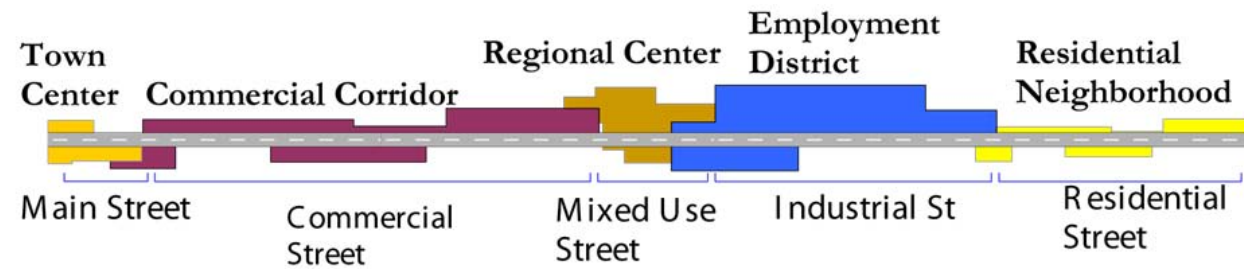


INSTITUTE CONTEXT-SENSITIVE SOLUTIONS AND DESIGN

“Context sensitive solutions (CSS) 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. CSS is an approach that considers the total context within which a transportation improvement project will exist.” -- Federal Highway Administration (FHWA)

WHICH MEANS ONE SIZE DOES NOT FIT ALL!



Common planning and design standards for transportation are established at a national level for construction and maintenance of a safe and efficient transportation system that is predictable and uniform across an interconnected and interdependent conglomeration of states, regions, and municipalities. These guidelines are based on “best practices” that are continually progressing from theoretical and empirical research. Federal transportation policy for the development and application of design standards is a reflection of need from a host of governmental units, advisory groups, and constituencies through a federal legislative process.

Historically, planning and design standards were formed from theories of economics, demographics, community development, and engineering theory and application. More recently these standards have been questioned as to their influence on urban sprawl, dysfunctional disconnected communities, air quality and the overall relationship to runaway energy consumption. These sustainability-based initiatives have formed a powerful block of public interest. Smart Growth, Complete Streets, Transit- Oriented Development (TOD), New Urbanism, Walkable Communities, Safe Routes to School, and Context Sensitive Solutions are interrelated concepts. They have positively influenced the form, policy, and expenditures of the last several Federal Transportation Acts and the related missions of both the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). The American Association of State Transportation Officials (AASHTO) has just released guidance to context sensitive design as a set of alternative roadway design standards. The current governing AASHTO standards, often cited as limiting creative community based transportation system development, are now being supplemented by a draft Proposed Recommended Practice for Context Sensitive Thoroughfares, prepared by the Institute of Transportation Engineers (ITE) under the sponsorship of the Congress for New Urbanism (CNU), FHWA and EPA.

The landmark ITE publication’s recommendations have been guided by a team of national experts in transportation planning, design and engineering with the tutelage from the founders of CNU to form the connection of transportation and land use. The knowledge base of this team was augmented with research and observation of the European experience of placemaking in communities such as the Netherlands, Great Britain, and Denmark. Additionally, case studies of several American cities, including San Francisco, Seattle, Portland, and Boulder, and even Chicago and New York City, places associated with congestion but also with urban vitality, defined best practices for the publication. These cities demonstrate that concepts such as traffic calming, shared and/or living streets, and pedestrian/bicycle networks integrated with modern transit systems have proven to be extremely effective for safety, quality of life, and economic development “smart growth”.

This table compares a few of the important determinants or design criteria that practitioners use in street design. The conventional approach provides design guidance for essentially two contexts, rural and urban. In the conventional approach the same design criteria is used for urban areas regardless of the intensity or type of development.

The CSS approach provides a finer grain of classification in which the design criteria may change. In addition to context zone, the design criteria divides land use into residential and commercial categories, which further influence the selection of design criteria.

Conventional thoroughfare design is based primarily on functional class, design speed and often is governed by travel demand and level of service criteria. In CSS these are still important criteria, but are balanced with other context-related criteria including community objectives, thoroughfare type and the type and intensity of the adjacent land uses.

To achieve CSD the city must recognize that flexibility in project development and design is necessary to balance safety, mobility, economic development, and environmental issues for new and redesigned urban transportation facilities. The city should institutionalize this stance by adopting the Institute of Transportation Engineer’s Recommended Practice for Context Sensitive Urban thoroughfares and consider the following broad policy changes:

- STREETS DEFINED BUILDING-FACE TO BUILDING-FACE
- HIGH DEGREE OF LAND-USE TRANSPORTATION INTEGRATION
- INCREASED FOCUS ON ARTERIAL STREETS AS PUBLIC SPACE
- MULTI-MODAL CAPACITY AND QUALITY OF SERVICE
- MULTI-MODAL ACCESS AND SAFETY
- ACTIVE RIGHT-OF-WAY AND CURB-SIDE MANAGEMENT
- HEIGHTENED USER-PROVIDER INTERFACE

CONTEXT SENSITIVE STREET CROSS SECTIONS AND IMPLEMENTATION PROCESS

To achieve land use-transportation connectivity and promote neighborhood revitalization and economic growth more flexibility is needed in roadway design and re-design. PlaniTulsa concludes that Tulsa can achieve multi-modal travel and more livable streets using its current network of streets. Creating a process to identify streets in need of re-design and addressing requests from property owners and developers for context sensitive designed roadways is fundamental to the incremental transformation from an auto oriented transport system to a multi-modal, livable network.

The following pages go in detail regarding alternative cross-sections for designing new thoroughfares in Tulsa. However, much like the ITE manual for *Context-Sensitive Solutions in Designing Major Urban Thoroughfares*, this document remains as a guide to implement new street design and not standardized cross-sections based on functional classification. Each new street design should be based on the small area planning process that has either taken place or will take place in the future. The cross sections focus on a number of different street types: Main Streets, Multi-modal Streets, Commuter Streets, and Livable Streets and they are based upon the current standards and are grounded in national standards, such as AASHTO and ITE:

Conventional	CSS Approach
Context: Urban Rural	Context: Downtown Centers Corridors New Residential Existing Residential Employment
Design criteria primarily based on: Functional Class Design Speed Forecast Travel Demand Level of Service	Design criteria primarily based on: Neighborhood plans/objectives Functional Class Thoroughfare Type Adjacent Land Use
	

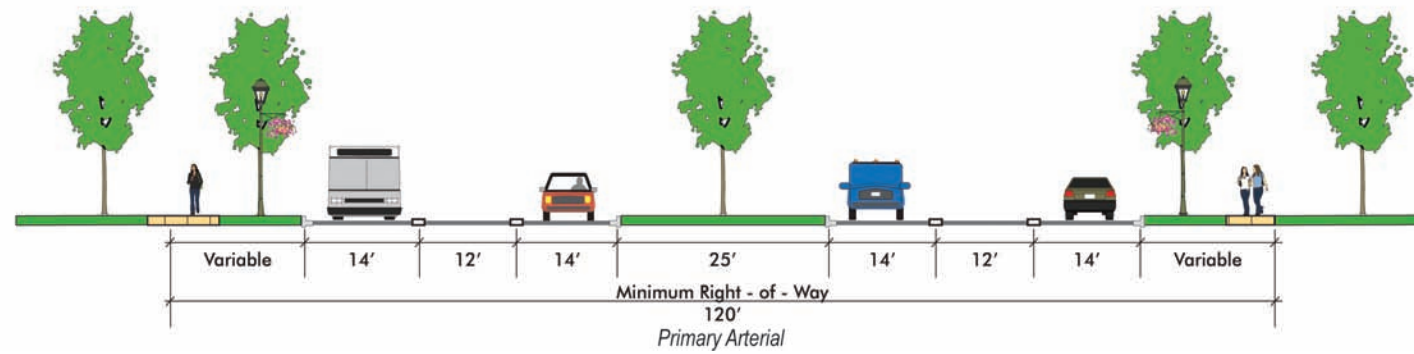
MAIN STREETS

Main streets serve the highest intensity retail and mixed land uses in Tulsa's areas such as downtown and in regional and neighborhood centers. Like multi-modal streets, main streets are designed to promote walking, bicycling, and transit with a continuous urban street frontage and public spaces. Generally, main street activities are concentrated along a two to eight block area, but may extend further depending on the type of adjacent land uses and neighborhoods.

Main streets can be designed with two to four travel lanes, although typically have only two lanes. On street parking usually is provided to serve adjacent land uses. Unlike typical strip commercial developments, main streets offer the ability to park-once and walk amongst various destinations, thus reducing arterial trip making. The key is to create convenient parking that is on-street or provided in a shared public parking lot. Careful consideration must be made to the appropriate amount and design of parking lots or the walkability of a place is in jeopardy.

More emphasis should be placed on making the street frontage walkable and direct walking and biking connections to adjacent neighborhoods thus, tree lawns and detached walks are emphasized. Within the parking lane tree wells may be used to create a double row of street trees in combination with a tree lawn. To further create a pedestrian-friendly atmosphere, main streets have wide sidewalks, street furniture, outdoor cafes, plazas, and other public spaces.

CURRENT PRIMARY ARTERIAL



Volume	•••
Speed	•••
Transit	••
Parking	•
Bike	•
Walk	•

INITIAL PRIORITY ELEMENTS

- WIDE SIDEWALKS WITH TRANSIT ACCESS AND PEDESTRIAN PLAZAS
- BICYCLE FACILITIES
- CURB EXTENSIONS
- TREE LAWNS
- ON-STREET PARKING

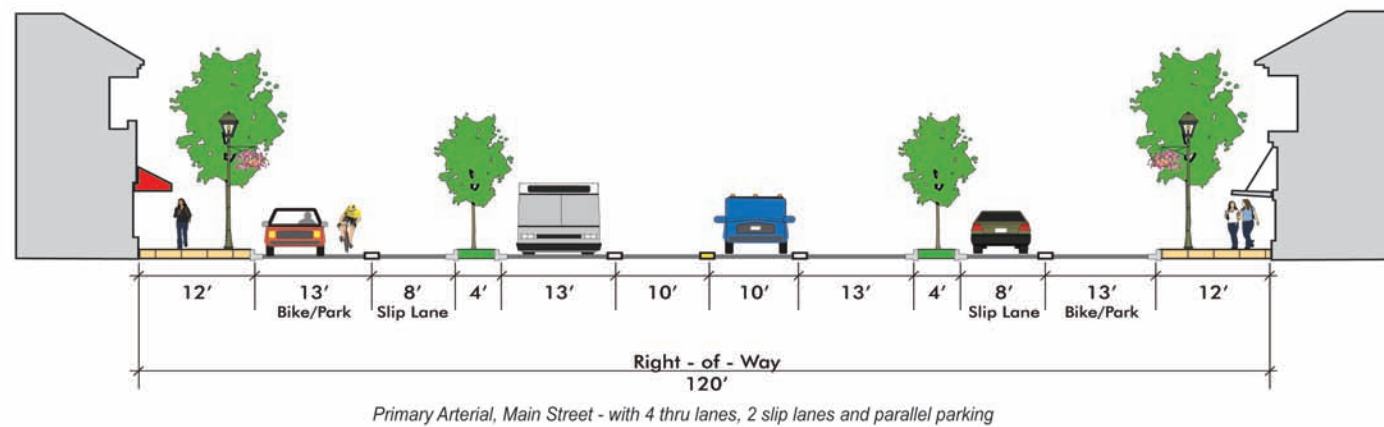
SECONDARY PRIORITY ELEMENTS

- MEDIANS
- WIDTH AND NUMBER OF TRAVEL LANES

EXAMPLES OF TRAFFIC MANAGEMENT FEATURES

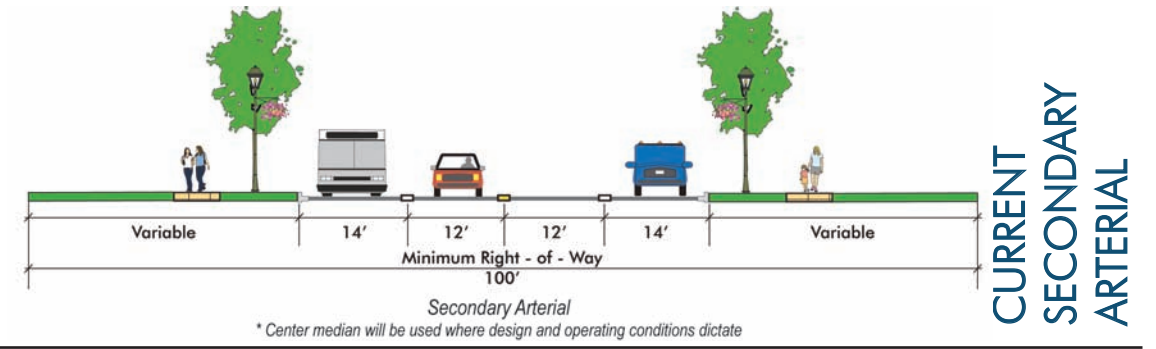
- NARROWER TRAVEL LANES
- ALTERNATIVE PAVING MATERIAL
- TREE PLANTERS IN PARKING LANE
- ON-STREET PARKING
- REDUCED PEDESTRIAN CROSSING DISTANCES AT INTERSECTIONS, USING CURB EXTENSIONS, TRAFFIC ISLANDS, AND OTHER MEASURES
- RAISED INTERSECTIONS
- HIGH-VISIBILITY CROSSWALKS

HIGH SPEED MAIN STREET



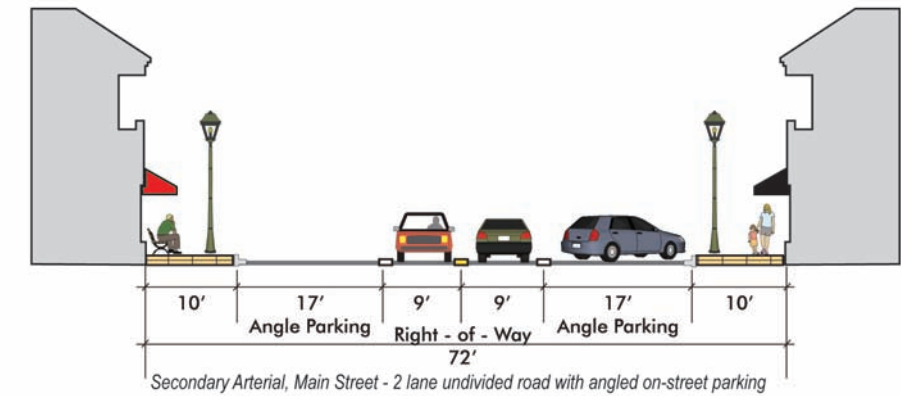
Volume	•••
Speed	••
Transit	••
Parking	•••
Bike	••
Walk	••

Volume	••
Speed	••
Transit	••
Parking	•
Bike	•
Walk	•



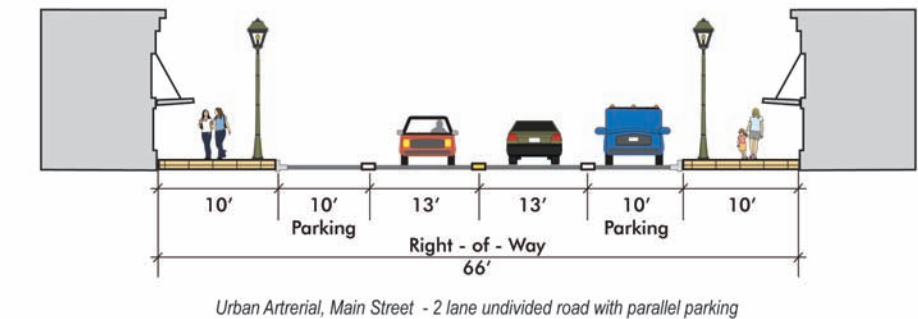
CURRENT SECONDARY ARTERIAL

Volume	•
Speed	•
Transit	•
Parking	•••
Bike	••
Walk	•••



LOW SPEED MAIN STREET WITH ANGLE PARKING

Volume	•
Speed	•
Transit	•
Parking	•••
Bike	••
Walk	•••



LOW SPEED MAIN STREET WITH PARALLEL PARKING

Transportation-Land Use Building Blocks

	Downtown	Centers	Corridors	New Residential	Existing Residential	Employment
Volume	●	●	○	●	●	◐
Speed	●	●	○	●	●	◐
Transit	●	●	○	●	●	◐
Parking	●	●	○	●	●	◐
Bike	●	●	○	●	●	◐
Walk	●	●	○	●	●	◐

- Applicable
- Not Applicable
- ◐ Acceptable

Cross-Section Indicator Key

	•	••	•••
Volume	Low 2,500 - 10,000 Vehicles per day	Medium 10,000 - 20,000 Vehicles per day	High 20,000 - 50,000 Vehicles per day
Speed	Low <25 MPH	Medium 25 - 35 MPH	High >35 MPH
Transit	Poor Narrow Lanes Poor Context	Moderate Normal Sized Lanes Good Context	Excellent Wide Outside Lanes Vibrant Context
Parking	Poor No Parking	Moderate Some Parking	Excellent On-Street Parking
Bike	Poor No Bike Facilities High Speeds	Moderate Some Bike Facilities Medium Speeds	Excellent Bike Facilities, Low to Medium Speeds
Walk	Poor Narrow Sidewalks Poor Context	Moderate Average Sidewalks Good Context	Excellent Wide Sidewalks Vibrant Context

MULTI-MODAL STREETS

Multi-modal streets emphasize plenty of travel choices such as pedestrian, bicycle and transit use. Multi-modal streets are located in high intensity mixed-use commercial, retail and residential areas with substantial pedestrian activity. These streets are attractive for pedestrians and bicyclists because of landscaped medians and tree lawns. Multi-modal streets can have on-street parking and wide sidewalks depending on the type and intensity of adjacent commercial land uses. Transit dedicated lanes, bicycle lanes, landscaping and sidewalk width are higher priorities than the number of travel lanes on this type of street. To complete the street, frontages are required that address the street and provide comfortable and safe refuge for pedestrians while accommodating automobiles with efficient circulation and consolidated-shared parking

INITIAL PRIORITY ELEMENTS

- DEDICATED TRANSIT LANES
- TRANSIT PRIORITY AT INTERSECTIONS
- WIDE SIDEWALKS WITH TRANSIT ACCESS
- BICYCLE LANES ON DESIGNATED BIKE ROUTES
- BICYCLE FACILITIES
- TREE LAWNS
- ON-STREET PARKING

Cross-Section Indicator Key

	•	••	•••
Volume	Low 2,500 - 10,000 Vehicles per day	Medium 10,000 - 20,000 Vehicles per day	High 20,000 - 50,000 Vehicles per day
Speed	Low <25 MPH	Medium 25 - 35 MPH	High >35 MPH
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Bike	Poor No Bike Facilities High Speeds	Moderate Some Bike Facilities Medium Speeds	Excellent Bike Facilities, Low to Medium Speeds
Walk	Poor Narrow Sidewalks Poor Context	Moderate Average Sidewalks Good Context	Excellent Wide Sidewalks Vibrant Context

SECONDARY PRIORITY ELEMENTS

- WIDTH AND NUMBER OF TRAVEL LANES (ON COLLECTOR AND LOCAL STREETS)
- MEDIANS

EXAMPLES OF TRAFFIC MANAGEMENT FEATURES

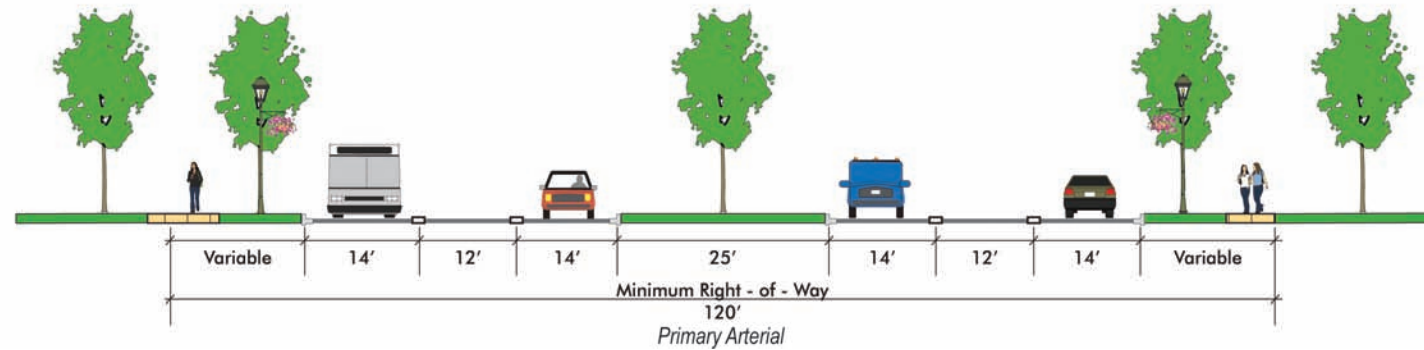
- LANDSCAPED MEDIANS
- ON-STREET PARKING
- STREET TREES
- NARROWER TRAVEL LANES
- TRAFFIC CIRCLES AND ROUNDABOUTS
- REDUCED PEDESTRIAN CROSSING DISTANCES AT INTERSECTIONS, USING CURB EXTENSIONS, TRAFFIC ISLANDS, AND OTHER MEASURES

Transportation-Land Use Building Blocks

	Downtown	Centers	Corridors	New Residential	Existing Residential	Employment
•	●	●	○	●	●	◐

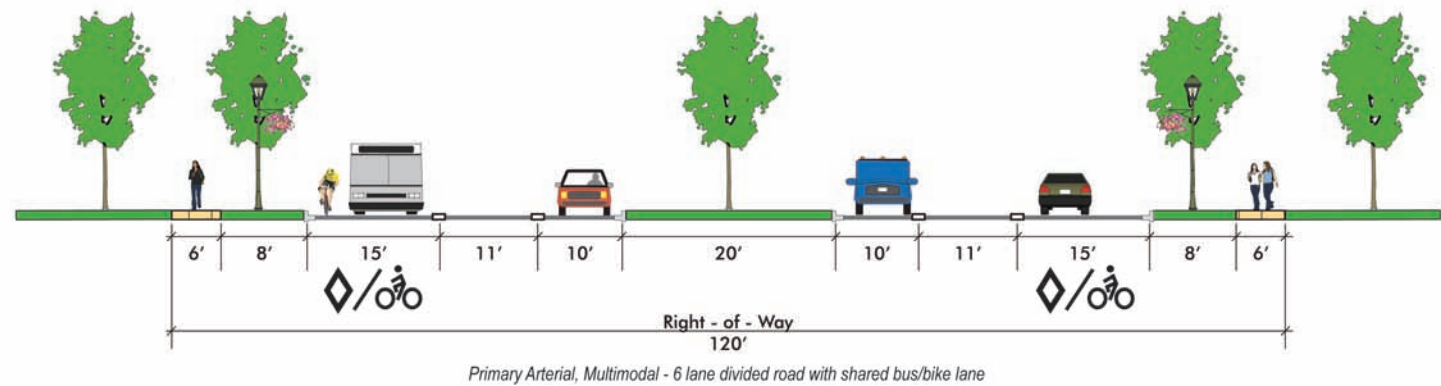
- Applicable
- Not Applicable
- ◐ Acceptable

CURRENT PRIMARY ARTERIAL



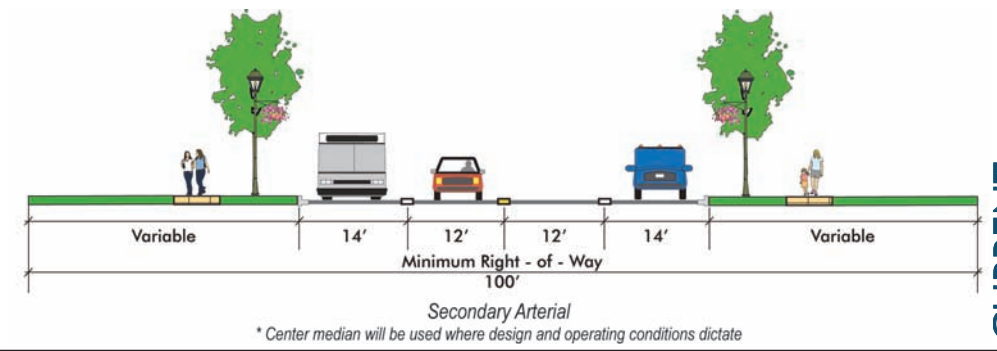
Volume	•••
Speed	•••
Transit	••
Parking	•
Bike	•
Walk	•

HIGH SPEED MULTI-MODAL STREET



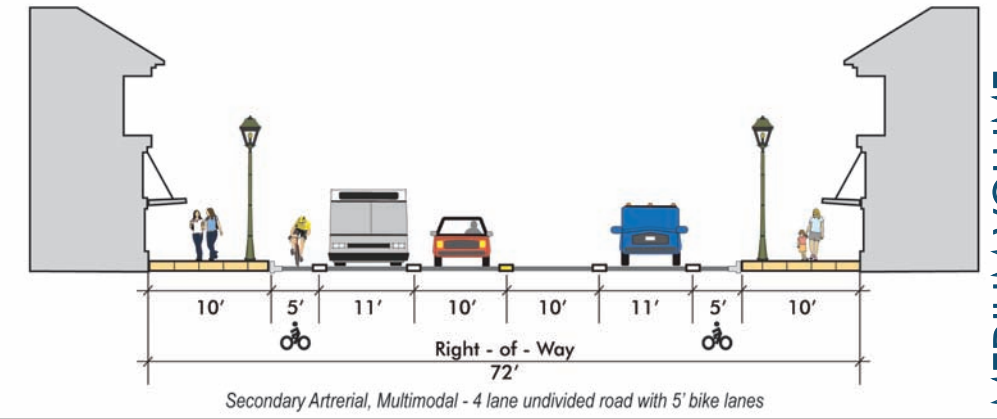
Volume	•••
Speed	•••
Transit	•••
Parking	•
Bike	•
Walk	•

Volume	••
Speed	••
Transit	••
Parking	•
Bike	•
Walk	•



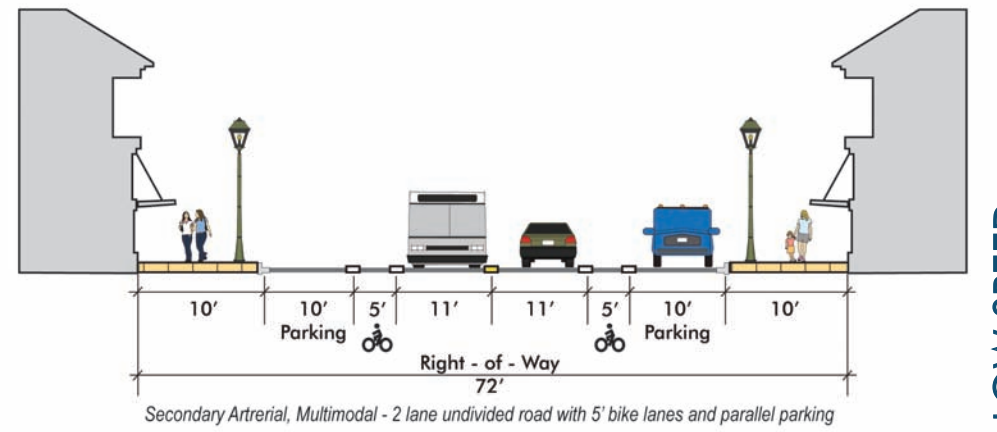
CURRENT SECONDARY ARTERIAL

Volume	••
Speed	••
Transit	••
Parking	•
Bike	•••
Walk	•••



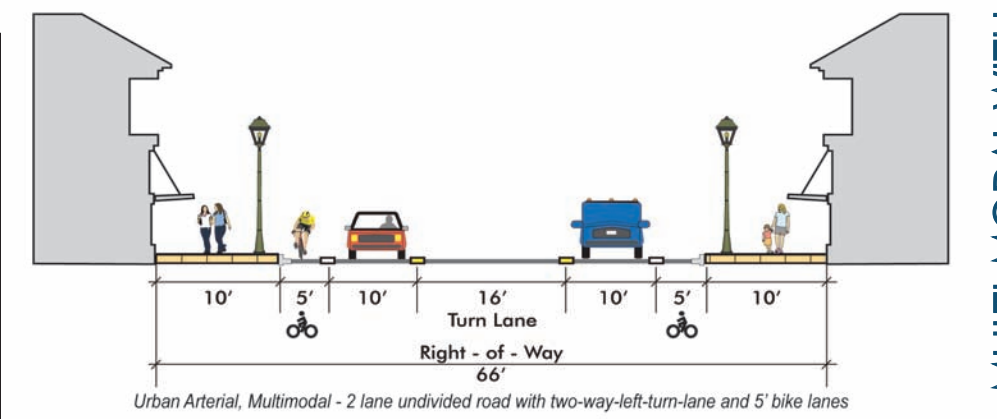
MEDIUM VOLUME MULTI-MODAL STREET

Volume	•
Speed	•
Transit	••
Parking	•••
Bike	•••
Walk	•••



LOW SPEED MULTI-MODAL STREET

Volume	••
Speed	•
Transit	•
Parking	•
Bike	•••
Walk	•••



MULTI-MODAL WITH TURN LANE

COMMUTER STREET

These arterials typically serve commercial areas that contain many small retail strip centers with buildings set back from front parking lots. Because of this, strip commercial arterials have many intersections and driveways that provide access to adjacent businesses. Historically, this type of street often is highly auto-oriented and tends to discourage walking and bicycling. On-street parking is infrequent.

Commuter streets are designed with multiple lanes divided by a landscaped median or a continuous two-way left turn lane in the center. Commuter streets are designed to balance traffic mobility with access to nearby businesses. However, because there are so many intersections and access points on commercial streets, they often become congested. Improvements to these streets should come in the form of access management, traffic signal timing and creative intersection lane capacity improvements.

INITIAL PRIORITY ELEMENTS

- NUMBER AND WIDTH OF TRAVEL LANES
- MEDIANS
- TRANSIT ACCOMMODATIONS

SECONDARY PRIORITY ELEMENTS

- PEDESTRIAN FACILITIES
- BICYCLE FACILITIES
- TREE LAWNS
- TWO-WAY CENTER LEFT-TURN LANES
- ON-STREET PARKING

EXAMPLES OF TRAFFIC MANAGEMENT FEATURES

- MEDIANS
- CONSOLIDATED DRIVEWAYS
- SYNCHRONIZATION OF TRAFFIC SIGNALS
- ON-STREET PARKING
- NARROWER TRAVEL LANES
- REDUCED PEDESTRIAN CROSSING DISTANCES AT INTERSECTIONS, USING CURB EXTENSIONS, TRAFFIC ISLANDS, AND OTHER MEASURES

Cross-Section Indicator Key

	●	●●	●●●
Volume	Low 2,500 - 10,000 Vehicles per day	Medium 10,000 - 20,000 Vehicles per day	High 20,000 - 50,000 Vehicles per day
Speed	Low <25 MPH	Medium 25 - 35 MPH	High >35 MPH
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Parking	Poor No Parking	Moderate Some Parking	Excellent On-Street Parking
Bike	Poor No Bike Facilities High Speeds	Moderate Some Bike Facilities Medium Speeds	Excellent Bike Facilities, Low to Medium Speeds
Walk	Poor Narrow Sidewalks Poor Context	Moderate Average Sidewalks Good Context	Excellent Wide Sidewalks Vibrant Context



SIGNAL TIMING

Having signal timing along a corridor can increase the efficiency of the street by allowing for the most possible amount of vehicles to pass in the shortest time. It also affects the air quality of the city because travel time and idling is reduced. This technique can be used to increase capacity on corridors and is a less expensive option than adding lanes.



ACCESS MANAGEMENT

Access Management is a set of strategies designed to make best use of existing transportation facilities as well as enhancing transportation improvements. Using strategies such as installing raised medians, and providing adequately spaced driveways, access management will significantly improve the level of safety, efficiency, and effectiveness of the transportation system.



ADVANCED SIGNAL SYSTEMS

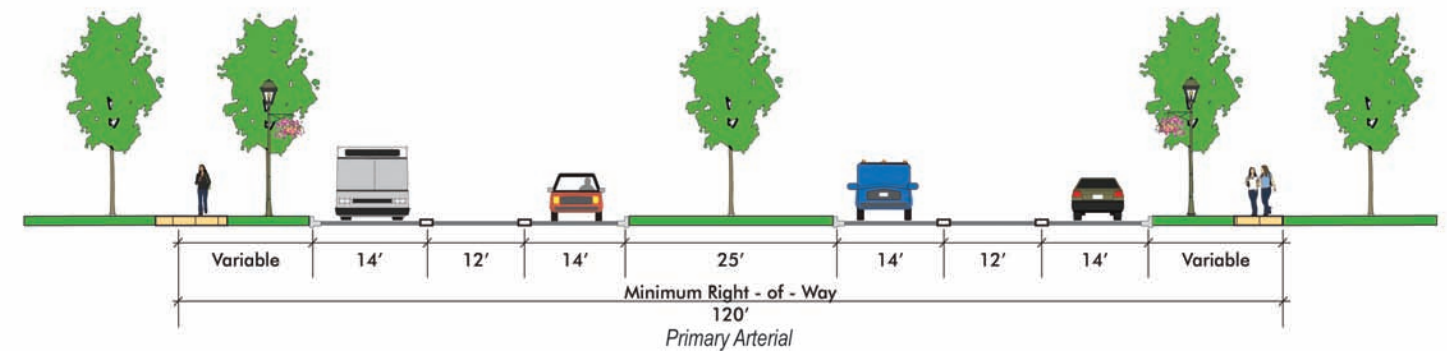
As traffic patterns change throughout the day, the operation of the controller can be adjusted to match the needs at each intersection. The use of actuated technology allows a local controller to adjust the time assigned to each phase to match traffic conditions. The communication to the central location can be utilized to facilitate maintenance of the system and provide control of the system so that the needs during special events can be provided.



INTERSECTION IMPROVEMENTS

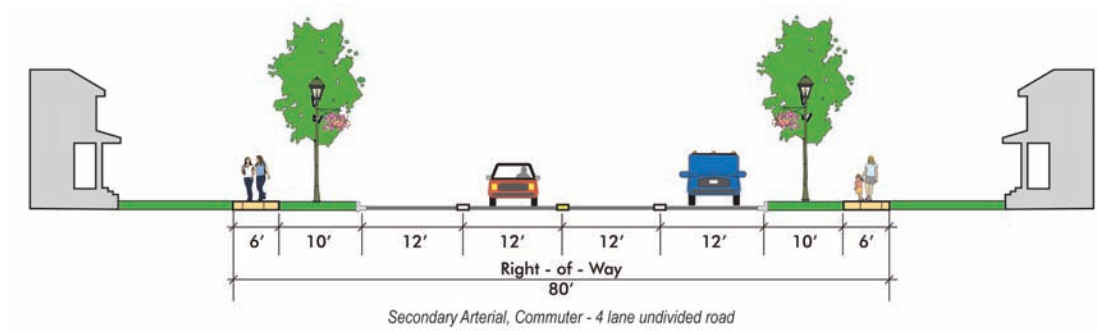
Improvements to congested intersections can have a significant effect on the flow of traffic on commuter corridors. Along with signal timing, introducing left and right turn bays at intersections can increase the potential volume in these areas. Each intersection should be analyzed individually to identify the specific problems related to that intersection.

Volume	●●●
Speed	●●●
Transit	●●
Parking	●
Bike	●
Walk	●



CURRENT PRIMARY ARTERIAL

Volume	●●
Speed	●●
Transit	●●
Parking	●
Bike	●
Walk	●



MEDIUM VOLUME COMMUTER STREET

RESIDENTIAL STREETS

These streets work to strengthen neighborhood cohesion, promote alternative transportation, calm traffic and connect recreational destinations. These residential streets serve two major purposes in Tulsa's neighborhoods in new developments that are building homes with pedestrian frontages that demand a reduced buffer to create a complete street and when retrofitting overly-wide residential or downtown streets with on-streets parking, bicycle and pedestrian accommodations and traffic calming measures.

In both cases, these residential streets tend to be more pedestrian-oriented than commuter streets, giving a higher priority to landscaped medians, tree lawns, sidewalks, on-street parking, and bicycle lanes than to the number of lanes.

Residential streets consist of two to four travel lanes, but place a much higher priority on pedestrian and bicycle friendliness than on auto mobility.

INITIAL PRIORITY ELEMENTS

- SIDEWALKS
- TREE LAWNS
- ON-STREET PARKING
- LANDSCAPED MEDIANS
- BIKE LANES ON DESIGNATED BICYCLE ROUTES

SECONDARY PRIORITY ELEMENTS

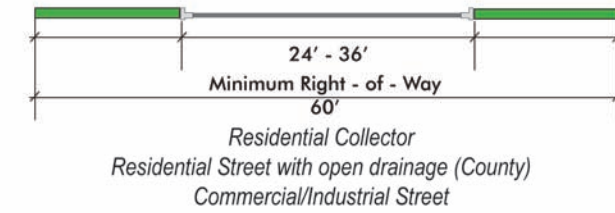
- NUMBER AND WIDTH OF TRAVEL LANES (ESPECIALLY COLLECTOR AND LOCAL STREETS)

EXAMPLES OF TRAFFIC MANAGEMENT FEATURES

- MEDIANS
- ON-STREET PARKING
- STREET TREES
- NARROWER TRAVEL LANES
- TRAFFIC CIRCLES AND ROUNDABOUTS
- REDUCED PEDESTRIAN CROSSING DISTANCES AT INTERSECTIONS, USING CURB EXTENSIONS, TRAFFIC ISLANDS, AND OTHER MEASURES
- DIVERTERS

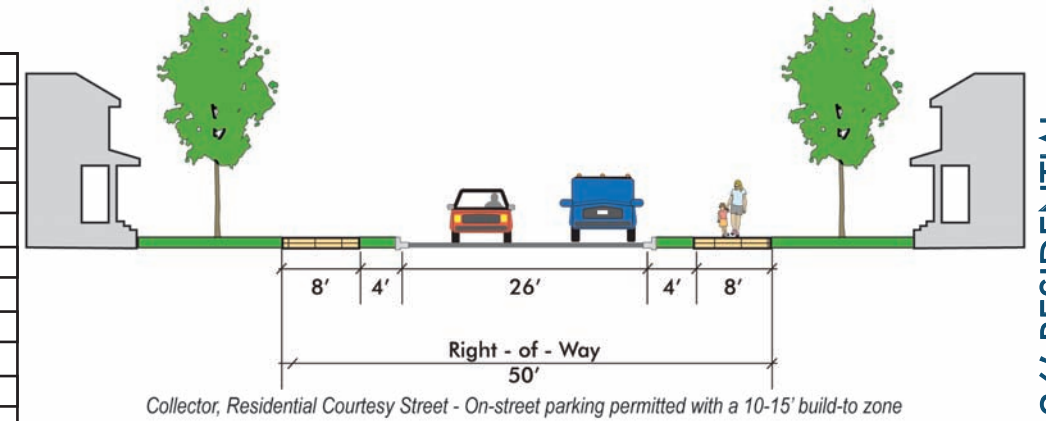


Volume	•
Speed	•
Transit	•
Parking	••
Bike	••
Walk	•



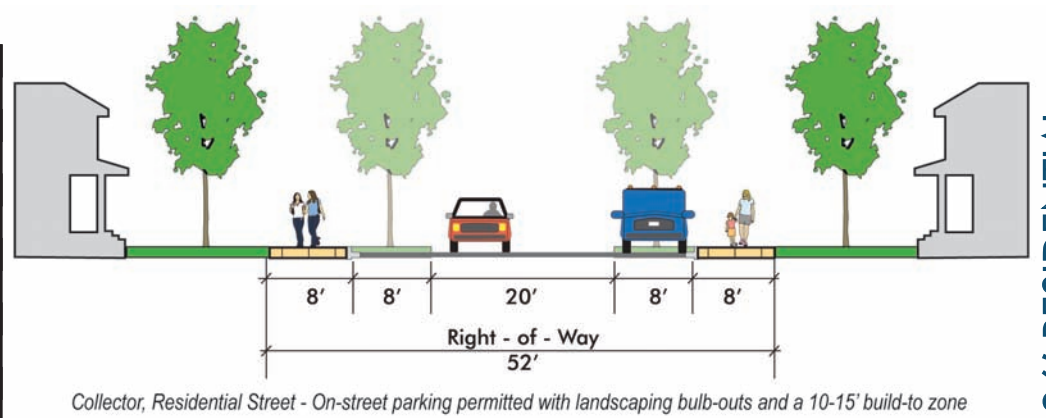
CURRENT
RESIDENTIAL
COLLECTOR

Volume	•
Speed	•
Transit	•
Parking	•••
Bike	•••
Walk	•••



26' RESIDENTIAL
COLLECTOR

Volume	•
Speed	•
Transit	•
Parking	••
Bike	•••
Walk	•••



36' RESIDENTIAL
COLLECTOR*

*EFFECTIVELY 20' OF THRU TRAFFIC

Transportation-Land Use Building Blocks

	Downtown	Centers	Corridors	New Residential	Existing Residential	Employment
	●	●	○	●	●	◐

- Applicable
- Not Applicable
- ◐ Acceptable

Cross-Section Indicator Key

	•	••	•••
Volume	Low 2,500 - 10,000 Vehicles per day	Medium 10,000 - 20,000 Vehicles per day	High 20,000 - 50,000 Vehicles per day
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HOW TRANSPORTATION BUILDING BLOCKS RELATE TO LAND USE

The overarching approach to integrating land uses and transportation facilities is known as Context Sensitive Design (CSS). This process, detailed in the Transportation Chapter, provides more detailed direction for balancing or prioritizing the infrastructure for each mode of travel in the context of the adjacent land uses. CSS takes an interdisciplinary approach to street design that will further encourage coordination between traffic engineers, planners, urban designers, architects, emergency response officials, and the community when designing new streets or reconstructing existing streets. This approach fosters communication with those designing other elements of the community and results in better facilities and places.

IMPLEMENTATION

For the City to successfully use CSS to meet the travel needs of all Tulsa residents it must institute a process for considering citizen and developer requests for its use. In some instances CSS may not be appropriate and the city should maintain its ability to deny requests for flexibility in roadway design. Conversely, it needs an objective process that assures unbiased consideration of legitimate requests.

The following steps will assure CSS is used to the most benefit of the City, its' residents and its' economy:

1. INSTITUTIONALIZE CSS PER THE ABOVE DEFINITION AND DESIGNATE RESPONSIBLE STAFF AND RESOURCES.
2. CREATE PUBLIC INFORMATION ABOUT THE PROGRAM AND MAKE AVAILABLE TO NEIGHBORHOOD ASSOCIATIONS, BUSINESS ORGANIZATIONS AND GENERAL PUBLIC THROUGH THE SMALL AREA PLANNING PROCESS AND THE CITY WEB-SITE.
3. ESTABLISH GUIDELINES FOR RESIDENTS AND BUSINESS OWNERS TO PETITION THE CITY TO CONSIDER CSS.
4. ACCEPT PETITIONS BIANNUALLY AND USE A SELECTION CRITERION TO PRIORITIZE REQUEST FOR FURTHER STUDY, FUNDING AND DESIGN.