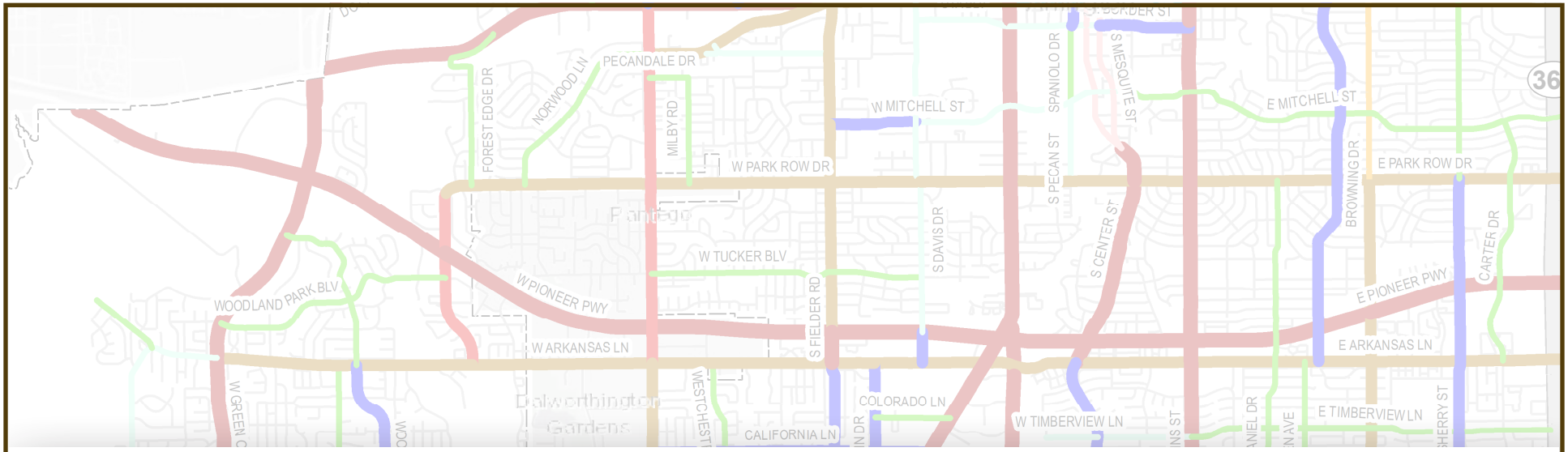
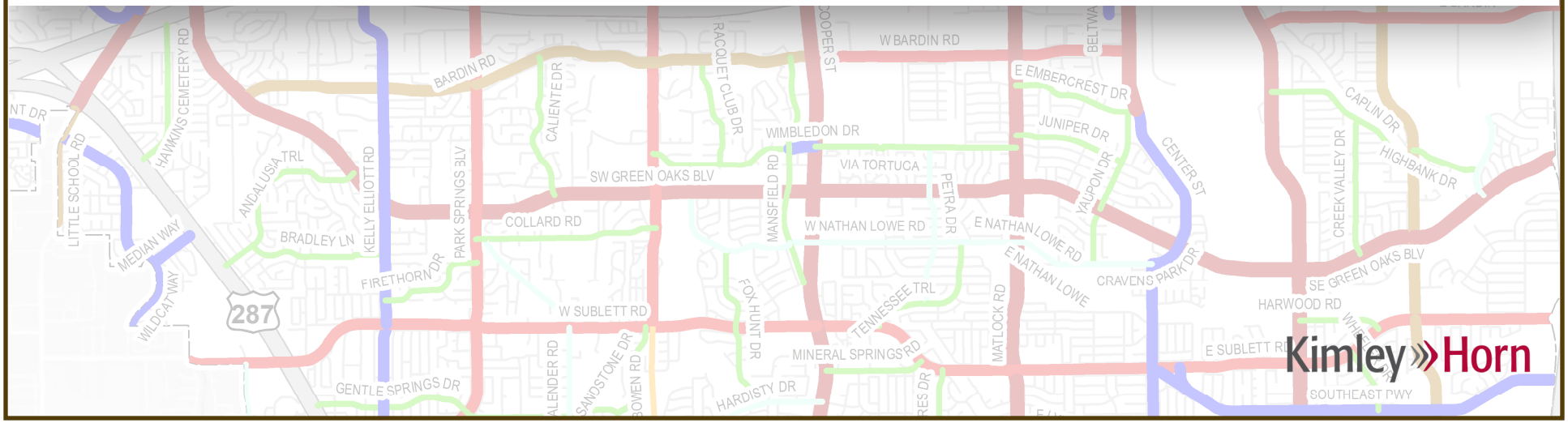


City of Arlington
Thoroughfare Development Plan

December 2022

ARLINGTON
THE AMERICAN DREAM CITY



Kimley»Horn

Ordinance No. 22-068

An ordinance adopting the Thoroughfare Development Plan, a component of the Arlington Comprehensive Plan

WHEREAS, Texas Local Government Code, Section 211.004, requires municipalities to adopt zoning regulations in accordance with a comprehensive plan; and

WHEREAS, the Comprehensive Plan for the City of Arlington was adopted on March 17, 2015, by Ordinance No. 15-014, as the Master or General Plan for the City of Arlington and its extraterritorial jurisdiction to guide the overall physical growth of the community and the provision of public facilities and services; and

WHEREAS, a Thoroughfare Development Plan will help ensure that the City is maximizing and prioritizing its transportation investments and guarantees adequate infrastructure is in place as development occurs in the City; and

WHEREAS, on November 9, 2022, a public hearing was held before the Planning and Zoning Commission at which the public was given the opportunity to give testimony and present written evidence; and

WHEREAS, the Planning and Zoning Commission voted to recommend approval of the updated Thoroughfare Development Plan to the City Council; and

WHEREAS, on December 6, 2022, a public hearing was held before the City Council, at which the public was given the opportunity to give testimony and present written evidence; NOW THEREFORE

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ARLINGTON, TEXAS:

1.

That the City Council approves the Thoroughfare Development Plan as a component of the Comprehensive Plan of the City of Arlington, Texas.

2.

That the Thoroughfare Development Plan is intended to be used as the official City policy for roadway planning and construction, and as a guide for reviewing development proposals within the City of Arlington, Texas.

3.

That an official copy of the Thoroughfare Development Plan is available for viewing in the City Secretary's Office and incorporated herein for all intents and purposes.

4.

That this ordinance shall become effective upon second publication.

PRESENTED AND GIVEN FIRST READING on the 6th day of December, 2022, at a regular meeting of the City Council of the City of Arlington, Texas; and GIVEN SECOND READING, passed and approved on the 13th day of December, 2022, by a vote of __ ayes and __ nays at a regular meeting of the City Council of the City of Arlington, Texas.

JIM R. ROSS, Mayor

ATTEST:

ALEX BUSKEN, City Secretary

APPROVED AS TO FORM:
MOLLY SHORTALL, City Attorney

BY

Acknowledgments

Mayor & City Council

Mayor Jim Ross

Council Member Helen Moise, District 1

Council Member Raul H. Gonzalez, District 2

Council Member Nikkie Hunter, District 3

Council Member Andrew Piel, District 4

Council Member Rebecca Boxall, District 5

Council Member Long Pham, District 6, At Large

Council Member Bowie Hogg, District 7, At Large

Council Member Dr. Barbara Odom-Wesley, District 8, At Large

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Arlington Thoroughfare Development Plan

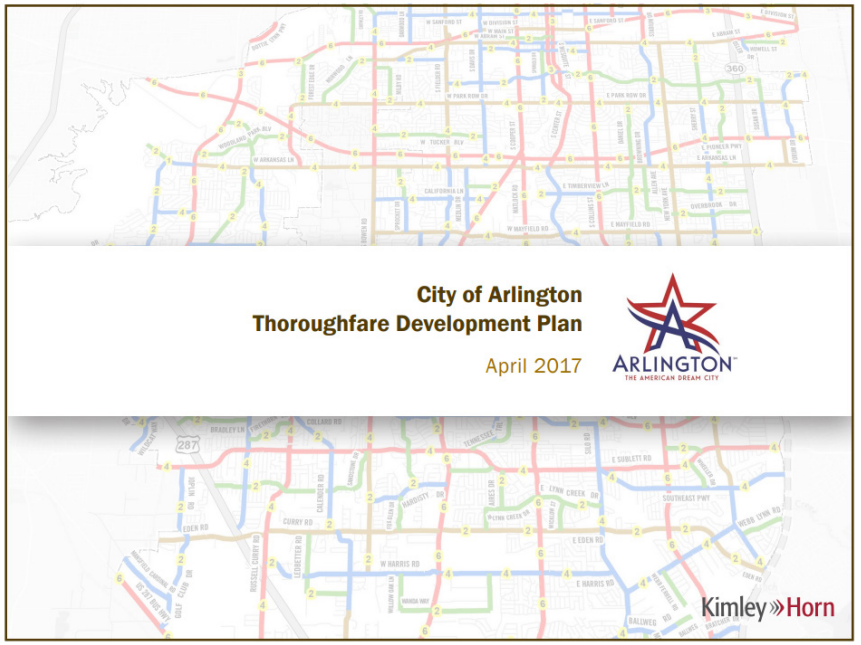
Contents

Appendix

Maps

Introduction

The Thoroughfare Development Plan (TDP) is a long-range plan that identifies the location and type of roadway facilities that are needed to meet projected long-term growth within the City of Arlington. The TDP serves as a tool to enable the City to preserve future corridors for transportation system development as the need arises. It also forms the basis for Arlington's roadway capital improvement program, roadway impact fees, and developer requirements. The TDP includes detailed information related to roadway classification, right-of-way requirements, design criteria, and number of through travel lanes for each thoroughfare within the City.



Overview

The purpose of this report is to provide a five-year review for the City of Arlington with recommendations for the Thoroughfare Development Plan (TDP). The previous TDP, adopted in 2017, was based on anticipated growth within the City of Arlington and surrounding Cities through the year 2040. This review was initiated to account for changing travel patterns and updated socioeconomic data, as well as to evaluate roadway alternatives to the transportation network with projections to the year 2045.

The TDP review utilized the Arlington TransCAD Subarea Model (ATCSM) as part of the technical component for the plan. The ATCSM provides average daily volume projections, level of service, and vehicle miles traveled (VMT) information which help inform decision makers in the planning of transportation infrastructure. The travel demand model in this application is used as a decision support tool, and to best reflect the impact of changing land uses, the ATCSM was updated to include the latest socioeconomic data. This report will focus on the findings from the traffic forecast. In addition, the **Appendix** outlines the ATCSM travel model update process and validation effort.

A major objective of the 2022 Thoroughfare Development Plan review is to evaluate the roadway network to confirm that the thoroughfare plan as curently adopted can accomodate future 2045 travel demand. The Thoroughfare Development Plan is a tool that assists the City of Arlington to make decisions regarding the transportation network and test transportation scenarios, including the impact that new land use and demographic information would have on the number of lanes, level of service, delay, connectivity, and other measures of effectiveness. The findings are summarized in this report.

Focus

The focus of the TDP review is to identify and evaluate future transportation needs to support the comprehensive land use vision and economic opportunities within the City of Arlington. There is a direct relationship between land use and transportation infrastructure that shapes everyday life. The planning decisions made to implement and build transportation infrastructure are important for the success of the City.

Report Layout

Focused Reviews
Each area of focused review included in the 2022 TDP has an individual summary page in the report. These findings are based on travel demand model analysis.

Appendix
A. Model Basics
This section outlines the travel demand model update process and validation effort.

B. TransCAD Input Data
This section explains the network and land use data inputs that were updated and utilized in the travel demand model analysis.

C. Level of Service Overview
One of the primary outputs of a travel demand model is a level of service (LOS) assessment, used to quantify traffic congestion along specific thoroughfares and assigning a level of service score of A through F to city streets to reflect how well they operate. This section provides an overview of this thoroughfare analysis tool and how it is used to determine modifications to the Arlington thoroughfare network.

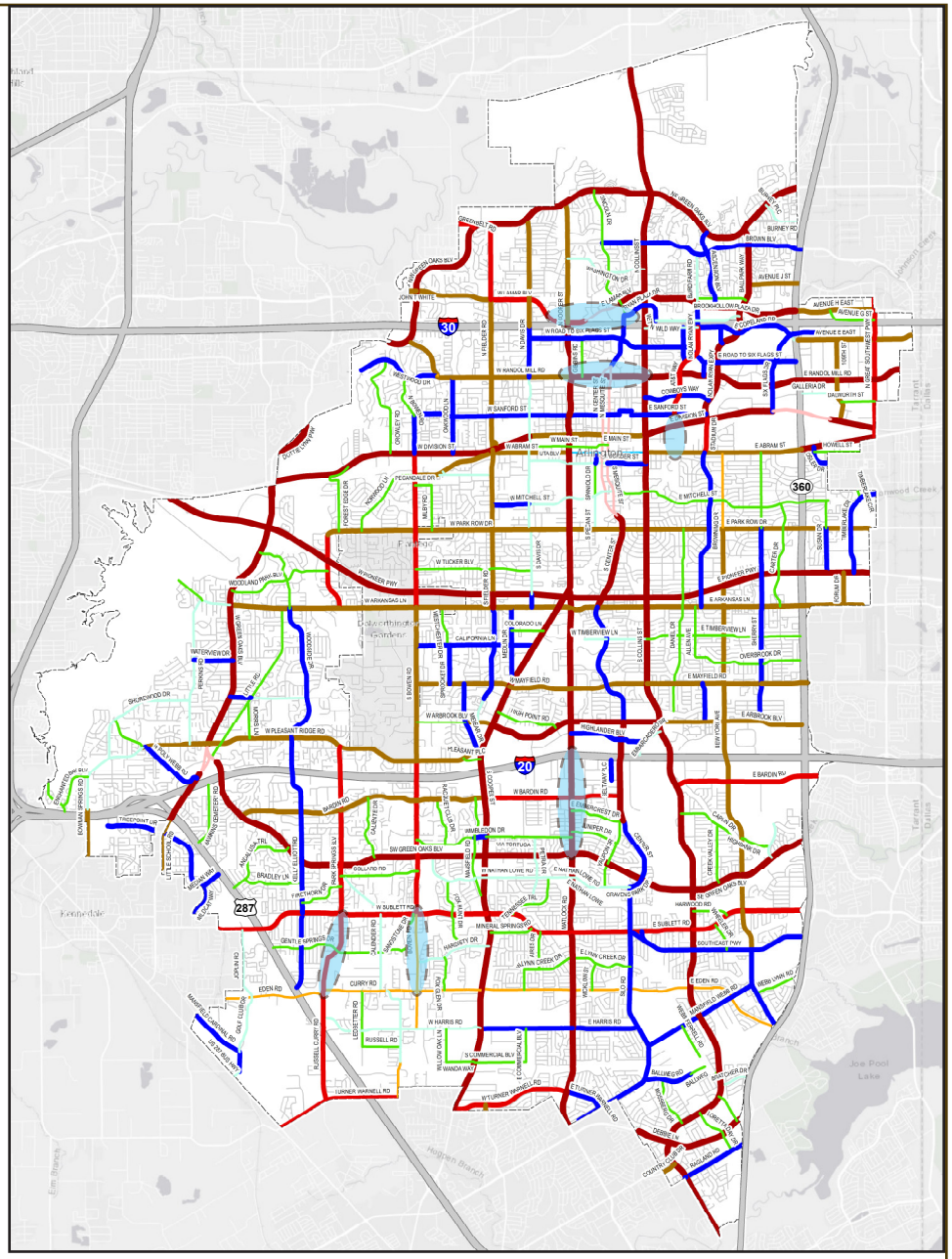
D. Flexible Design Strategies & Matrix
This section discusses the use of flexible design strategies to create unique, corridor-specific design characteristics on thoroughfares. This section explains street context specific to the City of Arlington and includes detailed design elements in the form of a flexible design matrix.

E. Planning & Design Process
This section provides the framework for a planning process which results in an integrated approach to roadway design. It reviews the five steps that are used to take a project from the conceptual phase through final design under the flexible design approach.

Maps
Maps included in the report summarize the capacity status of the 2022 TDP review and a summary of results from the updated 2045 travel demand model.

Focused Review Areas

- Lamar Boulevard (near Cooper Street)
- Southeast Arlington Connectivity
- Entertainment District Roadway Capacity Review
- Randol Mill Road (between Cooper Street and Collins Street)
- AT&T Way (between Division Street and Abram Street)
- Matlock Road (between Interstate 20 and Green Oaks Boulevard)
- Southwest Arlington Connectivity



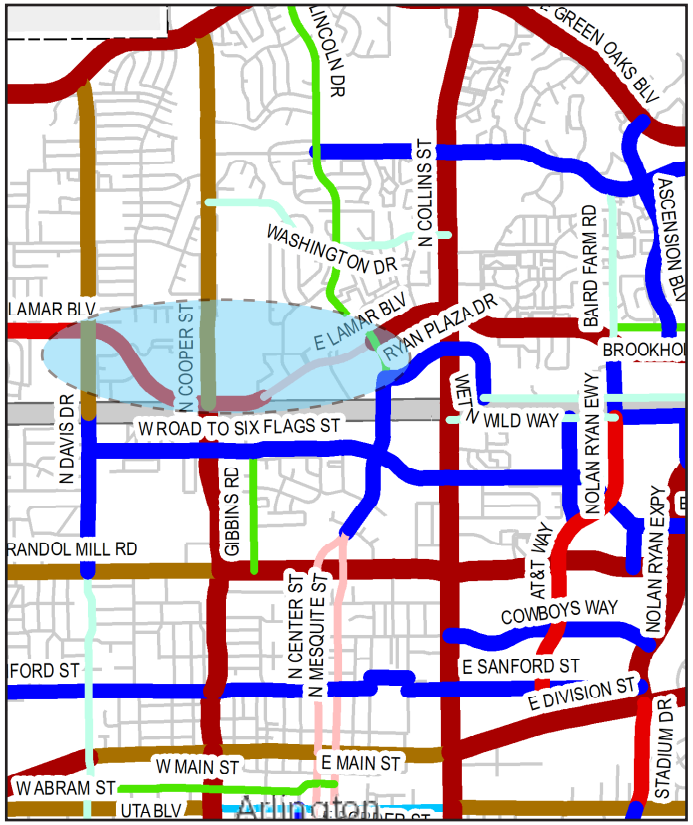
Focused Review

Lamar Boulevard (near Cooper Street)

Thoroughfare Evaluation

Existing Functional Class	Major Arterial (4 lanes)
Land Use Context	Suburban/Urban Core
Base Year Volume	14,600-25,100 veh/day
Base Year Level of Service	Tolerable (D-E) Undesireable (F)

2045 Projected Volume	19,000-38,000 veh/day
2045 Level of Service (4 lanes)	Acceptable (A,B,C)-Tolerable (D-E)
2045 Volume/Capacity Ratio (4 lanes)	0.55-0.68



Purpose

- Determine if the functional classification and proposed cross section of Lamar Boulevard, east and west of Cooper Street, as provided in the 2017 TDP is still appropriate.
- Consider realignment of Lamar Boulevard between North Davis Drive and North Center Street if frontage roads are constructed by TxDOT along Interstate 30.

Recommendation

- The travel demand modeling for 2045 confirms the functional classification and cross section for Lamar Boulevard.
- Coordinate with NCTCOG and TxDOT as part of the Interstate 30 frontage road schematic design.

Focused Review

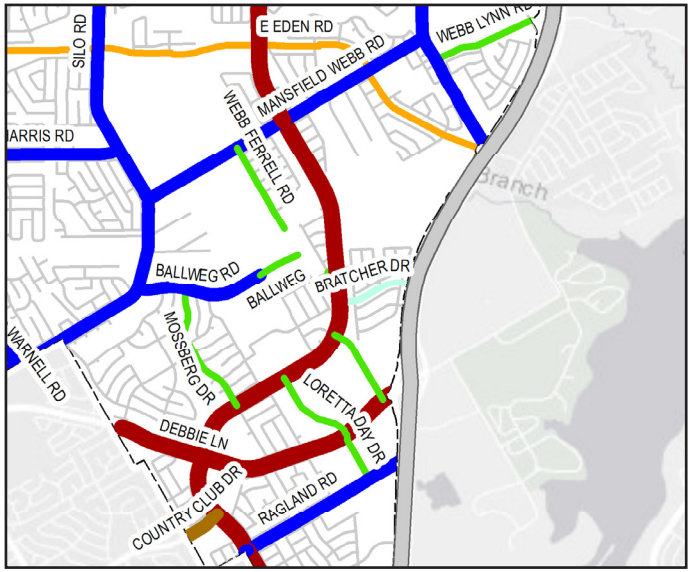
Southeast Arlington Connectivity

Purpose

- To evaluate the connectivity the thoroughfare network in southeast Arlington in conjunction with anticipated growth in the area.

Recommendation

- Based on the 2045 travel demand model, the thoroughfare network will accomodate the anticipated growth in the area as the majority of roadways shows either Acceptable (A,B,C) or Tolerable (D-E) LOS.
- The review confirms that Debbie Lane should be widened to its ultimate cross section as a 6 lane Major Arterial.



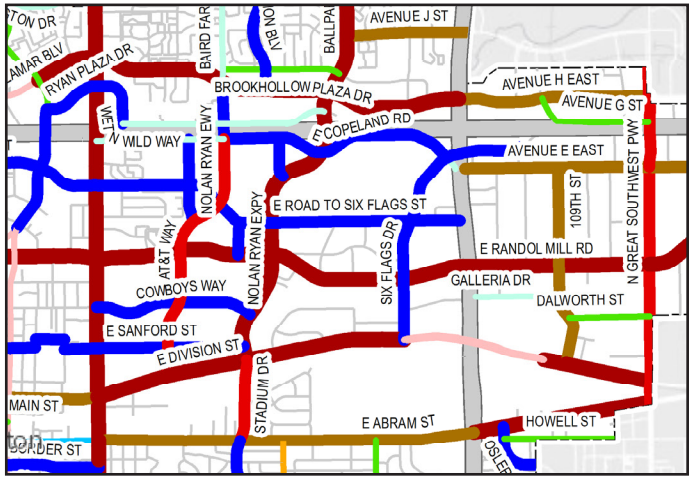
Entertainment District Roadway Capacity Review

Purpose

- To determine if the thoroughfare network will be able to accomodate the future growth of the Entertainment District.
- The 2045 travel demand model incorporated all of the planned future development within the Entertainment District to determine the 2045 travel demand in the area.

Recommendation

- Based on the 2045 travel demand model results, and a review of the 2045 level of service, the thoroughfare network provided in the 2022 TDP is expected to accomodate all of the future growth within the Entertainment District.



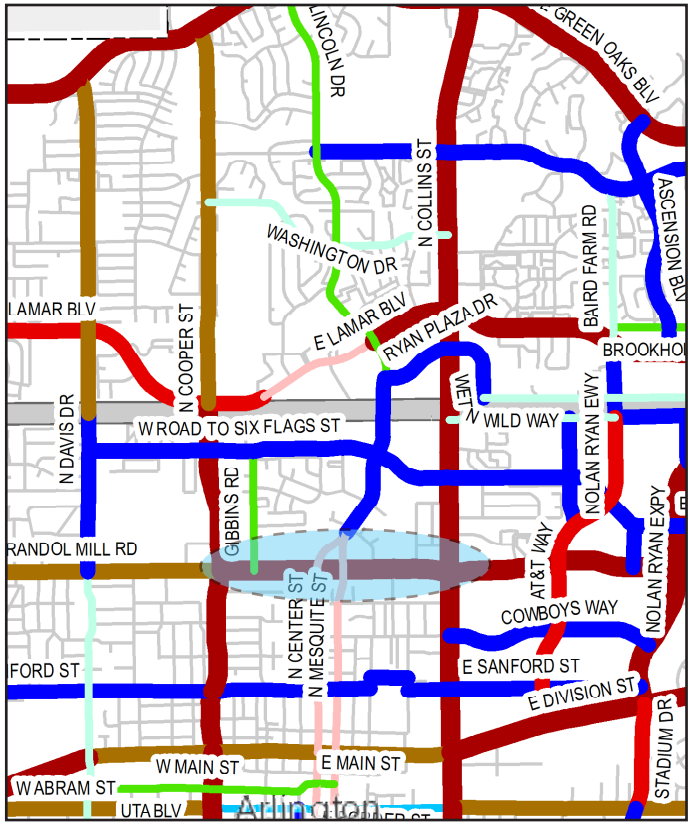
Focused Review

Randol Mill Road (between Cooper Street and Collins Street)

Thoroughfare Evaluation

Existing Functional Class	Major Arterial (6 lanes)
Land Use Context	Suburban/Urban Core
Base Year Volume	28,000-29,000 veh/day
Base Year Level of Service	Undesireable (F)

2045 Projected Volume	39,000-42,000 veh/day
2045 Level of Service (6 lanes)	Tolerable (D-E)
2045 Volume/Capacity Ratio (6 lanes)	0.86-0.94



Purpose

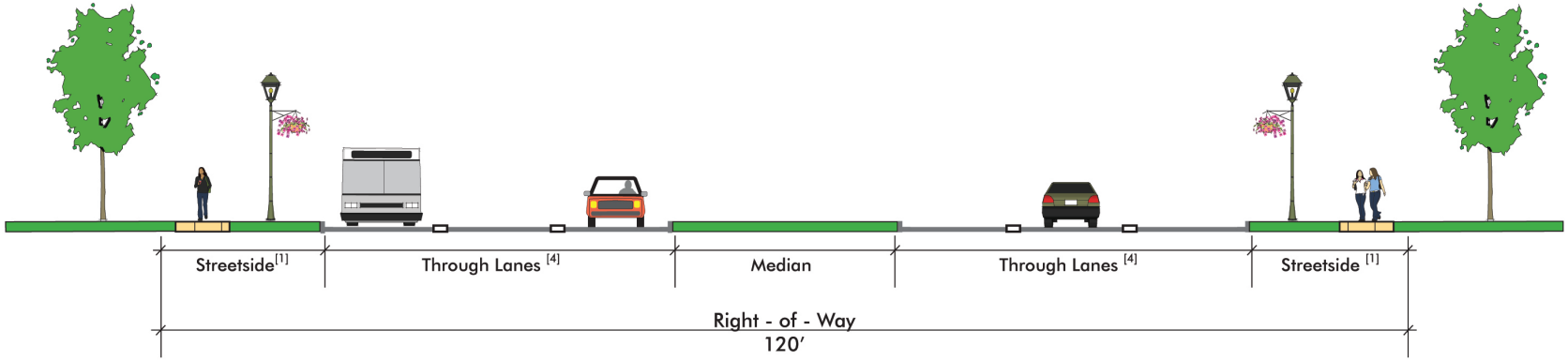
- Confirm that the 2045 traffic demand along Randol Mill Road between Cooper Street and Collins Street shows a need for a Major Arterial 6 lane cross section.

Recommendation

- Randol Mill Road between Cooper Street and Collins Street should remain as a Major Arterial (6 lanes) as the base year level of service is Undesireable (F). There is a projected level of service Tolerable (D-E) as a 6 lane facility.

Recommended Cross Section (for example/illustrative purposes only)

6-Lane Major Arterial



Note: Typical TDP Flexible Design Matrix section shown with recommended through travel lanes.

Focused Review

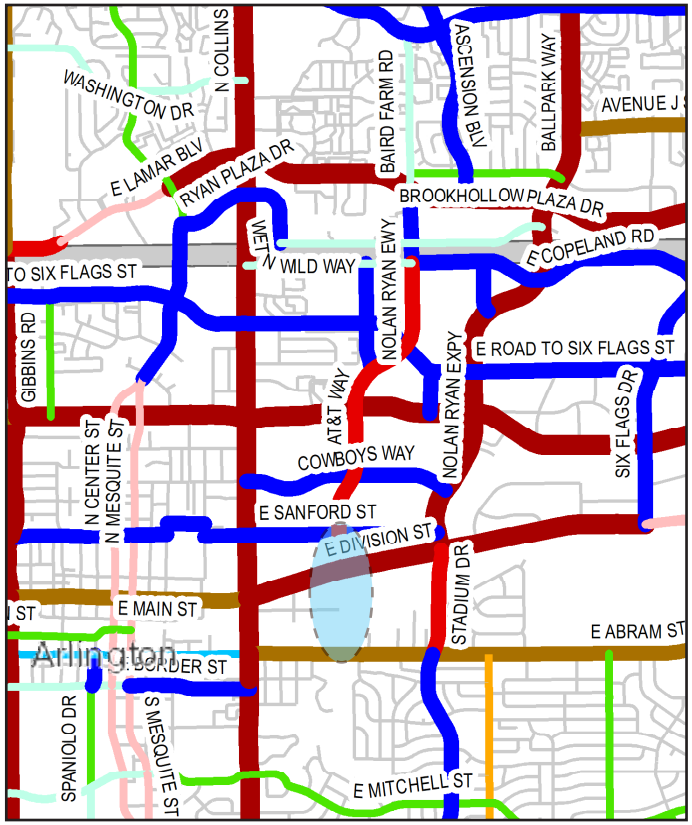
AT&T Way (between Division Street and Abram Street)

Purpose

- Determine if the section of AT&T Way between Division Street and Abram Street is needed to support future travel demand in the area.

Recommendation

- The extension of AT&T Way could potentially provide relief to the section of Collins Street between Division Street and Abram Street, which is showing as Undesireable (F) LOS in 2045.
- Perform a feasability study for the potential alignment of AT&T Way as it relates to Johnson Creek as well as the appropriate functional classification and cross section.



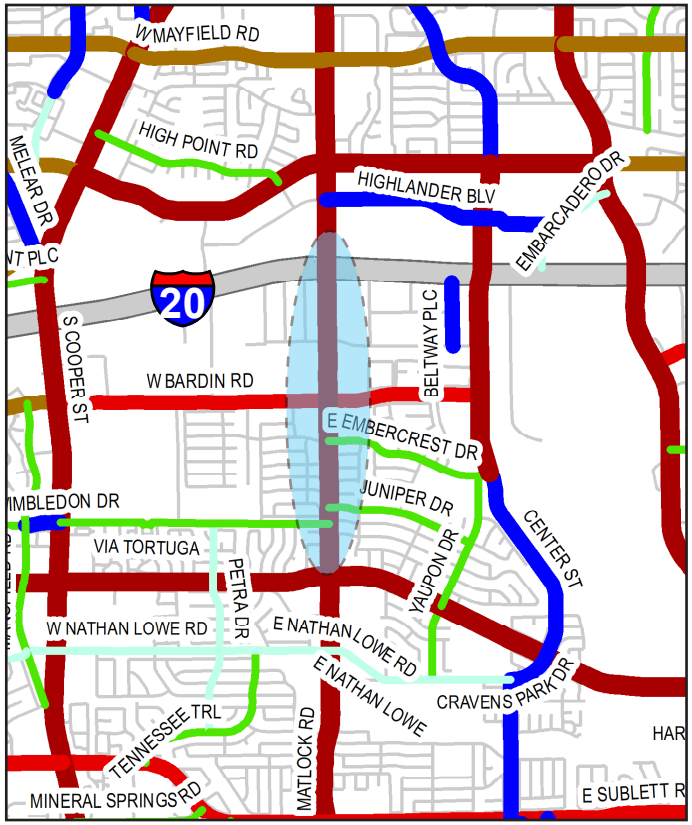
Focused Review

Matlock Road (between Interstate 20 and Green Oaks Boulevard)

Thoroughfare Evaluation

Existing Functional Class	Major Arterial (6 lanes)
Land Use Context	Suburban/General Urban
Base Year Volume	26,400-32,300 veh/day
Base Year Level of Service	Tolerable (D-E)

2045 Projected Volume	34,000-45,000 veh/day
2045 Level of Service (6 lanes)	Tolerable (D-E)
2045 Volume/Capacity Ratio (6 lanes)	0.76-0.82



Purpose

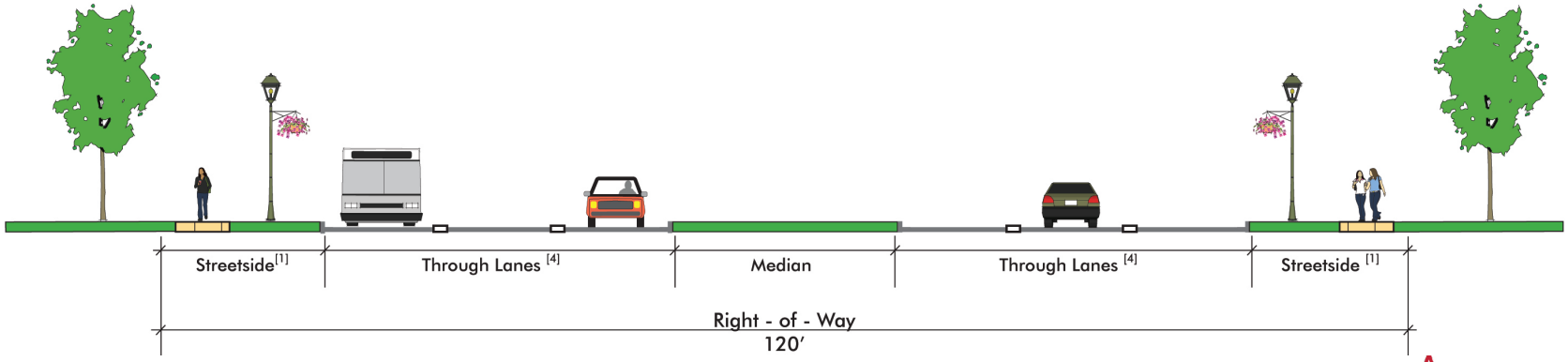
- To determine if Matlock Road needs to be expanded to 6 lanes between Interstate 20 and Green Oaks Boulevard when Center Street is constructed from Bardin Road to Green Oaks Boulevard.

Recommendation

- Based on the 2045 travel demand model, the level of service on Matlock Road between Interstate 20 and Green Oaks Boulevard is anticipated to be Tolerable (D-E) with a volume to capacity ranging from 0.72-0.99 with the Center Street extension.
- Without the Center Street extension, the 2045 travel demand model shows that this section of Matlock Road would fall to Undesireable (F) LOS.

Recommended Cross Section (for example/illustrative purposes only)

6-Lane Major Arterial



Note: Typical TDP Flexible Design Matrix section shown with recommended through travel lanes.

Focused Review

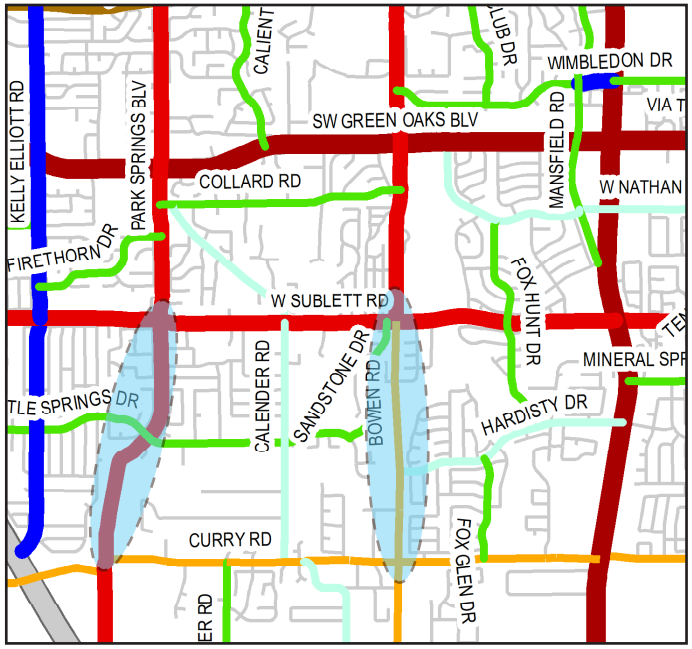
Southwest Arlington Connectivity

Purpose

- Evaluate future connectivity in southwest Arlington, specifically looking at South Bowen Road, Park Springs Boulevard, and Eden Road/Curry Road, and determine order of priority for improvements.

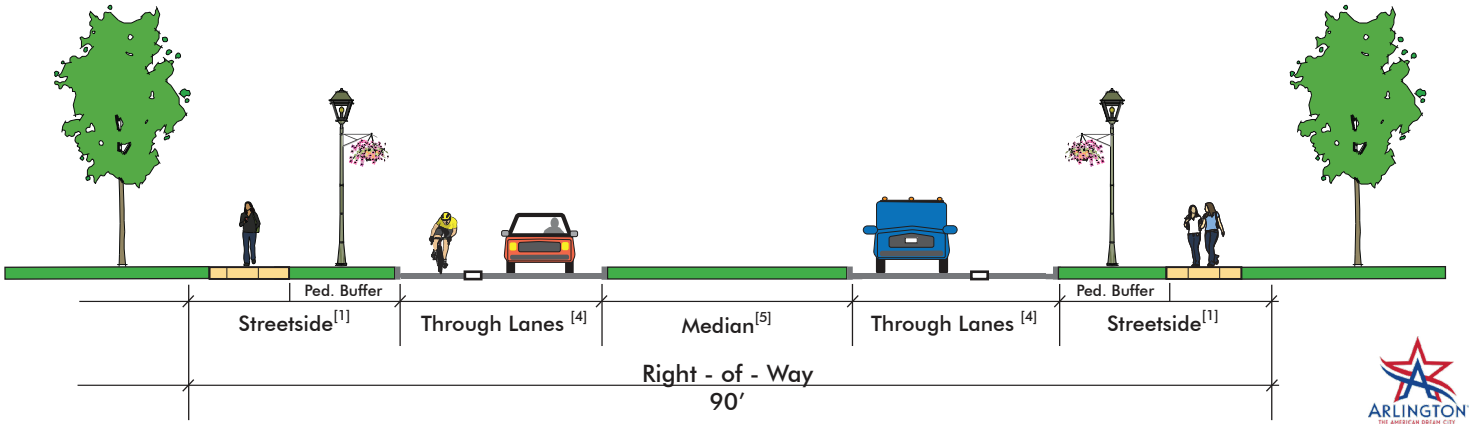
Recommendation

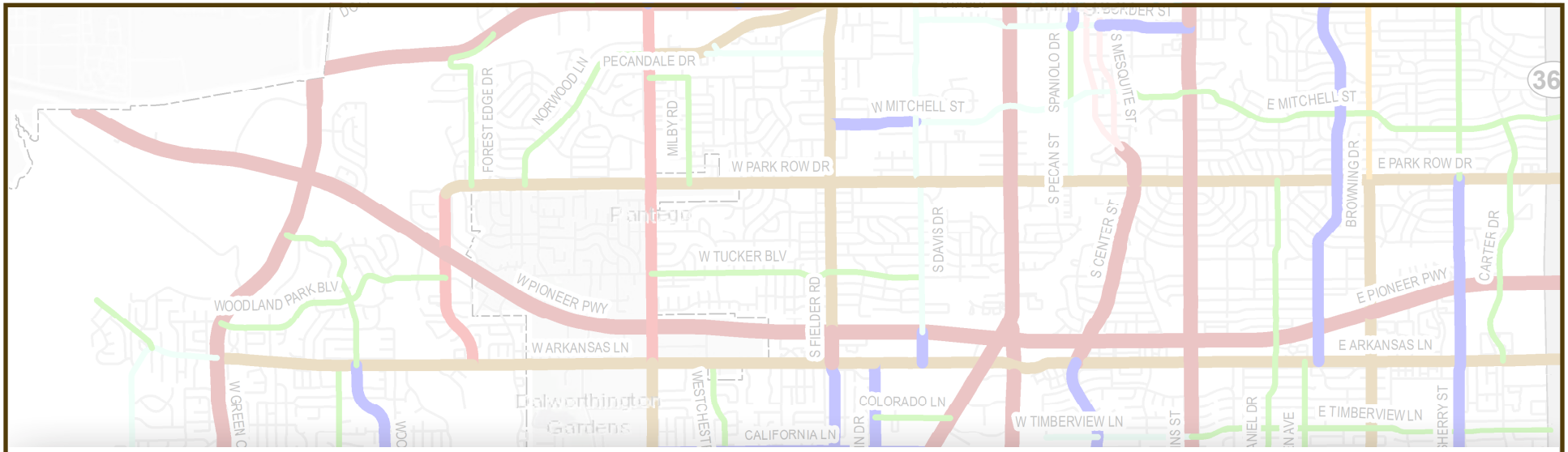
- The LOS of Park Springs Boulevard between Redstone Drive and Curry Road is anticipated to be Tolerable (D-E) in 2045, while the LOS of South Bowen Road between Sublett Road and Eden Road/Curry Road is anticipated to be Acceptable (A,B,C).
- Based on the evaluation of the 2045 travel demand model and considering north/south connectivity, Park Springs Boulevard should be constructed prior to South Bowen Road.
- Based on the evaluation of the 2045 travel demand model, Eden Road/Curry Road can remain as a Minor Arterial (2 lanes).



Recommended Cross Section for Eden Road/Curry Road (for example/illustrative purposes only)

2-Lane Minor Arterial





Thoroughfare Development Plan

Appendix

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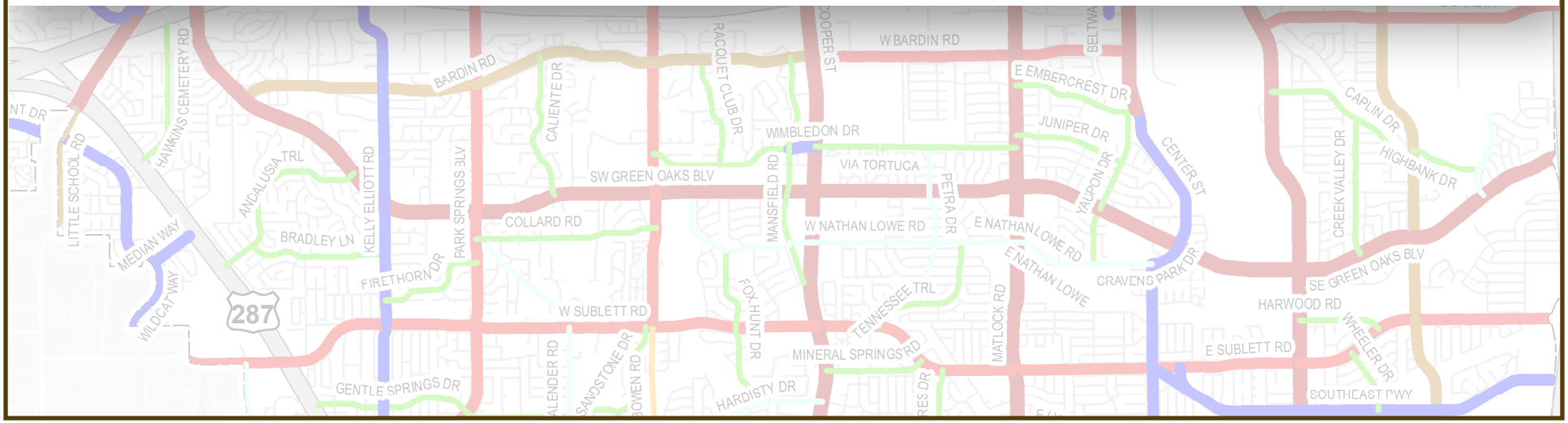


A. Model Basics

This Appendix describes the development and calibration of the Arlington TransCAD Subarea Model (ATCSM) used to evaluate existing travel conditions and forecast future year traffic for the City of Arlington. The ATCSM is a macroscopic region-wide travel demand model that forecasts future travel demand and its associated travel patterns. The update to the ATCSM included expanding the boundary of the model to include Denton, Tarrant, Collin, and Dallas County. The expanded model boundary required the Transportation Analysis Zone (TAZ) structure to change. To best incorporate census data, TAZ boundaries are now represented by the Census blocks. Each TAZ represents an area of development or activity that will generate trips. The ATCSM model has several levels of geographic boundaries. The levels of aggregation are shown below:

Transportation Analysis Zone (TAZ) level

Local Analysis District (LAD) level

Regional Analysis Area (RAA) level

Transportation Analysis District (TAD) level

Jurisdiction (JUR) level

The TAZ level is the smallest area of detail supported by the ATCSM model. The LADs include several TAZs and are used for summarizing the performance measures, RAAs contain several LADs, and so on, with the highest level of aggregation and lowest level of detail being the Jurisdiction level. Therefore, within the ATCSM model, the TAZ can represent any of the five levels of aggregation shown above. The greatest level of zone detail (TAZ) is included in the areas within and adjacent to the City. The further from the City the zone is, the less its impact on the specific City roadways, and, therefore, the less detail in the aggregation. In the ATCSM model, the majority of the TAZs are at RAA level or finer.

Four Step Modeling Process

The Arlington TransCAD model is comprised of a series of mathematical models that simulate travel on the transportation system. This macroscopic process encompasses the four (4) primary steps taken to estimate travel demand from a given land use and transportation network. The four steps in this approach are as follows:

Trip Generation – calculates the number of trips made based on household, employment, and land use data.

Trip Distribution – the estimation of the number of trips between each zone pair.

Modal Split – the prediction of the number of trips made by each mode of transportation between each zone pair.

Traffic Assignment – the amount of travel (or number of trips) that is loaded onto the transportation network through path-building and used to determine network performance.

This four step process is described in detail in the subsequent sections. The following section describes the necessary input data to create an accurate travel demand model.

B. TransCAD Input Data

There are many inputs that go into a regional travel demand model; these data can be broken into two basic categories: network data and land use data. This section of the report will describe sources of input data, assumptions made regarding input data, and the data themselves.

Network Data

The link-node data provided by the North Central Texas Council of Governments (NCTCOG) were used as a basis to build roadway networks. Included in these roadway networks are links, nodes, centroids, and centroid connectors. A centroid is a node that represents a TAZ, while a centroid connector is a link that connects the centroid to the roadway network, and generally represents very minor local streets such as those within a subdivision or a local neighborhood street. All of these data create the roadway network onto which traffic will be distributed and assigned as described in the sections that follow.

Other input to the ATSCM model included speeds and travel times (free-flow and loaded), capacities, number of lanes, and area type. NCTCOG has guidelines for the capacities and speed for various roadways based upon the facility's functional classification, number of lanes, and area type. These guidelines were applied to the roadway system in the ATCSM model. Arlington thoroughfare types (as defined by the TDP) were also coded into a special link field, as well as special codes for undivided versus divided and type of median. A special embedded capacity and speed look-up table and macro-driven program was created for the ATCSM to enable the user to select either link-coded speeds and capacities or apply the global values in the look-up table, overriding the link-coded values.

Because the ATCSM model includes roads throughout the Dallas-Fort Worth region, the roads outside the intensive study area of Arlington were assumed to be coded correctly, as they were obtained from NCTCOG.

Land Use Data

For the area outside Arlington, a combination of Census, ESRI, and NCTCOG data were used for land use and demographic data. The demographic data used in the trip generation process included number of households, population, median income, and number of employees by type of employment (basic, service, and retail). Demographic data are forecasted by NCTCOG for future study years based on trends in development and current and previous growth patterns. The basis for the land use information comes from each city in the Dallas-Fort Worth region and their land use plans (existing and future).

For land included in the Arlington municipal limits, the Arlington Comprehensive Plan was used to make assumptions relative to the development that will occur by a given study year (both 2045 and "build out"). **Table 1** indicates the 2021 households and employment demographics assumed by NCTCOG and Kimley-Horn for the City of Arlington area based on TAZ structure. The model used for the Arlington TDP analysis is a regional model that includes demographic projections for Arlington, as well as surrounding communities within the Dallas-Fort Worth region in order to appropriately forecast changes in both local and regional travel patterns. The demographics utilized as part of this TDP update are based on TAZ structure, not city limit boundaries, so population and employment totals account for existing development and growth in neighboring areas immediately outside Arlington.

Arlington TAZs	2021	2045
Households	154,970	172,248
Employment	233,135	313,813

Table 1: Arlington TAZ Demographic Assumptions

C. Level of Service Overview

Congestion levels and Level of Service (LOS) are two performance measures that are used to evaluate how well the transportation network is functioning. The congestion level of each roadway is related to both the traffic volumes and the capacity of the roadway. Future traffic volumes are one of the primary outputs of the ATCSM that help project transportation demand. Present-day traffic volumes are used to calibrate the model to ensure it is as accurate as possible and then future traffic volumes are then generated for each link (roadway segment) within the model. Capacity refers to the amount of daily traffic a particular roadway can handle. For example, a minor collector such as Lincoln Drive will have less traffic capacity than a major arterial such as Matlock Road.

Level of Service (LOS) is a tool that is used to quantify traffic congestion along specific roadways and within the entire transportation network. LOS is calculated by dividing the peak hour traffic volume by the available capacity (V/C). Roadways are designated as LOS A, B, C, D, E or F. LOS A represents a roadway where traffic volumes are much lower than the capacity for that roadway and LOS F represents a roadway where traffic volumes are greater than the capacity of the roadway. LOS A roadways are free flowing while LOS F roadways are extremely congested. The City of Arlington aims to maintain a LOS C or D on most roadways except in specific areas where slower moving traffic will help to create a vibrant, safe, and pedestrian-friendly environment. The Appendix includes a map that displays the volume to capacity ratio (V/C) for the City of Arlington in the year 2045.

LEVEL OF SERVICE

LOS A/B

Traffic flow in the A/B category moves at or above the posted speed limit. Travel time in this category is not hindered as a result of congestion because traffic volumes are much less than the actual capacity of the thoroughfare.

LOS C/D

This category is slightly more congested than LOS A/B, however traffic volumes are beginning to reach their capacity of the thoroughfare. Traffic moves along at an efficient rate and posted speeds are maintained.

LOS E/F

Congestion is apparent in this Level-of Service category. Traffic flow is irregular and speed varies. The posted speed limit is rarely, if ever, achieved in this category. In more congested corridors traffic can be at a mere standstill with limited progression.

C. Level of Service Overview

Supply and Demand of Transportation Networks

Much like the principles of economics, our transportation network also relies on the principles of supply and demand. For example, if a particular municipality neglects to appropriately manage capacity (supply) in an area that is expected for increased population or employment growth (demand), the transportation network will not function well. On the other hand, municipalities with depleting growth are finding reduced levels of congestion within their transportation network because less people are using the same transportation corridors that were once meant for a larger population.

A primary goal of the TDP is to plan for a future thoroughfare system that balances supply and demand so that resources are maximized and the system functions safely and efficiently. The results from the ATCSM provide an opportunity for the transportation network to be analyzed as a comprehensive system so that adjustments can be made where necessary to ensure there is neither too much or too little capacity to handle future traffic volumes. Adjustments to Arlington's future roadway system were based on the following issues related to supply and demand:

1) A roadway that is projected to experience traffic volumes greater than its capacity may need to be adjusted to allow for increased capacity.

2) A roadway that is planned for increased capacity improvements without the backing of increased traffic volume projections should be adjusted to match the demand.

3) A roadway may require increased capacity, but expansion may be limited by site-specific constraints such as right-of-way. In this instance, improvements on parallel facilities and throughout the entire network should be examined to mitigate the demand.

4) Increased use of alternate modes of transportation, such as transit or bicycling, could reduce vehicular demand on thoroughfare roadways over time.

The Appendix includes a map that shows daily traffic volumes expected by 2045. The four freeways that run through the City maintain the highest traffic volumes at greater than 100,000 vehicles per day. Major Arterials that carry the most local north-south traffic will include Matlock Road, Cooper Street and Collins Street, while Pioneer Parkway, Division Street and Randol Mill Road will carry the most East-West traffic.

A comparison of the existing total TDP lane miles and remainder lane miles left to build is included in **Table 2**.

Functional Class	Existing	2022 TDP TOTAL	2022 TDP Left to Build
Major Arterial	556.6	661.7	105.1
Minor Arterial	258.2	273.0	14.8
Major Collector	266.4	310.1	43.7
Minor Collector	123.8	124.7	0.9
TOTAL	**1205.0**	**1369.5**	**164.5**

Table 2: Arlington TDP Lane Miles Summary

D. Flexible Design Strategies & Matrix

Introduction

Flexible design allows for transportation planners and roadway designers to create unique characteristics specific to individual corridors. The changing dynamic that is causing this shift toward a more flexible approach to thoroughfare design is two-fold:

1) alternative modes such as transit, cycling and walking are being requested and utilized more often by citizens, necessitating a shift away from designs that focus solely on the automobile, and

2) it is now recognized that transportation decisions must not be made in a vacuum, and that other elements such as adjacent land uses types, land use densities and socioeconomic characteristics can affect the way a thoroughfare operates.

By utilizing this new state of practice, Arlington can continue to increase mobility within the City while providing its residents and visitors increased livability and sense of community.

Functional Classification

Most cities use a traditional functional classification system to group roadways according to the type of service they are intended to provide. This organized system assists citizens and developers in understanding the types of roadways that are planned for the City's transportation system and what those roadways might look like. Historically, street classification systems have been rigid and uncompromising, allowing little to no flexibility in their application. Street design characteristics have typically been limited to the area from curb-to-curb and focused solely on the vehicle.

However, this concept of rigidity has evolved over time as the relationship between transportation and land use has become more influential in the design and operation of our streets. Thoroughfare design practice has begun to involve a number of different design considerations that often include the streetside area (located between the building front and the curb) and that affect not only automobile users, but also pedestrians and cyclists.

While the City of Arlington has historically utilized the traditional functional classification system for its roadways, the 2011 TDP introduced a new functional classification system that utilizes the existing terminology (Major Arterial, Minor Arterial, Major Collector, Minor Collector), but included additional flexibility for the design characteristics of the roadway. This allows for each roadway to be designed in a way that adapts to the surrounding built environment and that benefits all users. The following pages illustrate and describe the functional classification system in greater detail.

D. Flexible Design Strategies & Matrix

Street Context and Development Policy

Along with the more flexible functional classification design standards, the street context, or character of the area adjacent to the roadway will play an important role in the way a street looks. One type of street design will not satisfy all of the different needs within the City and therefore it is important that the design standards offer flexibility to allow for these distinctions. There is no "one size that fits all" in the framework of street design.

The City of Arlington is broken into three different context zones (Suburban, General Urban and Urban Core) to allow for flexible design standards to be applied to the various area types within the City (see Figure D.2 on the following page).

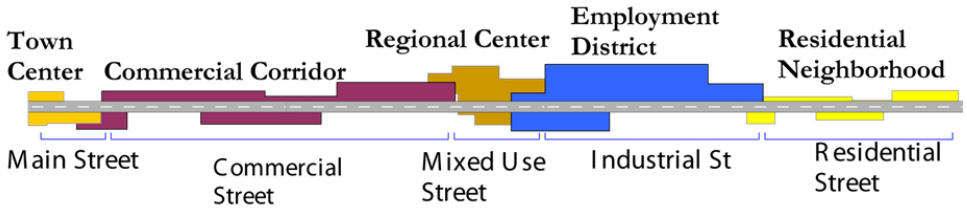


Figure D.1: "One Size Does Not Fit All" This graphic illustrates how a roadway may cross through a number of different context types. As the context changes, so should the street design.

Suburban

Distinguishing Characteristics: This zone consists of single-family residential homes and conventional multi-family apartments, along with an auto-oriented commercial development pattern. This zone also includes industrial areas and businesses that have potential to create adverse visual, noise, or other impacts to adjoining public and residential properties.

Typical Building Height: Structures can be 1 to 3 stories for residences, while commercial buildings are typically 1 to 2 stories. Industrial buildings are typically 2 to 3 stories with some variation.

Average Target Residential Density: Typical densities are around 3 to 8 units/acre (single family) and 16 units/acre (multi-family).

Type of Public Open Space: Parks and greenbelts dominate the open spaces.

General Urban

Distinguishing Characteristics: This zone includes a mix of housing types (including attached units), with a range of commercial and civic activity at the neighborhood and community scale.

Typical Building Height: Structures can be 2 to 4 stories.

Average Target Residential Density: Typical densities are around 8 to12 units/acre (single family) and 16 to 32 units/acre (multi-family).

Type of Public Open Space: Parks and greenbelts dominate the open spaces.

D. Flexible Design Strategies & Matrix

Urban Core

Distinguishing Characteristics: This zone includes attached housing types such as townhouses and apartments mixed with retail, workplace, civic activities, and walkable mixed-use developments.

Typical Building Height: Structures are typically 3 to 5 stories with some variation

Average Target Residential Density: Typical densities are around 8 to12 units/acre (single family) and 40 units/acre (multi-family).

Type of Public Open Space: Parks, plazas and squares, and boulevard median landscape dominate the open spaces.

Design Elements

As mentioned previously, street design has historically focused only on the area located between the curbs and has centered design criteria around the private automobile. However, emerging practice places emphasis on other aspects of the street in addition to the travel way. For example, pedestrian and bicycle infrastructure is being implemented more frequently in neighborhoods to encourage healthy living and exercise, and in more commercial locations to spur increased economic development.

When planning future thoroughfares, it is essential to identify all aspects of the corridor in order to maximize efficiency of the roadway system and the value of the surrounding property. Three separate realms have been identified within the Thoroughfare Development Plan to be taken into consideration when planning for roadways. These realms are the travel way realm, the pedestrian realm and the context realm, as shown in Figure D.3.

Each of the realms are identified in the flexible design matrix and have specific guidelines on how each of the thoroughfares can be designed. Flexibility is enabled in the design matrix to allow developers and roadway designers the ability to adapt their vision of the corridor to the surrounding built environment.

The flexible design matrix table is intended to provide dimensions to be utilized in building a desired cross section. The maximum values in all categories may not be able to be used if the values exceed the available ROW.

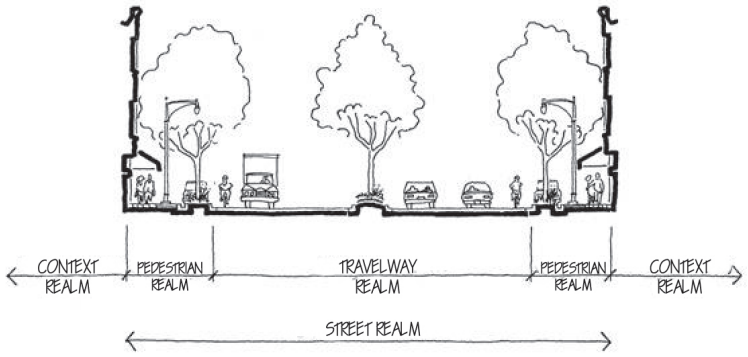


Figure D.3 – Anatomy of the Street, identifying the different realms

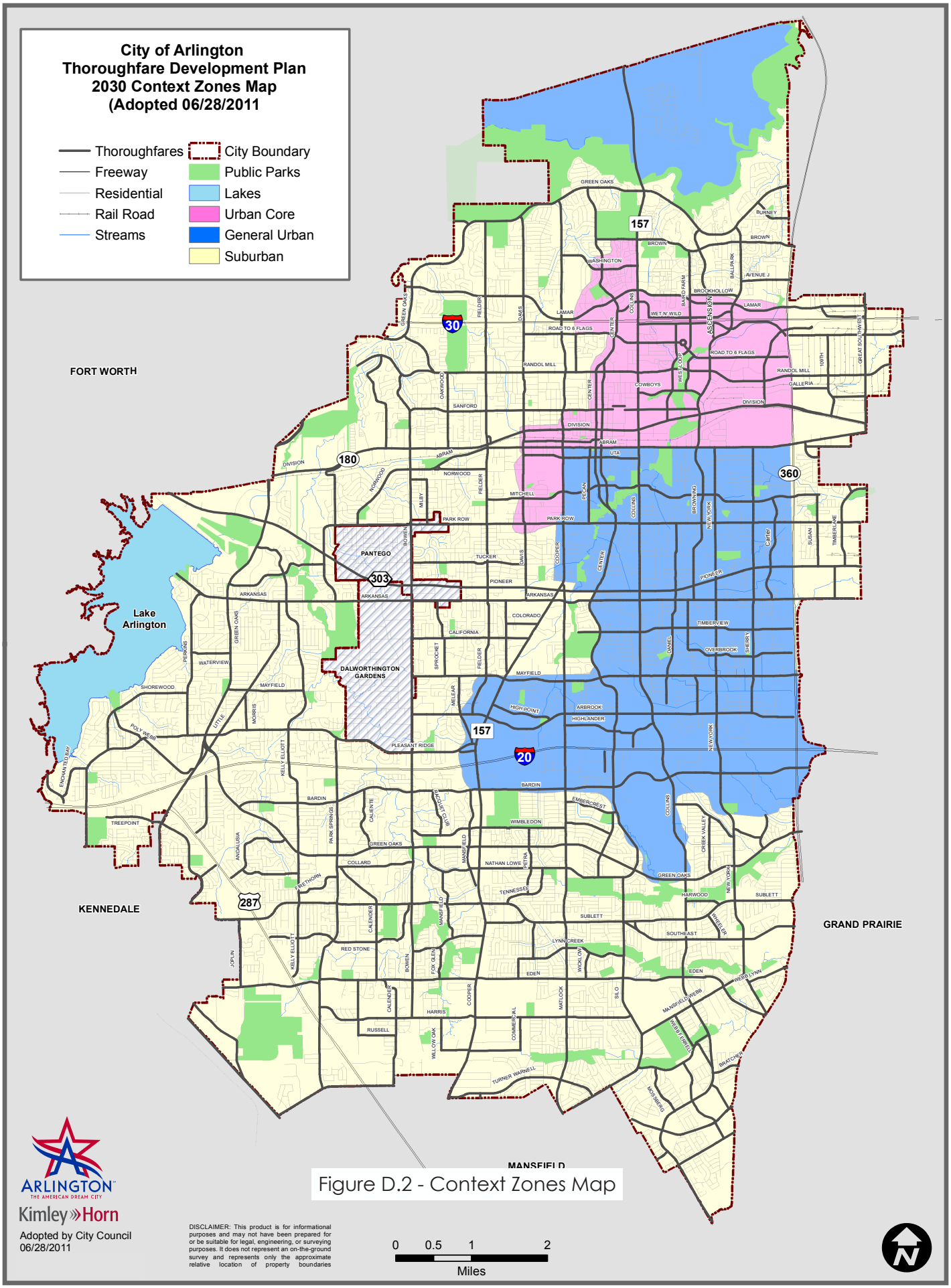
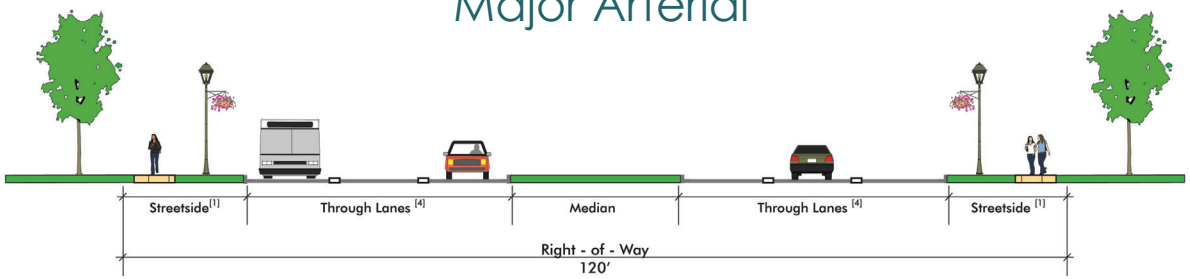


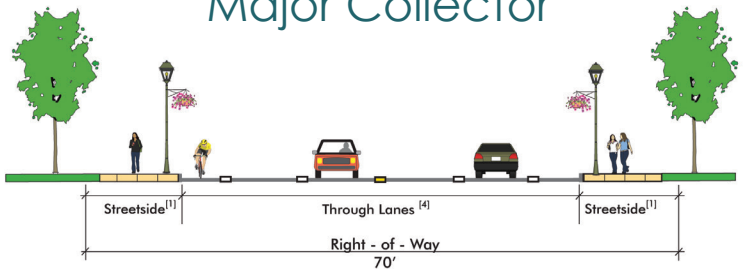
Figure D.2 - Context Zones Map

Flexible Design Matrix

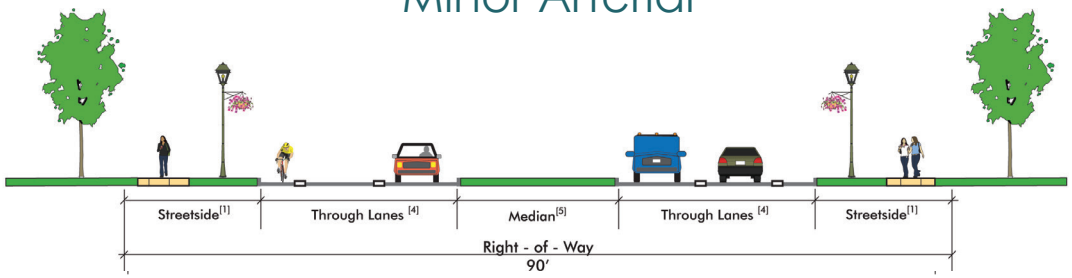
Major Arterial



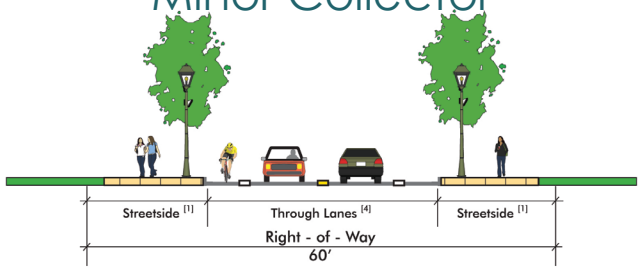
Major Collector



Minor Arterial



Minor Collector



	Major Arterial			Minor Arterial			Major Collector			Minor Collector		
Pedestrian Realm	**Suburban***	**Urban***	**Urban Core***	**Suburban***	**Urban***	**Urban Core***	**Suburban***	**Urban***	**Urban Core***	**Suburban***	**Urban***	**Urban Core***
Recommended Streetside Width [1]	14 - 26 ft	15 - 27 ft	15 - 27 ft	9 - 23 ft	11 - 25 ft	11 - 25 ft	9 - 23 ft	9 - 25 ft	9 - 25 ft	9 - 19 ft	9 - 19 ft	9 - 19 ft
Recommended Sidewalk Width [2]	4 - 10 ft	6 - 12 ft	6 - 12 ft	4 - 10 ft	6 - 14 ft	6 - 16 ft	4 - 10 ft	4 - 14 ft	4 - 16 ft	4 - 8 ft	4 - 10 ft	4 - 12 ft
Recommended Pedestrian Buffer Width [3]	8 -14 ft	7 - 13 ft	7 - 13 ft	4 - 12 ft	4 - 10 ft	4 - 8 ft	4 - 12 ft	4 - 10 ft	4 - 8 ft	4 - 10 ft	4 - 8 ft	4 - 6 ft
Travel Way Realm												
Number of Through Lanes [4]	4 - 6	4 - 6	4 - 6	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 3	2 - 3	2 - 3
Target Speed (MPH)	35 - 45	35 - 45	35 - 45	30 - 40	30 - 40	30 - 40	25 - 35	25 - 35	25 - 35	30	30	30
Lane Width	11 - 12 ft	11 - 12 ft	11 - 12 ft	11 - 12 ft	11 - 12 ft	10 - 12 ft	11 - 12 ft	10 - 12 ft	10 - 12 ft	11 - 12 ft	10 - 12 ft	10 - 12 ft
Median Width [5]	16 - 20 ft	16 - 20 ft	16 - 20 ft	0 - 16 ft	0 - 16 ft	0 - 16 ft	0 - 16 ft	0 - 16 ft	0 - 16 ft	N/A	N/A	N/A
On-Street Parking Width [6]	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft
Bike Lanes (minimum) [7]	6 ft	5 - 6 ft	5 - 6 ft	6 ft	5 - 6 ft	5 - 6 ft	5 - 6 ft	5 - 6 ft	5 - 6 ft	5 - 6 ft	5 - 6 ft	5 - 6 ft
Right-of-Way (ROW) [8]	120 ft	120 ft	120 ft	90 - 100 ft [9]	90 - 100 ft [9]	90 - 100 ft [9]	70 ft	70 ft	70 ft	60 ft	60 ft	60 ft
Anticipated Traffic Volumes	20,000 - 50,000	15,000 - 50,000	15,000 - 40,000	20,000 - 35,000	10,000 - 35,000	15,000 - 30,000	1,500 - 30,000	1,500 - 25,000	1,500 - 25,000	1,500 - 30,000	1,500 - 25,000	1,500 - 25,000

[1] Streetside width includes sidewalk, pedestrian buffer and 1' buffer on outside edge of sidewalk.
[2] Minimum width requirement for a suburban sidewalk is 4', however 6' is preferred as minimum if ROW permits.
[3] In suburban locations, buffer is typically fitted with landscaping such as grass, while in urban locations buffer can have tree wells. Buffer includes width needed for the curb.
[4] Number of through lanes for thoroughfares are identified on the TDP Map.
[5] Median for 2 lane option can be a two-way left turn lane if desired. No medians or center turn lanes are possible on minor collectors.
[6] When combined with bike lanes parallel parking can be 8', but 9' is preferred if ROW permits.
[7] For urban contexts, bike lanes can be 5' when combined with on-street parking, and 6' without adjacent on-street parking. Refer to Hike and Bike System Plan for additional details.
[8] Along roadways where previously dedicated right-of-way (ROW) is wider than the current required ROW, additional ROW may be required to transition road side elements (such as utilities) to the narrower roadway cross section.
[9] 100' of ROW is required only in specified instances; Eden Rd and Bowen Rd from Sublett to Calender Rd are the only thoroughfares designated as 100' (See TDP map for details).
[10] Lamar Blvd from Lincoln Dr to Ryan Plaza Dr is a 3 lane Major Arterial: 1 lane west-bound and 2 lanes east-bound.
[*] Information on context zones (suburban, urban, and urban core) can be found on page 10 of the manual.

***The table is intended to provide dimensions to be utilized in building a desired cross section. The maximum values in all categories may not be able to be used if the values exceed the available ROW.*

E. Planning & Design Process

Introduction

The following planning, design, and approval process provides the framework for developing a more integrated approach to roadway design by planners, engineers, and designers. This process can be used for all new and retrofit street projects within the City. A single comprehensive design process that guides all aspects of street design allows for a convenient and streamlined process for everyone involved.

The land use and surrounding context should help direct the design for streets and street networks. The design should take into consideration a multi-modal approach based on the goals and priorities of each specific corridor. The City should take the following items into consideration when designing the transportation network:

- Safety and accessibility for all users
- Interconnected networks for all modes of transport
- Speed management
- Consideration of landmarks, views, vistas, and gateways
- Legibility and efficiency
- Environmental conditions

Identifying Priority Elements

The most difficult element of thoroughfare design is balancing the desired design elements with the right-of-way constraints. This balancing act is the reason flexibility is so important during the planning stage of thoroughfare design. In the past, the process of choosing the appropriate design standards for a particular roadway was simple because only one option was available for each roadway type. This simplified the process for the roadway designer, but lacked the flexibility that is often needed to provide multi-modal options for the thoroughfare. The priorities along a specific corridor are typically tied to the land use and development patterns found along the corridor. Two streets with the same number of lanes and right-of-way may have completely different priorities. The ITE Context Sensitive Solutions Manual states that, "Dimensions, whether for elements in the streetside, traveled way, or intersection, should not be applied arbitrarily but should be based on specific rationale". This rationale can be based on a number of different priority elements. Allowing flexibility in the design process ensures that the goals and priorities for each specific corridor are met.

The priority elements of a thoroughfare may be different depending on the road type and context. Higher-priority design elements are those that help the thoroughfare meet the vision and context sensitive objectives of the community. Lower-priority elements have less influence on achieving the objectives and can be relinquished in cases of insufficient right-of-way. Using the matrix on the following page can assist in choosing the appropriate priority elements for the design of roadways in the City of Arlington.

E. Planning & Design Process

PRIORITY ELEMENTS

Design Elements	Street Types					
	Arterial			Collector		
	Urban Core	General Urban	Suburban	Urban Core	General Urban	Suburban
Travel Way Realm						
Number and width of travel lanes						
Vehicular capacity						
Design for large vehicles						
Medians						
Bicycle lanes						
Multimodal intersection design						
Pedestrian Realm						
Wide sidewalks with amenities						
On-street parking						
Transit priority operations						
Context Realm						
High amenity transit facilities						
Urban design features						
Other Elements						
Interconnected street system						
Access management						

High Priority
Medium Priority
Low Priority

Note: Chart to be used in prioritizing the above design elements when Right-of-Way is limited.

Table E.1 - Priority Elements of the Street

Thoroughfare Design Stages

The thoroughfare design process is a simplified process that allows for a more flexible approach to roadway design. The process can include collaboration with the public, stakeholders, and a multidisciplinary team of professionals (both public and private sectors) if needed, depending on the complexity of the surrounding context and needs. Within the City of Arlington, inter-departmental coordination needs to occur throughout the process to ensure that the goals and priorities of the corridor are achieved. The design process applies to all street design scenarios and entails five steps:

- Step 1: Determine TDP Functional Class and Number of Lanes
- Step 2: Determine Context Realms
- Step 3: Identify Right-of-Way (Existing and/or Future)
- Step 4: Select Priority Elements for Thoroughfare
- Step 5: Finalize Design

E. Planning & Design Process

Step 1: Determine TDP Functional Class and Number of Lanes

The Thoroughfare Development Plan identifies every arterial and collector within the City of Arlington as either a major or minor facility. Together with the functional classification, the number of through travel lanes for each facility has also been specified based on the projected future needs acquired from the travel demand model.

Step 2: Determine Context Realms

Once the functional class and number of lanes have been identified, it is important to determine in which context realms the thoroughfare is located: Urban Core, General Urban or Suburban.

Step 3: Identify Right-of-Way (Existing and/or Future)

In this step, it must be determined whether the existing right-of-way is sufficient or if additional right-of-way must be acquired to fulfill the requirements of the corridor. During this step, use the flexible design matrix to determine potential dimensions of the thoroughfare.

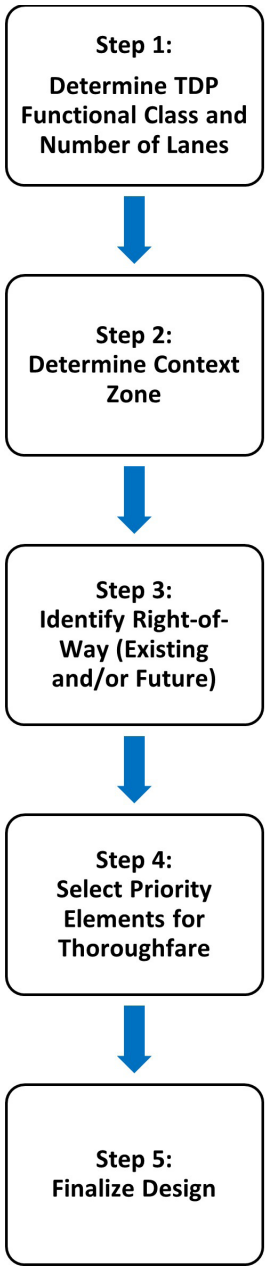
Step 4: Select Priority Elements for Thoroughfare

This step will identify the characteristics of the travel way and the streetside based on the surrounding land uses and built environment. Coordination with relevant stakeholders is important during this stage of the planning process to ensure a community-supported and easily implementable design. The following list includes examples of questions that can be asked during this step to identify priorities.

- Is this a corridor heavily used by cyclists and pedestrians?
- Are commercial vehicles frequent?
- Are there businesses located on this corridor? Are they auto-oriented (big-box) or pedestrian-oriented (street frontage)?
- Is this a residential location with parks and schools near-by?
- Do people require on-street parking to access homes or businesses?
- Is transit used on this corridor?
- Is this thoroughfare affected by special event traffic?

Step 5: Finalize Design

The previous steps lead to the final step which is to finalize the new thoroughfare design of the studied corridor. A flow chart has been developed that identifies the steps of the design process, starting from identifying the projects in the Capital Improvement Plan through completion of construction documents.



City of Arlington
Thoroughfare Development Plan Review
2022 TDP Capacity Status

2022 TDP

- Existing
- Future
- Existing Highway

Capacity Status

- Widening
- Striping
- Future
- Local Roads

Date: 10/28/2022

Capacity Status

Widening - Thoroughfare requires additional lanes and ROW for ultimate capacity.

Striping - Thoroughfare is built out but not striped for its ultimate section.

Future - Thoroughfare is not built.

City of Arlington
Thoroughfare Development Plan Review
2045 Traffic Volumes

2045 Traffic Volumes

- 0 - 5,000
- 5,001 - 11,000
- 11,001 - 19,000
- 19,001 - 28,000
- 28,001 - 38,000
- 38,001 - 49,000
- 49,001 - 67,000
- 67,001+
- City Limits
- Local Roads

Date: 10/31/2022

ARLINGTON
THE AMERICAN DREAM CITY

Kimley»Horn

City of Arlington
Thoroughfare Development Plan Review
2045 Level of Service

2045 Level of Service

- Acceptable (ABC)
- Tolerable (DE)
- Undesirable (F)
- City Limits
- Local Roads

Date: 10/28/2022

ARLINGTON
THE AMERICAN DREAM CITY

Kimley»Horn

City of Arlington
Thoroughfare Development Plan Review
2022 TDP

Functional Class

- Major Arterial - 6 Lanes
- Major Arterial - 4 Lanes
- Major Arterial - 3 Lanes
- Minor Arterial - 4 Lanes
- Minor Arterial - 2 Lanes
- Major Collector - 4 Lanes
- Major Collector - 3 Lanes
- Major Collector - 2 Lanes
- Minor Collector - 2 Lanes

- Existing Highway
- Local Roads
- City Limits

Date: 10/31/2022

ARLINGTON
THE AMERICAN DREAM CITY

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