

Context Sensitive Solutions in the Design of Texas Transportation Infrastructure

North Central Texas Council of Governments

Context Sensitive Solutions is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. Context Sensitive Solutions is an approach that considers the total context within which a transportation improvement project will exist.

The Texas Department of Transportation has identified, and the Regional Transportation Council also supports, five goals in relation to planning, designing, building, operating, and maintaining the State's transportation system. These goals are to:

- reduce congestion
- enhance safety
- expand economic opportunity
- improve air quality
- increase the value of transportation assets

The integration of Context Sensitive Solutions in the design of transportation facilities will assist TxDOT in achieving these goals.

Reducing Congestion

Context Sensitive Solutions help to reduce congestion by creating walkable communities. With the application of Context Sensitive Solutions design principles, urban circulation networks will accommodate pedestrians, bicycles, transit, freight, and motor vehicles with the allocation of right-of-way on individual streets determined

through the Context Sensitive Solutions process. Transportation networks will provide safe, continuous, and well-designed multi-modal facilities that capitalize on development patterns and densities that make walking, transit, and bicycle travel efficient and enjoyable. Trip distances are reduced for all users. Shorter distances, together with a walkable streetscape, create a walkable community. All this leads to a reduction in vehicle miles traveled, which in turn reduces overall congestion.

Enhancing Safety

Context Sensitive Solutions helps to enhance safety by matching the capabilities of a range of transportation users to the planning and design of facilities. Selection of appropriate speed and design elements, with consideration of pedestrians as a preferred user group, allows for a safer multi-modal system. Design principles such as dedicated bicycle lanes, pedestrian buffers, and mountable medians help organize space in the transportation network, thereby enhancing safety for each user group.

Expanding Economic Opportunity

Context Sensitive Solutions help to expand economic opportunity by complementing buildings, public spaces, and landscapes, with transportation facilities fitted to the needs of the adjacent community. This can be done with the goal of supporting the economic activities associated with adjacent and surrounding land uses. Through the application of Context Sensitive Solutions principles, high levels of network connectivity are achieved. This leads to greater access to retail, business, and industrial services as well as employment opportunities. Therefore, implementing Context Sensitive Solutions principles will lead to the expansion of economic opportunity.

Improving Air Quality

Context Sensitive Solutions help to improve air quality by reducing vehicle miles traveled (VMT) and employing efficient and effective use of resources. High levels of network connectivity, combined with an emphasis on walkable communities and a multi-modal transportation system, reduce VMT by decreasing the number of vehicles on the roadway and improving the flow of traffic. Also, use of bicycle and pedestrian facilities and public transit reduce the number of cold starts, thus positively impacting air quality. Context Sensitive Solutions principles focus on the best use of environment-specific resources and the maximization of efficient design and construction practices, thus leading to improved air quality.

Increasing the Value of Transportation Assets

Context Sensitive Solutions help to increase the value of transportation assets by complementing value capture programs. Value capture recognizes that with each transportation investment a marginal improvement or decline occurs in the value of the surrounding land. This value can be measured in two ways. First is the actual value of a parcel due to a change in access, noise, aesthetics, safety, reliability, or other transportation impacts. Second is the impact of the parcel's land use on the transportation system. A value capture program aims to 1) make transportation investments that have the positive impacts of reduced congestion, reduced travel times, and less deterioration of the transportation system and 2) leverage this value to build more transportation facilities. The use of Context Sensitive Solutions principles encourages the development of a multi-modal transportation system that will increase the value of transportation assets by complementing value capture programs.