Appendix

Appendix Contents

Appendix

Land Use
Small Area Planning

Small Area Planning Process

The following are the major steps in the standardized planning process.

STEP 1

Define Boundary

The first step is to identify a study area boundary. The area should be broad enough to cover the area under study without being so broad as to dilute the focus.

STEP 2

Community Participation

The next step is developing an appropriate and effective community participation strategy for the plan. Selections from a variety of participation methods should be used to form a basic strategy that aims to: inform a broad variety of citizens, provide ample opportunities for interested citizens to give their feedback to the process, and give more active citizens an opportunity to directly interact in the process. Some methods for citizen participation are described here. Depending on the size and complexity, several of these methods may be used for one planning effort.

Citizen Advisory Committee

A citizen advisory committee is a group of informed citizens representing a full range of interests who meet on a regular basis to critically review analysis and products at each step of plan formation. They are useful as a sounding board for new ideas, to ensure that plan content reflects the values of stakeholders in the area, and as a creative force to develop innovative ideas for the small area.

Charrette or Workshop

A useful participation technique is to hold a charrette or public input workshop. These are events in which participants actively design a future for the area using maps, aerial photographs, and drawings. For example, participants may identify how they would like to see land uses change, identify landmarks to be preserved, decide where additional growth should go, use the CSS methodology to define preferred street typologies, and identify key public improvements to enhance the area.

Strengths, Weaknesses, Opportunities and Threats

SWOT (strengths, weaknesses, opportunities and threats) is an effective participation method to engage the ideas of many people on an equal basis. The list that results can be used throughout the process to generate a vision statement, check identified issues, and ascertain that implementation covers the identified needs. It can also help focus planning efforts on those issues that are having the greatest impact on the area.

Newsletters, Often Including Surveys

Periodic newsletters can be delivered through the mail to inform a broader constituency. An early newsletter may contain a response survey. In some cases such newsletters can be distributed effectively through the Internet. The Internet can also provide a medium for response and comment from the public.

Open Houses

Open houses are a good way to inform citizens while giving them the opportunity to interact with planners and stakeholders to 1) get questions answered, and 2) provide feedback directly to a staff person. Open houses also help foster a sense of community in a neighborhood, district, or corridor helping to galvanize support for the planning process.

Organizing the resulting strengths, weaknesses, opportunities, and threats by topic can assist in making it more useful throughout the process. Within the plan document, the appropriate comprehensive plan subject should organize the results of the SWOT analysis.

STEP 3

Assessment—Inventory and Analysis

This is the step in the process in which technical analysis of the plan is completed. Each plan should address the following issues as they apply to the study area:

Environmental Features

Determine the location of environmentally sensitive and constraining lands. The City Planning Department should provide maps and information on the location of environmentally sensitive areas such as flood plains, wetlands, and brownfield sites.

Land Use

Identify the existing land-uses and recent development trends in the area. This analysis should include air photos and field surveys. Each small area plan should review and address the growth concepts in Our Vision for Tulsa and the land use and street designations in and the Comprehensive Plan. In addition, each plan should examine the boundaries of the Areas of Change and Areas of Stability.

THE STEPS ARE:

1. Refine the land use Plan Map by updating and correcting the boundaries of the land use typologies and other geographic errors
2. Refine boundaries of the areas of change
3. Refine boundaries of the areas of stability
4. Compare current zoning with the refined map.

Transportation

Gather and review the following transportation planning items:

1. Functional classification of streets
2. Street design typologies from the Comprehensive and Transportation Plan Maps
3. Transit routes and identify frequencies
4. Bike routes
5. Pedestrian connections, especially related to destinations
6. Planned transportation improvements
7. On street and off street parking capacity, especially in retail or employment areas

Legacies

Legacies have three primary components—historic preservation, urban design, and parks and open space. Define existing landmark structures, landmark districts and design review districts.

1. Identify additional structures and buildings, not historically designated that may have historical significance
2. Identify urban design characteristics to be respected and enhanced
3. Map parks, parkways, open spaces.

Housing

Providing diverse housing options is one of the primary goals of Tulsa's vision and comprehensive plan. Each small area plan should:

1. Identify housing characteristics: Characteristics include predominant architectural styles as well as housing types. Types of housing include single-family residential, townhouses, duplexes to four-plexes, apartments and condominiums.
2. Identify housing trends including recent development activity and sales and rental prices. Identifying trends is useful in unearthing threats and opportunities to the desired vision of the area. Census data and permit data can be used to determine the number and type of housing recently built, an indication of what will be built in the future.

Economic Development

In many areas of the city maintaining and creating jobs is an important goal. Each small area plan should:

1. Define and characterize business or employment areas.
2. Identify other economic generators

Neighborhoods

Neighborhoods are the building block of Tulsa's residential community. For neighborhood plans in particular, it is important to evaluate the neighborhood as a unique entity as well as a part of the city. An inventory of community facilities and services should be conducted. What facilities (schools, libraries, and community centers) and services (grocery stores, shopping, gathering places) are needed in the area? Understanding future needs of a population requires identifying the demographic characteristics of the existing population, and recent trends. Census data, Neighborhood Profiles, and capacity analysis are useful tools to accomplish this analysis. Art and cultural facilities and program requirements are part of identifying neighborhood services as well.

Education (Neighborhood Plans Only)

The presence, location, and accessibility of educational facilities are an important issue for the health of all neighborhoods in the city. Neighborhood plans should:

1. Map schools, both public and private
2. Identify additional school facilities needed in the neighborhood or how existing schools can be better used for recreation, adult education, or other community needs. Recommendations regarding additional facilities are most persuasive if they are supported with demographic trend data.

Human Services (Neighborhood Plans Only)

Identify human service programs currently available and additional program needs of the existing and expected population. Again, this requires identifying the demographic characteristics of the existing population, recent trends, and coordination with the City and other agencies.

STEP 4

Vision Statement

A vision statement answers the question: "what do we want this area to be in 10 to 20 years?" The first step in developing a vision statement is to refine the SWOT analysis given that a set of key opportunities to improve the area should have been derived from it.

Next, write a concise vision statement describing the area at a specific time in the future, for example 10 to 20 years in the future. The vision statement may be organized into a set of guiding principles. Guiding principles are statements of values and goals used to measure implementation recommendations of the plan in terms of how well they meet the area's vision, how well they build upon the key opportunities, and how they address the key threats of the area.

STEP 5

Civic Responsibilities and Citywide Context

An important tenet of small area planning is that neighborhoods must not solve their problems at the expense of adjacent districts or neighborhoods or the city as a whole. Thus, each neighborhood, for example, should attempt to accommodate expected growth in one among several possible ways, so long as growth is not ignored and, therefore, shouldered by another neighborhood.

In addition, each small area should address a set of civic responsibilities that, if addressed, will improve the livability of the city as a whole. An example of a civic responsibility is the provision within each neighborhood of the many different types of housing necessary to accommodate people of different ages and income levels. By addressing this responsibility, Tulsa can be an accessible place for many different types of individuals and families. Small Area Plans should follow the Guiding Principles developed during the PLANiTULSA process to ensure they reflect citywide priorities.

STEP 6

Plan Recommendations

Each recommendation needs to be tied to a goal that defines the desired outcome and an issue that defines the problem. The recommendation is a concise statement about what should be done to solve the problem. Plan recommendations should be organized by goal or issue, which may or may not correspond to the assessment topics.

Once the recommendations are complete, the standard tools can be applied to create an implementation program. The tools fall into three categories – regulatory, public investment or partnership. Some recommendations may need only tools from one category; however, more complex recommendations may use tools from all three categories.

Initiating a Small Area Planning Process

Small area planning is a partnership between the city and its constituents – residents, businesses, institutions, and other government entities. Neither can do an effective small area plan alone. As a result, there is and will be demand for more planning than the city has resources. It is therefore essential to use criteria to evaluate and prioritize requests for small area plans.

PLANiTULSA's Strategic Implementation Plan outlines a number of criteria to establish priorities for small area planning:

- **Key catalytic projects identified in the Strategic Implementation Plan**
- **Evidence of disinvestment; deteriorating housing; and high vacancy, unemployment and poverty rates.**
- **A great amount of change is occurring or anticipated.**
- **Needs for public facilities and /or physical improvements.**
- **Opportunities for infill or redevelopment**
- **Opportunities to influence site selection, development or major expansion of a single, large activity generator**
- **Opportunity for development in conjunction with transit enhancements.**

The Planning Director with assistance from the Planning Commission will evaluate neighborhoods, corridors, and districts using these criteria and establish priorities. The Planning Director will allocate available resources and establish a time frame for initiating a project. Like-minded organizations may be able to supplement city resources by assisting with public involvement and participation in the planning process.

Required Format

For ease of administration, each small area plan should follow the same basic format, which is reflected in the content described above. Within this basic format, flexibility is allowed as long as the minimum content outlined in this chapter is addressed.

In addition to the basic order, and minimum content, each plan should:

1. **Utilize standardized tools**
2. **Summarize recommendations**
3. **Determine priorities among the recommendations**

Tools For Small Area Plans

Land use and transportation conclusions in the plan should use standard tools contained in Tulsa's Redevelopment Toolkit. If a new tool is needed, it will be developed for use in other neighborhoods as well. The use of standardized tools keeps the administrative burden on the City within a reasonable level, and enables recommendations to be more quickly drafted and implemented.

Regulatory Tools

Regulatory tools can be implemented to shape, encourage and discourage future land use changes.

ZONING

Zoning tools include:

- Keep zoning as is
- Amend language in code
- Rezone to new district
- Apply basic overlay zones—e.g. transit or parking district overlay
- Prepare a specific overlay zone district – in the form of additional or modified design standards, land use standards or development standards of the underlying base zone. Additions, modifications, and limitations should utilize the standardized format and content of the revised Tulsa zoning code.

DESIGN REVIEW

Design tools that may be used are included below. These are in addition to objective design standards applied through zoning.

- Recommend areas for formal design review – administrative. This is accomplished through a specific overlay zone, with clear and objective design standards. Design review is either ministerial (Zoning counter approval) or administrative (Zoning Administrator review and approval). Where possible, standards should be used that are already adopted, or similar to those already adopted in the revised Zoning Code.
- Recommend areas for formal design review - review board. This is also accomplished through a specific overlay zone, with design guidelines. Due to the expense and delay inherent with this system, it should be reserved for special issues and the costs borne by the district.

LANDMARK DISTRICT

If all other design tools are insufficient and the vicinity has historical significance, a landmark district may be recommended.

PUBLIC INVESTMENT TOOLS

Public investments in an area have an immediate impact and are not subject to market conditions and private decisions. However, they are subject to a competitive budgetary process. Neighborhoods should prioritize desired investments based on a cost-benefit analysis to ensure that the most beneficial investments are addressed earliest.

TRANSPORTATION

Transportation investments include:

- Street improvements including storm drainage
- Medians
- Shared parking districts
- Transit improvements
  - New bus route
  - Improved bus service
  - Streetcar
  - Fixed-route buses
  - Rail Transit
  - Local circulator buses
  - Additional transit stops
  - Improvements to transit stops
- Bike lane, route, path
- Sidewalk improvements
- Priority signals for pedestrians, bikes and transit
- Neighborhood traffic management
- Traffic enforcement
- Street trees/detached walks
- Street furniture

PARKS

New parks and open spaces have obvious benefits, but can be expensive to create.

- **Green streets—beautified pedestrian connections between parks.**
- **Parks**
- **Open spaces**
- **Plazas**

FACILITIES

Some neighborhoods are in need of key civic facilities such as:

- **Recreational centers**
- **Libraries**
- **Ball fields**

PARTNERSHIPS

In the absence of a strong private development market that is able to produce positive change without public money, partnerships can be formed between public and private partners. In areas of change, a partnership can help galvanize additional private investment by changing market perceptions. In areas of stability, partnerships can be useful tools in developing affordable housing or in beautifying a business district.

Examples of investments that can be accomplished through partnerships include:

- **Shared parking lots or structures**
- **Business Improvement Districts**
- **Tax Increment Financing (TIF) districts**
- **Brownfield mitigation**
- **Affordable housing**
- **Land assemblage**
- **Business recruitment**
- **Façade improvement loans**
- **Business incubator**
- **Pilot projects**
- **Financial assistance (loans, grants, rebates).**

Implementation of Small Area Plans into Citywide Policies and Priorities

Plan Adoption

Because of the importance of small area plans in directing future resource allocation, adoption involves thorough evaluation, as well as formal action.

1. A completed plan draft is formally submitted to the Planning Director.
2. The Planning Director directs a multi-agency technical review committee to evaluate the plan format, contents, and process. The committee recommends changes as needed. The recommended changes, if any, are reviewed by the entity that drafted the plan and then a revised plan is submitted.
3. The Planning Director transmits the revised plan to the Planning Commission for a work session to review the contents, committee recommendations, and compatibility with Our Vision for Tulsa and the Comprehensive Plan.
4. The Planning Commission conducts a public hearing and makes a recommendation to City Council based on the review committee's findings and public testimony.
5. The City Council acts on adopting the proposed plan as a supplement to the Comprehensive Plan.

The adopted plan is put into digital format and published electronically. Limited numbers of printed copies will be available.

City Commits to Implement Conforming Plans

Plans that are adopted as policy by the City of Tulsa must be in conformance with the Comprehensive Plan. Small area plans benefit from this arrangement because the city, upon adoption, commits to implement the policy aspects of the plan into city regulations. Also, the city commits to address the programmatic aspects of the plan subject to competitive budget processes where requests are considered relative to the importance of other city budget requests.

After adoption, the neighborhood plan should include a process to periodically review and update the implementation of its recommendations into city policies and investments.

City Evaluation of Plan

Part of the criteria the city will use to consider implementation of the programmatic elements of the plan will be how effective the proposed investments are at improving conditions in the city, as measured by the Outcomes and Indicators developed during the PLANiTULSA process. Therefore, the plan should attempt to forecast how it would meet those benchmarks that are applicable to the area.

Summary of Priorities

1. Small area plans must be in agreement with *Our Vision for Tulsa* and the Comprehensive Plan prior to adoption by City Council. If the small area plan complies, it may be adopted forthwith. If the small area plan conflicts with them, it must be reconciled, either through amendment to the small area plan or the Comprehensive Plan.
2. The city shall establish a standardized process for small area plans.
3. The city shall establish a standardized format for small area plan documents.
4. The city shall establish a standardized set of tools to be utilized for implementation of small area plans. Programmatic elements should be prioritized within the plan document.
5. Small area plans must address a minimum set of civic responsibilities as defined by the city. Civic responsibilities should include at a minimum housing diversity and transportation system integrity.
6. The city shall commit to implement small area plans that are in agreement with Our Vision for Tulsa and the Comprehensive Plan.
7. Programmatic elements will be subject to the city's competitive budget process. The city shall utilize objective benchmarks to help determine spending priorities.
8. Existing small area plans remain in effect, but shall be reviewed for effectiveness of implementation, and new plans and updates shall meet the requirements of the Comprehensive Plan.

Appendix

Transportation I
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)

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 and disconnected communities, air quality and the overall relationship to skyrocketing 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).

In 2009, the American Association of State Transportation Officials (AASHTO) 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.

Guided by professionals in transportation planning, design and engineering with guidance CNU founders, the landmark ITE publication's recommendations have formed the connection between transportation and land use. The knowledge base of this team was augmented with research and observation of the European experience of placemking 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;

Table 1: Conventional vs. CSS Approach to Transportation Design

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

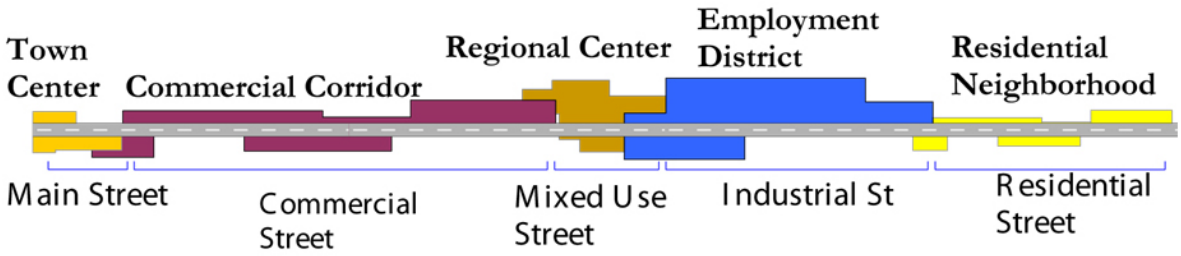
Source: ITE Recommended Practice for Designing Walkable Urban Thoroughfares: A Context Sensitive Approach

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."

Table 1 compares a few of the 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 the urban or rural 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

One Size Does Not Fit All



still important criteria, but they 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 detail alternative cross-sections for designing new thoroughfares in Tulsa. However, much like the ITE manual for *Context-Sensitive Solutions in Designing Major Urban Thoroughfares, t*his 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.

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 typically have only two lanes, but can be designed with two to four travel 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.

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

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

Transportation-Land Use Building Blocks

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

● Applicable
○ Not Applicable
◑ Acceptable

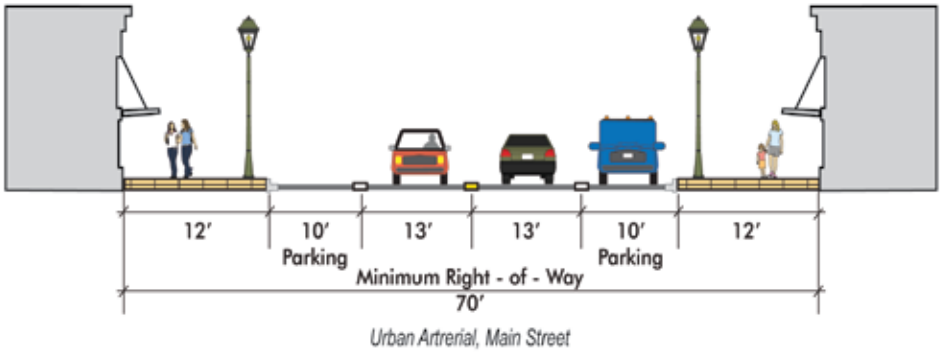
Main Streets Cross-Sections

CURRENT URBAN ARTERIAL

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

URBAN ARTERIAL, MAIN STREET

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



CURRENT SECONDARY ARTERIAL

Volume
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Speed
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Transit
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Parking
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Bike
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Walk
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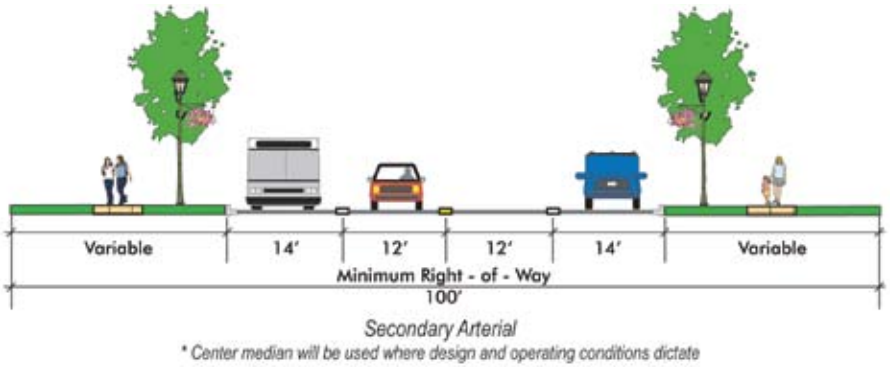

SECONDARY ARTERIAL, MAIN STREET

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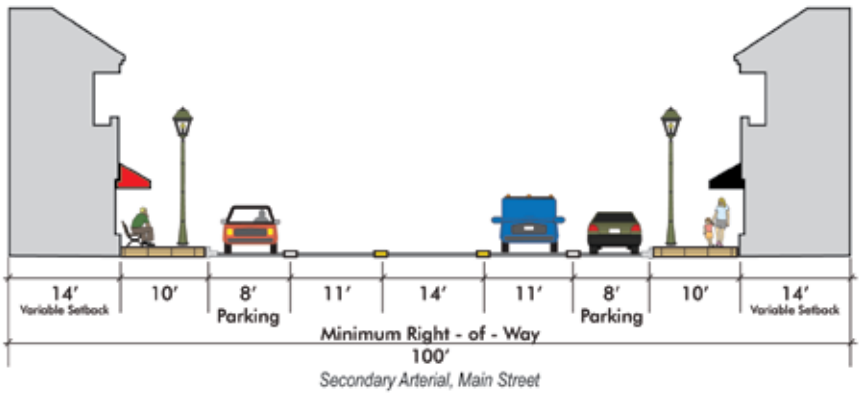
Parking
• • •
Bike
• •
Walk
• • •



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, multi-modal streets require frontages that address the street and provide comfortable and safe refuge for pedestrians while accommodating automobiles with efficient circulation and consolidated or 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

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

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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Walk	Poor Narrow Sidewalks Poor Context	Moderate Average Sidewalks Good Context	Excellent Wide Sidewalks Vibrant Context

Transportation-Land Use Building Blocks

Downtown	Centers	Corridors	New Residential	Existing Residential	Employment
●	●	●	◑	◑	●

● Applicable
○ Not Applicable
◑ Acceptable

Multi-modal Street Cross-Sections

CURRENT PRIMARY ARTERIAL

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

PRIMARY ARTERIAL, MULTI-MODAL STREET

Volume
• • •
Speed
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Transit
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Parking
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Bike
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Walk
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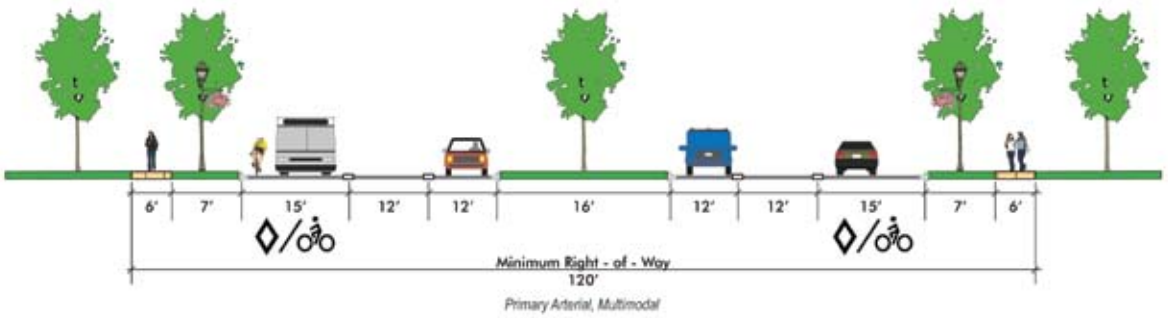

PRIMARY ARTERIAL, MULTI-MODAL STREET

Volume
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Speed
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Transit
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Parking
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Bike
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Walk
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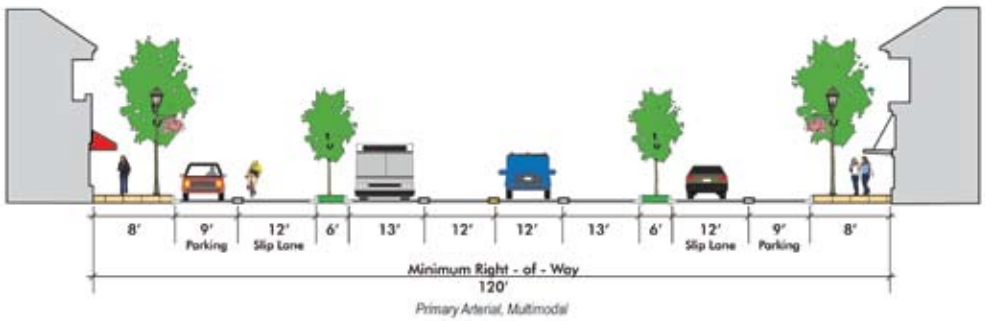

Multi-modal Street Cross-Sections

CURRENT SECONDARY ARTERIAL

Volume
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Speed
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Transit
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Parking
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Bike
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Walk
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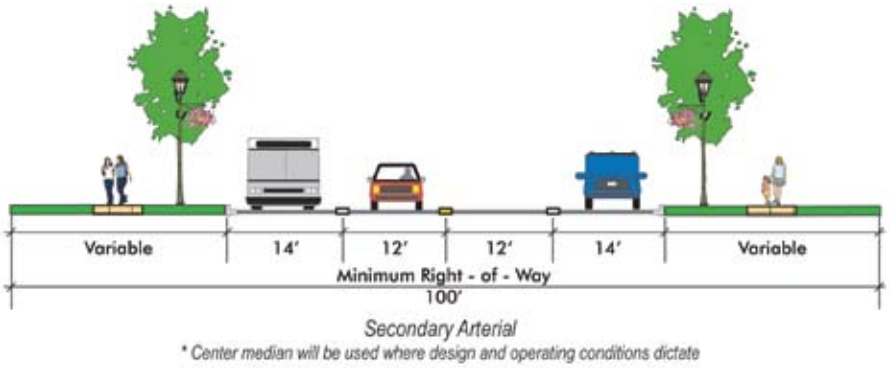

SECONDARY ARTERIAL, MULTI-MODAL STREET

Volume
• •
Speed
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Transit
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Parking
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Bike
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Walk
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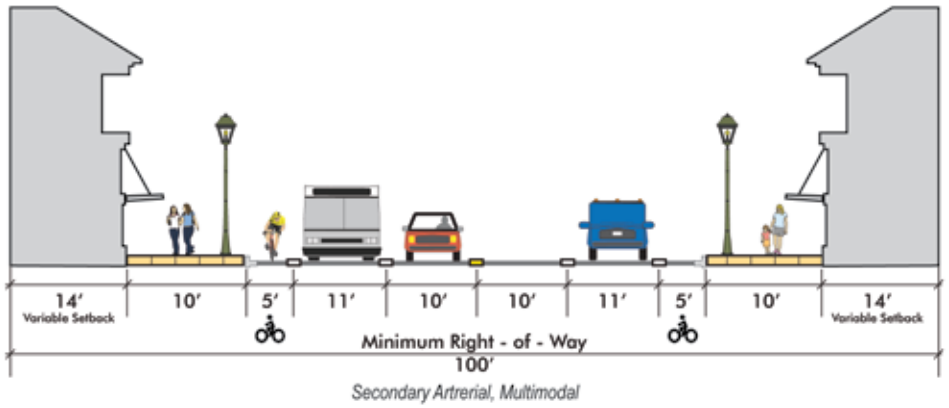

CURRENT URBAN ARTERIAL

Volume
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Speed
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Transit
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Parking
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Bike
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Walk
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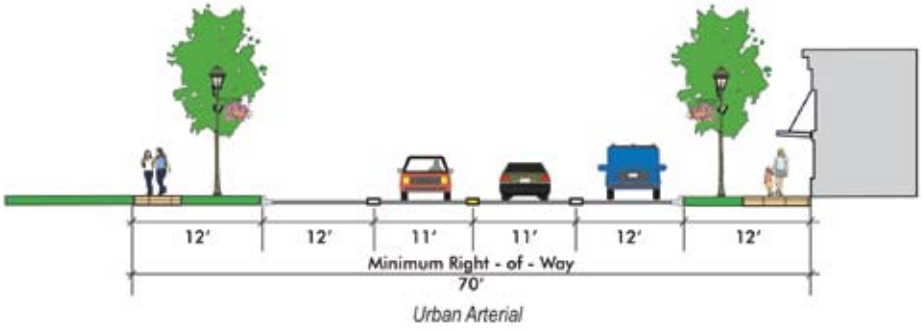

Urban Arterial

URBAN ARTERIAL, MULTIMODAL STREET

Volume
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Speed
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Transit
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Parking
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Bike
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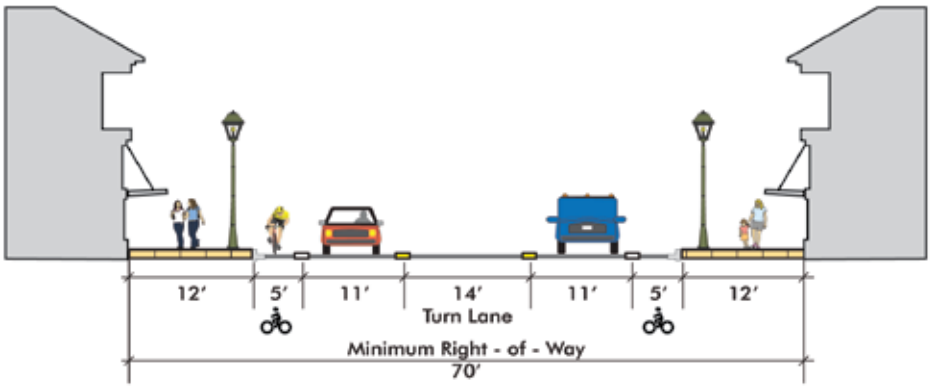
Walk
• • •



Urban Arterial, Multimodal

COMMUTER STREETS

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. Along with providing access to employment centers, commuter streets are also applicable in industrial contexts.

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
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

Transportation-Land Use Building Blocks

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

● Applicable
○ Not Applicable
◑ Acceptable

Commuter Street Cross-Sections

PRIMARY ARTERIAL, COMMUTER STREET

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

SECONDARY ARTERIAL, COMMUTER STREET

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

SECONDARY ARTERIAL ALTERNATIVE, COMMUTER STREET

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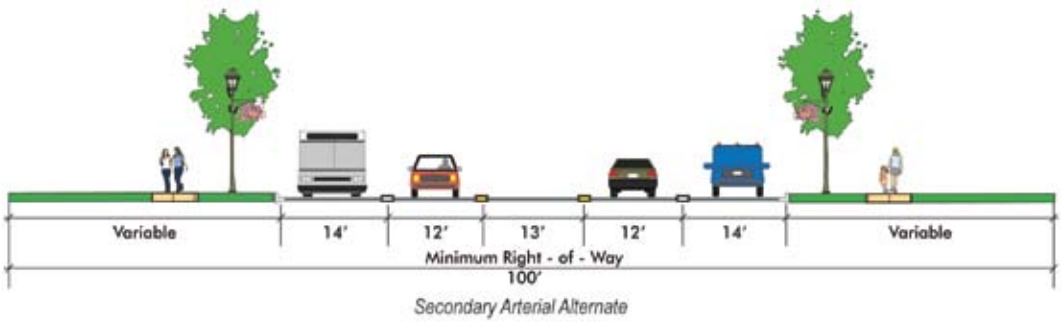

Commuter Street Traffic Managment Features

SIGNAL TIMING

Having signal timing along a corridor can increase the efficiency of the street by allowing for the highest possible amount of vehicles to pass through an intersection in the shortest amount of time. It also affects the air quality of the city because travel time and idling are 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 contoller can be adjusted to match the needs at each intersection. This technology allows a local controller to adjust the time assigned to each signal phase to match traffic conditions. The communication to the central location can be utilized to facilitate system maintenance and provide control of the system in case of special events with higher traffic.

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 of congested intersections. Each intersection should be analyzed individually to identify its unique challenges.

RESIDENTIAL COLLECTOR 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: 1) in new developments that are building homes with pedestrian frontages that demand a reduced buffer to create a complete street and 2) when retrofitting overly-wide residential or downtown streets with on-street 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 the pedestrian experience by providing landscaped medians, tree lawns, sidewalks, on-street parking, and bicycle 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

- Mediains
- 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

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

Transportation-Land Use Building Blocks

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

● Applicable
○ Not Applicable
◑ Acceptable

Residential Collector Street Cross-Sections

CURRENT RESIDENTIAL COLLECTOR

Volume
•
Speed
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Transit
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Parking
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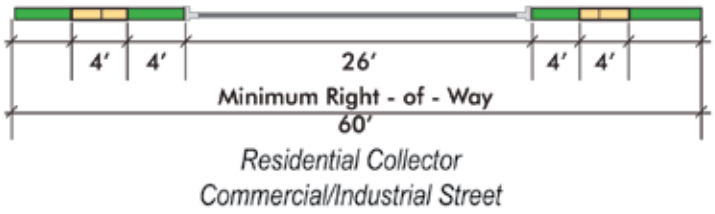
Bike
• •
Walk
•



36′ RESIDENTIAL COLLECTOR*

Volume
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Speed
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Transit
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Parking
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Bike
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Walk
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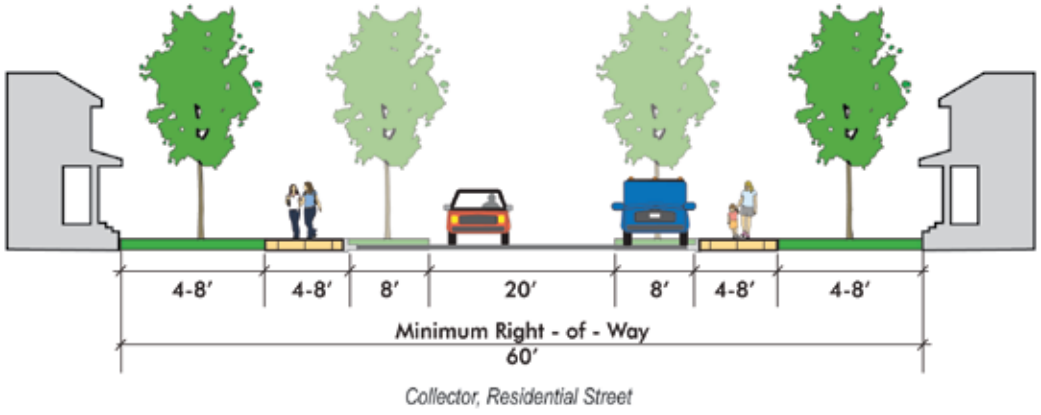


**effectively 20' of thru traffic with optional bulb-outs*

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. CSS should be a part of all small area planning process and used to address citizen, property owner and developer requests.

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

- Institutionalize CSS per the above definition and designate responsible staff and resources.
- Create public information about the program and make it available to neighborhood associations, business organizations and general public through the small area planning process and the city web-site.
- Establish guidelines for residents and business owners to petition the city to consider CSS.
- Accept petitions annually and use a selection criterion to prioritize request for further study, funding and design.

Appendix

Transportation II
Sustainable Network Initiative

A network is a structure of streets and highways that serves and connects multiple places and people via multiple modes of travel. A network approach to transportation projects focuses on connecting people to places—ultimately allowing places to become more intense centers of economic development. A highly-networked system of streets, with at least 150 intersections/square mile, has redundant routes, compact block sizes, sidewalks, narrower streets and a greater capacity than unconnected street systems. Core neighborhoods like downtown, Lacy Park and Maple Ridge are examples of connectivity, while new fringe developments like Quail Ridge and Park Plaza exemplify a disconnected network.

Well-connected networked streets provide greater mobility and access. By their very nature, networked streets provide shorter, more direct routes between destinations. This increases the efficiency and reliability of the road network. During times of congestion or construction, drivers have more opportunities to switch to different routes and avoid delay. This is especially important for emergency responders as they need the fastest, most direct route to a fire or medical emergency.

Networked streets improve health and safety. In addition to improving emergency access and response times—by providing multiple, more direct routes—networked streets can reduce vehicular crash severity. A system of compact blocks and streets increases the opportunities for and performance of other modes of travel, such as walking, bicycling, and taking transit.

Finally, sustainable networks represent a cost effective alternative to expensive grade separations, interchanges and corridors that require extensive right-of-way purchases. Networks take a greater level of planning and creative design to create, but there result is sustainable in terms of capital and maintenance costs. The INCOG and City should at a minimum examine a network alternative to any major roadway widening, grade separation or new functionally classified street analysis.

Project Development Process — Network Alternative Analysis

The INCOG and City should explore an addition to the local roadway project development process that includes the examination of a street network alternative. Instead of defining study corridors, study areas should be used and all Right-of-Way's examined for their ability to move people using multiple modes. This process should examine improvements based upon a network perspective and not just corridor metrics.

The traditional performance measure for transportation planning has been vehicular Level of Service (LOS) – a measure of automobile congestion. Sustainable network planning requires taking a broader look at how the system is serving all users. Tulsa should measure success through a number of ways: the miles of on-street bicycle routes created; new linear feet of pedestrian accommodation; changes in the number of people using public transportation, bicycling, or walking (mode shift); number of new

street trees; and/or the creation or adoption of a new multi-modal Level of Service standard that better measures the quality of travel experience. The fifth edition of Highway Capacity Manual, due out in 2010, will include this new way of measuring LOS. Cities like San Francisco and Seattle have already begun to develop their own and examples include:

Conventional:

- **Vehicle Hours of Delay**
- **Speed**
- **Volume/Capacity**
- **VMT**
- **Volumes of auto trips**
- **Transit trips**

Enhanced:

- **Mode share (walk, bike, transit, auto)**
- **Accessibility measures**
- **Lane miles by functional class**
- **Connectivity indices (intersections/sq. mi.)**
- **Travel time**
- **Route Directness**

This process will require portions of the travel demand model to be updated with a finer grain of network detail and possible use of a micro-scale model to examine network and modal conflicts. This process will result in roadway solutions that meet the current traffic demands while building a network of streets that can adapt to future changes in energy availability and personal travel choices.

Project Development Process- Multi-Modal Alternative Analysis

A multi-modal transportation system is described as a network of facilities designed for shared use with seamless linkages between at-least two or more modes of transportation.

To realize a multi-modal system, multiple, connected transportation options must be present and land development must be coordinated. Then the system will afford a person the opportunity to travel to places were they work, live and play, in a convenient way.

While effective multi-modal transportation systems are intricate networks that function optimally as seamless complete systems, like the one envisioned for Tulsa in the adjacent map, the reality of regional infrastructure transformation is that development of such a system will happen incrementally over a variety of time spans tied to complementary transportation agencies, from a current five year capital improvement plan, to a 20-year transportation plan period. For instances, Copenhagen, considered a model for pedestrian-friendly streets, realized its multi-modal vision over a 30-year period. It formed consensus for significant change in its urban form and its citizens' lifestyles by demonstrating the benefits of that change over time.

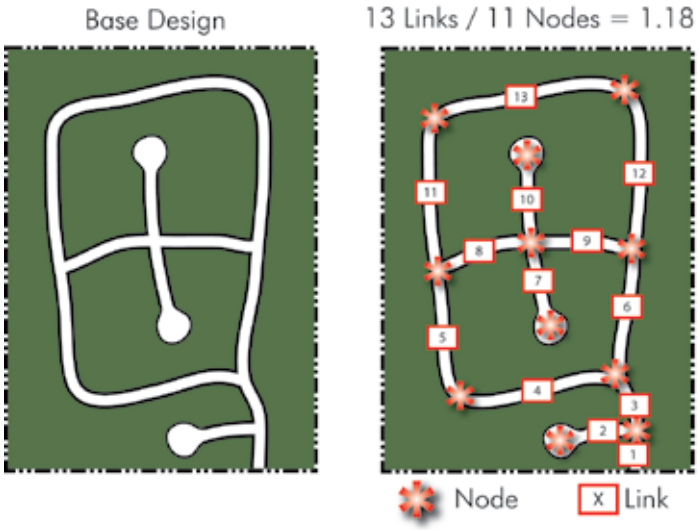
A new multi-modal perspective would re-coordinate projects and initiatives to a timeline that seeks to benefit all users and create sustainable outcomes. The inter and intra agency coordination needed to accomplish multi-modal initiatives is extensive and critical. Multi-modal systems are breed from multi-disciplinary plans, project development coordination and smart growth land development regulations that consider the mobility of multiple modes. Linear thought processes that typically drive major public

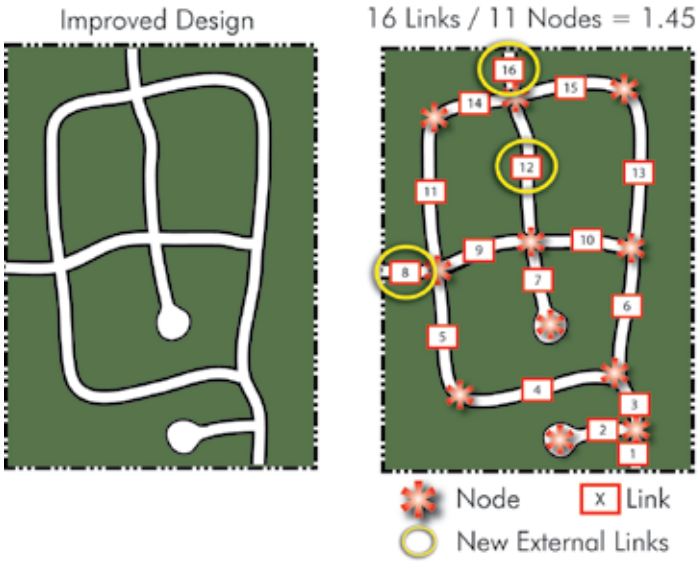
and private investments must be supplanted with methods for meeting mobility and livability desires from the perspective of the end user.

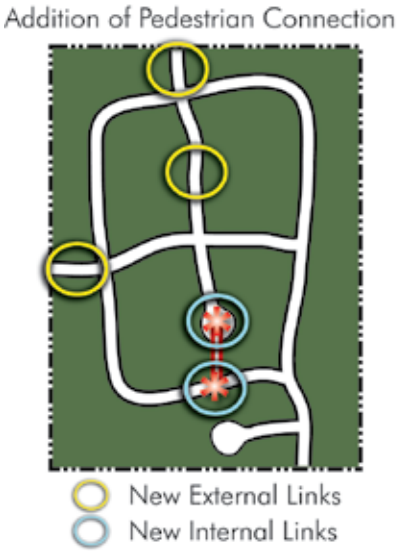
The methods where tested during the PlaniTulsa effort with the use of a travel demand modeling software extension that estimated the ability of walkable places and transit connected developments to reduce traffic congestion. These methods should be further developed and adopted for all future transportation planning efforts in the Region.

Project Development Process-Subdivision Connectivity Analysis

In concert with the Network Alternatives Analysis private development in these areas should strive to create a connected street system. Street connectivity is essential to maintaining the long-term mobility of growing areas and potentially very important at the local neighborhood level, since connectivity is a key factor in ensuring that people can walk or bike between neighborhoods, cul-de-sacs and communities. An interconnected street system is necessary in order to promote orderly and safe development by ensuring that streets function in an interdependent manner, provide adequate access for emergency and service vehicles, enhance access by ensuring connected transportation routes, and provide continuous and sensible traffic routes.







Connectivity Is Defined by the Ratio of Links to Nodes in Any Subdivision

A. The connectivity ratio is the number of street links divided by the number of nodes or end links, including cul-de-sac heads.

B. A link is any portion of a street, other than an alley, defined by a node at either end. Stub outs to adjacent property shall be considered links. For the purpose of determining the number of links in a development, boulevards, median-divided roadways, and divided entrances shall be treated the same as conventional two-way roadways. A pathway between neighborhoods for walking, bicycling and emergency access shall be counted as a link.

C. A node is the terminus of a street or the intersection of two or more streets.

- Any curve or bend of a street that exceeds 75 degrees shall receive credit as a node. Any curve or bend of a street that does not exceed 75 degrees shall not be considered a node.
- A divided entrance shall only count once.

REQUIRED RATIO

A. Street Network – The street network for any subdivision with internal roads or access to any public road shall achieve a connectivity ratio of not less than 1.45.

B. Street links and nodes along a collector or arterial street providing access to a proposed subdivision shall not be considered in computing the connectivity ratio.

C. Stub outs shall be considered as being present as a link at the ratio of one link per side as provided for purposes of determining if the required ratio has been met.

D. Trail connections out of the subdivision shall be considered as being present as a link at the ratio of one link per side as provided for purposes of determining if the required ratio has been met.

INCOG member municipalities and the INCOG should undertake a joint effort to test various subdivision designs and arterial and collector networks to develop a sustainable network plan for growing areas of Tulsa.

Appendix

Housing Methodology and Assumptions

Tulsa's future housing needs analysis used a model to determine what kinds of housing Tulsans might demand in the future, and to identify market opportunities. The model's results are driven by current and projected demographics and local tenure (ownership versus rental) choices. The model's outputs include needed housing units by tenure by income range. The model was used to find gaps that may represent current unmet needs and future housing needs.

In many areas around the country, the standard practice for estimating future housing need has been to simply extrapolate forward past trends in order to determine future housing requirements. However, it seems unlikely that the future is going to mimic the past. Fregonese Associates' Balanced Housing Model was used to determine the need by tenure choice and income level. In this model, "affordable" is not referring to low-income housing, but rather to the relationship between incomes and housing costs. The "30% rule" assumes that housing is only affordable for a household if it spends less than 30% of its gross income on housing expenses.

The model approach was based on research showing that two variables—age of head of household (Age—A) and household income (Income—I)—demonstrated significantly stronger correlation with housing tenure than other variables, including household size. These two variables are the primary demographic variables for the model. As one might expect, different Age/Income (AI) cohorts make significantly different housing tenure choices. For example, a household headed by a 53 year-old that earns $76,000 is likely to make a different housing choice than one headed by a 29 year-old that earns $28,000.

In the data sources for the population estimate, people in group quarters, and occupied housing units were taken from 2007 American Community Survey (ACS) of the Census Bureau. The number of households in each AI cohort for Tulsa was calculated by utilizing Census data to determine the percentages of households that are in the 28 AI cohorts (4 age cohorts and 7 income cohorts).

The Census-generated tenure parameters used in the model represent the probabilities of being a renter or homeowner for each of the 28 AI cohorts. Based on these tenure parameters, the model allocates those households in each AI cohort to an indicated number of rental and ownership units that are affordable for the Income range for that cohort. The model then aggregates the units demanded within each income range to show the total units that could be afforded at each income range by tenure.