize harm.

Grade – (1) The profile of the center of the roadway, or its rate of ascent or descent. (2) To shape or reshape an earth road by means of cutting or filling. (3) Elevation.

Grade Separation – A structure which provides for traffic to pass over or under another road or railroad.

Gutter Width – Distance between the pavement edge of a street and the face of the curb; a typical gutter width is two feet.

Horizontal Alignment – Horizontal geometrics of the roadway.

Horizontal Curve – A curve or transitional by means of which a road can change direction to the right or left.

ISTEA (Intermodal Surface Transportation Equity Act) - ―Signed into law by President Bush in December 1991, ISTEA establishes a new vision for surface transportation in America.‖ (National Transportation Library, 1991). An online summary of ISTEA is available online at http://ntl.bts.gov/DOCS/ste.html

Isometric – A 3-dimensional drawing that does not use perspective. An isometric drawing shows two sides of the object and the top or bottom of the object.

Lanes

- **Auxiliary Lane** – The portion of the roadway adjoining the traveled way for parking, speed change, turning, storage for turning, weaving, truck climbing, or for other purposes supplementary to through traffic movement.
- **Center Turn Lane** – A speed-change lane within the median to accommodate left-turning vehicles.
- **Parking Lane** – An auxiliary lane primarily for the parking of vehicles.
- **Passing Lane** – A section of two-lane, two-directional road where sufficient clear sight distance exists to allow a safe passing maneuver to be performed.
- **Turn Lane** – A traffic lane within the normal surfaced width of a roadway, or an auxiliary lane adjacent to or within a median, reserved for vehicles turning left or right at an intersection.

- **Traffic Lane** – The portion of the traveled way for the movement of a single line of vehicles in one direction.

Level of Service – A qualitative rating of the effectiveness of a road relative to the service it renders to its users, measured in terms of a number of factors, such as operating speed, travel time, traffic interruptions, freedom to maneuver and pass, driving safety, comfort, and convenience.

Local Road – Functional classification that consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

Median – The portion of a divided roadway separating the traveled ways for traffic in opposite directions.

Merging – The converging of separate streams of traffic to a single stream.

Mitigation - sequentially avoiding impacts, minimizing impacts, and compensating for any unavoidable impacts (WSDOT, 2005).

Mitigation Plan – document(s) that contain all information and specifications necessary to fully implement and construct a compensatory mitigation project (WSDOT, 2005)

Nominal safety - refers to a design alternative's adherence to design criteria and standards.

Operating Speed – Actual speed at which traffic flows.

Parametrics – A modeling platform with application areas that include urban, highway, public transport, congested, free flow, ITS and HOV. Additional information about Parametrics is available online at: http://www.parametrics.com

Passing Sight Distance – The minimum sight distance that must be available to enable the driver of a vehicle to pass another safely and comfortably without interfering with the speed of an oncoming vehicle traveling at the design speed should it come into view after the overtaking maneuver is started.

Pavement Markings – Devices or paint placed on the roadway to mark pavement for vehicular and pedestrian traffic control.

Pedestrian - Georgia State law defines a Pedestrian as: ―Any person who is afoot‖ (GLC 40-1-1). By state definition, roller skaters, in-line skaters, skateboarders, and wheelchair users are also considered pedestrians.

Posted Speed – The maximum speed limit which may not be legally exceeded. Profile – A longitudinal section of a roadway, drainage course, etc.

Public Information Open House (PIOH) – An informal public meeting with an open house format and generally lasts two to three hours No formal presentations are made at these meetings; however handouts describing the proposed project and maps showing the proposed project area must be available for everyone attending. GDOT representatives must attend these meetings and must be prepared to discuss the project and answer questions. These meetings should be held early in the project development stage. *Purpose*: to inform the public of a project that is proposed in their area, gather information from the public and to receive comments from the public about the proposed project. Guidelines for conducting a PIOH can be found in chapter 4 of GDOT's Environmental Procedures Manual, which is available at

http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/GDOT-EPM-Chap04.pdf

Public Hearing Open House (PHOH) – Federal law requires that public hearings be held after the draft Environmental Assessment (EA) or after the draft Environmental Impact Study (DEIS) is signed by FHWA, whichever is appropriate. The PHOH is conducted in the same manner as the PIOH and generally last three hours. Project representatives (including consultant's working on the project) must attend these meetings and be prepared to discuss the project and answer questions. *Purpose*: to exchange information between GDOT and the public prior to making a commitment to the location and design of the project.

Guidelines for conducting a PHOH can be found in chapter 4 of GDOT's Environmental Procedures Manual, which is available at http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/GDOT-EPM-Chap04.pdf

Reaction Time – Amount of time needed to make a decision between one event to the next. Typical reaction times are approximately 7-10 seconds.

Retaining Wall – Structure that prevents dirt from sliding or eroding.

Reverse Curve – A curve consisting of two arcs of the same or different radii curving in opposite directions and having a common tangent or transition curve at their point of junction.

Road Diet - Design concept where a roadway with more lanes is converted to one with fewer lanes.

Round Robin – A fast-paced brainstorming technique in which participants sitting around a table are each given a choice to briefly offer a response or to hand off to the next person. Each response is recorded. Typically, only 10-15 seconds are spent on each individual so short quick responses are a necessity. Rounds continue until two full passes are made with no new responses. (See Brainstorming, Freewheeling)

Running Speed - For all traffic, or a component thereof, the summation of distances traveled divided by the summation of running time

Rural Section – Any roadway without curb and gutter.

Section 4(f) – of the US DOT Act. Applies to FHWA or FTA- funded or approved projects only and requires the protection of public parks, recreation areas, historic properties, and wildlife and waterfowl refuges. Documentation of avoidance, minimization, and mitigation is required.

Section 6(f) – of the Land and Water Conservation Act (LAWCON). Applies to parks or recreation areas where LAWCON funds were used for acquisition, development, or equipment within the park boundaries. Documentation of avoidance, minimization, and mitigation is required.

Section 106 – of the National Historic Preservation Act. Requires properties of historic significance to be protected. Any federally funded or permitted project must be evaluated for the presence of eligible properties. If found, such properties are evaluated for potential effects due to the project. Documentation of avoidance, minimization, and mitigation is required.

Shoulder – The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

Social Impacts Assessment (SIA) - An element of the CIA. The SIA would focus on impacts of the proposed project on specific groups of individuals, including those typically underrepresented, within a community.

Sidewalk - The portion of a street between the curb lines, or the lateral lines of a railway, and the adjacent property lines, intended for use by pedestrians (Georgia Code and Rules 40-1-1).

Sight Corner – Area of the intersecting road that is visible to the driver when approaching an intersection.

Sight Distance – The length of roadway ahead visible to a driver

Slope – The face of an embankment or cut section; any ground the surface of which makes an angle with the plane of the horizon.

Speed Hump – Bump in the pavement used for traffic calming.

SPLOST – Special Purpose Local Option Sales Tax, enacted by Georgia legislators in 1985, authorizes a county tax of 1% on items subject to the state sales tax for funding capital projects. Projects financed via SPLOST are intended to benefit the county as a whole—either standing alone or in combination with other county capital outlay projects or municipal capital outlay projects.

Standard – Criteria having recognized and usually permanent values which are established formally as a model or requirement.

Stopping Sight Distance – The distance required by a driver of a vehicle, traveling at a given speed, to bring his vehicle to a stop after an object on the roadway becomes visible, including the distance travelshed during the perception and reaction times, as well as the vehicle braking distance.

Street Furniture – Any type of appurtenance for pedestrian use, such as benches, trash receptacles, information kiosks, transit shelters, etc. (WSDOT, 2005).

Substantive Safety - Substantive safety refers to the roadway's crash experience.

Superelevation - The elevating of the outside edge of a curve to partially offset the centrifugal force generated when a vehicle rounds the curve.

Superelevation Runoff – The transition distance between normal crown and fully super elevated roadway.

Sustained Grade – A continuous road grade of appreciable length and consistent, or nearly consistent, gradient.

Traffic Calming – Street design or regulatory features that cause motorists to drive more slowly and therefore with a greater degree of attentiveness.

Traffic Control Device – A sign, signal, marking or other device placed on or adjacent to a street or highway by authority of a public body or official having jurisdiction to regulate, warn, or guide traffic.

Traffic Island – Any permanent raised structure completely surrounded by the roadway; typically a median.

Transition – A section of variable pavement width required when changing from one width of traveled way to a greater or lesser width.

Transition Curve (Spiral) – A curve of variable radius intended to effect a smooth transition from tangent to curve alignment.

TSIS - The Traffic Software Integrated System (TSIS) is a collection of software tools for use by traffic engineers and researchers. Originally built as a simple shell around CORSIM, TSIS has evolved into a sophisticated toolkit. Though used by the FHWA for conducting research, these tools are sold to the public. (FHWA). Additional information about TSIS and other traffic analysis tools can be found online at: http://ops.fhwa.dot.gov/trafficanalysistools/corsim.htm

Turning Path – The path of a designated point on a vehicle making a specified turn.

Turning Track Width – The radial distance between the turning paths of the outside of the outer front tire and the outside of the rear tire which is nearest the center of the turn.

Unity –The degree to which the visual resources of the landscape join to form a harmonious visual pattern. (WSDOT, 2005).

Urban Section – Any roadway with curb and gutter.

Variance – Approval obtained that allows a project to fall outside statute regulations.

Vertical Alignment (Profile Grade) – The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline of the roadbed, being either elevation or gradient of such trace according to the context.

Vertical Curve – A curve on the longitudinal profile of a road providing a change of gradient.

Visioning – A series of meetings focused on long range issues involving a broad spectrum of people to generate ideas, set goals and priorities and to help formulate policy direction. *Purpose*: Sets the stage for long range planning activities; provides review of existing policy; sets new policy direction; provide stages for a wide variety of ideas and a range of potential solutions.

VISSIM – A microscopic, behavior-based multi- purpose traffic simulation program.

Visual Impact Assessment - A special study requirement for an Environmental Impact Statement document. A description of the visual environment assists in determining and understanding the level of visual changes that may arise from project implementation. When considering visual impacts, focus should be placed on the existing landscape, visually sensitive resources, and an individual's view in the study area. Additional information on Visual Impact Assessment can be found in GDOT's *Environmental Procedures Manual*.

Visual Quality – What viewers like and dislike about a particular scene

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Introduction

"We shape our communities, and then they shape us." Winston Churchill

Welcome to the Georgia Department of Transportation (GDOT) Online Manual on Context-Sensitive Design Solutions.

Context-Sensitive Design (CSD) is a process for achieving design excellence by developing transportation solutions that require continuous, collaborative communication and consensus between transportation agencies, professionals, and any and all stakeholders. A common goal of CSD projects is to develop a facility that is harmonious with the community, and preserves aesthetics, history and the environmental resources, while integrating these innovative approaches with traditional transportation goals for safety and performance.

The idea of "good design" has been undergoing a transformation to include the element of context—how transportation facilities can integrate and interact with the dynamics of the existing natural and man-made environment, and what can be done to preserve or even enhance those features.

Understanding a community's value for scenic, aesthetic, historic and environmental resources is a key factor in CSD. Applying CSD principles in transportation investments will create a lasting value in a community. Originally called context-sensitive design, the practice has evolved into Context-Sensitive Solutions (CSS) to represent the multi-dimensional nature of the process. CSS calls for innovative thinking, improved coordination and communication, and interdisciplinary decision-making, all as a part of the project development and implementation process.

A determination of the discrete steps to be taken to mobilize adequate staff or consultant resources to complete the tasks associated with managing a Stakeholders Group, Advisory Committee, or other public involvement strategy, is described in this manual. The goal of this process is to anticipate and understand the steps needed to effectively develop and transfer the needed information to numerous business, civic, institutional and residential groups and persons in a collaborative, context sensitive effort. This effort will seek input and feedback to consider all appropriate "context sensitive" alternatives, and to improve a project with such inputs.

Purpose of this Online Manual

The purpose of this Online Manual on Context-Sensitive Design (CSD) / Context-Sensitive Solutions (CSS) is three-fold:

First, this Online Manual provides GDOT management, staff, consultants, and other practitioners with the latest research and development information regarding CSD/CSS best practices in Georgia and throughout the country.

Second, it sets out policy guidelines and procedures for communication strategies, design flexibility, environmental sensitivity, and stakeholder involvement which GDOT project managers and design engineers can use to achieve successful context-sensitive solutions.

Third, this Online Manual offers project examples in Georgia and in other states that demonstrate good CSS practices. These examples offer lessons learned to further the work GDOT will do in promoting excellence in transportation planning and design.

GDOT project managers and other practitioners can use the guidelines and approaches found in this Online Manual as a basis for reviewing its current project development and design practices and engineering these processes.

CSS is an important part of future planning and design projects in Georgia, and our goal is that GDOT will be among the transportation leaders in the exchange of CSS ideas and concepts.

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Chapter 1. Setting Clear Directions

Introduction

This section is comprised of two sections:

1.1. A Brief History of Context-Sensitive Design highlights the recent history of Context- Sensitive Design and its evolution into Context- Sensitive Solutions, beginning with the Intermodal Surface Transportation Efficiency Act through to CSD's future and FHWA's goal to have CSS integrated with the project development process for all fifty U.S. states

1.2. Context-Sensitive Solutions Guiding Principles offers five primary guiding principles for CSS that will enable GDOT roadway design decision-makers and practitioners to better balance transportation, land use, economic, social and environmental goals and objectives.

1.1 Brief History of Context-Sensitive Design

Context-Sensitive Design (CSD) is a revolutionary change from a tradition of focusing almost exclusively on engineering to an approach that balances safety and mobility with a community's values and environmental preservation. The history of CSD, as shown in the timeline below, is relatively recent:

1991 - The Intermodal Surface Transportation Efficiency Act (ISTEA) plants the ―seeds of change‖ for CSD. This legislation emphasizes that, in addition to being safe, projects should be sensitive to their surrounding environment, especially in scenic or historic areas and increase public involvement by collaborating with local communities.

1995 - The National Highway System Designation Act is enacted. The planning and design guidelines state that designs may take into account: the constructed and natural environment of the area; impacts of the project upon environmental, scenic, aesthetic, historic, community and preservation interests; and access for other modes of transportation.

1997 - The Federal Highway Administration (FHWA), in cooperation with the American Association of State Highway and Transportation Officials (AASHTO), publishes *Flexibility in Highway Design*, which identifies and explains ways to reduce the impact of transportation projects on environment by using use the range of acceptable design guidelines.

1998 - The Maryland Department of Transportation, State Highway Administration conducts Thinking Beyond the Pavement: National Workshop on Integrating Highway Development with Communities and the Environment While Maintaining Safety and Performance.

1998 - Subsequent to the Thinking Beyond the Pavement conference, FHWA selects five pilot states to implement the CSD approach and to share their experiences with the States within their region: Connecticut, Kentucky, Maryland, Minnesota, and Utah. *Additional details on the FHWA CSD Pilot program can be found online at:* *http://www.fhwa.dot.gov/publications/focus/01apr/pavement.cfm*

1999 - The American Society of Civil Engineers (ASCE) hosts a national Context- Sensitive Highway Design Workshop in Reston, Virginia, which heightened awareness and increased understanding of those working in context-sensitive design.

2003 - Project for Public Spaces is commissioned by FHWA to work with key stakeholders in the transportation field to create www.contextsensitivesolutions.org, an online resource to facilitate the integration CSS in the project development Process.

2004 - Transportation Research Board (TRB) publishes *Context-Sensitive Design Around the Country*, providing examples of CSD implementation throughout the United States.

TRB's National Cooperative Highway Research Program (NCHRP) publishes *Performance Measures for Context- Sensitive Solutions - A Guidebook for State DOTs*.

The Center for Transportation and the Environment at North Carolina State University holds a nationally televised broadcast *Context-Sensitive Solutions in Transportation: A Better Way*.

2005 – In response to this national initiative and awareness, GDOT is taking additional proactive steps to incorporate CSS principles into the Department's project development process. CSS/CSD workshops and this Online Manual are steps in that direction.

1.2. Context-Sensitive Solutions Guiding Principles

"CSS is an approach that considers the total context within which a transportation improvement project will exist." Federal Highway Administration

For the purposes of roadway planning and design in Georgia, there are five Guiding Principles that define and promote good CSS practices. These Guiding Principles will allow GDOT roadway design decision-makers and project managers to better balance transportation, land use, economic, social and environmental goals and objectives:

Principle #1: Interdisciplinary Teams

To bring to the roadway design process the best of all possible alternatives and options, it is important to consider and create an interdisciplinary approach to project development and decision-making. Project teams should include multiple disciplines such as community outreach professionals, design engineers, landscape architects, land use planners, environmental resource specialists, historic preservation and cultural resources staff, and public transportation professionals who can address the multi-modal issues of a transportation project.

Principle #2: Community and Stakeholder Focus

CSS requires an early and continuous commitment to public involvement. Community residents and stakeholders play an important role in identifying local and regional issues and concerns, as well as neighborhood values. Furthermore, they have much to offer regarding strategies or solutions that may better meet and balance the needs of community stakeholders and the project. These teams can be used as a conduit of informational gathering and dissemination to the community they represent.

Principle #3: Environmental Sensitivity in Design

Understanding the natural and built environments, the roadway as a part of the landscape and the valued resources within that landscape, must be accomplished before engineering design progresses.

In addition, the design approach of avoiding and/or minimizing effects on important resources to the extent possible, and creating resource enhancement opportunities where impacts are unavoidable should be pursued.

Principle #4: Design Flexibility in Reaching Solutions

Informed design decision-making should not preclude new ideas, new ways of thinking, to ensure flexibility in roadway design standards where it is feasible. Designers and CSS practitioners should be encouraged to research new ways of solving transportation project needs and to keep an open mind to flexibility in community settings due to the unique natural and social contexts in these areas.

Principle #5: Context-Sensitive Solutions is a Process

CSD and CSS is a process that begins during early transportation planning and programming and continues through specific project development, preliminary engineering, final design and construction and maintenance.

Since every project has a setting or context, CSS can be applied throughout a project's life.

Key elements of the CSD/CSS process include managing diverse technical resources, incorporating meaningful public involvement, integrating collaborative solutions to develop multiple alternatives, and maintaining open and honest communications and decision-making processes that are well documented. Listening and clarification of what is being said are key components of the communication plan.

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Chapter 2. Putting CSS into Practice: Five Steps to Successful Context-Sensitive Solutions

Introduction

This section describes five steps to reach successful context-sensitive solutions:

2.1. Initiate Effective Decision-Making

2.2. Understand Community Input and Values

2.3. Achieve Sensitivity to Social and Environmental Concerns

2.4. Integrate Stakeholder Interests through Context-Sensitive Design Alternatives

2.5. Ensure Project Solutions That Work

2.1 Initiate Effective Decision-Making

"The Georgia Department of Transportation provides a safe, seamless and sustainable transportation system that supports Georgia's economy and is sensitive to its citizens and environment." *GDOT Mission Statement*

Section Outline

2.1.1. Management Framework
2.1.2. Interdisciplinary Project Teams
2.1.3. Team Self-Assessment
2.1.4. Results through Communication

2.1.1. Management Framework

It is important to initiate the planning and design of a transportation project the right way – within an atmosphere of collaboration, cooperation, and trust. This can ensure that all agencies, communities and stakeholders are participating in a consensus-driven solution.

Every project falls within a local, state, federal, tribal or private jurisdiction. All transportation projects affect someone somewhere. In other words, all stakeholders are potentially affected in both positive and adverse ways. Therefore, transportation planning and project development in Georgia require an inclusive mindset that is different than if a single agency were building a transportation project.

In recent years, GDOT has been advancing its mission and strategic objectives of safety, mobility, and preservation of community values and the natural environment. All parties need to think in terms of collaboration and communication which ultimately leads to consensus.

Since CSS is a customer-focused initiative, project managers should understand that real partnerships between GDOT and others do not occur automatically on a project-by-project basis. They are the result of continuous, collaborative and respectful working relationships.

This is why the project management structure must be supportive of not only the CSS concepts, but also supportive of inclusive stakeholder involvement and an interdisciplinary project team approach. In the Department, work processes and procedures, policies and project approaches are already

being changed or refined as a result of this cultural change or shift in thinking. CSD/CSS requires that project managers and design engineers take a new approach to projects and possess willingness to remain flexible and create innovations to meet both transportation and community objectives and priorities.

Within GDOT's management framework, there is an emphasis on project management and developing talented, technically competent, creative project teams. This team experience is paramount to the successful implementation of the CSS process.

2.1.2. Interdisciplinary Project Teams

"To succeed as a team is to hold all of the members accountable for their expertise." *Mitchell Caplan*

Starting with the right project team that includes a variety of professional disciplines is a core element in the success of a GDOT project. All project team members need to ensure that the project will progress effectively and efficiently and solutions will be delivered according to the transportation and community needs and goals set for the project.

Project team composition for CSS projects should include skill sets that bring both broad perspectives and clear vision, technical knowledge and intuitive thinking, as well as reasoned problem solving and breakthrough ideas.

Representatives on a project team should include project development engineers, traffic engineers, design engineers, planners, environmental staff, and landscape architects and other specialists depending upon the type of project being undertaken. Other individuals that could comprise a project team on a larger GDOT project include a transportation engineer, an architect, community planner, a professional facilitator and/or public involvement coordinator, and an economic development advisor for the more ―main street‖ types of projects. These professionals can often suggest innovations that the core project team may not think of on their own.

Early in project development the experience and collaborative energy of these professionals can help set the broader framework and context for CSS project success.

Beyond the team comprised of staff and specialists, the project manager should consider an expanded project team made up of representatives of the agencies, jurisdictions who are directly involved in planning for, implementing, and/or eventually living with the results of the completed project. For most projects, these individuals would include planners, engineers, or designers from a local community, county or city government. If a project is going to affect a tribal government, then tribal authorities should select their representative to the project team.

The project team should include the full range of interests and perspectives that should be addressed during the CSS project.

However, not all projects are large enough to warrant large project teams, so the project manager must balance diverse team expertise and perspectives with a measure of the project's complexity or straight-forwardness. Whatever the size of the project team, all members should be empowered to contribute ideas and share in decisions for their respective interests or organizations.

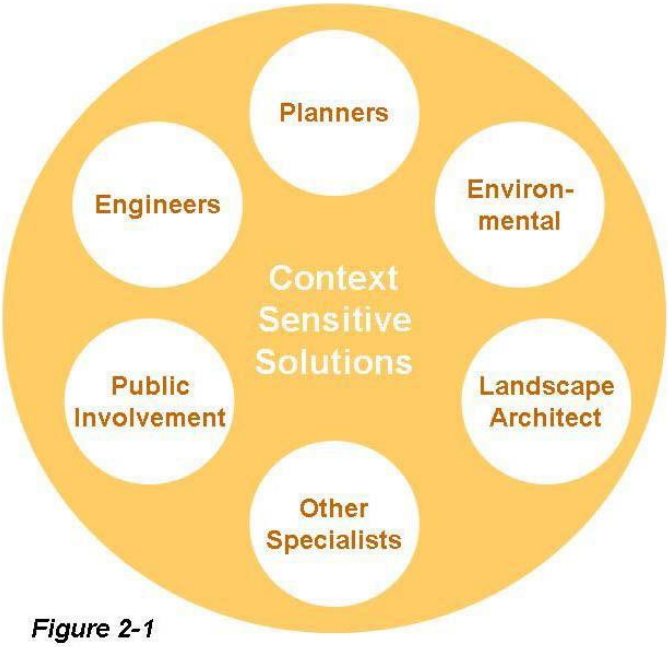

Figure 2-1
The Interdisciplinary Project Team

2.1.3. Team Self-Assessment

"Never let formal education get in the way of your learning." *Mark Twain*

Project teams, once assembled, should not be reluctant to assess themselves as individuals and as a team. Knowing the personality traits, strengths, weaknesses, preferences and biases of the individuals on the project team is important for a project manager to appreciate the diversity and differences that will make the team strong.

Project Managers should strive to enhance their project team's performance and effectiveness through a professionally challenging learning environment. At least the first two project team meetings should focus on growing to understand each member's priorities, interests and concerns in an effort to create a vision of project success. Hearing each other's perspectives and beliefs will help set a collaborative tone and create a framework for "thinking beyond the pavement" as the project moves ahead in project development.

The objective of team self-assessment is to guide participants in becoming new observers and listeners of themselves and others, and to be present in the team experience in newly self-aware and different ways. A number of self-assessment tools can help facilitate this type of dynamic team experience, including but not limited to the following:

- Drucker Foundation Self-Assessment Tool - https://www.goodreads.com/book/show/1365033.The_Drucker_Foundation_Self_Assessment_Tool
- Stephen Covey (7 Habits of Highly Effective People) - http://www.stephencovey.com/

- Society for Organizational Learning (Peter Senge) - https://www.solonline.org/

Most of these tools lead to an understanding and appreciation of the interpersonal relationships that form the basis for effective teamwork.

Team self-assessment could save time, money and resources caused by trial-and-error management by team leaders. Awareness of differences in personal thinking and behavior styles also allow project managers to communicate in ways that leverage the best performance from project team members, and to establish processes that help individuals overcome their anxieties and perceived barriers.

For project teams to be successful, members must also be aligned to the organization's vision and strategic goals. Therefore, expanding its context by placing the team's objectives firmly within the ground of the strategic organizational goals, team members are encouraged to find specific elements that relate directly to their project responsibilities. These project responsibilities include best professional practices, achieving project financial goals, excellent project delivery, and customer-minded service to communities and stakeholders.

2.1.4. Results through Communication

"The most important thing in communication is to hear what isn't being said." *Peter Drucker*

Successful CSS project results require continuous communication with all stakeholders throughout a project's duration. Enhancing communication and trust through new awareness and discipline in conversation can also be important to a project's success. Project managers and design engineers should gain new insight into how conversational networks function and what this means for the project team. Team members should acquire a basic understanding of common speech patterns—assertions, judgments, declarations, requests, offers, and promises—and how to use them for maximizing meaningful discussions. The benefit to the team and the project is clarity and discipline in team conversations. This approach can accelerate progress, enhance results, and reduce project mistakes or misunderstandings.

Project managers must also understand the language of commitment and the elements of trust. Understanding trust and how to distinguish genuine trust is paramount to collaborative decision-making.

Trust and Commitment are the portals through which all CSS project teams must pass on their way to states of collaboration and creativity.

A project manager should discover practical ways of optimizing communication for breakthrough success. In other words, find practical new ways to engage your team in frank and open dialogue about how to create an atmosphere of genuine trust.

2.2. Understand Community Input and Values

"Seek first to understand, then to be understood." *Stephen Covey*

Section Outline

2.2.1. Defining the Community
2.2.2. Identifying Project Stakeholders
2.2.3. The Citizen's Advisory Committee
2.2.4. Identifying Community Values
2.2.5. Engaging Stakeholders to Identify Issues, Opportunities and Constraints
2.2.6. Finding Solutions through Collaboration

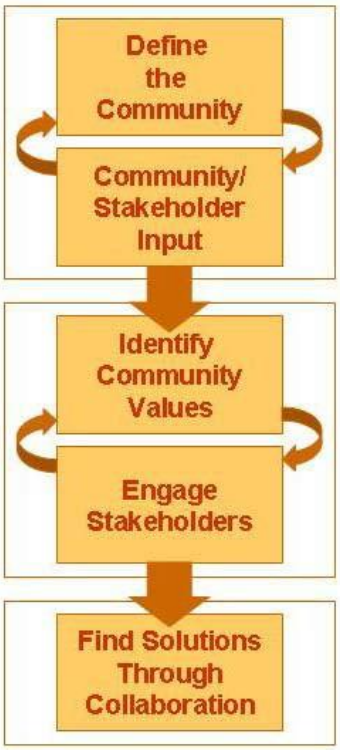

Figure 2-2
Achieving Community Input and Values

Achieving an understanding of community input and values entails engaging project stakeholders and is essential for developing a thorough understanding of the affected community, its characteristics, and values. Rather than representing one step in the process of developing context-sensitive alternatives, achieving community input takes place on an ongoing basis: while defining the community, identifying key values, and developing workable alternatives that take into account the context of the project.

2.2.1. Defining the Community

Context-sensitive design by name implies that a project will be designed with the context of the project in mind. Context-Sensitive solutions can add a greater focus on the needs of a community, i.e. establishing a framework for future economic growth, protecting or enhancing a cultural heritage or environmentally sensitive element within the community, or enabling better or alternative access to parts of the community that had otherwise been isolated or that would negatively impact a certain area if certain work was undertaken (e.g. bypassing a sensitive historic area rather than going through the middle of it, etc.)

Project alternatives should be developed based upon the most accurate understanding of a community as possible, which is why defining the community is an important first step to understanding and achieving community values through community input.

While a community may be defined based on proximity to a project, or city, county, or neighborhood delineations; a broader definition acknowledges that a community may be based on common characteristics or interests, such as religion, ethnicity, income strata or concern for the economic viability of a region.

When defining a community, ask questions that will help to describe the community in terms of physicality, like geographic boundaries, but also about the intrinsic characteristics that are valued by its members and which make the community unique:

- What are the elements of the “community” with which you are working?
- What are its social and geographic boundaries?
- What people or groups consider themselves part of the community?
- What activities constitute community life?
- What capacity does the community have to address local issues?

Community Characteristics

Context-Sensitive Solutions for transportation projects takes the wider community into account. No longer does a street just provide a vehicular passageway through the community, but it also provides access to the larger community; the schools, the parks, the libraries, the shops and restaurants, the historic sites, the neighborhoods, etc. And in this respect, this same street has now taken on a much more important role within the community. How it looks and “feels” now is as important as how it functions.

A general understanding of a community’s characteristics provide basic information about a community, such as its geographic boundaries, landscape, demographics, economic conditions and trends, and natural resources.

Community/project stakeholders should be given the opportunity to identify other community characteristics that will offer a view of a community as a “sense of place.” This information will give insight as to public attitudes, values, perceptions, and interests.

Community characteristics include:

- Community Boundaries
- Community Capacity and Activism
- Community Interaction and Information Flow
- Demographic Information
- Economic Conditions
- Education
- Environmental Awareness and Values
- Governance
- Infrastructure and Public Services
- Local Identity
- Local Leisure and Recreation
- Natural Resources and Landscapes
- Property Ownership, Management, and Planning
- Public Safety and Health
- Religious and
- Spiritual Practices
- Perceived Needs and Desires

It is in looking at a community's characteristics that you will begin to see a community's values in its traditions and history, religious and spiritual practices, the way information travels, and how decisions are made — the very local identity that makes each community unique.

2.2.2. Identifying Project Stakeholders

"Public involvement and a systematic interdisciplinary approach are essential parts of the development process for proposed actions." *23CFR § 771.105(c)*

Targeting stakeholders who represent the segments of the affected community will enhance your ability to best define the community and its unique issues, opportunities and constraints—essentially, the context of your project.

Stakeholder: any person or group that is or will be affected by the project. This includes those who may not be aware that they will be affected and those who are typically underrepresented. This also includes those who are likely to support the project as well as those likely to oppose it.

The following list represents the various stakeholders that may be present within a community, who may have an interest in the project, and/or have knowledge about the community. At a minimum, your checklist of project stakeholders should include the following types of individuals, organizations, and agencies, to ensure broad representation:

- Public Officials
- Agency Representatives
- Transportation Professionals
- Community Representatives
- Non-Profit / Non-Governmental Organizations
- Facility Users
- Those Traditionally Underrepresented

Refer to **Appendix A** for additional details on the above-listed stakeholders. A comprehensive listing of required stakeholders for the purpose of public notification, refer to chapter 4 of GDOT's Environmental Procedures Manual, which is available at http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/GDOT-EPM-Chap04.pdf

The Process of Developing Resources

Resources should be considered from a number of groups and organizations. The following groups should generally be considered for contact:

- Local governments
- City and regional planning agencies
- Regional Development Centers (RDCs) for rural, small town projects
- Metropolitan Planning Organization's (MPOs) for urbanized areas
- Chambers of Commerce
- Development Authorities
- Educational or religious institutions
- Civic, neighborhood and business associations (local to the project/study area)
- Others as agreed

Neighborhood, civic, business, non-profit, institutional and residential representatives, as well as representatives of local governments and the Department, will generally provide for an adequate cross-section of persons and points-of-view. It is important that the stakeholders group not be too large, or unwieldy. It is also advisable to request that the MPO provide some names when developing a Stakeholders group in an urban area with an organized MPO. For a more rural area or in a small town, the RDC may be contacted for possible participant names.

2.2.3. The Citizen's Advisory Committee (CAC)

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has." *Margaret Mead*

Organizing and working with a Citizen's Advisory Committee (CAC) for the duration of a project is an extremely effective technique for use on CSS projects. If any of the following statements applies to your project, consider organizing a CAC:

- The project covers a large geographic area/ corridor
- The project has regional significance in terms of how connectivity/mobility may be affected

- The project area is under consideration for, or undergoing redevelopment
- There is current or expected opposition to the project
- The project is in a Central Business District, highly developed area, or area with multiple residential communities
- A number of community features be affected by the project (historic, archaeological, environmental, social, or cultural resources)

A CAC's basic characteristics and functions are:

- A broad range of stakeholder interests are represented by the CAC. The CAC serves as a community liaison—providing a conduit to/from the community.
- The CAC meets on a regular basis throughout the project development process, typically monthly.
- The CAC comments and points of view of participants are recorded
- Consensus on issues is sought from the CAC, but not required
- The CAC is assigned an important role in the decision-making process. CAC makes recommendations to the project owner.
- The CAC serves as a conduit to/from the community and stakeholder groups.

(Source: USDOT/FHWA 2005)

Establishing a CAC

If you have made the determination to organize a CAC for your project, do so at the earliest stage possible in the project development process. The primary purpose of the CAC is to communicate the scope, status, outcomes, recommendations and schedule of the project or study to the public, and to disseminate information to the groups they represent. Ideally, members of the CAC should be members of the group they will represent. CAC Members should understand the design (or study) process and the importance of design criteria in determining the final concept.

Providing a list of nominees for the CAC should be undertaken with the consultation and involvement of stakeholder groups who can make an informed recommendation of persons or other groups to include. Working with the area's MPO, the RDC, or the District Public Information Officer, and the groups mentioned in **Section 2.2.2. Identifying Project Stakeholders**, care should be taken to represent the type of project, a description of the anticipated project, process, schedule, types and frequency of meetings, input sought and discussion of alternatives. The person making contact should determine any level of interest among those groups contacted.

Lists of names for contact should be requested and will hopefully, be provided from pertinent resource groups. Develop a pre-screened, comprehensive list of at least 10 CAC members. The optimal size of a CAC is no more than 25 members. Groups larger than 20 to 25 persons tend to be unwieldy and difficult to manage, while groups smaller than 10 persons may not provide a broad enough cross-section of interests and perspectives to be helpful or comprehensive.

CAC members should be asked to volunteer their time to meet with the project team on a regular basis (typically monthly) to act as liaisons between the project team and their respective group, organization, or geographic area, and to offer input on issues and potential alternatives on behalf of their interest group, organization, or area. Each member, representing a very unique aspect of the community, will tend to look at the same issue or information in a slightly different way and will often draw a different conclusion than the next stakeholder. This is what makes these groups so dynamic and greatly adds to the success of most projects.

If the project is sufficiently large and important to the MPO, it may be appropriate to present the results of the CAC meetings and/or an overview of the project to the MPO, CAC or TCC committee.

For a complex project that involve a myriad of social, technical, and environmental issues and that affect many stakeholders and jurisdictional agencies, consider organizing two work groups within the CAC: a Staff Work Group comprised of technical staff from a range of affected agencies and a Community Work Group comprised of representatives from organized interest groups in the project area and other stakeholders. When preparing documents, reports, or presentations to be relayed to the CAC Staff and Community Work Groups, take care to address the different levels of technical expertise possessed by each group's members. The CAC framework, including staff and community workgroups is illustrated in Figure 2-3.

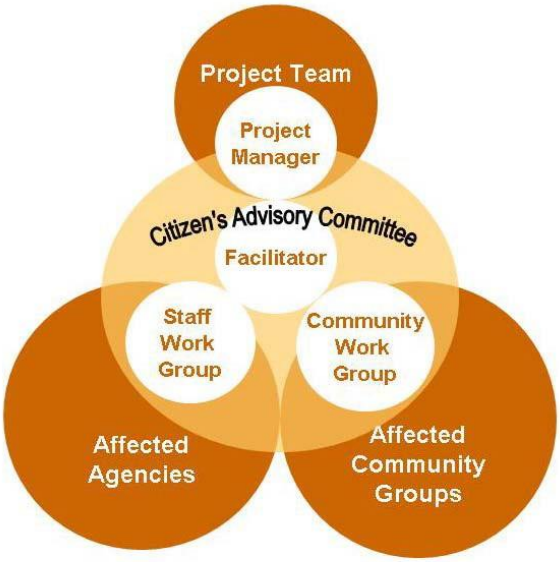

Figure 2-3 Citizen's Advisory Committee Framework

Below are the key members that would make up a CAC. Responsibilities for each CAC member are described in **Appendix B:**

Community Work Group

A Community Work Group is typically comprised of a broad range of representatives from organized interest groups in the project area and other stakeholders.

Staff Work Group

Staff from local, state and federal implementing agencies and authorities, local jurisdictions, utility companies, affected resource agencies and other interested agencies will make up the Staff Work

Group, which should meet on a regular basis to assess project development and review technical findings.

Committee Facilitator

The responsibility of facilitating CAC meetings can be designated to the Consultant Project Manager, an independent facilitator, a public involvement specialist, or a member of the CAC who is elected to the position by the CAC.

The CAC facilitator is primarily responsible for keeping the meeting topics focused and moving according to the Agenda. The CAC Facilitator should be neutral in regard to issues and topics by structuring discussions without influencing content.

Project Manager

The Project Manager is the link between the CAC and the project team. Project Managers provide technical information about the project and guidance to the CAC.

In turn, the CAC offers suggestions, thoughts, and concerns that should be brought to the table during the project development process. As needed, the Consultant Project Manager should invite technical experts to brief the CAC on specific areas of concern.

Additional information on establishing a CAC, roles, responsibilities, and public involvement techniques for use with CAC's can be found in the USDOT FHWA manual: Public Involvement Techniques for Transportation Decision-Making. Available online at: http://www.fhwa.dot.gov/planning/public_involvement/publications/techniques/fhwapd96031.pdf.

Goals of the First (an Early) CAC Meeting(s)

A "game plan" should first be considered and prepared for CAC meetings, which includes an agenda, desired results and outcomes, and a public involvement schedule, if possible. The following are goals of the initial organizational and orientation meeting and subsequent early meetings:

- Introduce all CAC members to each other through self-introductions, with affiliations noted; and keep a sign-in sheet for each meeting
- Ensure that all contact information for attendees is correct
- Ensure all affected communities or affiliations are properly represented
- Introduce the Need and Purpose of the project
- Discuss the need for the project or study
- Discuss any relevant political, economic(revenue/cost) and/or environmental issues which may affect the project, or any constraints which may need to be addressed
- Provide or communicate a vision for the project with possible design suggestions and parameters to illustrate how the project would address the need, and overcome any constraints which might need to be noted
- Discuss special circumstances or environmental or historical factors

- Discuss any local revitalization or redevelopment goals including land use which might impact the project or the Concept or alternatives to be developed
- Discuss Context Sensitive Design (CSD) and what CSD means for the project and how the project may be influenced by CSD
- Discuss any factors introduced alone or in combination with other factors which may affect the result, including but not limited to alignment, access management, median or turn restrictions, pedestrian crossings or bicycle routes, right of way, lane width or other issues
- If the project will likely have a raised median, consider using the presentations developed on the benefits of medians (or other issues) to reduce accidents and improve levels of service, to educate the CAC
- Discuss any potential or possible design variances from the Department, if applicable and necessary and their impacts and effects
- Discuss and field questions regarding the proposed concept and identify issues of local interest or concern
- Record recommendations, questions, and needed/possible changes to the proposed concept
- Discuss alternatives, if any
- Determine the need for any additional concept work and likely follow-up meetings

Ensuring the CAC is Effective

To ensure that the project CAC works effectively towards identifying community issues and concerns and resolving those issues, the project manager must ensure that the CAC remains committed to working with the Project Team through the project development process.

Section 2.2.6. Finding Solutions Through Collaboration provides specifics on working with the CAC and the public to find context-sensitive solutions to effectively resolve community issues and concerns.

Figure 2-4
Effective Participation
Source: CSD Workshop Steps in Effective Participation. (Zimmer, 2001)

2.2.4. Identifying Community Values

"Good things happen when you pay attention." *John F. Smith*

Identifying community values can commonly be addressed through a Community Impact Assessment (CIA). A CIA is the process that evaluates the potential impacts of proposed transportation projects on a local community and its sub-populations throughout the transportation decision-making process. The goal of CIA is to focus on the quality of life of the community. An overview of GDOT policy and procedures for a CIA can be found in GDOT's Environmental Procedures Manual, Section 5.0 Community Impact Assessment. The GDOT Environmental Procedures Manual may be accessed online.

Topics that commonly fall under a CIA include: access, mobility, connectivity, social isolation/splitting of neighborhoods, history of the community, new development impacts, changes in the quality of life, changes in neighborhood identification, changes in property values, separation of the neighborhood from community facilities, displacements, impacts on community centers of activity whether formal or informal, noise, urban renewal, removal of urban blight, joint land use, and disruption of the natural and human environment.

A CSS project will strike a balance between tradition design values and community values, which are shown in Table 2.1.

Table 2.2 lists a number of stakeholders who can assist the project team with identifying values that are held in highest regard by a community.

Table 2.1 Traditional Design Values vs. Community Values

Traditional Design Values
Safety
Efficiency
Traffic Operations / Capacity
Constructability
Maintenance
Access Management
Community Values
Social & Cultural Compatibility
Environmental Sensitivity / Impacts
Livability, Aesthetics, Urban Design, Historic
Economic Impacts/Enhancements
Mobility / Transportation Needs

Table 2.2 Stakeholder Resources for Identifying Community Values

Social and Cultural Compatibility
Local & Regional Planning
Civic Organizations
Residential Community
Recreational Groups
Business Groups
Environmental Sensitivity/Impacts
Environmental Community:
Environmental Interest Groups
Dept. of Natural Resources
NPS/US Forest Service
Watershed Districts
Livability / Aesthetics / Urban Design
Civic Organizations
City/County Planning
Redevelopment Authority
Historic Preservation Society
Residential Community and/or
Business Community, depending upon context
Economic Impacts / Enhancements
City/County Planning
Redevelopment Authority
Chambers of Commerce
Business Community
Ports Authority
Tourist Industry
Transportation Needs / Mobility
Local Transit Providers
City/County Public Works
City/County Planning Agency
Facility Users/ Area Traffic Generators

Source: Adapted from FHWA, Road Best Traveled Report - Resources for Identifying Context (Zimmerman, 2001

2.2.5. Engaging Stakeholders to Identify Issues, Opportunities and Constraints

Below are several strategies commonly used to engage stakeholders who will play a role in identifying project issues, opportunities, and constraints and in making recommendations to decision-makers. See **Appendix C** for details on these public involvement strategies, including definitions, including strategy purpose, examples, benefits and constraints.

- Use Project Contact Networks
- Make Direct Contacts
- Create and confer with an Advisory Committee
- Distribute Public Information Materials
- Launch a Project Website
- Conduct Meetings
- Use Media Outlets

No two transportation improvement projects are alike. Use a combination of strategies involving tools and techniques that are tailored to the specific needs of your project to ensure that the project team will be able to obtain a firm grasp on community values and how they may be affected by the project. Below are several tools and techniques, categorized under general purpose areas.

- **Listening and Learning**

  Brainstorming Sessions
  Citizen's Advisory Committee
  Focus Groups
  Meetings: Public Open Houses, Charettes
  Site Visits
  Surveys: Interviews, Media, Public Opinion,
  Online, Telephone
  Polling
  Visioning

- **Informing**

  Meetings: Public Information Open Houses,
  Public Hearing Open Houses
  Project Website or Web Page
  Presentations
  Informational
  Materials: Briefing
  Packages, Project Fact Sheets,
  Newsletters, Videos, Visual
  Imaging/Displays, and Websites
  Information Center
  Leadership Luncheons
  Mobile Exhibits
  Newspaper Announcements

- **Resolving Conflicts**
  Citizen's Advisory Committee
  Collaborative Task Force
  Facilitation
  Negotiation
- **Generating Interest**
  Business Briefing
  Contests
  Leadership Luncheons
  Media Series
  Mobile Exhibits
  Transportation Fairs

Detailed definitions and suggestions for how these techniques may be used on CSS projects are provided in **Appendix D**.

On an ongoing basis, project team members involved in the public involvement process should evaluate the use of public involvement strategies to determine if they were productive and helpful in developing a project's concept. Changes or improvements should also be identified, and strategies should be critiqued and assessed for how well desired results (e.g. learning about the community, informing, educating) have been achieved. Possible impacts on the project's concept and the results public involvement activities should be discussed and considered, and any changes noted and made in subsequent activities.

A comprehensive guide to public involvement techniques can be found online at the U.S. Department of Transportation:
http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/Public%20Involvement%20Plan/PublicInvolvementPlan.pdf

GDOT policies and procedures specific to
http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/GDOT-EPM-Chap04.pdf

Public Involvement Milestones and the Decision-Making Process

Stakeholders' views should be carefully considered in the decision-making process. They should be involved early and ongoing throughout the process, especially before major decisions are made.

Below is an outline for developing a decision-making process:

- Understand the decision-making process
- Identify key decision points in the process and answer all of the following questions:

  Who will be consulted on each decision?

  Who will make the recommendations for each decision?

  How will these recommendations and comments be transmitted to decision-makers?

  Who will make the decision?

- Identify the problem and select the best alternatives

A typical public involvement delivery system and key decision points should be structured around the following key milestones:

- **Planning**

  Need and Purpose
  Scoping
  Alternatives Definition
  Alternatives Refinement
  Recommended Alternative

- **Design Kickoff**

  30% Design Plans
  60% Design Plans
  90% Design Plans
  60% Right-of-Way Plans
  100% Right-of-Way Plans

- **Construction**

  Preconstruction
  Construction Kick-off
  Ongoing
  During Special Events and Incidents
  Facility Opening

- **Maintenance**

  Prior to scheduled maintenance activities

Public Comment/Communications

Written or verbal comments represent the most common way for the general public to relate their concerns and ideas about a transportation project, public comments also help to build a thorough understanding of community issues and needs, which are vital in finding Context-Sensitive Solutions. A key element of the public comment process is to communicate back to the participants how they influenced the decision.

Refer to chapter 4 of GDOT's Environmental Procedures Manual, which is available at http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/GDOT-EPM-Chap04.pdf for specific guidelines and responsibilities relating to responding to public comments following a Public Open House.

Details on the public comment / communications process as it would apply to CSS projects during the project development process are provided in **Appendix E**.

2.2.6. Finding Solutions through Collaboration

"Alone we can do so little; together we can do so much." Helen Keller

Consensus-building is said to be one of the most challenging tasks for today's transportation professionals. Building consensus throughout the CSS project development process involves gaining a full understanding of the community, identifying issues and concerns using the full range of communication tools, and incorporating flexibility in the development of design alternatives.

Figure 2-5 illustrates consensus as a goal, and how defining the community and its issues and needs help to create a solid foundation upon which design alternatives that are acceptable to project stakeholders are developed.

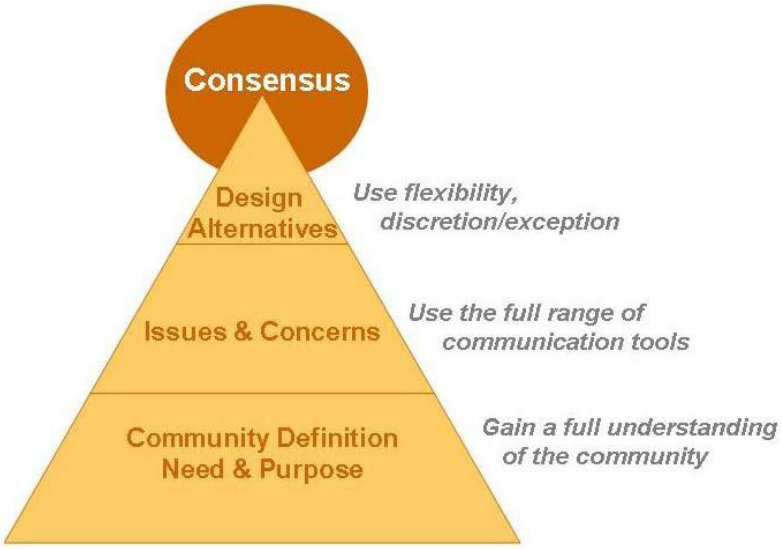

Figure 2-5 Building Consensus

Source: adaptation from FHWA: The Road Best Traveled Report – Steps in Effective Participation (Zimmer, 2001)

In a special issue on Public Involvement, the Transportation Research Board offers several practical tips for practitioners. The following are particularly relevant to the collaboration challenges of CSS projects:

- ***Establish and follow ground rules for debate***. While advocacy and special interest groups can offer valuable input on transportation and community issues, take care that advocacy does not get in the way of achieving consensus. At the onset, make sure that the rules of debate are clear—that no individual may dominate discussion of issues, and that all ideas are on the table until removed by consensus.
- ***Consider the big picture***. The larger perspective can be lost when individuals are focusing on negative impacts. It is important to maintain a balance between consideration of immediate impacts and the larger costs and benefits of a proposed solution.
- ***Build consensus by making a series of agreements***. Consider dividing the decision-making process into a series of consensus agreements. This will make it easier for stakeholders to evaluate each decision: the data, community values, the nature of the problem, and goals of the process.
- ***Know when to make the final decision***. "You may have to make some tough calls about the diminishing returns of continued discussion. Prolonging the discussion is an effective strategy for someone who holds a minority opinion. If consensus is strong and minority

opinions have had a fair hearing and consideration, it probably is time to call for a final decision." (Matley, 2002).

The TRNews article: Effective Public Involvement in Transportation, a Primer for Practitioners (Number 220) is available online at http://trid.trb.org/view.aspx?id=722748.

2.3. Achieve Sensitivity to Social and Environmental Concerns

"...Context-Sensitive design is a collaborative, interdisciplinary process of developing a transportation facility with stakeholder involvement, taking into account consideration of the environment, the community, aesthetics, historical landmarks, and natural resources while maintaining safety and mobility." *National Training Steering Committee Report, AASHTO Indianapolis, December 8, 2000*

Section Outline

2.3.1. Understanding the Problem
2.3.2. Scoping to Understand
2.3.3. Opportunities to Minimize Impact
2.3.4. Mitigation and Monitoring

2.3.1. Understanding the Problem

The CSS process is a partnership between GDOT and stakeholders to develop working solutions to Georgia's transportation needs.

The information gained from partnering with stakeholders will help GDOT develop an informed solution to the transportation issue. This collaboration is only maintained through a comprehensive communication effort that is strictly followed from project visioning through to the very end of construction.

Stakeholders and the agency must reach a clear understanding of the transportation need, issues, and problems to be solved, so that progress can be made towards solving the transportation problem.

Developing successful context-sensitive alternatives that will lead to context-sensitive solutions begins with a clear definition of the transportation problem. This includes both the technical analysis and communication with stakeholders. This problem definition is the first step towards developing a roadmap for obtaining CSD/consensus. Factors include: Project Development, NEPA, right-of-way acquisition, etc. Projects can run into difficulties when the problem is not well understood, not agreed to by key stakeholders, or not well explained. Work with stakeholders to identify the problem(s) that the project is intended to address. Broad problems include: safety, mobility, the need for infrastructure replacement or rehabilitation, enhancement, and economic development.

Regional mobility projects can have substantial adverse impacts on the communities and may offer very few perceived benefits to those most affected. Those affected include adjacent communities as well as those who regularly use the facility. These types of projects include capacity improvements, roadway widening, intersection improvements, construction of new interchanges, bypasses, and multi-modal considerations.

Early coordination with public transportation agencies for mobility projects is particularly important to ensure that special design features are incorporated to better serve transit users. Likewise, early coordination with emergency response agencies will ensure that the project enhances safety by taking into consideration the unique needs of these agencies, which include emergency response, evacuation, etc. Also, at an early stage, pedestrian and bicycle needs should be determined.

Economic development projects can enhance the development or redevelopment of certain areas. These projects also need to directly involve beneficiaries, at least to keep the process from appearing to be biased.

Depending on the project's complexity and the number of issues, there may be many alternatives meetings, with earlier meetings used to reduce the number of alternatives to a more viable set of alternatives. As described earlier, the goal is to work toward consensus with stakeholders regarding the purpose of the project, project scope, and design elements. Based on consensus, the preferred alternative is selected, which should fulfill the needs of the community, address reasonable concerns, and resolve serious conflicts. Stakeholder understanding of the alternatives and recommendation is the foundation for consensus and the ultimate success of the project.

2.3.2. Scoping to Understand

Scoping is an integral component of NEPA documentation and the beginning of the formal public input process for an Environmental Impact Statement (EIS)*. The early involvement of interested and affected stakeholders is integral to responsible project planning.

The following are the main components of the scoping process:

- Obtain input from appropriate federal, tribal, state, and local agencies, and from the public
- Determine all possible alternatives to be evaluated in the Draft EIS (DEIS)
- Determine Lead Agency
- Determine Cooperating Agencies

Scoping encourages an open line of dialogue between the public, agencies, and the project team. These conversations often generate a list of potential additional issues of varying magnitude that might result in an expanded project analysis and an overall more responsive, detailed planning process.

* Environmental Assessment policy objectives are described in the GDOT Plan Development Process (PDP).

Processes related to Environmental Assessment are described in detail in *the GDOT Environmental Procedures Manual*. The manual is available online.

2.3.3. Opportunities to Minimize Impacts

During the project development process, the social and environmental impacts of proposed projects are identified and evaluated. These impacts to sensitive resources should be avoided or, if unavoidable, minimized and mitigated. Many decisions are made throughout the project development process in relation to social and environmental impacts.

Collaborative design to achieve the multiple objectives of safety, mobility, environmental protection, and livability requires a different mindset on the part of all stakeholders. Flexibility is necessary to achieve a balanced outcome of technical functionality, environment, and aesthetics. Designs may need to change based on the emerging interests of the community, as well as changing national and state policies.

Context-Sensitive Solutions provides opportunities to minimize impacts to the environment and the community by allowing stakeholders to be a part of the project from the very beginning and to share in the design process.

2.3.4. Mitigation and Monitoring

It is the Federal Highway Administration's policy to:

- **Avoid, minimize, and mitigate** to the fullest extent possible the adverse effects of transportation programs and projects on the neighborhood, community, and natural resources.
- Seek opportunities to go beyond the traditional project mitigation efforts and implement **innovative enhancement measures** to help the project fit harmoniously within the community and natural environs.
- Participate, to the fullest extent permitted by law, in funding mitigation and enhancement **activities** required by Federal, State, and local statutes and regulations for project related impacts to the natural environment, neighborhoods, and communities.

As CSS becomes part of the way state DOTs do business, many agencies seek ways to gauge their performance. Performance measurement is a management tool that many DOTs are already using to help achieve a variety of strategic goals and objectives.

Context-Sensitive Solutions often appear deceptively simple, yet the holistic, multidisciplinary, community-driven nature of CSS-based project delivery makes measurement challenging.

CSS touches many parts of project development and every project is different. The tools that make CSS successful include, but are not limited to, top-level leadership and commitment, agency-wide training, adoption of CSS in formal guidance and manuals, early and continuous, two-way dialogue with the general public and interest groups, interaction among multiple professional disciplines, and effective consideration of alternatives.

2.4. Integrate Stakeholder Interests through Design Solutions

"Unless commitment is made, there are only promises and hopes... but no plans. " *Peter Drucker*

Section Outline

2.4.1. Incorporating Flexibility and Creativity in Design
2.4.2. Balancing Safety, Traffic Service, and Design Exceptions
2.4.3. Considering Design Choices and Consequences
2.4.4. Evaluating and Selecting Alternatives

The National Highway System Designation Act, passed by Congress in 1995, emphasizes flexibility in highway design and supports modifying design standards to promote preservation of aesthetic, historic, and scenic resources. Since that time, it has become increasingly clear that new approaches are needed to solve traditional transportation projects. A large number of projects around the country have been delayed or stopped because the public was not satisfied that the proposed solution met community needs.

This section focuses on the incorporation of flexibility in design to respond to both traditional design and community values, and striking a balance between design choices that support these values.

2.4.1. Incorporating Flexibility and Creativity in Design

"It is better to know some of the questions than all of the answers." *James Thurber*

From an engineering design perspective, there are important considerations in developing alternatives that will lend themselves to context-sensitive solutions. These include the flexible application of established design criteria and guidelines and the use of design innovations to incorporate community needs and enhancements. Every deviation from design standards must consider the potential impacts on operations, safety, regional needs, and the surrounding environment and may result in a design exception or variance. Design exceptions or variances must be requested from the GDOT Chief Engineer. Refer to Chapter 8 of the *GDOT Plan Development Process*, which can be accessed online.

Some potential CSD issues relating to design exceptions or variances include:

Landscaped medians and oversized rights-of-way

- Canopy trees, historic trees, and clear zone policy to preserve them
- Special finish guardrails to minimize Obstruction
- Reduced clear zone behind curb and gutter in constrained areas
- Inclusion of sidewalks and bike lanes as part of mitigations/alternatives
- Construction materials that blend with the Environment
- Gateways, amenity corridors, and historic Areas
- Neighborhood buffers, open space and trails as buffers
- Scenic view sheds and tourism, gathering, and events
- Budget and local funding to help pay for right-of-way / amenities (e.g. SPLOST)

It is important for GDOT design engineers that are part of a multi-disciplinary CSS project team to realize that the design criteria provided in the AASHTO Green Book, *A Policy on the Geometric Design of Highways and Streets* or other criteria were intended to be flexible. As stated in the Green Book's Forward,

"The intent of this policy is to provide guidance to the designer by referencing a recommended range of values for critical dimensions. It is not intended to be a detailed design manual that could supersede the need for the application of sound principles by the knowledgeable design professional. Sufficient flexibility is permitted to encourage independent designs tailored to

particular situations. Minimum values are either given or implied by the lower value in a given range of values. The larger values within the ranges will normally be used where the social, economic, and environmental (SEE) impacts are not critical." *(AASHTO, 2004)*

The Green Book is applicable over a wide range of conditions and encourages designers to be flexible, to develop alternatives that fit particular situations, to be sensitive to environment, and recognize that the design concepts presented are for guidance.

Creativity or flexibility in design does not involve ignoring design criteria or an agency's accepted design practices. Flexibility is achieved in consideration of all known factors and trade-offs. The expected safety performance of a flexible solution should be consistent with the expectations provided by a full standard design. Applying creativity is necessary to develop a unique solution to fit the needs to the project. Per the AASHTO Green Book (Forward), "Unique combinations of design requirements that are often conflicting result in unique solutions to the design problems." Recognition and use of the flexibility inherent in design standards and the exercise of informed judgment by experienced personnel are important in the development of a CSS and responding to local topography and community character.

These three documents can assist in determining the design values suitable for CSS:

- *AASHTO Green Book - A Policy on the Geometric Design of Highways and Streets (AASHTO, 2004)*
- *A Guide for Achieving Flexibility in Highway Design, 1st Edition (AASHTO, 2004)*
- *Flexibility* in Highway Design (FHWA, 1997)

FHWA's *Flexibility in Highway Design* shows how to make highway improvements while preserving and enhancing the adjacent land or community. This document emphasizes the goal of a CSS, which is for project teams to design a roadway that fully considers the aesthetic, historic, and scenic values while meeting important safety and mobility goals. Highway designers need to consider the impacts of not using the most conservative values specified in A Policy on the Geometric Design of Highways and Streets.

Context-sensitive design should result in a balance that reflects environmental concerns, community values, economic realities, and also what is needed to enhance safety, operations, and/or capacity. A CSS project is in harmony with the community and environment in a number of ways. Consider the following:

- The visual impacts of the project on the environment and the community, and how the completed project will look from the perspective of the facility user, pedestrians, bicyclists, and others in community
- Aesthetic treatments that reflect the values and local flavor defined by stakeholders (e.g. indigenous landscaping)
- Land uses change over time, but the highway will outlast some of the land uses
- State roads serve as a network for safe, efficient time-sensitive transportation
- The design of community gateways or main streets can affect a community's image

Some options that can be explored when incorporating flexibility in design and the selection of materials:

- **Footprint:** identify areas of consensus and Conflict
- **Materials:** soften and enhance impact
- **Streetscapes:** add lighting, landscaping, furniture
- **Civic need:** promote and respect a sense of place
- **Safety:** provide the safest environment for all types of facility users (vehicular, pedestrian, bicycle)

Offering flexibility in the selection of materials is a good way to involve the public. While cost will be a primary consideration, stakeholders appreciate being given the opportunity to voice their opinion, and can be give a range of feasible options from which to choose. **Section 2.4.3. Considering Design Choices and Consequences** offers further food for thought in terms of creative design options for CSD projects.

2.4.2. Balancing Safety, Traffic Service, and Design Exceptions

"CSS consider the function of streets and roads relative to their context in terms of access and mobility for all users." *ITE, Smart Growth Transportation Guidelines*

Community settings require a greater need for flexibility. An understanding of the functional, operational, and safety impacts of the design criteria and a need to consider alternative methods are necessary to achieve the goals of CSS.

Balancing Design Criteria and Exceptions with Community Values

To balance transportation needs with community and environment needs, consider the roadway's functional classification. The balance will be different on an arterial than on a collector or local street.

Design criteria is based on the functional classification of the roadway, the type of improvement, and design traffic and varies with the adjacent land use and terrain surrounding the project. Design criteria have been developed based on:

- The safety of all users to the greatest extent Practical
- Optimal mobility for all users to reach their destinations as expeditiously as possible
- Cost and availability of funding

One controlling geometric design criterion is design speed. Horizontal and vertical alignment, pavement cross slope, and sight distance depend on design speed. Selection of design speed depends on functional classification, land use, terrain, and design traffic.

Minimum horizontal curvature is another controlling design criterion, which is dependent upon design speed and the maximum pavement cross-slope rate. Another controlling design element is lane width, which is dependent on functional classification, design traffic, and land use.

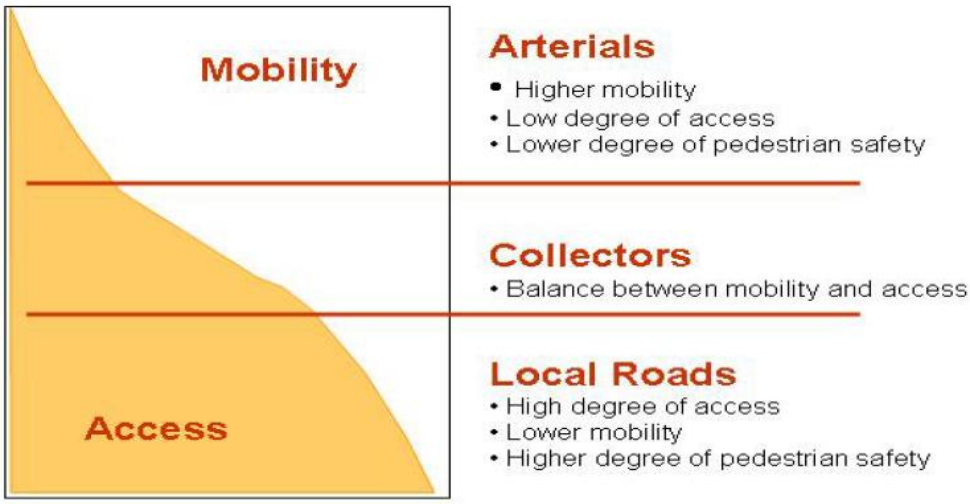

Figure 2-6
Balancing Mobility and Access

Source: WSDOT, 2005 adapted from FHWA Safety Effectiveness of Highway Design Features, 1992.

Under ideal conditions, the highest design speed, the largest radius curve, widest lanes practical provide for the safe and efficient movement of traffic at the highest speed. However, there are cases where the highest speed is not desirable and ideal conditions do not always exist. A design speed should be selected that is consistent with the roadway function, environment, and other features along the roadway. A lower design speed can provide the opportunity for additional design enhancements. It is important that project stakeholders agree on their goals for design speed. Consider the impact of vehicle types and sizes on the design and how this impacts other users. A grade separated interchange versus an at-grade intersection is another example of an ideal condition.

Table 2.3 provides a general comparison of design criteria and characteristics. The more conservative design criteria are associated with wider lanes and shoulders and flatter curvature and grades, etc.

Table 2.3 Generalized Comparison of Design Criteria and Characteristics

Design Criteria		
Characteristic	**More Conservative**	**Less Conservative**
Functional Classification	Arterials	Collectors/Local Streets
	More Through	Less Through
	Traffic /Regional Destinations	Traffic / Regional Destinations
	Less Local Access	More Local Access
Volume	Higher	Lower
Speed	Higher	Lower
Land Use Character	Rural	Urban
Type of Improvement	New Construction	3R and Pavement Rehabilitation
Terrain	Level	Rolling or Mountainous

With regard to terrain, it may be prohibitively expensive or physically impossible to attain higher design criteria values for projects located in rolling and mountainous terrain. Use of high design criteria values may impact roadside development more than the use of less restrictive criteria. This latter point is particularly important. Also, context-sensitive solutions can have a significant positive influence in an urban setting or in built up areas, where there is more local traffic and pedestrian activity.

As noted in Table 2.4 below, higher design speeds are consistent with a high volume rural principal arterial in flat terrain, where lower design speeds are consistent with a lower volume local urban street in mountainous terrain. Obviously, there are projects that fall in between these extremes, with some characteristics favoring the more conservative values and other characteristics reflecting the less restrictive criteria. Design speeds should be consistent with the expectations of facility users. The type and quality of enhancements is reflective of the level of roadway design (i.e., certain street enhancements are more appropriate for slower speeds and urban settings, while others are more fitting in a rural setting).

Designers should take care not to arbitrarily reduce the mobility of motorized traffic on arterial routes, but should consider and incorporate the mobility of other users. This point needs to be discussed with project stakeholders.

Table 2.4, shown on the following page, provides a general understanding of the impact of selecting ideal values for the three primary design criteria on community sensitive values.

Once the basis of the design standards are understood, designers can make appropriate decisions on how to properly apply the standards and this can be communicated to stakeholders. It is important to identify the context of the project and evaluate how the design criteria will affect it. Documentation of the recommended guidelines and project specific objectives for critical design features such as design speed, lane and shoulder widths, horizontal and vertical alignment, superelevation, turn lanes, and taper rates should be made.

Table 2.4 Ideal Design Criteria Versus Context-Sensitive Values

Design Criteria	Primary Negative Value	Possible Secondary Negative Value
High Design Speed	May encourage users to travel at higher speeds	Could negatively impact abutting properties May reduce comfort and safety for bicyclists and pedestrians May impede economic viability of abutting commercial properties, especially those in downtown
Large Radius Curve	Potential for unacceptable impacts to natural or manmade resources May result in unnecessary demolition of adjacent properties May be in conflict with the existing topography on scenic routes May encourage users to travel at higher speeds	Same possible secondary negative values related to higher design speed
Wide Travel Lanes	May encourage users to travel at higher speeds May increase the"footprint" of a facility May present difficulty in accommodating nonmotorized users (bike lanes) in tight corridors May negatively impact parking in commercial areas, particularly downtown	Same possible secondary egative values related to higher design speed May negatively impact sensitive abutting environmental resources May cause significant right-of-way impacts (impossible or prohibitively expensive to acquire

Designers are generally more open to exceptions on routes of lower functional classification. Collectors and local streets carry lower volumes of travel over shorter distances and typically have more familiar users. Design exceptions can have a greater impact on high speed arterials. Design exceptions can be justified based on safety and operational analysis, cost comparisons, stakeholder input, and allow adverse impacts to adjacent resources to be avoided. Consideration should be given to stakeholder input when taking into account design exceptions.

A CSS uses the design flexibility in the standards and guidelines to incorporate the needs and desires of a community. This requires using experience, study results, judgment, ingenuity, and creativity to apply design criteria to solve unique problems.

Problems and alternatives must take into account functional classification. The significant choices that designers make in developing alternatives include design speed, design traffic conditions, and design vehicles.

According to the AASHTO Green Book, design speed is used to determine geometric design features and should be logical with respect to topography, adjacent land use, and functional

classification. Design speed is thus an important choice that designers will make. This choice should be made recognizing the context of the project.

Ensuring Safety through Understanding Nominal and Substantive Safety Concepts

Nominal safety refers to a design alternative's adherence to design criteria and standards. Substantive safety refers to the roadway's crash experience. Both nominal and substantive safety are important to understand, convey to stakeholders, and include in the design decision making process.

Every existing road can be categorized as being nominally safe or unsafe and substantially safe or unsafe. A roadway's nominal safety can easily be determined by comparing its design features, such as lane and shoulder widths, sight distance, horizontal and vertical curvature, roadside features, to design criteria. A highway's substantial safety is determined by reviewing its crash history, comparing its crash rate with similar facilities, determining crash types and frequencies, and perhaps comparing its performance with crash prediction models. For proposed new facilities, there are no existing substantive safety performance issues, and design for those projects should be based on adhering to design criteria.

Knowledge of a project's nominal and substantive safety can influence the project problem definition and solution. A project that is nominally unsafe but substantially safe is a roadway that does not meet established criteria but does not have a safety problem. This knowledge may be used to scale back the project, perhaps using only 3R criteria or employing some design exceptions and recognizing the possibility that an upgrade to full standards may not be cost effective. A project that has a substantive safety problem, but is nominally safe, should consider targeted safety improvements. If a project has both nominal and substantive safety problems, reconstruction to current criteria is probably justified.

In the Forward of the AASHTO Green Book states some very interesting points about safety in design criteria. "The fact that new design values are presented herein does not imply that existing streets and highways are unsafe, nor does it mandate the initiation of improvement projects. This publication is not intended as a policy for resurfacing, restoration, or rehabilitation (3R) projects. For projects of this type, where major revisions to horizontal or vertical curvature are not necessary or practical, existing design values may be retained. "

Specific site investigations and crash history analysis often indicate that the existing design features are performing in a satisfactory manner. The cost of full reconstruction for these facilities, particularly where major realignment in not needed, will often not be justified. Resurfacing, restoration, or rehabilitation projects enable highway agencies to improve highway safety by selectively upgrading existing highway and roadside features with the cost of full reconstruction. When designing 3R projects, the designer should refer to TRB Special Report 214 (*Designing Safer Roads: Practices for Resurfacing, Restoration, and Rehabilitation*) and related publications for guidance.

Infrastructure projects involve the reconstruction of aging bridges and roadways and sometimes occur in combination with inadequate capacity. When these projects involve infrastructure replacement only, it may be acceptable to use 3R criteria to reduce costs and impacts. In these cases, upgrading to current design criteria is almost always more costly.

While a design that supports a higher speed has a greater margin of safety for faster drivers, acceptance of a slightly lower design speed may result in an acceptable plan. This is especially true where the existing roadway did not have a substantive safety problem. The lower design speed may create fewer impacts on the surrounding terrain accesses and land uses, have a lower cost, and no loss of substantive safety. There is some evidence that speed consistency on a highway is as or more important to good operations than design speed. In urban areas, a challenge to a CSS is to produce a high quality design where lower speeds achieve uniform flow and substantive safety, especially where pedestrian safety and mobility is a primary concern. Traffic calming treatments may be appropriate in some cases.

It is important to exercise ordinary, reasonable care, and to document the decision making process to minimize liability. Application of the CSS design processes support risk management by the following activities:

- Consider multiple alternatives including the pros and cons of each alternative that includes an explanation for why a specific design was selected.
- Evaluate and document design decisions, including anticipated operational and safety performance, stakeholder involved in the development and evaluation of alternatives, new and creative concepts, and design exceptions.
- Maintain owner/agency control over design decision making.
- Demonstrate a commitment to mitigate safety concerns.
- Monitor design exceptions to improve decision making.

NCHRP Report 480 (TRB, 2002), which can be found online at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_480a.pdf, provides detailed information on tortliability and risk management.

Level of Service and Design Vehicle Choices and Considerations

AASHTO and FHWA consider LOS criteria to be guidelines, not design criteria that would require an exception if not met. AASHTO contains discussion on designing for congestion; in some cases, designing for LOS E is all that is practical. The choice on LOS to use should reflect the problem and its context, project purpose, judgments regarding future traffic increases, and the consequences of under designing.

Duration and level of congestion as well as vehicle type should be clearly defined prior to analysis. The primary basis of selecting a design vehicle focuses on facility users. However, selection of an appropriate design vehicle is highly context-sensitive and needs to consider the surrounding land uses. For example, where the surrounding land use is industrial, a larger vehicle may be selected. In industrial areas, large vehicles are expected to be among the facility users, and access points to the development may require large turning radii. In neighborhoods, school buses or deliver trucks may be the largest vehicles using the neighborhood streets. In urban areas, the design vehicle selected should consider pedestrian needs, since larger vehicles require greater turning radii which increases pedestrian crossing distances and promotes higher turning speeds.

Context-sensitive solutions consider flexibility in the design criteria. An example would be that of a facility with a significant percentage of trucks passing through an area. Due to the adjacent land

uses or turn restrictions, there may be no trucks turning at a specific intersection. A CSS may be to provide a smaller corner radius at the intersection, which is appropriate for smaller vehicles, and reduce the pedestrian crossing distance, and at the same time provide one or more wide lanes for through traffic to accommodate the trucks using the facility, which are passing through the area.

2.4.3. Considering Design Choices and Consequences

Under CSS principles, roadways through a community should be considered much more than just a quick way to get from point A to point B. These roadways are, in a sense, the lifeblood of our communities that affect day to day lives in many ways. Roads have taken on a much greater role than just transportation corridors, but rather they can greatly affect the overall image of a community, the economic vitality, the recreational potential, the safety and security, and yes, even our personal psyche. If the thoroughfares through a community look bad and function poorly, it affects everything around it. At the same time, if our thoroughfares are attractive and function well, our communities tend to be uplifted in value and spirit.

Main Street – Calhoun, Georgia

Photo Credit: City of Calhoun, GA (www.cityofcalhoun-ga.com)

"Main Street" is typically the defining feature for many Georgia towns and cities. Main Streets provide access to businesses, residential roads and other nearby properties. Main Streets serve pedestrians, bicyclists, businesses and public transit, with motorized traffic typically traveling at slower speeds than roads on the outskirts of town. Main Streets also give communities their identity and character; they promote multi-modal transportation, support economic growth, and often have scenic or historic value. Additional information about the formal Georgia Main Street Designation Program can be found online at: http://www.georgiamainstreet.org/

For most communities, much of this evolved over many, many years, with a series of critical design choices. Most communities tried to capitalize on their unique strengths of location, natural attractions, geography and topography, and local vernacular and landscape setting. Some might argue that much of this contextual sensitivity has been lost over the years with the establishment of highway design guidelines and safety standards However; with CSS projects we can now better balance the issues between community preservation and enhancement, while meeting necessary design and safety standards. This is all part of making the right choices that best fits the needs of our specific communities.

Helen, Georgia's unique community setting.

Photo Credit: http://www.georgia.gov

Design choices begin at the start of a project, with the initial goal setting, committee discussions and transportation needs assessments. These early choices can include establishing the overall project character, roadway alignments and widths, design speeds, and a discussion of alternative locations, etc. Each of these choices can affect the final outcome of the project in terms of its overall character and contextual sensitivity. It is these initial, important decisions that establish further opportunity for enhancements, or in some cases, may preclude certain future enhancements from taking place. It is these decisions that the community has to live with for possibly a generation or more to come.

Unlike in the past, when many transportation projects only focused on the basics of vehicular movements and safety, CSS projects have opened up a whole new world of design choices due to their sensitivity to the communities in which they pass through. While the function of a roadway is a critical framework for any project, much of what the public actually sees, and the overall image of a project, are the enhancements give the project more character and to fit into the surrounding landscape.

Sometimes, a suitable and appropriate Context-Sensitive Solution may be more "visual" than it is functional. In other words, sometimes a road could be widened slightly to serve the transportation needs better, but may involve much more aesthetics and visual appeal as requested by the community. For instance, a downtown business district may be more concerned with the aesthetics of the area than the movement of traffic; pavements may become brick instead of concrete, lights could take on a more visual, decorative character, more street tree plantings could occur, signage may be enhanced, etc. This may meet the contextual needs of the community while still meeting the baseline goals of the transportation engineers and state officials.

Old Fourth Ward

In order to make successful design decisions, we must understand the total environment in which the project sits, or passes through. Consider the type of community or setting:

- *Is it rural, where scenic views, natural topography and landscape are the dominant features, or is it urban, where the man-made environment may be historic or unique in character; or is it somewhere in between?*
- *Is it a community that is geared towards the automobile or one that is walkable and geared to the comfort of both pedestrians and bicycles?*
- *Are there key architectural features or important cultural attractions to be protected, or is it a newly developed area dominated by big-box retail establishments?*

These are just a few of the many questions that may be asked as a community ventures into a new CSS project.

Access Management

Access Management can present both challenges and opportunities for CSS design choices. Stakeholders are routinely involved in projects involving access management. This is especially so if a raised median with left turn restrictions is an alternative for consideration, along with driveway consolidation, signal relocation, and removal, or other restrictions to improve safety and level of service, etc.

Facilitators can be very helpful for such projects by representing a neutral presence. Consider incorporating an educational element that describes engineering concepts in layman's terms in workshop materials, project fact sheets, and newsletters to ensure that stakeholders have a good understanding of the access management choices and their operational, environmental, and community consequences.

Traffic Calming

Traffic Calming has also brought new opportunities for design choices and CSS-related enhancements to the forefront. "Traffic Calming is the combination of mainly physical measures that reduce the negative impacts of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users." *(Excerpted from Caltrans "Main Streets: Flexibility in Design & Operations," and ITE Journal, July 1997, p.23)*

By slowing traffic down in some areas, both travelers and residents alike have rediscovered those once seemingly "hidden treasures," i.e. beautiful neighborhoods and historic homes, shops and restaurants that are tucked away, a tiny pocket park, a certain view or vista, or a beautiful landscape, etc. These types of community features might have always been there, but with traffic passing through so quickly, many did not notice their own area's attributes.

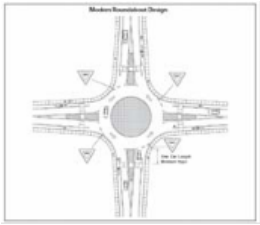

Image Source: GDOT Pedestrian & Streetscape Guide (2003)

Some important Traffic Calming Measures that offer tremendous "enhancement" opportunity include those listed below:

- Roundabouts
- Other traffic diversions
- Raised pavement areas
- Reduced street widths
- Raised median islands
- Street closures
- Surface textures and other visual devices

With traffic calming, it is important to offer the driver some key visual cues, which lets them know they are entering someplace different and special, and should slow down in respect to more pedestrian and bicycle activity. These cues may include "gateway treatments," Raised center medians or traffic islands, increased landscape treatments, additional streetscape enhancements (ornamental lighting, planters, benches, banners, artwork, bus shelters and other street furniture).

Multi-Modal

By exploring a project's potential more comprehensively, new opportunities for multi-modal sharing of the roadways become more apparent. This important aspect of CSS is key to the success of most transportation related projects. As project decisions and design choices focus more on the surrounding context, and it's proper "fit" within the community, we can now better explore new shared-use opportunities for recreation and public transportation, as well as the basic safety factor of kids safely walking to school or people safely crossing busy streets, to mention just a couple examples.

With public involvement right from the start, these design choices and decisions can develop with a balanced synergy between project designers, public officials, community residents and business leaders. Some obvious multi-modal opportunities may include:

- Pedestrian access and safety along all routes, particularly those in more densely populated communities. This includes the paramount need for safe crossings (crosswalks) at appropriate intersections.
- Bicycle access and safety, including both on-road and off-road opportunities. More and more communities are looking for dedicated biking opportunities, including rails-to-trails initiatives, and those within the public rights-of-way.
- Access to and coordination with public transportation services. This could include arterial high-occupancy vehicle (HOV) lanes, commuter rail or future high-speed or light rail opportunities, separate busways or dedicated bus lanes.

Photo Source: GDOT Pedestrian & Streetscape Guide, 2005.

Design-Related Opportunities

Besides the many obvious transportation related choices that we have encountered with most roadway projects in the past, such as travel speeds, roadway widths, horizontal and vertical alignments, etc., CSS projects have also opened many eyes to new design-related opportunities. Click on any link below for details (see **Appendix G**):

- Pavements*
- Pedestrian crossings/crosswalks*
- Street lighting*
- Signage*
- Street furnishings*
- Roadway/street landscaping*
- Banners and flags
- Public art
- Gateway features

*Refer to the GDOT Pedestrian and Streetscape Guide, found online.

The potential choices, and resulting benefits and consequences, on a CSS project are extensive. These choices cannot be taken lightly, and as highlighted above, can have lasting impacts on the character of a community for years to come. Decisions made with proper collaboration and public input will always have more acceptance than those made behind closed doors by a chosen few. In other words, a proposed project that has a predetermined solution is destined for failure. At the same time, no design “solution” should be determined too quickly, without taking all contextual impacts into account. Both function of the roadway and the overall character of enhancements should reflect the image and values of the community in which it is located.

CSS projects aim to avoid the earlier transportation engineering model of “one size fits all.” Understand that each project is unique and demands a unique and thoughtful solution. Similarly, each community is different, the topography and landscape is different, and the level of public participation will be different in each case. Find a solution which best fits your specific project needs.

2.4.4. Developing, Evaluating and Selecting Alternatives

Alternative identification is the most creative part of the project development process in which sets of solutions are crafted in response to the problem statement and the evaluation criteria. *www.contextsensitivesolutions.org*

Consistent with CSS guiding principles, project stakeholders will play an important role in not only identifying the problem, local and regional issues and concerns, as well as community values; they have much to offer regarding strategies or solutions that may better meet and balance the needs of community and the project. Alternatives development, evaluation, and selection, should thus be iterative processes in which the project team provides input and receives input in the development of context-sensitive solutions.

The National Cooperative Highway Research Program Report 480 offers several key elements of the alternatives development process, evaluation and selection process. The full report is available online at: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_480a.pdf

Alternatives Development

Develop and document the full range of alternative solutions

- All alternatives being considered should be a reflection of community values (see Section 2.2.1.).
- A challenge is to translate an idea proposed by project stakeholders into a technically feasible solution. Engage in a collaborative process to generate viable ideas.
- Maintain trust and reduce the potential for re-evaluating alternatives by providing a complete explanation as to why alternatives have been eliminated.
- Strive to emerge from this step with a set of alternatives, any one of which could be successfully implemented and will address the problem while being sensitive to community needs and values.

Educate of all parties on innovative solutions

- Work closely with stakeholders to ensure an understanding of how each alternative will address the problem
- Consider showing relevant examples of similar solutions used elsewhere (See Section 3.).

Portray alternatives in an understandable format

- Involve and inform non-technical stakeholders through a variety of communications tools, such as visualizations, models or simulations (see Section 2.5.2), plan drawings overlayed on aerials, and by simply eliminating unnecessary engineering details.
- Present alternatives for easy and honest comparison by using the same level of detail, color schemes, and scales.

Evaluation and Selection

Comparison of Alternatives

- A key aspect is to highlight trade-offs among various alternatives, relating back to criteria and the problem identified early in the process.
- Develop protocols for the types of alternatives analyses that are suited to each stage of project development, keeping in mind that stakeholders often demand high level of detail regardless of the project development stage.

Document Alterative Evaluation and Selection –

"Documenting the alternatives development process is critical for establishing the credibility of the alternatives analysis process. " (NCHRP,18)

Decision Making Authority - In the CSS Process, stakeholders provide meaningful input in the development, evaluation, and recommendation of a preferred alternative to the decision-making authority or owning agency.

The CSS approach should improve project quality, limit redesign, improve relationships with agencies and advocacy groups, provide for early and continuous input into the project by all stakeholders, expedite the project, and ultimately achieve project success.

2.5. Ensuring Project Solutions That Work

Traditional methods of measuring the success of transportation projects have focused on cost, schedule, capacity, mobility and safety. However, these measures do not provide transportation agencies and transportation project managers with the information they need to assess the success of projects completed within the contemporary context- sensitive environment. Consequently, there are no definitive objective measures to support the institutionalization of context identification and definition as part of the transportation project planning, design and implementation process.

The national "Thinking Beyond the Pavement" workshop held in 1998 developed the following principles for CSS practice that GDOT project managers can use as a basis for measuring the success of your CSS project:

- The project satisfies the purpose and needs as agreed to by a full range of stakeholders. This agreement is forged in the earliest phase of the project and amended as warranted as the project develops.
- The project is a safe facility for both the user and the community.
- The project is in harmony with the community, and it preserves environmental, scenic, aesthetic, historic, and natural resource values of the area, i.e., exhibits context-sensitive design.
- The project exceeds the expectations of both designers and stakeholders and achieves a level of excellence in people's minds.
- The project involves efficient and effective use of the resources (time, budget, community) of all involved parties.

- The project is designed and built with minimal disruption to the community.
- The project is seen as having added lasting value to the community.

(Source: FHWA, 1995)

2.5.1. Measuring Performance and Evaluating Success

Performance measures should help to determine how well the completed project satisfies the purpose and need as agreed to by the full range of stakeholders.

An effective CSS measurement program should become an integral component of every project team's responsibilities. The principles of CSS do not always apply only to large projects, so measurement initiatives should include large and small projects. For example, minor roadway rehabilitation projects may have other benefits to communities through which they pass if they are used as an opportunity to address community needs, as well as to ensure smooth pavement. Likewise, what seems like a minor repaving job could have a significant effect on the scenic and/or historic qualities of a road if the project includes widening shoulders or the roadway without addressing the impact on the scenic and historic qualities.

Where benchmarks for measuring the success of transportation improvement projects have traditionally focused on safety, operations, and financial feasibility, consider measuring the success of CSS project based on some of the following:

- Environmental compatibility
- Visual compatibility with the community Setting
- Financial feasibility
- How well the project is embraced by the community

Measurement efforts should be tailored to project needs. Measuring the performance of your CSS project will likely be a learning experience, and GDOT project managers can expect that the set of CSS performance measures will evolve over time.

Measuring Project Outcomes

Outcome measures that will allow project teams to gauge success of a project include:

- Project Vision or Goals
- Stakeholder Satisfaction
- Quality Assurance

Measuring Project Processes

Project teams practicing CSS are encouraged to think in terms of processes as well as outcomes. A wide range of measures in these focus areas is possible, and measures that fit the unique circumstances surrounding each project should be considered.

Opportunities for GDOT project managers to measure the performance of project processes include:

- Self-assessment of multi-disciplinary project Teams

- Evaluating how well stakeholders and the public were engaged
- Determining if consensus was met on a project's vision, goals, needs, desires, and problems
- The Alternatives Analysis process
- Construction and maintenance

The Transportation Research Board recently published NCHRP Report 069 *Measures of Context-Sensitive Solutions – A Guidebook for State DOTs* which offers guidelines as well as relevant examples for measuring CSS outcomes and processes. (TRB, 2004)

2.5.2. Seeing is Believing – The Art of Visualization

"Think like a wise man but communicate in the language of the people." *William Butler Yeats*

CSS and project development rely heavily on communication between project stakeholders, jurisdictional agencies, and the project team. The technical drawings and maps required to construct a transportation project are not always the most effective instruments for communicating with non-technical disciplines and the public.

It is therefore important to illustrate improvements both graphically and technically to demonstrate what certain improvements will look like how improvements may impact (both negatively and positively) the surrounding context of the project.

There are different types of visualizations, ranging from renderings over photographs to three-dimensional images generated from design files and digital terrain models. The latter require more preparatory work (the proposed functional design must be completed first in both plan and profile), but are visually true to scale. Also, it is possible to readily generate countless images from different angles and eye locations. The former are relatively simple and easy to generate and have become standard practice for GDOT, but care must be taken to represent the true visual character.

It is important to recognize the cost and time needed to produce meaningful visualizations for your project and to plan and budget for it accordingly.

The more commonly used visualization techniques include the following:

- Models and Simulations
- Illustrations and 3-Dimensional Images

  Sketches
  Plan Views
  Cross Sections
  Isometrics
  Renderings
  Videos

See **Appendix H** for examples, definitions, and information about how each technique could be applied to CSS projects.

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Chapter 3. Leading with Best Practices

In the last few decades, communities have increased awareness of historical, cultural and community values that play a major role in driving the community outlook and shaping the community. There are several projects in Georgia and throughout the country that have encompassed CSD principles and have been designed and constructed to meet the specific needs and desires of the community.

The following is a selection of projects that illustrate application of CSD principles in different capacities. These case studies were assembled from GDOT and various other resources listed in the reference section of the manual. The case studies are chosen to be geographically diverse and illustrate a wide range of project contexts. These case studies demonstrate that CSD principles can be applied in an urban, rural or a suburban setting.

To view additional GDOT transportation case studies and project visit the GDOT Transportation Plans and Programs Web Page

In summary, these GDOT and national case studies show how project success and acceptance can be achieved by applying the right resources to provide transportation solution that satisfies the purpose and the need of the project.

3.1 Project Index

Project Name	Location	Context Setting	Road Classification
Georgia Projects			
I-16/I-75 Interchange	Bibb County, Georgia	Suburban	Interstate
Connecting Savannah Public Involvement Process	Savannah, Georgia	Urban	N/A
14th Street Bridge	Atlanta, Georgia	Urban	Bridge over Interstate
5th Street Bridge Design/Build	Atlanta, Georgia	Urban	Bridge over Interstate
Martin Luther King, Jr. Boulevard	Savannah, Georgia	Urban	Urban Arterial
Rockdale County Citizen Involvement Process	Rockdale County, Georgia	Urban	N/A
Nationwide Projects			
U.S. Route 50	Loudoun-Fauquier Counties, Virginia	Rural	Minor Arterial
U.S. Route 3	Port Ontario, New York	Rural	Rural Arterial
U.S. Route 215	Ozark National Forest, Arkansas	Rural	Rural State Route
Highway 38 National Scenic Byway Corridor	Chippewa National Forest, Minnesota	Rural	Rural State Route
Maryland Route 108	Olney (Suburb of Baltimore), Maryland	Suburban	State Route
Carson Street Reconstruction	Torrence (Suburb of Los Angeles),Maryland	Suburban	Principle Arterial
Washington S.R. 99 (International Blvd.)	Sea Tac (Suburb of Seattle), Washington	Suburban	Principle Arterial
Rhode Island Avenue	Mount Rainier, Maryland	Urban	U.S Route
Euclid Avenue	Lexington, Kentucky	Urban	Urban Arterial

Smith Creek Parkway	Wilmington, North Carolina	Urban	Urban Arterial
Bridgeport Way	University Place, Washington	Urban	Urban Arterial

3.2 Georgia Projects

Macon I-16/ I-75 Interchange

The Project: The I-16/I-75 Improvement Project will include the widening and reconstruction of I-75 from Hardeman Avenue to Pierce Avenue and I-16 from I-75 to Walnut Creek within the City of Macon in Bibb County, Georgia. This is considered as a good example of engineering design.

Location: Bibb County, Macon, Georgia

Context Setting: Suburban

Road Classification: Interstate

Stakeholders: GDOT, Macon City Council and other Macon public officials, FHWA, Project Advisory Committee, and area residents The Process: Based on accident and traffic data, the Georgia Department of Transportation recognized the need for improvements to the I-16/I-75 interchange. On August 3, 2000, GDOT and members of the Project Advisory Committee agreed upon a preferred concept alternative for the I-16/I-75 interchange improvements. Bridges and/or retaining walls will be considered for the proposed eastbound collector-distributor (CD) road to minimize impacts to the floodplain. The goal of the proposed project is to develop an environmentally friendly design so as to have no adverse effect on the floodplain of the Ocmulgee River, minimize impacts on the Traditional Cultural Property, effects to the wetlands, and avoid conflicts with any major utilities.

Lessons Learned: The GDOT project team has developed a Public Involvement Plan to organize and manage the public involvement program for the I-16/I-75 Improvement Project. This plan includes various methods for public input. Stakeholders, residents, and concerned citizens are involved in the planning and project development process in order to accurately identify transportation problems and acceptable solutions.

To ensure the improvements to the I-16/I-75 interchange do not adversely affect the social, cultural, or natural environment, the project area has been thoroughly analyzed to determine the location of sensitive areas and issues. This early identification of environmental constraints will allow for the avoidance and minimization of environmental impacts.

Multiple (6) alternatives were developed with the preferred alternative including design features based on community input.

Concept Alternative for I-75/I-16

A rendering of Second St. from Walnut St. to Emery Hwy. – inset is the existing highway

Connecting Savannah Project

The Project: Connecting Savannah Project started as a process to find solutions to growing congestion problems, need for east west connectivity and lack of alternative modes of travel. This project is a fine example of extensive public involvement in transportation projects in Georgia. Central community issues identified by stakeholders in this project include: DeRenne Avenue congestion, Bay Street traffic, Savannah's lack of east-west connectivity, policies to become more pedestrian and bicycle-friendly, and opportunities for improved transit corridors.

Location: Savannah, Georgia

Context Setting: Urban

Stakeholders: This project has about 200 stakeholders from groups such as Savannah Metropolitan commission, Chatham County, Georgia Ports Authority, Business Representatives, Elected Officials, University students and other student groups.

The Process: The Connecting Savannah process was designed to actively engage the public in the planning of solutions to the transportation issues and make Savannah a better place to live and visit. The approach is to understand community values, concerns and interests and incorporate them into the transportation solutions while addressing the goals of the community. The process began with a stakeholder conference in October 2004 which was followed by five working group sessions. Citizens identified the problems, potential solutions, and voiced opinions on a short-list of top candidate concepts. From input received on the combination of policies, shot-term, mid-term and long-term potentials, 12 actions were proposed.

DeRenne Avenue Congestion:

- Retime the signals to provide improved traffic progression
- Provide ambulance pre-emption on DeRenne

Hampstead Avenue Connector:

- Construct a new four lane divided road connection with bike lanes and sidewalks from DeRenne/Mildred to Abercorn to reduce traffic on DeRenne between Montgomery and Abercorn.

Bay Street Traffic:

- Retime the signals to ensure most efficient operation of Bay Street traffic.
- Install audible pedestrian signals at every signalized intersection on Bay Street from MLK to Broad.

East-West Connectivity:

- Conduct concept feasibility (pre-design) for a regional traffic control center, including coordination with planned GDOT freeway management system.
- Initiate planning for long-term implementation of Truman Parkway Extension and Second Bridge across Savannah River

14th Street Bridge

The Project: The project proposes to lengthen and reconstruct the 14th Street Bridge to accommodate the new under pass for the northbound exit ramp. The new northbound exit ramp would depart from I-75/I-85 just south of the 14th Street Bridge. This project is a good example of public Involvement in a vocal community.

Location: Atlanta, Georgia

Context Setting: Urban

Stakeholders: GDOT, Midtown residents/neighborhoods, the City of Atlanta, Georgia Regional Transportation Authority, Atlanta Regional Commission, and the Midtown Alliance.

The Process: GDOT presented a plan to reconstruct the 14th Street Bridge to the Midtown community. The scale of the proposed design was of great concern to many of Midtown's citizens, the City of Atlanta, and the Midtown Alliance. The Georgia Department of Transportation (GDOT) has worked in concert with Midtown stakeholders to create an exciting plan for the 14th Street Bridge reconstruction that balances traffic, pedestrian safety, and good urban design. The new design called for limiting the width of the bridge to six travel lanes with a landscaped median.

Lessons Learned:

- The current pedestrian environment along 14th Street Bridge does not meet the standards established by the Local Community Improvement district. Also, the 14th street has experienced high crash rates and extreme levels of congestion.
- The City requested that GDOT work with the community through a committee process to try and come to consensus on the scale and design of the bridge. GDOT agreed to the formation of this committee, to be facilitated through the Georgia Regional Transportation Authority (GRTA).

  This committee has been meeting and discussing the project for the last several months and has reached significant conclusions on the basic lane configuration and bridge width, contingent upon final approvals by the Federal Highway Administration.
- GDOT Commissioner said they are anxious to show people what they have worked on for the past several months. The new design is believed to achieve the transportation objectives as well as answer many concerns about the impact of the pedestrian environment in Midtown.
- The revised plan incorporating Midtown public input includes landscaped medians, both on the bridge and off, planting seasonal flowers, ground covers, shrubbery, and trees.

Proposed Lengthening and Reconstruction 14th Street Bridge, produced by Peter Drey & Company:

For additional information about the Proposed Lengthening and Reconstruction 14th Street Bridge Project, visit the following internet Sources:

https://por.dot.ga.gov/projectInfo/0001298/JPG/14thstbridgerender.pdf

5th Street Bridge Design/Build

The Project: The purpose is to create a more pedestrian-friendly bridge with amenities such as wide sidewalks and trees. The bridge will provide a vital link between the main Georgia Tech campus on the west side of Interstate 75/85 and the Technology Square development on the east side.

Location: Atlanta, Georgia.

Context Setting: Urban

Stakeholders: GDOT, Georgia Tech, the City of Atlanta, Georgia Regional Transportation Authority, Atlanta Regional Commission, and the Midtown Alliance.

The Process: Crews demolished the south half of the bridge and rebuilt it. Traffic was switched to the north side while the south side was reconstructed. The entire project was completed in November 2006.

Lessons Learned:

The project will be completed in two phases, demolishing and rebuilding the bridge one half at a time, thus enabling the bridge to remain open to pedestrian and vehicular traffic throughout the project which was a stakeholder concern.

Replacement of the 5th Street Bridge will include larger sidewalks, planter walls, and area with sod grass, park benches, trees, decorative lighting and bridge pavers to enhance pedestrian experience.

The in town areas consist of a collection of neighborhoods separated by arterial roads and urban expressways. Projects like these will pave the way to transforming Atlanta and knitting the fabric of the neighborhoods back together into a community setting.

View from bridge looking east towards Midtown

View southeast looking towards Midtown's Tech Square

Additional information about this project is available online at:

http://aspirebridge.com/magazine/2008Winter/5th_street_win08.pdf

Dr. Martin Luther King, Jr. Boulevard, Savannah

The Project: The city of Savannah is deploying a comprehensive program of streetscape revitalization from River Street to 52nd Street: the median improvement along Dr. Martin Luther King, Jr. Boulevard is a component of this revitalization program.

Location: Savannah, Georgia

Context Setting: Urban

Road Classification: Urban Arterial

Stakeholders: City of Savannah, Georgia Department of transportation, Chatham County, Savannah Redevelopment Authority and community members.

The Process: The median construction on Martin Luther King Jr. Boulevard aims to calm traffic, provide safer pedestrian crossings, and build a streetscape more unified with downtown Savannah Martin Luther King Jr. Boulevard was once a four-lane urban arterial with on street parking on each side of the road. The newly designed alignment is four lanes, with two travel lanes provided on each side of a raised, landscaped median and parking on one side.

Lessons Learned:

- This project is one of the many steps being taken to improve the urban aesthetics of the historical district and the surrounding areas in order to facilitate vehicular traffic.

Success here will depend on how well the designers integrate the details that are necessary to replicate the charm of the historical district, while accommodating a large volume of traffic.

Cross-Section Design of Martin Luther King, Jr. Boulevard

Rockdale County Citizen Involvement Process

A good example of policies for public involvement in transportation projects is Rockdale County Citizen Involvement Process. Citizen involvement is a significant component of Rockdale County government operations. The Board of Commissioners encourages residents to participate in the decision-making process by serving on citizen advisory panels.

Location: Rockdale County, Georgia.

Context Setting: Urban

The CAC Process:

- The MPO Board schedules frequent town hall meetings to talk with citizens about various issues impacting the County. Town hall meetings are scheduled in the evenings at various locations throughout the community and are publicized in the local newspapers, as well as on Rockdale Cable Channel 23.
- Rockdale County participates as a member of the Atlanta Region Commission (ARC) and representatives meet on a monthly basis via the Transportation Coordinating Committee.
- The Transportation Improvement Program (TIP) is a short range (three year) listing of Federally-funded projects in the Atlanta Metro area. Rockdale County works with the GDOT and the ARC on the Rockdale County projects in the TIP, which is updated every year.
- Rockdale County will be working with ARC, the City of Conyers, and others to encourage citizens to utilize alternate modes of transportation. The recently completed Park-N-Ride Lot on Sigman Road is now open for use. Carpool and vanpooling will be promoted.
- Rockdale County is developing additional tools to reduce speeds in various neighborhoods and subdivisions. The County has in place a Speed Hump Policy.

  A speed hump district may be established within the county if 85% or more of the property owners in the district signs a petition. The Public Services and Engineering Department would then determine if the street(s) are eligible for speed humps. The County is in the process of developing additional means of slowing traffic in various neighborhoods, such as the easeabouts on newly-paved McCalla Road.

Lessons Learned:

- The picture below shows how public involvement is an integral part in the development of a transportation project.
- By constantly engaging citizens in the transportation projects like in Rockdale County, the support and public acceptance of the project is increased.
- Rockdale County's CAC process is aimed at increasing public participation. Public Involvement is an effective way to navigate towards a successful project.

More information on the project can be found at Rockdale County's Website http://www.rockdalecountyga.gov/ or the Atlanta Regional Commission website at http://atlantaregional.org/

3.3. Nationwide Projects

U.S. Route 50, Virginia

The Project: This project is a national demonstration project, funded under TEA21.The corridor of Route 50 under study begins in the village of Paris, Virginia and continues through Upperville, Middleburg, Aldie, and ends at Lenah.

Location: Loudoun-Fauquier Counties, Virginia

Context Setting: Rural

Road Classification: Minor arterial

Stakeholders: VDOT, the Virginia Department of Historic Resources and the Virginia Outdoor Foundation for 106 Coordination and Preservation Easement information

The Process: The intent of the project is to employ traffic calming measures that will require drivers to comply with posted speed limits within the towns and along the intervening roadway segments.

Before a consultant team was hired for the project, a task force of interested citizens, local elected officials, a member of the Commonwealth Transportation Board and VDOT was formed. During the day informal meetings were held to introduce the consultants, the project concepts, and listen to those that choose to be heard. Through the 3- day period a list of potential stakeholders was developed. Members of the design team were available to meet with interested parties throughout the concept development portion of the project.

Lessons Learned: An important element of the CSD approach with this project was the willingness of the engineers to get away from a template mentality where often a typical section is designed and then uniformly applied to large areas of the corridor.

The design team has been particularly sensitive to the need to look at design elements in the context of the existing resources so they enhance these resources, not overwhelm or detract from them.

Having a design team that brings a full appreciation for the flexibility in the design guidelines has been very important along with the ability to research and bring for consideration successful design concepts from other states and countries.

U.S. Route 3 Port Ontario, New York

The Project: U.S. Route 3 runs north-south between the shore of the east end of Lake Ontario and Interstate 81 in New York State. Route 3 is a two-lane rural highway, which passes through many old downtowns and small villages.

Location: Ontario, New York

Context Setting: Rural

Road Classification: Rural Arterial

Stakeholders: NYSDOT, U.S. Army Corps of Engineers; New York State (NYS) Department of Environmental Conservation; U.S. EPA; U.S. Fish and Wildlife Service; NYS Department of State; Oswego County Planning Department; Eastern Shore Salmon River Corridor Fisheries Committee; Cornell Cooperative Extension; town of Richland; and Oswego County's Promotion and Tourism, Highway Department

The Process: The purpose of the project was to improve safety and accessibility by replacing two bridges over the mouth of the Salmon River along with intersection improvements, accommodation of pedestrian and bicyclists, and general improvements to geometric standards. There was direct community involvement in the early stages of the project, but especially from business owners on both sides of the river in Port Ontario.

An important turning point for the community was the elimination of the design alternative that would have replaced the bridges on the existing alignment using temporary structures and interfering with traffic and therefore the community economy.

Lessons Learned: A wide range of sensitive issues were addressed as a part of the design of the project.

The business owners and community members wanted the old bridge to stay in place until the new bridge was ready. The community also raised a traffic safety issue regarding the intersection sight distance that was not known to DOT at the start of the project. This resulted in the scope of the project being extended.

A bicycle and pedestrian demand was known to exist, given the tourism in the area. The final project has sidewalks and good quality bikeways.

A more detailed description of this project is available online at:
http://contextsensitivesolutions.org/content/case_studies/us-route-3/resources/us-route-3/

U.S. Route 215, Arkansas

The Project: U.S. Route 215 is an improved two-lane roadway of approximately 15 miles long following along the Mulberry River with steep upward slopes. The road provides access to the Redding and Wolfpen Campgrounds in the White Rock Wildlife Management Area of the Ozark National Forest.

Location: Ozark National Forest, Arkansas.

Context Setting: Rural

Road Classification: Rural State Routed

Stakeholders: Arkansas State Highway and Transportation Department, FHWA (specifically the Eastern Federal Lands Highway Division), U.S. Forest Service, National Park Service, U.S. Army Corps of Engineers, Arkansas Natural Heritage Commission, Arkansas Department of Environmental Quality, and Arkansas Natural and Scenic River Commission.

The Process: As a result of thorough stakeholder coordination process, several principles were established for erosion and sediment control during and after construction. The visual environment of the forest, the view from the Mulberry River, and the vistas overlooking the river were deemed extremely important to maintain and enhance.

Lessons Learned: In order to preserve and protect the natural environment and create a built roadway environment that was to be esthetically pleasing, design speed, roadway geometric features, and natural materials were brought together in the context sensitive design (See photograph).

Some of the built features that look simple are made possible by using geotechnical design methods and special materials that cannot be seen.

Highway 38 (Edge of the Wilderness National Scenic Byway Corridor), Minnesota

The Project: The 47-mile Minnesota's Trunk Highway 38, the Edge of the Wilderness National Scenic Byway Corridor won the 2005 Best Project award at AASHTO.

Location: Minnesota, Northern woods, Chippewa National Forest.

Context Setting: Rural, Forest.

Road Classification: Trunk Highway/Principle Arterial

Stakeholders: Mn/DOT, federal, local and state agencies, the public, and other stakeholders.

The Process: The corridor reconstruction project focused on maintaining the roadway's existing alignment, incorporating four-foot paved shoulders with a rumble strip and an additional two feet of reinforced soft shoulder to improve safety and accommodate bicyclists, while reducing the roadway's impact on the land. This significantly reduced the amount of vegetation that needed to be cleared. A computer visualization study exploring flexibility in design of the roadway cross-section to achieve context-sensitive roadway.

This corridor interpretive park and trailhead site along the Byway links users to a multi-use trail that crosses the river and links to other area trail systems.

Photo Credit: Mn/DOT, Nei Kveberg.

Before Photo (left) and after Visualization

Photo Credit: SEH, Mike Fraser

Maryland State Route 108

The Project: Maryland Route 108 is a two-lane major arterial in Olney Maryland, a suburb of Baltimore. It is one of two major highways providing principal access to and through the Olney area.

Location: Town of Olney Mill, Maryland (A suburb of Baltimore)

Context Setting: Suburban

Road Classification: Principle Arterial

Stakeholders: Maryland SHA; Montgomery County, Maryland; Town of Olney Mill; Olney Mill Community Association; Olney Mill Chamber of Commerce; Individual business and property owners; Local State Delegate

The Process: The problem to be solved was to maximize the capacity (traffic-carrying capability) of Route 108 to enable it to carry out its function as an arterial serving the region. Initial project efforts focused on standard solutions: calling for Route 108 to become a multi-lane arterial throughout the project length, with intersection capacity improvements at the major intersections. Two alternatives developed for the project, incorporated both five-lane and divided roadway solutions. However, as the project moved ahead, there were concerns raised about the impacts of the proposed solutions, the character of the road, the final appearance of the highway, and other aspects such as treatment of pedestrians.

It was decided that the standard template solution would not suffice throughout the 2.7- mile corridor. The corridor was segmented into three areas defined by the surrounding land uses - a residential zone, institutional zone, and commercial zone. The operating speeds and speed limits would vary by zone, as would treatment of the median. The design approach also involved varying the alignment of the road through the corridor to better fit surrounding land uses and minimize conflicts.

Different design challenges required different approaches in each of these zones to meet the character and local context. In the residential zone (northwest project limits) a less structured landscaping theme was developed (see photos), with the hiker/biker trail designed to meander. In the commercial zone, the right-of-way and median are narrower, and design treatment more structured. Provision for left-turn lanes precluded the ability to provide treed landscaping, but plantings along the roadside in keeping with the commercial district's environment were provided. In the institutional zone, the design focused on providing for a transition in view between the other two zones.

Lessons Learned: This project contributed greatly to Maryland's knowledge base and advancement in CSD. A number of specific lessons were learned by Maryland's staff:

- Early in the project, review and confirm the planning framework, including the functional classification for the project and speeds (design speed).
- Assess what is proposed, what is desired, and what is needed. Look beyond mere mitigation; and look beyond the right-of-way to assess how the project will relate to the area.
- Multidisciplinary teams, including specifically landscape architects, were recognized as being essential to project success. Project engineers should get out in the field to visualize the project.

- Develop the project with an emphasis on design principles, utilizing engineering principles to achieve desired safety and functionality.

A detailed project description can be found online

Carson Street Reconstruction

The Project: Carson Street is a major east- West arterial street running through the middle of the city of Torrance. Torrance is located near Los Angeles in southern California. This reconstruction project was 1.03 miles long, and its limits are Madrona Avenue to the west and Crenshaw Avenue to the east.

Location: Torrance, California (A suburb of Los Angeles)

Context Setting: Suburban

Roadway Classification: Principle Arterial

Stakeholders: California DOT, Torrance city officials, Residents, Southern California Edison, Pacific Bell and Paragon Cable Television.

The Process:

A driving issue behind the project was to relieve traffic congestion and increase roadway capacity to improve traffic flow to and from the expanding Del Amo Fashion Mall area, which has over 18.6 ha (2.0 million sqft) of retail commercial activity.

To improve roadway capacity and safety, a five- lane urban cross section with a two-way median left-turn lane was implemented. Curb, gutter, and sidewalks were added along both sides of the entire project to provide improved roadway drainage and to accommodate pedestrians and bicyclists.

General urban street standards prescribed by the AASHTO Green Book and the MUTCD were used on this project. The project received an award for highway design excellence from California DOT in 1993.

Lessons Learned: This was the largest single street improvement project undertaken in the city of Torrance in the last 20 years. An early and extensive public involvement program aided this project and its acceptance by the community.

Improvement to the general aesthetics of the street was a major distinguishing feature of the project. Flowering plants, shrubs, and ground cover were placed at the west end of the project on a thin median between the main street and a north side service road.

Early Public involvement helped in minimizing public opposition and concern.

The full case study is available online

Washington SR 99 (International Boulevard)

The Project: International Boulevard (SR 99) is in King County, Washington, the most populous county in Washington. This section of SR 99 fronts Sea-Tac Airport. The airport and SR 99 serve as a gateway to the Puget Sound region for many visitors from around the world.

Location: City of Sea-Tac, Washington (Suburb of Seattle)

Context Setting: Suburban

Road Classification: Principle Arterial

Stakeholders: WSDOT; SeaTac Community Planning Department; International Boulevard Committee; King County/Metro Transit; and Port of Seattle; Puget Power; General Public

The Process: The schedule, number of stakeholders with different interests, and complexity of the project required close coordination and a comprehensive but focused planning process. The process was designed to identify issues and needs, develop alternatives, and evaluate and establish the preferred alternative. The alternative selected included a center, raised median and other access management measures. Information on the planning work was provided at two open houses and in citywide news-letters.

The project design development process included consideration of three build alternatives and a no-build alternative. The alternatives included five-, six-, and seven-lane configurations for the roadway. The alternatives represented a spectrum of possible traffic improvements for International Boulevard. All alternatives provided sidewalks for pedestrians and widened curb lanes to accommodate bicycles and transit.

Optional design features were also developed that could be incorporated into any one of the three build alternatives. These design options included either a raised, landscaped center median or a median consisting of a continuous two-way, left-turn lane.

Lessons Learned:

Alternative capacity improvements, HOV/transit treatments, access management measures, non-motorized mode options, signal system improvements, utility modifications, illumination concepts, and landscaping treatments were also developed.

Aesthetics were improved by planting trees along the sidewalks, special sidewalk paving patterns, a landscaped median, and landscaped transitions with adjacent properties.

The most controversial issue for this project involved implementation of raised medians for access control and safety. The combination of speed (45- mph speed limit), high traffic volume, and number of lanes led to an agreement to replace the center two- way, left-turn lane with a raised median; driveway controls and consolidations were also included. Compromises included the incorporation of U-turn designs into key intersections and the development of two mid-block median openings.

The full case study for this project is available online at Context Sensitive Solutions.org

Rhode Island Avenue, Mount Rainier, Maryland

Location: Mount Rainier, MD

The Project: U.S. Route 1 (Rhode Island Avenue) split the commercial town center of Mount Rainier with a six-legged intersection and four lanes of traffic with an ADT of 21,000. The basic issues were pedestrian safety, environmental enhancement, the Washington Metro Area Transit Authority (WMATA) bus turnaround area, storm drainage inadequacy, the lack of a clean, safe, and welcoming mixed- use town center, and vehicular and bicycle safety.

Location: Mount Rainer, Maryland.

Context Setting: Urban

Road Classification: Urban U.S arterial

Stakeholders: Maryland State Highway Administration, Neighborhood Conservation Program, Washington Metro Area Transit Authority and Residents.

The Process: This project replaced a six- legged intersection and four lanes of cars rushing through two blocks of liquor stores and abandoned buildings with a simple traffic roundabout, landscaped plazas, pedestrian lighting, easy pedestrian crossings, bus shelters built on early 20th-century designs, new business, and with public art including two blue-glass sculptures that will be lighted at night at opposite ends of the roundabout and bas relief sculptures of some of the diverse faces that make up the community of Mount Rainier.

Lessons Learned:

- The roundabout has decreased starting and stopping by through traffic and has reduced emissions from this source. The overall project significantly reduced impervious surfaces and replaced them with landscaping.
- The parties interviewed for this case study all considered this to be a major learning experience with frustrations in the process but with a very worth-while result. MSHA has acknowledged that the experience here has contributed greatly to the evolution of their project efforts using context design principles.
- The project would have benefited from the knowledge that MSHA now has in designing its project process for NCP projects. If overall project goals had been identified up front with all stakeholders and if a team with all the skills needed had been assembled early, the project would have proceeded more smoothly.

Euclid Avenue Lexington, Kentucky

The Project: Euclid Avenue is a state- maintained minor urban arterial that runs along the northern boundary of the University of Kentucky campus. The purpose of this project was improvement of mobility needs of the area due to congestion at some intersections along the corridor. The route serves local traffic and regional commuters, with mixed land uses of retail and housing. The project involved resurfacing and restriping an existing 4-lane road into a 3-lane road with bicycle lanes.

Location: Lexington, Kentucky

Context Setting: Urban

Road Classification: Urban Arterial

Stakeholders: Kentucky Transportation Cabinet, Lexington-Fayette Urban County Government (LFUCG), City Council and community members

The Process: The initial plan to convert Kentucky Avenue from an existing 4-lane road to a 5-lane section without acquiring additional right-of-way met with significant opposition from the public. An alternative plan that took into consideration pedestrian and bicyclist needs featured a 3-lane road with bicycle lanes along the entire corridor. Use of a single corridor for all modes of transportation,(i.e., passenger cars, public transportation, bicyclists, and pedestrians) was the context sensitive solution. In order to promote proper use of bicycle lanes, an education campaign was launched as part of the project.

Lessons Learned:

- The flexibility and open mindedness of the KyTC to consider alternative designs and implement concepts suggested by the public indicated to the public that their opinion is valued and is seriously considered and the level of trust increased.
- LFUCG's support to develop a pedestrian and bicycle-friendly corridor was essential to the project's success.
- The road diet concept has worked very well by reducing speeds without increasing traffic congestion.

The Case Study for this project can be found online at: Context Sensitive Solutions

Smith Creek Parkway, North Carolina

The Project: The Smith Creek Parkway project of seven-plus miles was divided into four sections and the two eastern most sections were designed, constructed, and opened to traffic. However, the two western most sections required further alternative investigation in final design to minimize impacts.

Location: Wilmington, North Carolina.

Context Setting: Urban

Road Classification: Urban Arterial

Stakeholders: NCDOT, Numerous resource agencies, local government officials, local specialist groups and area's businesses and citizens. Other stakeholders include U.S. Army Corps of Engineers, U.S. Coast Guard, North Carolina Division of Coastal Management, North Carolina Department of Environmental Health and Natural Resources, NCDOT Rail Division, and FAA.

The Process: The primary purpose of the project is to relieve traffic congestion and reduce accident rate on Market Street (US 17) in Wilmington. Significant issues were noise that could adversely impact film and TV studios and vibration that could impact sensitive measuring instruments at a manufacturing facility.

The potential impacts to the developing historic downtown area immediately adjacent to the project's western terminus were considered and were reduced by adjusting the final design alignment. Numerous forms of communication were used including workshops, small group meetings, hearings, and newsletters along with various forms of visualization including maps, photographs, renderings, and computer animation.

Lessons Learned:

- The project development spanned three decades that saw new environmental concerns arise. This resulted in the need to develop a new northern alignment and cross-section for the unfinished segments. In addition, new land use opportunities had to be accommodated including the future use of an abandoned railroad right-of-way and the proposed expansion of the downtown historic district.
- For the NCDOT the Smith Creek Parkway was a unique learning experience that required an extra measure of internal teamwork for planning, design and construction as well as significant outreach and cooperation with various stakeholder agencies, special interest groups, businesses, and citizens.

Bridgeport Way, Washington

The Project: Bridgeport Way is a major urban arterial and it could be considered a Main Street of University Place. The project involved reconstruction of an existing five-lane road into a four-lane divided roadway over a distance of approximately 1.5 miles.

Location: University Place, Washington

Context Setting: Urban

Road Classification: Urban Arterial

Stakeholders: Washington State Transportation Board, University Place Chamber of Commerce, Tacoma Power, local electric utility companies, FHWA, Puget Sound Regional Council, and Washington State Public Works Board.

The Process: The purpose of this project was to address the safety concerns due to the high number of crashes over the past years. At the same time it was viewed as essential to the vision statement of the University Place City Council that aimed in improving the quality of life in the community by creating a town center. An extensive public involvement process was initiated to solicit input on how the street should be redesigned. The process used design charrettes, public meetings, open houses, meetings with neighborhood groups, and one-to- one meetings.

Lessons Learned:

- The flexibility and open mindedness of the council to develop a demonstration project for roundabouts indicated to the public and the stakeholders that their opinion is valued and is seriously considered.
- The road diet concept (where a roadway with more lanes is converted to a road with fewer lanes) has worked very well by reducing crashes up to 60% for some areas and speeds by about 6%.
- Incorporation of innovative designs for pedestrian crossings were also a CSD hallmark.

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Resources

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CSS-Related Websites

Below are a number of websites where information about Context Sensitive Solutions (CSS) policies, practical applications, manuals, and project examples can be found. To-date, the most comprehensive source of CSS information is provided at http://www.contextsensitivesolutions.org, a resource center created by Project for Public Spaces in collaboration with Scenic America to assist the Federal Highway Administration.

AASHTO Center for Excellence
http://environment.transportation.org/environmental_issues/context_sens_sol/

Atlanta Regional Commission- Community Choices Quality Growth Toolkit
http://www.atlantaregional.com

ContextSensitiveSolutions.Org
http://www.contextsensitivesolutions.org

California (CalTrans)
http://www.dot.ca.gov/

District DOT
http://ddot.dc.gov/

Federal Highway Administration Context- Sensitive Design National Website
http://www.fhwa.dot.gov/planning/csstp/

Idaho DOT
http://itd.idaho.gov/

Illinois DOT
http://www.idot.illinois.gov/index

Kentucky DOT[1]
http://www.ktc.uky.edu

Maryland DOT[1]
http://www.mdot.maryland.gov/

Minnesota[1]
http://www.cts.umn.edu/education/csd/

New Jersey DOT
http://www.state.nj.us/transportation/eng/CSD/

New York DOT
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Ohio DOT
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Project for Public Spaces
http://www.pps.org

Scenic America
http://www.scenic.org

Transportation Research Board
http://www.trb.org

Utah DOT[1]
http://www.udot.utah.gov/index/php/m=c/tid=144

Walkable Communities
http://www.walkablecommunities.org

[1] FHWA CSS Pilot State

Washington State DOT
http://www.wsdot.wa.gov/

Publications Available Online

Listed alphabetically below are a number of publications on context-sensitive solutions flexibility in design, and Public Involvement and CAC processes.

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Appendix A. Project Stakeholders

Examples include, but are not limited to:

A.1. Elected & Appointed Public Officials

- Local, State, and National Elected Public Officials
- Local, State, and National Appointed Public Officials
- Georgia Municipal Association (Georgia Cities) - http://www.gmanet.com/Cities.aspx
- Association County Commissioners of Georgia (ACCG) - http://www.accg.org/

A.2. Agency Representatives

- Federal Agencies
- State of Georgia http://www.georgia.gov/
  - Emergency Management Agency (GEMA) - http://www.gema.ga.gov/Pages/default.aspx
  - Department of Economic Development - http://www.georgia.org/
  - Department of Public Safety - http://dps.georgia.gov/
  - Council on Native American Concerns - http://caic.georgia.gov/
  - ADA Coordinators - http://adac.georgia.gov
  - Department of Community Affairs - http://www.dca.state.ga.us
  - Department of Community Health - http://dch.georgia.gov
  - Development Authority - http://gda.georgia.gov
  - Forestry Commission - http://gfc.georgia.gov
  - Governor's Office of Highway Safety http://gohs.georgia.gov/
  - Office of Homeland Security - https://www.dhs.gov/geography/georgia
  - Ports Authority - http://ports.georgia.gov
  - State Properties Commission - http://spc.georgia.gov
  - Rail Passenger Authority - http://www.garprail.org/
  - Real Estate Commission - http://grec.georgia.gov
  - Regional Transportation Authority (GRTA) - http://www.grta.org/
  - State Road and Tollway Authority (SRTA) - http://www.georgiatolls.com/
  - Soil and Water Conservation
  - Commission - http://gaswcc.georgia.gov
- County
  - For a comprehensive listing of Georgia's County Websites, visit: http://www.georgia.gov/00/topic_index_channel/0,2092,4802_5083,00.html

A.3. Transportation Professionals

- Local jurisdiction transportation or technical professionals (public works directors, traffic engineers, planning directors)

- Regional Transportation Professionals (GRTA, Regional development centers/planning commissions, transportation planners, Council of Government planners)
- State Transportation Agencies (State DOT highway designers, traffic engineers, environmental planners)
- Federal Agencies (Federal Highway Administration, Federal Transit Administration)

A.4. Community Representatives

- Residential and Commercial Property Owners
- Residential and Commercial Tenants
- Neighborhood/Homeowner/Condominium Associations
  - Federation of Georgia Homeowners https://www.bizapedia.com/ga/federation-of-georgia-homeowners-inc.html
- Community Improvement Districts
- Chambers of Commerce
- Economic Development Agencies
- Industry Associations
- Major Regional Employers
- Regional Development Centers & Planning Commissions:
  - Albany Planning & Development http://www.albany.ga.us/content/1806/default.aspx
  - Metropolitan Planning Organizations http://www.atlantaregional.com/
  - Central Savannah River Area Regional Development Center (CRSA) http://www.csrardc.org/csra/
  - Coosa Valley Regional Development Center (CVRD)
  - McIntosh Trail Regional Development Center (MTRDC) http://www.mctrail.org/
  - Middle Georgia Regional Development Center (MGRDC) http://www.middlegeorgiarc.org/wp-content/uploads/2016/04/Director_of_Technology_Services.pdf
  - Middle Flint Regional Development Center http://www.middleflintrdc.org
  - Northeast Georgia Regional Development Center http://www.negrc.org/
  - Coastal Georgia Regional Development Center http://www.crc.ga.gov/
  - Southwest Georgia Regional Development Center http://www.swgrc.org/
  - North Georgia Regional Development Center http://www.negrc.org/
  - Chattahoochee-Flint Regional Development Center
  - Georgia Mountains Regional Development Center http://www.oig.dol.gov/public/reports/oa/pre_1995/ga_rdc.htm
  - South Georgia Regional Development Center http://www.sgrc.us/
  - Southeast Georgia Regional Development Center
- Business Organizations and Associations

A.5. Non-Profit/Non-Governmental Organizations and Interest Groups

- Religious Institutions
- Civic Organizations
- Historic Preservation:

  State of Georgia Historic Preservation Division (http://georgiashpo.org/)

  State Archives of Georgia (http://www.georgiaarchives.org)

  Georgia Trust for Historic Preservation - http://www.georgiatrust.org/

  Historic Preservation Societies (visit http://georgiashpo.org/) for a comprehensive listing of Georgia organizations dedicated to historic preservation)
- Environmental Organizations Action for Clean Environment (North Georgia) – http://epd.georgia.gov/

  Center for Sustainable Coast http://www.sustainablecoast.org/

  Georgia Audubon Society http://www.n-georgia.com/audubon_society.htm

  Georgia Conservancy https://www.georgiaconservancy.org/

  Georgia Sierra Club http://www.sierraclub.org/georgia

  Georgia Public Interest Research Group (GPIRG) - http://www.georgiapirg.org/

  Georgia River Network - http://garivers.org/

  Georgia Water Coalition http://www.garivers.org/gawater/

  Georgia Wildlife Federation http://www.gwf.org/

  PATH Foundation https://pathfoundation.org/

  Trees Atlanta https://treesatlanta.org

A.6. Facility Users

- Transportation service providers (transit agencies, airports, sea ports)
- Commuters American Automobile Association - http://autoclubsouth.aaa.com/?zip=30097&stateprov=ga&city=duluth&devicecd=PC&referer=www.aaa.com
- Georgia Motor Trucking Association - http://www.gmta.org/
- Tourist Industry Convention & Visitors Bureaus (Click on the Travel tab at http://www.georgia.org to query a comprehensive listing of Georgia Convention & Visitors Bureaus)
- Major Regional Employers
- Pedestrians & Bicyclists

  Pedestrians Educating Drivers for Safety (PEDS) - http://www.peds.org/

  Bicycle Clubs - http://www.bicyclegeorgia.com/gaclubs.html

A.7. Those Traditionally Underserved

- American Association of Retired People (AARP) of Georgia - http://www.aarp.org/states/ga/

- The Association of Community Organizations for Reform Now (ACORN) - *the nation's largest community organization of low- and moderate-income families, working together for social justice and stronger communities*. http://www.acorn.org
- National Urban League - *the nation's oldest and largest community- based movement devoted to empowering African Americans to enter the economic and social mainstream*. http://www.nul.org
- Ethnic Groups

  African American

  NAACP (National Association for the Advancement of Colored People) – *the oldest, largest and strongest civil rights organization in the U.S*. http://www.naacp.org

  100 Black Men of America – *an organization dedicated to improving the quality of life and educational opportunities for African Americans*. http://www.100blackmen.org

  National Council of Negro Women – *a community service organization dedicated to improving the quality of life for women of African descent*. http://www.ncnw.org

  Latino

  National Council of LaRaza - *established to reduce poverty and discrimination, and improve life opportunities for Hispanic Americans* http://www.nclr.org/section/regions/atlanta

  Latin American Association - *nonprofit organization that provides comprehensive transitional services for Latinos as they strive for self-sufficiency and an enhanced quality of life* http://thelaa.org/

  Haitian
- Transportation Disadvantaged
  - United We Ride - *The Federal Interagency Coordinating Council on Access and Mobility.* https://dhs.georgia.gov/services/united-we-ride
  - Metro Voices, Metro Choices (Atlanta) - *a new research-based community engagement and social change program that is being piloted in the metro Atlanta*. http://www.slideserve.com/penelope-ardelis/metro-voices-metro-choices-building-a-greater-atlanta
  - Alliance on Developmental Disabilities http://aadd.org/

Appendix B. Citizen's Advisory Committee Members

Community Work Group

Community Work Groups are typically comprised of a broad range of representatives from organized interest groups in the project area and other stakeholders. Key responsibilities of community work groups are to:

- Monitor the project from a community perspective
- Highlight needs versus desires as well as potential issues and concerns specific to their interest
- Coordinate project activities for the local interest group they represent
- Disseminate information and generate project interest throughout the community
- Offer strategies to resolve issues between competing interests

Staff Work Group

Staff from local, state and federal implementing agencies and authorities, local jurisdictions, utility companies, affected resource agencies and other interested agencies will meet on a regular basis to assess project development and review technical findings. In general, the Staff Work Group:

- Assists the team in reaching key project milestones (e.g. definition and evaluation of project alternatives during the PE/EIS phase)
- Conducts and reviews technical studies and staff recommendations
- Coordinates agency activities and review functions
- Coordinates and arranges briefings with county/city elected officials

Committee Facilitator

The responsibility of facilitating CAC meetings can be designated to the Consultant Project Manager, an independent facilitator, a public involvement specialist, or a member of the committee who is elected to the position. In general, a committee facilitator:

- Keeps meeting topics focused and moving according to the agenda and ensuring that all points on the agenda are covered unless there is consensus from the Committee to omit or revise topics.
- Maintains balanced participation by encouraging all members to express their views
- Uses conflict resolution techniques to discuss differences of opinion without being disruptive and to achieve mutual understanding.

Project Manager

The Project Manager is the link between the CAC, the project team, and decision-makers. The PM provides technical information about the project and guidance to the CAC. In turn, the CAC offers suggestions, thoughts, and concerns that should be brought to the table during the project development process. The Project Manager:

- Assists the Committee in the evaluation of the project in accordance with highway project development guidelines and design criteria. Provides technical information to the CAC, and as-needed invites technical experts from the team to brief CAC members on areas of concern.
- Provides owner perspective

- Communicates with CAC members and the project team between meetings as needed
- Updates the CAC on the progress of the project – schedule, milestones, future meetings, etc.
- Creates Meeting Reports and distributes them to the CAC and the project team
- Additional information on how to establish a CAC, roles, responsibilities, and other public involvement techniques can be found in the USDOT FHWA manual: Public Involvement Techniques for Transportation Decision-making. Available online at: http://www.fhwa.dot.gov/reports/pittd/cover.htm

Appendix C. Citizen's Advisory Committee Members

Use Project Contact Networks

The use of existing project contact networks is an efficient way to establish working relationships with members of the community who are impacted by your project.

Purpose: Identify stakeholders Inform Solicit input

Examples: Public officials
Professional organizations
Chambers of commerce
Civic organizations
Neighborhood associations

Benefits: Time & cost effective
Builds community relationships

Constraints: May miss traditionally underserved stakeholders

Make Direct Contacts

Direct contacts are a useful public involvement strategy if, for example, you are trying to pinpoint specific issues. When designing survey and interview questions, consider how the results must be recorded, summarized and communicated to the project team.

Purpose: Identify issues
Solicit input

Examples: Surveys
Telephone interviews/surveys
Door-to-Door Site Visits

Benefits: Can obtain specific information

Constraints: Can be time-intensive
Quality information depends on quality of survey/interviews

Create and Confer with an Advisory Committee for the Duration of the Project.

Advisory committees, comprised of a representative group of stakeholders, provide a continuing forum for bringing ideas into the process. Since the Community Advisory Committee (CAC) serves as an invaluable resource on CSS projects, the next section is dedicated to this particular strategy.

Purpose: Identify issues
Define needs versus desires
Inform
Solicit input
Build consensus

Examples: Citizen's Advisory Committee
Technical Advisory Committee
Staff Work Group
Community Work Group
Business Group

Benefits: Stakeholders contribute to both identifying and resolving issues
Establishes credibility
Builds community relationships
Offers a means of checks and balances

Constraints: Staff & resource dependent

Some groups could dominate others

Distribute Public Information Materials

An essential form of communication, Public Information Materials are often visually appealing and can summarize large amounts of information simply and in a straightforward fashion.

Purpose: Inform

Examples: Informational Flyers
Project Newsletters
News Releases
Meeting Notices
Pamphlets/Brochures

Benefits: Establishes credibility
Familiar technique
Generally low cost and easy to produce

Constraints: Can be expensive, depending upon size of audience
Lacks personal contact
Information can be quickly dated

Launch a Project Website

Websites offer the advantage of continuously providing information to project stakeholders and the general public. More than two-thirds of Americans have access to the internet from home, and most public libraries are equipped with computers that have internet access.

Agency coordination can also be facilitated through the use of a website. A project website can be used as a project collaboration tool by providing downloadable reports, bulletin boards, contact lists, project plans, etc. Click here for additional information about website tools and how they can be used to facilitate public and agency coordination. (Appendix F.)

Purpose: Inform
Solicit input
Identify new stakeholders

Examples: Project information website
Online surveys
Online guest book

Benefits: Continuous source of information
Widely used by the general public and agencies
Cost effective for larger projects

Constraints: May exclude persons with no computer/internet access

Conduct Meetings

Meetings, the most widely used public involvement technique, provide a setting for public information, discussion, and an opportunity to gain feedback from the community. Public Open Houses tend to offer the greatest ability for broad public input. The type of public meeting utilized should be tailored to your target audience, the corridor or region, or the types of stakeholders involved. In some instances, such as public hearings, legal requirements must also be considered.

Purpose: Inform
Solicit input
Identify issues
Build
Consensus

Examples: Workshops
Open Houses
Charettes
Focus Groups
Brainstorming Sessions

Benefits: Establishes credibility
Puts a ―face‖ with a project
Effective for reaching large and small groups

Constraints: Can require extensive resources

Use Media Outlets

The key to using media for a project is to deliver the central message, no matter which type or types of media strategies are identified. Media strategies are typically led by the project team staff members (GDOT Project Manager, Project Manager, Project Public Information Officer) who are most closely identified with the project, and close coordination with the District Communications Officer. Observing community input and feedback from your media events allows you to determine if the media chosen are appropriate and effective.

Purpose: Inform
Generate Interest

Examples: Radio/Television Talk Shows
Public Service Announcements
Events: Transportation Fair

Benefits: Reaches broad audience
Many people rely on the media for information

Constraints: Unfamiliar techniques
Can be expensive

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Appendix D. Public Involvement Techniques

Advisory Committee or Work Group: A representative group of stakeholders meeting regularly to discuss issues, have their comments and points of view recorded for later review, and seek consensus over project issues. *Purpose:* Provides a forum for stakeholders to regularly express their opinion on project issues and direction in a collaborative environment; for stakeholders to work together to reach consensus on project issues; and for the project team to monitor community reactions to project activities.

Brainstorming: A meeting or session that involves open discussion amongst a group of people. *Purpose:* Brainstorming sessions, often used to resolve conflicts, are intended to produce as wide a variety of ideas as possible. Ground rules for brainstorming sessions include: encourage all ideas; keep discussion of ideas to a minimum; generate as many unique ideas as practical; build on ideas of others; record ideas as they are offered (transcript, flip chart, online presentation, etc.) See: Free-Wheeling and Round Robin, two brainstorming techniques.

Briefing Package: An informational package that provides general project data: schedule, issues, contacts, current status, etc. Purpose: Provide current project data to interested audiences in an easy-to understand, summarized format.

Business Briefings: A prepared presentation on project background, goals and status brought to the workplace or business organization meetings. *Purpose*: Brings information to a location at which business people feel comfortable receiving and responding to project information; gauge opinions.

Charette: see Meeting Types.

Collaborative Task Force: a group assigned a specific task, with a time limit for reaching a conclusion and resolving a difficult issue, subject to ratification by official decision-makers. Its membership usually involves local people or representatives from interest groups, appointed by elected officials or agency executives. *Purpose*: Helps solve a specific problem, working strenuously toward consensus and presenting a strong and unified voice.

Community Based Workshop: see Meeting Types

Delphi Technique: A consensus-building technique in which interaction between members of a group is anonymous. Participants respond to several rounds of surveys, each round of survey questions builds upon the previous. Participants are only informed of the group's collaborative opinions. Additional information on using the Delphi Technique to build consensus can be found online at:
http://instruction.bus.wisc.edu/obdemo/readings/delphi.htm

Events

Leadership Luncheons: An event to which community and public opinion leaders are invited to listen to the latest project information. *Purpose*: Setting where leaders can receive/respond to current project information; gauge leadership concerns and needs; keep leadership interested and supportive of project goals and activities.

Contest: A game, gimmick or activity designed to raise interest in and elicit a response to an idea or proposal. *Purpose*: Peak public interest; increase public participation.

Summit: A summit is a community-wide meeting that can be used to increase public awareness of the project. Summits are opportunities to bring speakers into the community to present expert vision on transportation issues. For maximum exposure, link this event to a traditional local event or transportation fair. *Purpose*: Summits can provide public education and increase community-wide awareness of a project.

Televised Interactive Town Meeting: A live television or radio broadcast in which participants call in to comment or ask questions. Project staff to respond to questions and to record public input. *Purpose*: Helps people grasp a planning concept; allows two- way communication; increases public awareness of a project or program; provides focused public input.

Transportation Fair: A one day event used to create public interest in a transportation project or program; event is heavily promoted and can involve visual displays or technology demonstrations. *Purpose*: Creates and encourages public interest by dramatizing a program or project; keeps participants informed and interested; provides casual public input.

Focus Group: A group typically representing a cross section of the community who attend a facilitated meeting with a carefully tailored agenda, a set of questions to guide the discussion, a discussion facilitator, eight to twelve participants and a minimum of presentation materials to set the context for discussion. *Purpose*: Gauges public opinions, which provides guidelines for further thinking and analysis; provides input on issues and concerns.

Free-Wheeling: A brainstorming technique in which ideas are shared in a free-form way. In a session involving free-wheeling, ideas are often recorded as they are offered (on a flip chart, incorporated into an online meeting, etc). (See Brainstorming, Round Robin)

Facilitation: The guidance of a group in a problem-solving process by a facilitator who is neutral in regard to the issues and topics under discussion and provides procedural help in moving toward consensus and a conclusion. *Purpose*: Focuses task energies on a specific task or limited issue; discussion is structured without controlling content because the open process is the focus, not the outcome; discussion is kept to the topic with new issues identified and reformulated as they arise, saving time; all points of view receive a hearing and consideration.

Information Center: A location at which the public can receive information on project activities or ask specific questions; the center should be visible and accessible to the community at regular, designated times and staffed by knowledgeable personnel. *Purpose*: Provide easy, convenient access to project information and staff to entire community; demonstrate visible commitment to communication; provide first-hand knowledge of community needs and concerns.

Mediation: A technique that involves the use of a trained, impartial third party to help reach consensus on substantive issues at disagreement among conflicting parties in public involvement. A mediator can be from within or outside an agency but must be neutral and perceived as such by all parties. Purpose: Mediation is usually employed when an impasse is reached: participants work toward mutual understanding with the help of a leader.

Media Series: A series of print articles and/or video programs released to the public over a specific period of time providing detailed project information. *Purpose*: Integration of project phases into a cohesive unit; facilitate understanding of project materials.

Media Survey: A survey placed in local newspapers or on the internet intended to reach a wide audience in a particular region. *Purpose*: Receive information from a broad audience, increase interest and recognition of project; get perceptions about community values.

Meeting Types:

Charette: A meeting format used to define issues, analyze problems and alternative solutions and to reach consensus on the approach to be taken. *Purpose*: Resolve a problem or issue within a specific time period and when a range of solution options are required; define values and expectations.

Community Based Workshop: An interactive meeting held within the boundary of a defined community to which members of the community are invited and at which project information is shared, project related questions are answered and project awareness is raised. *Purpose*: Bring information to community residents in a forum where they feel comfortable to learn and to ask questions; raise project awareness among community leaders and residents; provide forum for feedback on community concerns and needs.

Kickoff Meeting: Kickoff meetings are typically community-wide meetings that initiate a project or indicate the transition from one phase of a project to another. Kickoffs can be used to increase public awareness by attracting media.

Open Forum Hearing: A meeting format that expands a public hearing to include elements of an open house, but at a formal notice of a fixed time and date where comments are formally recorded and a transcript of comments are kept for later public availability and can be used as part of community assessment.

Public Information Open House (PIOH): An informal public meeting with an open house format and generally lasts two to three hours. No formal presentations are made at these meetings; however handouts describing the proposed project and maps showing the proposed project area must be available for everyone attending. GDOT representatives must attend these meetings and must be prepared to discuss the project and answer questions. These meetings should be held early in the project development stage. *Purpose*: to inform the public of a project that is proposed in their area, gather information from the public and to receive comments from the public about the proposed project. Guidelines for conducting a PIOH can be found in chapter 4 of GDOT's Environmental Procedures Manual, which is available at http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/GDOT-EPM-Chap04.pdf

Public Hearing Open House (PHOH): Federal law requires that public hearings be held after the draft Environmental Assessment (EA) or after the draft Environmental Impact Study (DEIS) is signed by FHWA, whichever is appropriate. The PHOH is conducted in the same manner as the PIOH and generally last three hours. Project representatives (including consultant's working on the project) must attend these meetings and be prepared to discuss the project and answer questions. Purpose: to exchange information between GDOT and the public prior to making a commitment to the location and design of the project. Guidelines for conducting a PHOH can be found in chapter 4 of GDOT's Environmental Procedures Manual, which is available at http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/GDOT-EPM-Chap04.pdf

Teleconference Meeting: A telephone or video meeting between participants in two or more locations about a project. Purpose: Allows a broad range of geographically dispersed participants to be involved in an information exchange or working session; save time and travel costs.

Workshop: A meeting format that involves asking attendees for input on a series of predetermined questions or topics. *Purpose*: Workshops work well for soliciting feedback on a narrow range of issues. Use workshops to bring together technical experts, carefully selected stakeholders, or the public.

Visioning: A series of meetings focused on long range issues involving a broad spectrum of people to generate ideas, set goals and priorities and to help formulate policy direction. *Purpose*: Sets the stage for long range planning activities; provides review of existing policy; sets new policy direction; provide stages for a wide variety of ideas and a range of potential solutions.

Mobile Exhibit: A static or interactive display of background and current project information which can be transported to many locations over a prolonged period of time to facilitate public access at a local or regional activity center or special event location. *Purpose*: Facilitate information dissemination, response collection and project awareness by bringing information to public gathering places; makes possible usage of a single display format at many sites over the course of a prolonged time span.

Negotiation: Bargaining between two (or more) interests. It can be conducted directly by the concerned parties or can take place during the mediation process. *Purpose*: In negotiation, the concerned parties meet to resolve a dispute.

Newspaper Announcement: An announcement placed in local newspapers intended to reach a wide audience in a particular region. *Purpose*: Disseminate to a broad audience, increase interest and recognition of project, and present a uniform message framed by the project team.

Round Robin: A fast-paced brainstorming technique in which participants sitting around a table are each given a choice to briefly offer a response or to hand off to the next person. Each response is recorded. Typically, only 10-15 seconds are spent on each individual so short quick responses are a necessity. Rounds continue until two full passes are made with no new responses. (See Brainstorming, Freewheeling)

Survey Types:

Key Person Interview: A one-on-one discussion about specific project topics or issues with key stakeholders, community leaders, opinion leaders, agency representatives and interested parties who represent the opinion of broader constituencies. *Purpose*: Obtain informal information and opinion early in the process or just prior to decision-making; identify issues of concern and desired agendas and outcomes from the project from a variety of key sources; assist in formulating a public involvement program.

Polling: Involves the formal or informal observation of the opinions of a group of people over time, during key project milestone points in the development of a project or program. Can involve a test or base group that is consistently polled as well as the polling of a random sample of people to validate the results from the group. *Purpose*: Gauge public opinion/reaction/support for a program or idea; provide a tool to evaluate progress toward community consensus for a project.

Public Opinion: A formal or informal survey questionnaire, to be administered by telephone, via mail or through in person interviews and a format for the analysis and presentation of results. *Purpose*: Assesses a broad range of public opinion; shows public reaction to proposed actions or issues; portrays perceptions and preferences; enhances understanding of public concerns and issues.

Telephone Surveys: Telephone surveys or interviews can be used to elicit responses to specific project questions could potentially provide statistically significant information that can be generalized to the public. Calls could be made to randomly generated project area residents representative of a cross-section of the broader community or to residents in specific sub-segments of the community. *Purpose*: Provide current sense of community awareness of and opinion on specific issues related to the project using a representative cross-section of community residents or a targeted sub-segment of the community; can be conducted throughout the entire project area.

Telephone Hotline: An established, well publicized, toll-free telephone number open most or all hours. A staff person can receive and respond to calls or a recorded message can provide information when staff is unavailable. There should be established policies for responding to calls. *Purpose*: Allow anyone with access to a telephone to contact a project representative with a question or comment and receive a real- time response; provide a means to disseminate pre-recorded, framed project information; provide a gauge of public opinion and a means to expand database.

Visual Imaging/ Displays/ Informational Display: Electronic displays of information including computer graphics, photo mosaics, GIS systems, video brochures and simulations and visualizations; allows the public to interact with computer based information. *Purpose*: Enhance interactive communication; allow effective incorporation of public input over a series of meetings; allow the visual presentation of complex concepts simply; illustrate community future. Refer to Appendix H for additional information on Visualizations.

Website/Web Page: An on-line website or web page with a specific electronic address (URL) where people can view general project information. Project websites/pages typically offer project information in a downloadable form as well as project contact information. Websites offer a distinct advantage over newsletters in that information is continuously available. *Purpose*: Disseminate most current project information to a wide audience using a continuous communication medium; allow people to review project information and formulate questions without a large amount of staff time.

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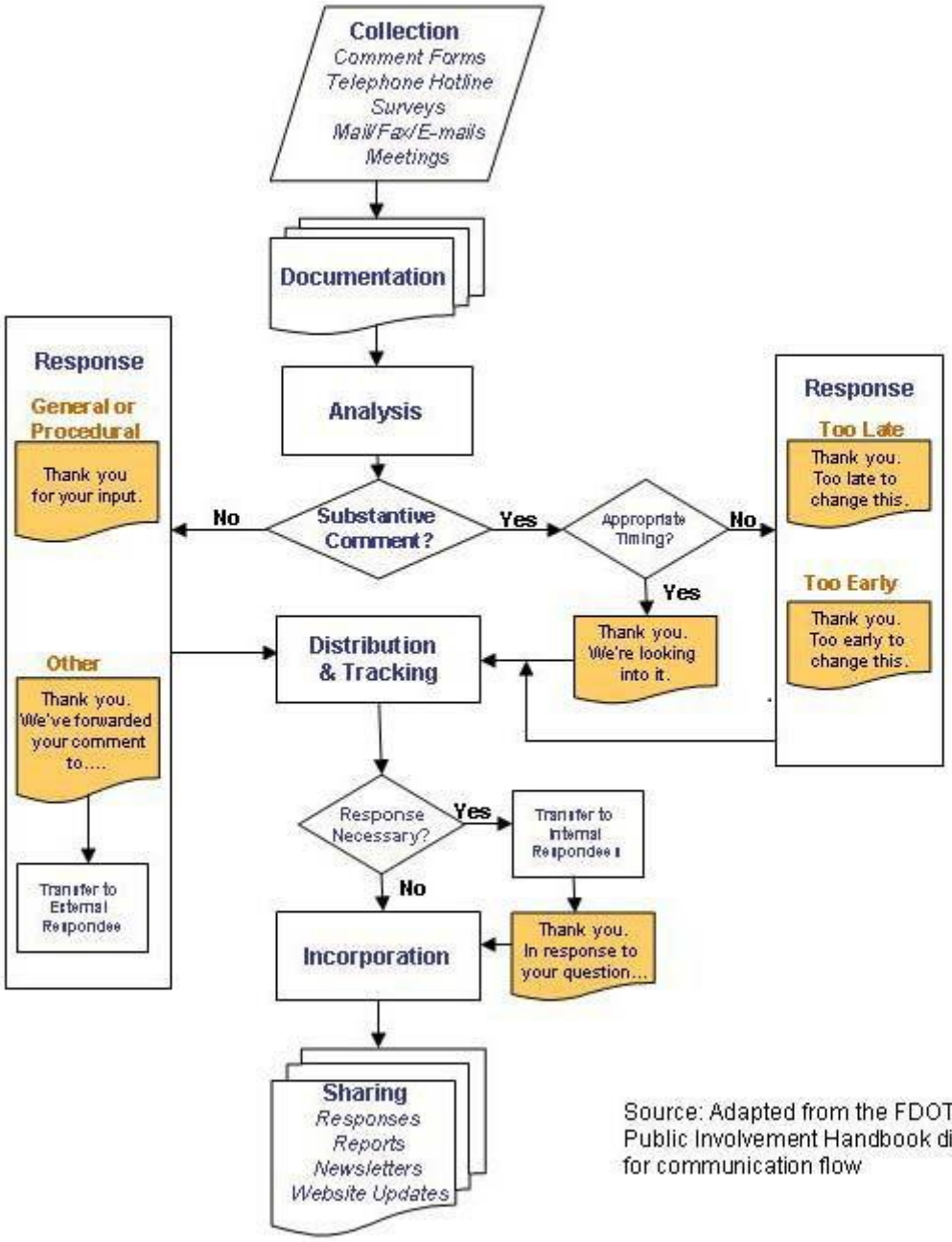
Appendix E. Public Comment / Communication Process

Written or verbal comments represent the most common way for the general public to relate their concerns and ideas about a transportation project, public comments also help to build a thorough understanding of community issues and needs, which are vital in finding Context- Sensitive Solutions. A key element of the public comment process is to communicate back to the participants how they influenced the decision.

The public comment process involves:

- **Collecting** comments from comment forms, surveys, records of telephone conversations, e-mails, and letters.
- **Documenting** when the comment was received, the form in which the comment was received, date acknowledgement sent, and flag any comments that require a response
- **Analyzing and categorizing** comments and determining the appropriate responses
- **Acknowledging** all comments received
- **Distributing & Tracking** comments, which can be facilitated by using a database to categorize comments by issue, type of stakeholder, etc. may be useful for large or complex projects
- **Responding** to public and agency comments and questions regarding the project
- **Incorporating** comments, questions, and responses in the public involvement activity report, involves taking comments to the project team and CAC, and considering them in the decision-making process
- **Sharing** to demonstrate to the public how and where public comments have helped the project team to identify and resolve issues

Figure E.1 below illustrates how these elements work together.



Source: Adapted from the FDOT Public Involvement Handbook diagram for communication flow

Documenting Public Involvement Activities

Effective or meaningful public involvement clearly represents more than regulatory guidance. It serves as an important underpinning for achievement of CSS, relevant during each step in the CSS process.

Transportation Research Board

FHWA requires very specific documentation of public involvement activities. The completion of Environmental Assessments (EA), Environmental Impact Statements (EIS) and Categorical Exclusions (CE), also have specific requirements on how to properly document public involvement.

Accurately documenting documentation of public activities offers many benefits to CSS projects:

- It helps to create a record of commitments that have resulted from public outreach activities
- It can effectively demonstrate to the public that their feedback was taken into consideration during the decision-making process.
- It provides a community information resource for the project team

Public Involvement Reports

GDOT's Public Involvement Plan requires standardized reporting procedures that allow for evaluating all staff efforts and tracking outreach follow-up needs. These reports include:

Speakers' Bureau Assignment Form: A form to be completed by the DCO as soon as a request for a speaker is received. This form provides the ambassador essential information about the requested speech as well as the requested topic. This form is completed, and forwarded by e-mail to the ambassador.

Ambassador Report: A report to be completed by the ambassador immediately following the speech and given to the District Communications Officer (DCO). It can be completed by hand by the ambassador—by simply writing in the responses and giving the form to the DCO. This form will show the date, time, speaker, topic of speech, organization, location, number of attendees, comments, questions, whether the event met specific community needs, how events could be improved and audience questions to be answered. This information will be keyed into the database by the DCO.

Speakers Bureau Database: a clearinghouse for all Speakers' Bureau activity. The ―Ambassador Report‖ information must be entered promptly in the ―Database Link to Weekly Activity Report‖ section. The info keyed into the database will automatically link to the DCO's Weekly Activity Report form.

Weekly Activity Reports: Reports to be completed by DCO's on a weekly basis. This report gives a synopsis of all public outreach and media activity, on-going projects and other controversial issues or projects within the District and is submitted to the Office of Communications and upper management.

Comment Logs: Logs which are included in the Ambassador's Report to track verbal comments, questions and requests for information. This is important because all comments, not just those submitted in written form, must be accounted for and responded to. This form does not apply to written comments, which will be tracked through comment forms typically used at meetings.

Comment Cards: Cards or forms that should be offered at all public information events, including speeches, exhibit events, etc. giving the general public the opportunity to comment on different issues within the department and to have the opportunity to receive an answer to their questions or comments. Comments will be included in the transcript for public hearings. For public meetings or other outreach events, the comments will be compiled and the necessary responses written by the office in charge of the outreach activity.

OEL Report: A report completed by the Office of Environment and Location NEPA officer.

Electronic copies of referenced forms and additional information about these reports can be found in the GDOT Public Involvement Plan.

Appendix F. Project Website Tools and Applications

At a minimum, a project website or webpage should include the following:

Project Description – As you would in a project fact sheet or newsletter, describe your project in layman's terms. Remember to include project location information, because website visitors could be from anywhere in the world. Consider complementing the website with graphics or visualizations, but be mindful that the use of too many graphics will hinder the performance of the website – especially for those who are on a slower internet connection.

Contact Information – While websites are useful for informing, by providing contact information such as an e-mail address, telephone number, and mailing address, important feedback and questions from site visitors can be obtained. Additionally, you may find that new or previously unidentified stakeholders express an interest in the project.

Additional website tools that facilitate coordination and communication include:

Downloadable Documents – Post documents, such as project fact sheets or newsletters, final reports, preliminary plans, visualizations, or meeting minutes for public review. Documents should be in a common/standard file format, such as Microsoft Office or Adobe Acrobat (.pdf). For additional information visit: http://www.Adobe.com.

Guest Book – A Guest Book allows visitors to interact with the project team and provide important feedback on the site may be used on the website. A Guest Book can also help to collect visitor e-mail addresses. Automatic responses can be e-mailed to those who make Guest Book submissions, and Guest Book submissions can be filtered for profanity.

Sample Guest Book

Hit Counter – A display on your website that shows you how many times visitors viewed or —hit‖ a certain web page on your website. Quantitative reports provided by the counter allow you to better understand how visitors use the website.

Photo Gallery – Photo gallery or photo album is a feature that allows you to display several images as —thumbnails‖ (smaller images that visitors click on to enlarge the image). Consider using a photo gallery to display several design options, before and after photos/visualizations, or to show the progression of construction as used in the sample below:

Message Board – A message board is a special web page that provides a forum for topic-specific conversations. Message boards allow you to engage website visitors, who can view and post messages on various subjects.

Sample Message Board

Online Polling - An online poll can be used to garner input from website visitors and generate interest about certain topics. Website polling can be programmed such that real-time e-mail alerts advise of when new responses to the online poll are added.

Sample Online Poll

Source of definitions and images: http://www.networksolutions.com

Appendix G. Design Opportunities

G.1. Pavements

CSS projects have opened up new opportunities for sidewalks and pavement design. While concrete and asphalt may still be the appropriate material of choice for many situations, it may be more contextually appropriate to use a type of concrete unit paver or real brick, or even decorative stamped concrete in other situations.

The width of the sidewalk will also help to dictate the pavement choice and design detail. A wider sidewalk may have opportunities for varying pavement types to highlight certain areas or to define seating areas, etc., while a narrow sidewalk might be best served with one pavement choice along its length. The types of decorative pavements seem endless, but most times the existing character of a community will dictate the type of pavement that is most appropriate.

A common issue, or consequence, with the choice of pavements will be the level of maintenance required and its long-term maintenance requirements. If there is strong community support, such as a local government association willing to take over some maintenance responsibilities, then a dry-set decorative paver may be an appropriate choice for long-lasting beauty. However, where maintenance might be lacking or non-existent, then a poured slab may be appropriate, such as ―stamped‖, colored, or plain concrete.

All pavements must meet ADA guidelines for accessibility.

G.2. Pedestrian Crossings / Crosswalks

Crosswalks can range from the standard, painted-bar approach most often used by GDOT, to a much more decorative and visually dominant approach. This may include surface treatments to the asphalt to give more aesthetic appeal, or it may be a separate material such as decorative stamped concrete or unit pavers. Both can greatly add to the aesthetic appeal of an area, and greatly add to the traffic calming aspects and pedestrian safety.

G.3. Street Lighting

Choice of lighting can be one of the important decisions made on a roadway project. Decorative lighting fixtures can have a dramatic visual impact on a community and enhance a community's unique sense of place. Choices of lighting include the standard highway luminaires, or something much more decorative in response to the community context. For instance, decorative, vintage-style light poles and fixtures might enhance a local historic district or older residential neighborhood, while a modern-style light standard may be more appropriate for a newer development or suburban neighborhood.

G.4. Signage

Roadway signage is one of those necessary evils on a project, needed for informational and traffic and safety purposes, but too many signs can provide unwanted visual clutter—often more dangerous and confusing to passers-by than having a useful, positive effect.. A uniform system of signage that is consolidated onto fewer poles is often more effective than several single signs mounted on

separate poles. With CSS projects, signage within urban areas may take on a more decorative character, coordinating with other site-furnishings and streetscape features, while signage may be more appropriately low-key on rural roads and scenic by-ways.

G.5. Street Furnishings

Often times it's the smaller details on a project that make the bigger impact. This is particularly true on some CSS projects, where Street Furnishings can dramatically impact the overall character and image of a project, and more importantly, an overall community. Street Furnishings include benches, planters, bike racks, kiosks, bollards, trash receptacles, and other site related elements. Street furnishings provide pedestrians a place to rest and socialize. A typical Main Street may include places to sit, such as benches, low walls, planter edges or wide steps. The presence of pedestrian gatherings reminds motorists that streets have other public uses (*Caltrans Main Street Report*).

No furnishing should compromise ADA requirements. Adequate lighting is also needed in these high amenity areas so that all furnishings are well-lit and do not pose as tripping hazards.

G.6. Roadway / Street Landscaping

Street landscaping makes highly urbanized areas more livable, beautiful and unique to the town. Quality landscaping along the roadway, close to the highway or in medians can increase driver awareness of the immediate environment and may alter driver behavior, resulting in slower speeds and a safer main street.

A row of trees may calm traffic by making the road appear narrower. Street trees add an attractive canopy over the road and may increase comfort for pedestrians. They create comfortable spaces and soften lighting. They cool streets in the hot Georgia summer, and evergreens can provide a windbreak in the winter weather. Trees also create distinctive identity and seasonal interest. (*Caltrans report*) Tree planting and landscape requirements within state highway rights-of-way, refer to GDOT Standards (MOG 6160)

Landscape Architects should review any proposed plant material and recommend appropriate installations related to aesthetics, safety (e.g. sight distance requirements), cost, and maintainability. The characteristics, growth habits, and species are very important when selecting street trees and other plant material. Special consideration should be given to the root system and the characteristics of the tree at maturity. All plant material requires regular maintenance. Proper selection and placement of plant material will ensure reduced maintenance problems and increase safety for highway users and workers. (*Caltrans Report*)

Success of street tree plantings has been marginal with transportation projects all over the country for decades, due to numerous factors, such as lack of growing area, soil compaction and poor soil conditions, impervious pavements, harsh weather conditions (wind, droughts, deluges, etc.), etc. However, this lack of success is beginning to change with newer technology and creative ideas. The use of — "structural soil mix," as developed by Cornell University, has become a successful and proven method for street tree plantings, particularly those surrounded by a sea of pavement.

Additional information can be found at the following websites:

http://news.nationalgeographic.com/news/2004/09/0910_040910_urbantrees.html;
http://www.hort.cornell.edu/uhi/outreach/csc/ssoils/index.htm;
http://www.urbanforestrysouth.org/Resources/News/NewsItem.2004-09-10.3040/view

G.7. Banners and Flags

The choice to place banners on light poles along a main street is one that typically comes through a business or community organization, or one that is organized through the municipality. Decorative Banners are often used by communities to convey and identity or image, and to add some colorful interest to a local street. Many times the banners change periodically to commemorate certain community events and happenings, or to celebrate a specific holiday season. Sometimes Banners and colorful or patriotic flags will be used as a fund-raising tool for a downtown association or another worthy cause.

G.8. Public Art

There is often a local desire to make public spaces and thoroughfares in an area more context-sensitive to the local community to reflect the aesthetic, cultural and environmental values of the community. Well-conceived art forms, properly located, can enhance the experiences of those passing through and enrich the environment of neighboring communities. Public Art can take many forms, such as bronze sculpture, steel-work, carved boulders, etc., and can be subdued or vibrant and colorful. This is an important design choice that will need to involve a large voice from the community.

G.9. Gateway Features

Many communities struggle to establish an identity, or some want to capitalize on an already existing vibrant image or identity. Often, strategic placement of gateway features can highlight the entrance to this special place and help to alert motorists that they should slow down as they pass through. Some gateways are very subtle, only involving a simple sign or some plantings, while others can be large and bold, with large masonry walls, water features, grand gardens and bold signage, etc.

Photo Source: Intown Neighborhoods at Brandenfellman.com

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Appendix H. Visualization Techniques

H.1. Models and Simulations

In many cases, traffic operational issues are a concern either to technical stakeholders or the general public. Traffic operational concepts can be difficult even for technical professionals to grasp. The effects, for example, of increased traffic on queuing, delay, and operations are not linear, and are often not well understood. Simulating vehicles or vehicle streams through complex locations such as closely spaced intersections, or through roundabouts, is a useful tool to demonstrate operations.

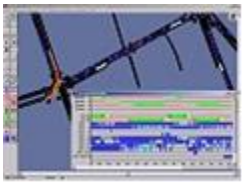
Best practices include FHWA's CORSIM model (which provides detailed quantitative output and animation of traffic operations through an integrated network comprised of arterial streets and freeways). Other software tools include VISSIM, SIMTraffic, Parametric, and Synchro.

VISSIM

VISSIM is a microscopic, behavior-based multipurpose traffic simulation program. Typical uses include:

Analysis of existing conditions and low cost retiming efforts.

Comparison of design alternatives (roundabouts, intersections, and grade separated interchanges)



Traffic management systems analysis, such as alternative route control, traffic flow control, access control and special lanes

Feasibility analysis of large networks (e.g., motorways) with alternative route choice using dynamic assignment engineering tasks, such as capacity analysis of railroad block section

Simulation of traffic-calmed areas including all relevant road users

Simulation and visualization of pedestrian flows, such as at a transit interchange (bus and metro).

Image and information source: ptv Traffic Mobility Logistics, http://www.ptvgroup.com/en/welcome-to-the-ptv-group/

SIMTRAFFIC

SimTraffic performs micro simulation and animation of vehicle traffic. With SimTraffic, individual vehicles are modeled and displayed traversing a street network. SimTraffic models signalized and unsignalized intersections, and freeway sections with cars, trucks, pedestrians, and busses are be modeled. Unlike some of the competing models, animation is displayed while the simulation is performed. Input is very easy and productive, in most cases all that is needed is the same data used within Synchro.

Image and Information Source: http://www.trafficware.com

Synchro

The greatest value can be obtained from simulations where calibration (i.e., replication of operations as they occur and are observable by stakeholders) is possible. Simulation then can be particularly effective in showing, for example, the queuing and resulting other problems that might occur if no action were taken and traffic increased.

Additional information on these and other traffic analysis tools can be found in FHWA's Online Traffic Analysis Toolbox (http://ops.fhwa.dot.gov/trafficanalysistools/toolbox.htm)

H.2. Illustrations

Sketches/illustrations can be used to communicate a variety of concepts throughout planning and design.

Illustrated Plan Views

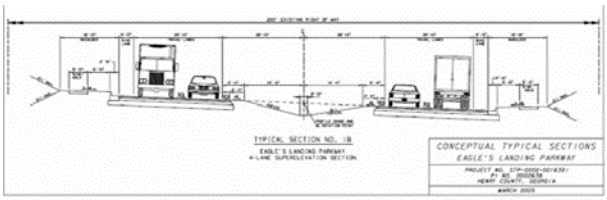
An illustrated plan view is a view of the project taken from directly above that is graphically enhanced. Illustrated plan views are one way intended landscaping can be communicated to the public, as in the below image of U.S. 1 in Cocoa, Florida:

Source: Ivey Harris & Walls. Cocoa, Florida US 1 Final Design Widening

Cross Sections

There are numerous ways to illustrate project cross sections so that stakeholders have a better understanding of design dimensions:

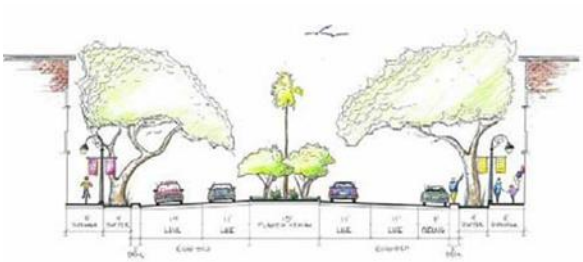
Simply adding vehicles to a typical cross section provides a point of reference for a super-elevated section of Eagles' Landing Parkway, shown below:



Source: GDOT Public Outreach Website - Eagles Landing Parkway Widening Project:

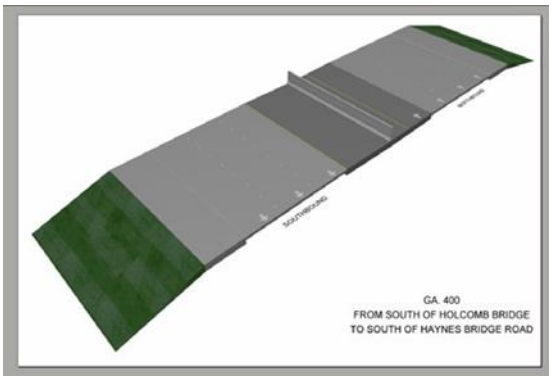
http://www.dot.ga.gov/PS/Public/PublicOutreach

Adding landscaping and aesthetic treatments in addition to pedestrians and vehicles adds to the visual appeal of this cross section for Dr. Martin Luther King, Jr. Blvd. in Savannah, Georgia:



Source: Dr. Martin Luther King, Jr. Boulevard. Savannah, GA

The below 3-dimensional, bird's eye view of the GA400 was used recently at the Public Information Open House:



Source: Public Information Open House Displays for GA400 NH 056-1(59) PI #722010

Isometrics

An isometric is a type of 3-dimensional drawing that does not use perspective. An isometric drawing shows two sides of the object and the top or bottom of the object.

Isometric drawings can be used to illustrate how proposed improvements will fit into the community landscape from a broad perspective or in relation to landmarks, as shown in the images below.

A rendering of a section of the I-16/I-75 Project in Macon, GA - Second St. from Walnut St. to Emery Hwy. Inset is the existing highway Source: GDOT, http://www.i16i75.com

Above, an isometric drawing of the Proposed Lengthening and Reconstruction 14th Street Bridge Source, produced by Peter Drey & Company: https://por.dot.ga.gov/projectInfo/0001298/JPG/14thstbridgerender.pdf

Renderings

Renderings are typically photo-realistic 3- dimensional drawings in perspective of proposed improvements to a facility.

Consider using renderings to illustrate before and after scenarios for proposed alternatives.

Source: Parsons. Richmond, NY Traffic Improvement Study