Town of Arlington

Major Road Plan

Prepared for: Town of Arlington

Prepared by: Kimley-Horn and Associates, Inc.

Kimley-Horn
and Associates, Inc.

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1 Introduction

Sustainable growth in a community is dependent upon infrastructure such as utilities, water, wastewater, and transportation. Providing this infrastructure in a way that promotes livability and enhances the economic and social well-being of the community is critical to the continued success of the Town. A plan that identifies future transportation infrastructure provides the Town, property owners, developers, and regional stakeholders information they need to make investment decisions. The Major Road Plan identifies the transportation infrastructure necessary to support growth.

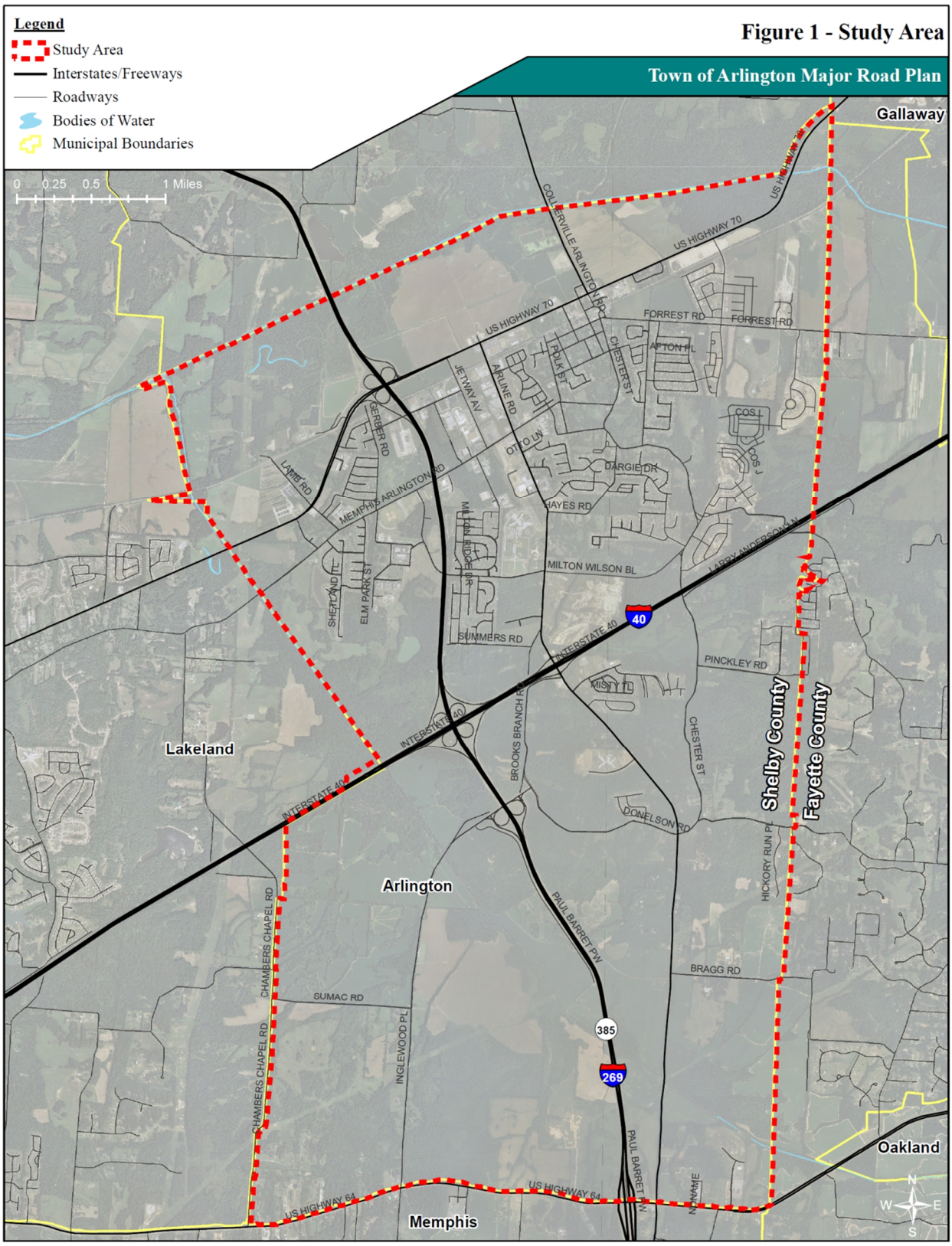
1.1 Purpose of the Major Road Plan

The purpose of the Arlington Major Road Plan is to evaluate the ability of the planned roadway system to accommodate future traffic volumes upon ultimate build-out of the Town of Arlington in accordance with the recently adopted Land Development Plan.

As part of the development of the plan, a subarea Travel Demand Model for the Town of Arlington (Arlington Model) was developed based on the official version of the Memphis MPO Travel Demand Model (the Regional Model) developed and updated for the 2040 Long Range Transportation Plan. The Arlington Model was then used to forecast the traffic volumes for the full build-out scenario. In addition, a public meeting was conducted to solicit input from the public on existing roadway network deficiencies, and needs. Deficiencies of the existing Major Road Plan were analyzed and recommendations for improvement were made based on the existing and future transportation needs of the community.

1.2 Description of the Study Area

The Arlington Major Plan Road area as illustrated in **Figure 1** is bounded by the Loosahatchie River to the north, the City of Lakeland to the west, Fayette County to the east, and Highway 64 to the south. The study area encompasses approximately 24 square miles. In 2010, the population of Arlington was approximately 11,500. The majority of the existing development in the Town of Arlington occurs north of I-40. The major roadways that serve the study area include Interstate 40, Interstate 269/ State Route 385, Highway 70, Highway 64, Airline Road, Memphis Arlington Road, and Chambers Chapel Road.



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1.3 Plan Goals and Objectives

The goals and objectives of the Major Road Plan were established through the public meeting and coordination with the Town of Arlington staff. The goal of the Arlington Major Road plan is to provide a transportation system that:

1. Identifies future transportation issues and needs based on the full build out of the Town's land use plan
2. Promotes a safe, livable community that enhances the economy and quality of life
3. Provides guidance for implementing recommended improvements based on future development

From this goal, the following targeted objectives were established:

- Decrease traffic congestion
- Increase the safety of the transportation system for all users
- Support a multi-modal network that promotes a bicycle and pedestrian friendly environment
- Encourage transportation projects that support economic development
- Provide a transportation network that promotes connectivity

2 Public Involvement

The public involvement process for the Arlington Major Road Plan included a public meeting where citizens and public officials participated in the plan creation process. During the public involvement process, input was gathered to help establish the plan's goals and objectives, provide feedback on congestion and safety issues, and assess public access and mobility needs. Copies of the sign-in sheet, public questionnaires, and comment maps at public meeting are included in **Appendix A**.

The public meeting was organized as a workshop that provided a forum for community members to mark up maps, translating their ideas and values into shared goals and specific desired improvements. The meeting began with an overview presentation during which the project team described the planning process and introduced background data including typical goals and objectives, the importance of planning land use and transportation together, and the concepts of complete streets and connectivity. In addition, the results from the Future Traffic Growth and Deficiency analysis were shown to the public. Following the presentation, the participants divided into small groups led by the organizers for group discussions. A questionnaire was distributed with the following categories used to help guide the discussion:

- Goals and Objectives
- Evaluation of Existing Transportation Facilities
- Transportation System Priorities
- Areas of Concern

The questionnaire identified the following issues associated with the existing transportation system, and asked respondents to rate the quality of each:

- Traffic Congestion
- Attractiveness of Roads
- Traffic Safety
- Sidewalks / Crosswalks
- Bicycle Paths / Lanes / Greenways
- Traffic Signal System
- Condition of Roads

Based on the responses to the questionnaire, as shown in **Figure 2**, the majority of respondents felt that the existing Arlington transportation system is generally "Good" to "Fair". The categories related to pedestrians and bicycles were the only ones to receive ratings of "Poor".

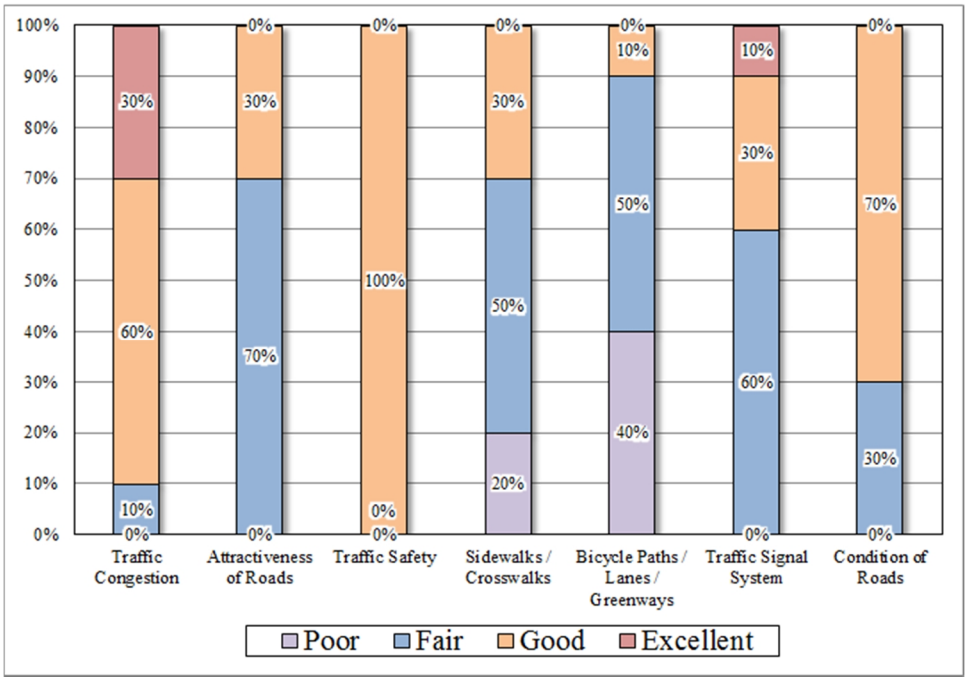


Figure 2 Public Ratings of Existing Transportation Facilities

Different elements of the transportation plan were listed in the questionnaire and members of the public were asked to rank them in order of "Most Important" to "Least Important". The results of the priority rankings are shown below, with safety shown as the most important and attractiveness of roads as the least important:

1. Safety
2. Economic Development
3. Sidewalks / Crosswalks
4. Traffic Congestion
5. Traffic Signal System
6. Bicycle Paths / Lanes / Greenways
7. Complete Streets
8. Condition of Roads
9. Sustainability
10. Attractiveness of Roads

Input received from the public during the meeting was used to address the deficiencies identified for the full build-out baseline scenario. A number of recurring themes that emerged from the public meeting that were consistent with the project's vision, and were addressed in the transportation plan.

3 Methodology

For the development of the Major Road Plan for the Town of Arlington, the Memphis Urban Area Metropolitan Planning Organization's (MPO) Regional Travel Demand Model was used to determine future traffic volumes for the Town.

Since the regional model is used primarily to forecast traffic volumes on arterial roadways, the traffic analysis zones (TAZ) in the suburban and rural areas are quite large, and many roadways that are significant to Town of Arlington are not included in the regional model. Therefore, a subarea travel demand model for the Town of Arlington was developed based on the regional model to be able to model routes important to the Town. The subarea model inherited all the benefits from the regional model, such as more accurate regional demographic and economic forecasts and state-of-practice trip generation, distribution, and traffic assignment models. This subarea model was used to forecast the future traffic volumes for the full build-out scenario for the Major Road Plan.

This section describes the subarea model development process and the methodology used to forecast the demographic and economic characteristics in the full build-out scenario.

3.1 Base Year Subarea Model Development

As the first step of the Arlington model development process, the base year (2010) model needed to be developed and validated to make sure that the subarea model accurately represented the base year traffic condition. Existing TAZs in the study area were reviewed and the 17 existing TAZs were redefined to create 41 zones. The refined TAZ structure allows enough granularity to evaluate the full build-out land use and define the new future roadways to the level of detail desired by the Town.

Roadways significant to the Arlington area were added to the highway network and their characteristics were coded into the model. The demographic and employment distribution was adjusted based on the new TAZ structure, recent aerial photography, and developmental densities. The traffic assignment results from the subarea model were then compared with 2010 traffic counts to evaluate the model performance and validate the model. *Technical Memorandum # 1 –Base Year (2010) Travel Demand Model Development and Assignment Validation*, attached as **Appendix B** of this report, details the base year subarea model development process.

3.2 Full Build-out Demographic and Economic Forecasts

The travel demand model uses the following nine trip purposes to identify the trips that are produced and attracted to each traffic analysis zone:

- Journey to work
- Home based school
- Home based university
- Home based shopping
- Home based social-recreational
- Home based pickup/drop-off
- Home based other
- Non-home based work
- Non-home based non-work

In the trip production model, the number of trips produced by representative households in a TAZ is estimated based on its characteristics. For example, the number of Journey to Work trips a household produces per day depends on the average workers per household, the income level, and the number of vehicles. In the trip attraction model, the number of trips attracted to each TAZ for each trip purpose is determined by the commercial mix. For example, how many Journey to Work trips are attracted to a particular zone depends on the total employment of the destination zone. Similarly, the total Home Based Shopping trips are determined by the scale of the retail, which is represented by the number of retail employees.

Town of Arlington Land Development Plan was adopted in October 2010. The Land Development Plan provides guidance for future development, zoning, subdivisions, redevelopment, and related issues. Within the Land Development Plan, different types of land use classifications are defined for each of the parcels within the Town of Arlington. These different land use classifications help describe the zoning, appropriate land uses, density, and features of each parcel. A map showing the land use plan is provided in **Appendix C**. Using this information, the model inputs for residential and employment types (retail, industrial, service, office, and government) were distributed based on the different land use classifications. **Table 1** shows how the land use classifications were divided into different model inputs for residential and employment types.

Table 1 Land Use Breakdowns

Land Use Types[1]	Component Breakdown by Area						
	Residential		Employment				
	Single Family	Multi Family	Retail	Industrial	Service	Office	Government
Community Support Commercial	-	-	85%	-	-	15%	-
Estate Residential	100%	-	-	-	-	-	-
Floodway	-	-	-	-	-	-	-
Greenways, Parks and Open Space	-	-	-	-	-	-	-
Higher Intensity Residential	90%	10%	-	-	-	-	-
Institutional	-	-	-	-	-	-	100%
Light Industrial Employment Node	-	-	-	100%	-	-	-
Low Intensity Suburban Residential	100%	-	-	-	-	-	-
Mixed Use	20%	30%	25%	-	5%	20%	-
Neighborhood Support Commercial	-	-	85%	-	15%	-	-
Office Employment Node	-	-	-	-	-	90%	10%
Regional Support Commercial	-	-	80%	-	10%	10%	-
Rural Residential and Agriculture	100%	-	-	100%	-	-	-
Suburban Residential	100%	-	-	-	-	-	-

Source: 1. Town of Arlington Land Development Plan

It should be noted that it was assumed that all of the future development for the full build-out scenario would only occur in undeveloped parcels. It was also established that no developments would occur in areas currently identified in floodways or open space areas. The areas that were assumed to have future development for the full build-out scenario are shown in **Figure 3**. To account for the development of future greenways, parks, and open space areas, existing density trends for these features were also applied to the full build-out scenario. In addition, current plans for the known developments listed below were included in the full build-out scenario.

- Cambridge Manor (Phase 2)
- Hall Creek at Arlington
- Hayes Place P.D.
- Wilsons Crossing P.D.
- Windsor Place
- Depot Square

The total number of dwelling units or households for each of the TAZs were determined based on different developmental densities for each land use type as defined from the Land Use Development Plan. **Table 2** shows these density rates the for each residential land use type used for the model inputs.

Table 2 Residential Dwelling Density by Land Use Type

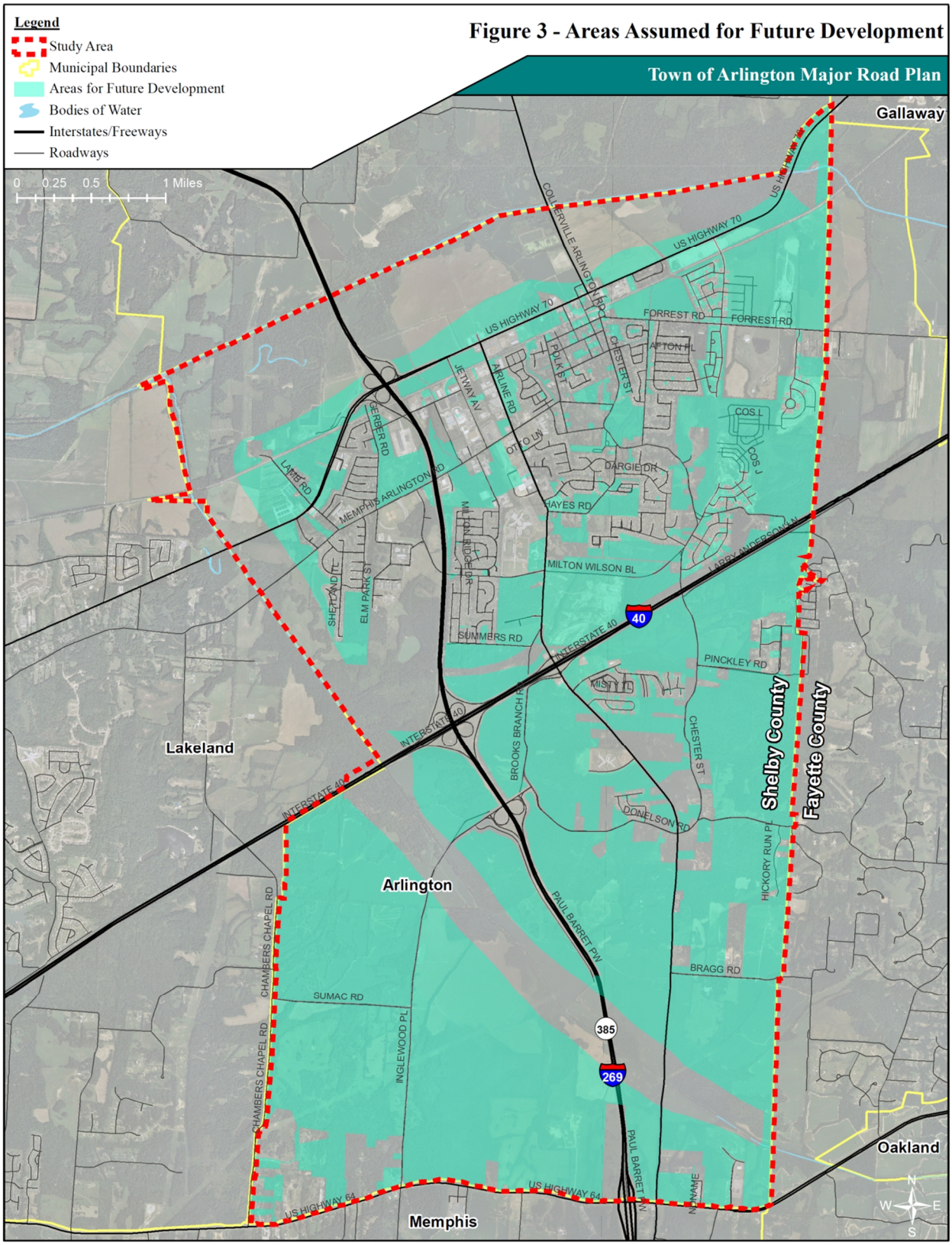
Residential Land Use Types	Dwelling Density
Estate Residential	1.0 dwelling unit per acre
Higher Intensity Residential	3.5 dwelling units per acre for single family, 10.0 dwelling units per acre for mutli-family
Low Intensity Suburban Residential	2.4 dwelling units per acre
Mixed Use	4.0 dwelling units per acre for single family, 8.0 dwelling units per acre for mutli-family
Rural Residential and Agriculture	1.0 dwelling unit per parcel
Suburban Residential	3 dwelling units per acre

Source: Town of Arlington Land Development Plan

An additional requirement for the model breaks households into more detailed characteristics as described below:

- Households by number of persons,
- Households by number of workers,
- Households by annual income, and
- Households by age group (under 18, age 18-64, and age 65 and over)

The distributions of these categories were assumed to follow similar trends in the study area as already defined from the current demographic forecasts from the Regional Model and were applied in development of the Arlington Model.



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The last step in providing land use inputs was to forecast the total number of employees for each TAZ based on the land use type. In the absence of detailed site plans, full development of each analysis zone was assumed to occur based on the maximum floor area ratios as shown in **Table 3** for each land use type.

Table 3 Floor-Area-Ratios

Employment Land Use Types	Floor-Area-Ratio (FAR)
Community Support Commercial	0.25 Retail / 0.25 Office
Institutional	0.25 Government
Light Industrial Employment Node	0.25 Industrial
Mixed Use	0.25 Retail / 0.30 Service / 0.25 Office
Neighborhood Support Commercial	0.25 Retail / 0.3 Service
Office Employment Node	0.25 Office / 0.25 Government
Regional Support Commercial	0.25 Retail / 0.3 Service / 0.25 Office
Rural Residential and Agriculture	0.01 farm worker per acre[1]

Source: 1. US Census, Shelby County

Along with the maximum floor area ratios, the employment types were assumed to have employment per 1,000 square feet of floor space as shown in **Table 4**. The employment density was developed based on the ITE Trip Generation Manual and compared with similar studies for consistency.

Table 4 Employment Rates

Employment Types	Employees per 1,000 square feet
Retail	2.0
Industrial	1.7
Service	3.1
General Office	2.5
Government	2.5

School enrollment data was a consideration for the full build-out scenario. School enrollment was added as a model input based on existing school data. It was assumed that future schools in the full build-out scenario would have the same number of students as existing schools.

Appendix D provides a map showing the forecasted total number of households and employment by TAZ. A table is also included in Appendix D to show a more detailed breakdown of demographic and economic forecasts for the full build-out scenario by TAZ.

The demographic and economic forecasts were used as input to the Arlington Model to forecast the future traffic growth as described in the following section.

4 Future Traffic Growth and Deficiency Analysis

Based on the demographic and economic forecasts developed from full build-out of the Land Development Plan, the Arlington travel demand model was used to forecast the future traffic growth. The existing and committed roadway network was evaluated using the travel model to identify where there will be insufficient capacity to meet the demand at full build-out of the Town. Projects identified in the Memphis MPO's 2040 Long Range Transportation Plan were then evaluated using the travel model. The remaining deficiencies were then addressed with the recommended roadway projects in the Major Road Plan identified in Section 5.1. The following describes the methodology used to analyze travel demand and develop roadway projects to mitigate congestion.

4.1 Deficiency Analysis Methodology

Roadway level of service (LOS) is a qualitative measure of roadway performance based on roadway capacity. Roadways are assigned a letter grade from A (best) to F (worst) based on their operational character. For new roadways, it is generally considered acceptable if it operates at a level of service between A and C. Level of service between D through F represents roadways approaching or at capacity which will negatively impact the operation of the roadway. The Arlington model was used to estimate the level of service based on volume-to-capacity (V/C) ratios on each roadway segment. As the volume on the roadway approaches the capacity, the level of service and operational efficiency of the roadway goes down and delays increase. The characteristics and definitions of the evaluation criteria for roadways with unacceptable operating characteristics are:

- **LOS D** – Approaching Capacity (V/C from 0.8 to 0.9) – A roadway with a volume to capacity ratio less than 0.8 typically operates adequately. As the volume increases, the roadway becomes more congested. A roadway approaching capacity may operate efficiently during non-peak hours but be congested during peak travel periods.
- **LOS E** – At Capacity (V/C from 0.9 to 1.0) – Roadways operating at capacity or slightly above capacity are heavily congested during peak periods and moderately congested during non-peak hours. Incidents greatly impact the travel flow on corridors operating within this range.
- **LOS F** – Over Capacity (V/C greater than 1.0) – The roadways in this category represent the most congested corridors. These roadways are congested during peak and non-peak hours and most likely operate in stop-and-go conditions during the peak travel periods.

4.2 Existing and Planned Roadway Network Evaluation

To identify future year congestion, separate roadway networks were evaluated using the travel demand model. The following roadway networks were evaluated as part of the future traffic deficiency analysis:

- Existing and Committed Roadway Network
- 2040 Memphis MPO Long Range Transportation Plan

4.2.1 Existing and Committed Roadway Network

To identify future year deficiencies, the full build-out demographic and economic characteristics were evaluated in the travel demand model using the existing roadway network, and committed projects that have construction funds identified as shown in the Memphis MPO's 2014 to 2017 Transportation

Improvement Plan (TIP).The results from the existing and committed roadway network are shown in **Figure 4**. This illustrates how the existing roadway network is expected to operate without any additional improvements to the transportation system. Many roads in the study area are projected to operate at unacceptable levels. To be able to sustain the projected development, additional roadway mitigation strategies will need to be identified to be able to meet the goals and objectives of the Major Road Plan.

4.2.2 2040 Memphis MPO LRTP Scenario

Projects identified the Memphis MPO's 2040 Long Range Transportation Plan (LRTP) were then evaluated. The projects shown in **Table 5** have an implementation date of 2040 or earlier and were included in the analysis of this network. The results these projects have on reducing congestion for the full build-out condition for Arlington are illustrated in **Figure 5**. With the addition of these projects from the LRTP, congestion identified in the Baseline Scenario (**Figure 4)** is projected to operate at acceptable LOS. However, there are still roadways that are projected to experience heavy levels of congestion. Additional roadway improvements will be required to address these shortfalls and provide a transportation system that is capable of handling the projected full build-out of the Town of Arlington Land Development Plan.

Table 5 2040 Arlington Long Range Transportation Plan Projects

LRTP ID	Project Type	Facility	Extents	Description
1	Widen Existing	SR-205 (Airline Rd)	Donelson Farm Pkwy to I-40	Widen from 2 to 4 lanes (divided)
2	Widen Existing	SR-205 (Airline Rd)	I-40 to Douglas Rd	Widen from 2 to 4 lanes
40	New Location	Donelson Pkwy	SR-385 to Airline Rd	New 4 lane road (divided)
119	Widen Existing	US-70/US-79/SR-1	Canada Rd to SR-385	Construct a raised median (4 lanes divided)
120	Widen Existing	US-70/US-79/SR-1	SR-385 to Collierville Arlington Rd/Chester Rd	Widen from 4 to 5 lanes
121	Widen Existing	US-70/US-79/SR-1	Collierville Arlington Rd/Chester Rd to Milton Wilson Rd	Widen from 2 to 5 lanes
141/146	Widen Existing	I-40	East of Canada Road to SR 196	Widen from 4 lanes to 6 lanes (includes high occupancy vehicle lanes)
501	Widen Existing	SR-205 (Airline Rd)	US-64/SR-15 to Donelson Farm Pkwy	Widen from 2 to 5 lanes
513	Widen Existing	Inglewood Rd	US-64/SR-15 to Donelson Farm Pkwy	Widen from 2 to 4 lanes (divided)

Source: Direction 2040 Memphis MPO Long Range Transportation Plan 2012.

Results from evaluation of the existing and committed roadway network and projects identified in the Memphis MPO 2040 Long Range Transportation Plan were used to develop the capacity improvement projects in Section 5.1.

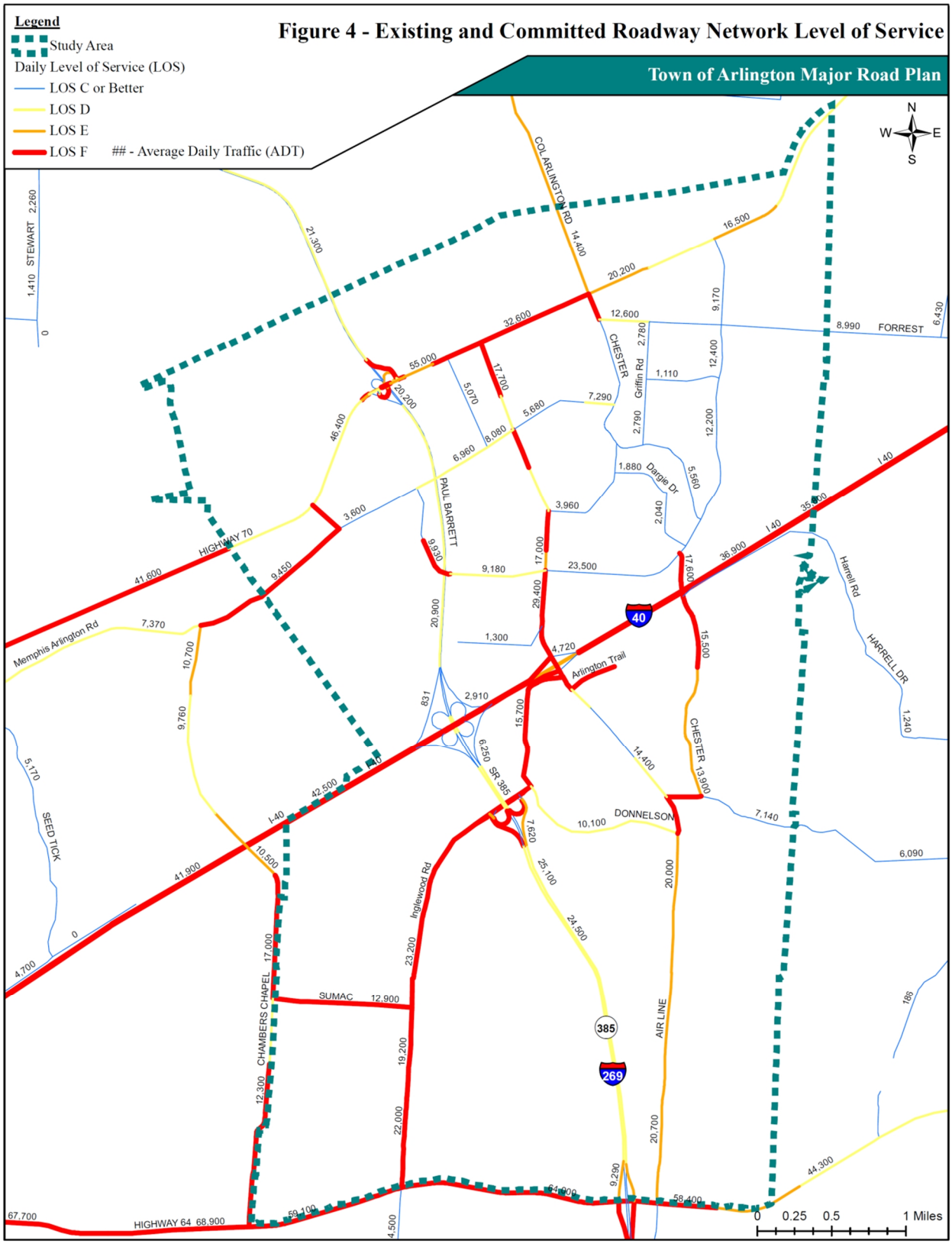

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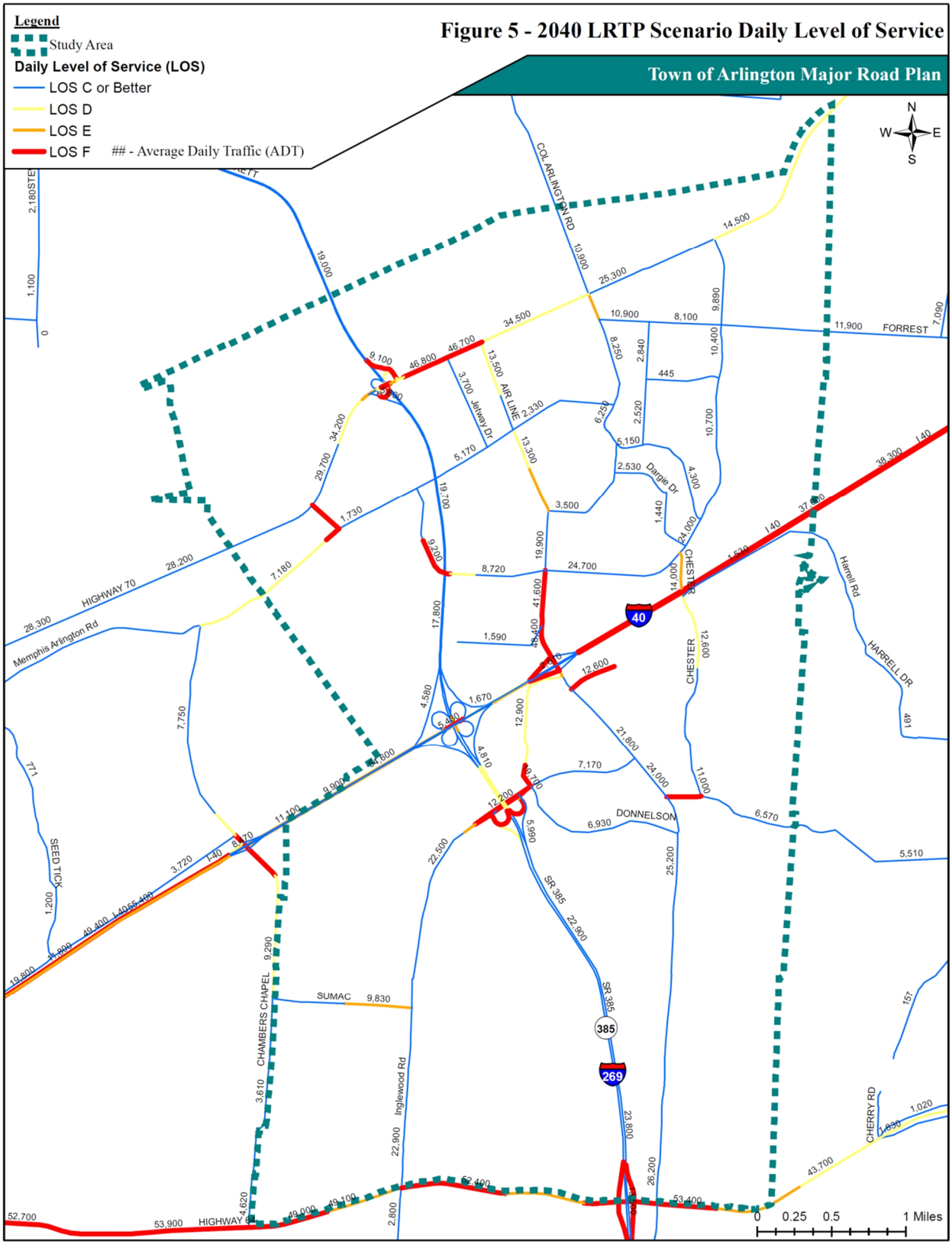
Figure 5 - 2040 LRTP Scenario Daily Level of Service



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5 Major Road Plan

The Major Road Plan includes specific capacity enhancing projects, multi-modal suggestions, bicycle and pedestrian considerations, and implementation strategies for the Town of Arlington. The following sections discuss the different elements of the Major Road Plan.

5.1 Capacity Projects

As stated previously, projects identified in the Memphis MPO's 2040 Long Range Transportation Plan were reviewed as a part of the development of the recommended roadway network. Continuing from this point, projects not part of the fiscally constrained portion of the plan, or "Vision Projects", were included in the continued analysis of the Arlington roadway network. To help address shortfalls in the roadway network that these vision projects did not address, additional roadway improvements were identified to help relieve areas of projected congestion.

A list of capacity enhancing projects for the Arlington Major Road Plan was developed as shown in **Table 6**. In addition to projects specific to the Town, other projects outside of the town limits were considered that would also provide beneficial congestion relief to Arlington. Many of these projects were previously identified in other planning studies and are also incorporated in this plan. A map displaying all of these projects is shown in **Figure 6**.

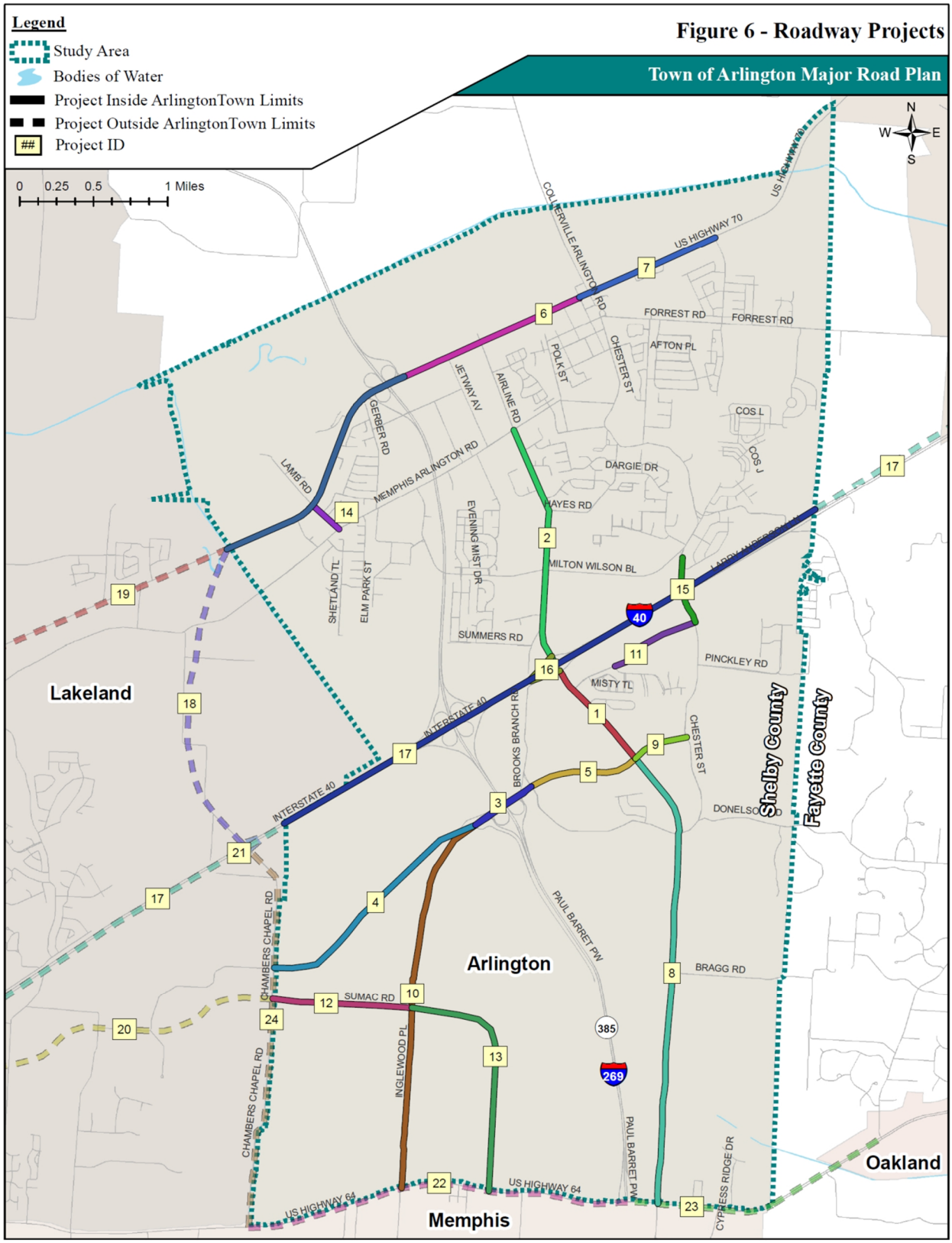
The roadway network with the abovementioned capacity projects was modeled using the Arlington model to determine what impact these projects had on reducing congestion. The projected capacity of the Arlington roadway network with the capacity enhancing projects is shown in **Figure 7**. Roadway improvements were developed based on maintaining a balance between obtaining an acceptable LOS (C or better) and other constraints along roadways in the study area while meeting the intent of the Transportation Goals and Objectives established as part of the project. This resulted in a roadway network which includes some roadways that are not projected to meet the LOS C or better criteria, but instead are in keeping with the character of roadways desired for the Town.

It is expected that with the identified capacity projects, the Arlington roadway network would be able to handle the projected impacts of the full build-out of the current land use plan.

Table 6 Roadway Projects

Project ID	2040 LRTP ID	Project Type	Facility	Jurisdiction	Extents	Description	Bicycle and Pedestrian Plan?
1	1	Widen Existing	SR-205 (Airline Rd)	Arlington	Donelson Farm Pkwy to I-40	Widen from 2 to 4 lanes (divided)	Yes
2	2	Widen Existing	SR-205 (Airline Rd)	Arlington	I-40 to Douglas Rd	Widen from 2 to 6 lanes	Yes
3	N/A	Widen Existing	Donelson Pkwy	Arlington	Inglewood Pl to Old Airline Rd	Widen from 4 to 6 lanes (divided)	
4	39	Widen Existing	Donelson Pkwy	Arlington	SR-385 to Chambers Chapel Rd	Widen and construct new 2 lane road (divided)	Yes
5	40	New Roadway	Donelson Pkwy	Arlington	SR-385 to Airline Rd	New 4 lane road (divided)	Yes
6	120	Widen Existing	US-70/US-79/SR-1	Arlington	SR-385 to Quintard St	Widen from 4 to 5 lanes	Yes
7	121	Widen Existing	US-70/US-79/SR-1	Arlington	Quintard to Milton Wilson Rd	Complete Street Improvements (Depot Square Master Plan)	Yes
8	501	Widen Existing	SR-205 (Airline Rd)	Arlington	US-64/SR-15 to Donelson Farm Pkwy	Widen from 2 to 5 lanes	Yes
9	506	New Roadway	Donelson Pkwy	Arlington	SR-205 (Airline Rd) to Collierville-Arlington Rd	New 4 lane road (divided)	
10	513	Widen Existing	Inglewood Rd	Arlington	US-64/SR-15 to Donelson Farm Pkwy	Widen from 2 to 4 lanes (divided)	
11	N/A	New Location	Arlington Trail Extension	Arlington	Arlington Trail to Collierville Arlington Rd	New 2 lane road (undivided)	
12	N/A	Widen Existing	Sumac Road	Arlington	Chambers Chapel Rd to Inglewood Pl	Widen from 2 to 4 lanes (divided)	Yes
13	N/A	New Roadway	Sumac Road Extension	Arlington	Inglewood Pl to Highway 64	New 4 lane road (divided - TWLTL)	
14	N/A	Widen Existing	Lamb Road	Arlington	Memphis Arlington Road to US 70	Widen from 2 to 4 lanes (undivided)	
15	N/A	Widen Existing	Chester	Arlington	Milton Wilson Dr to Arlington Trail	Widen from 2 to 4 lanes (undivided)	
16	N/A	Modify Existing Interchange	Airline at I-40 Interchange	Arlington	Airline at I-40 Interchange	Modify Interchange	
17	146/141	Widen Existing	I-40	Arlington, Lakeland	East of Canada Road to SR 196	Widen from 4 lanes to 6 lanes (includes high occupancy vehicle lanes)	
18	21	Widen Existing	Chambers Chapel Rd	Lakeland	I-40 to US-70/US-79/SR-1	Widen from 2 to 4 lanes (undivided)	Yes
19	119	Widen Existing	US-70/US-79/SR-1	Lakeland	Canada Rd to SR-385	Construct a raised median (4 lanes divided)	Yes
20	185	New Roadway	New E-W Rd	Lakeland	Canada Rd to Chambers Chapel Rd	New 4 lane road (divided)	Yes
21	N/A	New Interchange	Chambers Chapel Rd	Lakeland	Chambers Chapel Rd at I-40	New Interchange	
22	113	Widen Existing	US-64/SR-15	Memphis	Canada Rd to SR-385	Widen from 5 to 6 lanes (divided)	Yes
23	114	Widen Existing	US-64/SR-15	Memphis	SR-385 to Sammons	Widen from 4 to 6 lanes (divided)	Yes
24	20	Widen Existing	Chambers Chapel Rd	Shelby County	US-64/SR-15 to I-40	Widen from 2 to 4 lanes (divided)	

Note: N/A – Not Applicable, Project was not a part of the Memphis MPO 2040 LRTP



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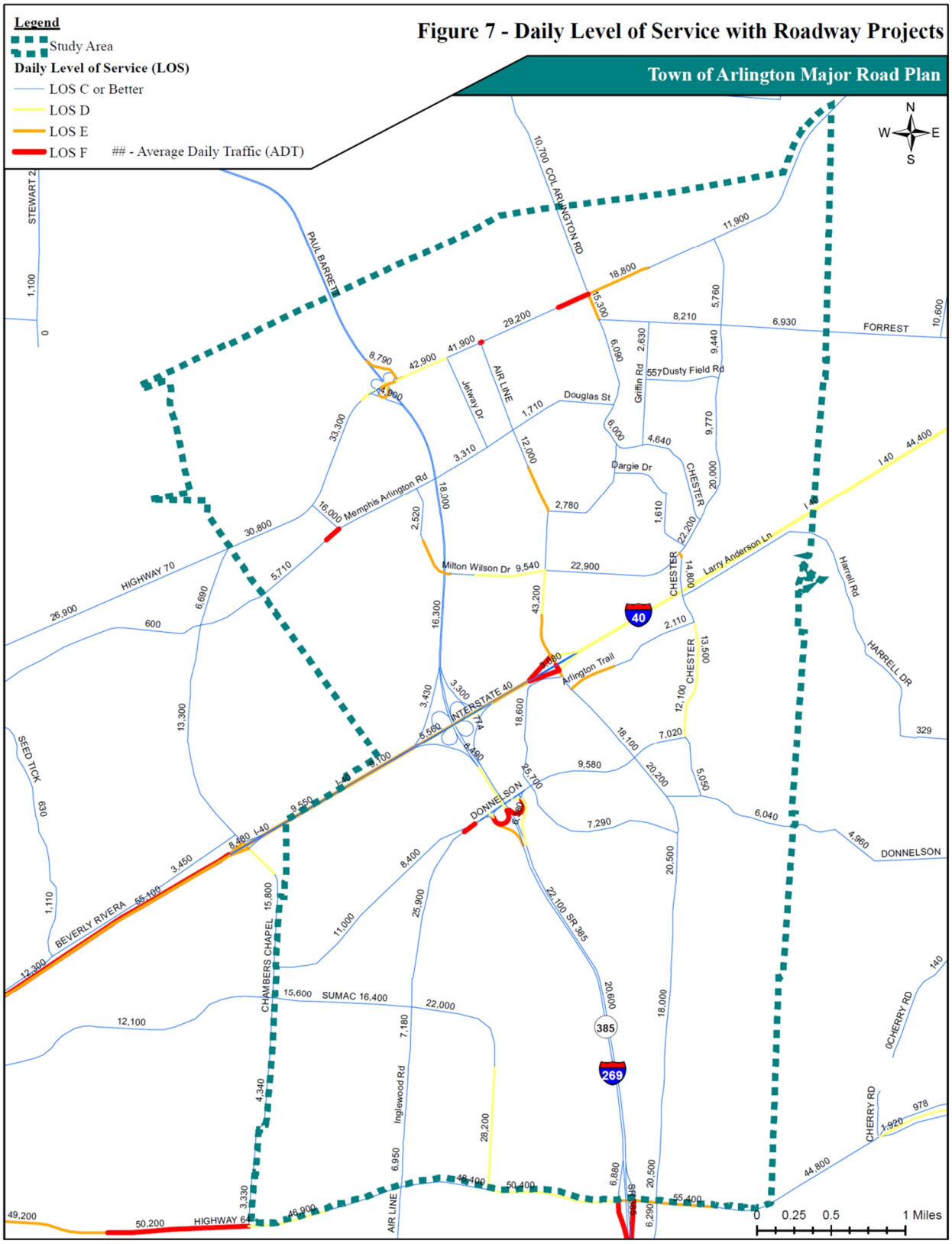

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5.2 Bicycle and Pedestrian Facilities

As the Town of Arlington continues to grow, multimodal solutions should also be considered when making improvements to the transportation system. A critical component of any transportation system includes the bicycle and pedestrian facilities. Providing safe and efficient bicycle and pedestrian facilities has many advantages to the community and can include:

- Environmental benefits
- Reduced traffic congestion
- Healthy activity
- Cost-effective transportation improvements
- Increased economic activity
- Enhanced livability

In December 2011, the Memphis MPO adopted a Regional Bicycle and Pedestrian Plan to guide the region in identifying opportunities for enhancing bicycle and pedestrian travel. In this plan, the Memphis MPO reviewed existing facilities and provided recommendations that help identify potential bicycle and pedestrian corridors. For the Town of Arlington, the existing facilities and recommended corridors that were identified as part of the Regional Bicycle and Pedestrian Plan are illustrated in **Figure 8**. Overall, many of the existing roadways lack dedicated bicycle facilities. Many of the local neighborhoods provide sidewalks, but generally, there is little connectivity for the bicycle and pedestrian facilities. The MPO's Regional Bicycle and Pedestrian Plan also included the following broad priority recommendations for the town to help address shortfalls in the existing bicycle and pedestrian facilities:

- Adopt a Complete Streets policy and offer implementation guidance.
- Increase the number of arterial streets that have accommodations for bicyclists and pedestrians.
- Continue to expand public education campaigns to promote the share the road message and the rights and responsibilities of all users.
- Expand encouragement efforts during National Bicycle to Work Day and National Walk to School Day.
- Create and fully implement a local bicycle and pedestrian plan.

To provide a comprehensive bicycle and pedestrian network for the Town, consideration should be given to the future implementation of facilities identified in the MPO Bicycle and Pedestrian Plan. Different facilities can be implemented depending on the character of a corridor, vehicle speeds, traffic volumes, cost, and right-of-way constraints, as shown in **Table 7** and **Table 8**

It is recommended that whenever a potential infrastructure project is being evaluated, consideration should also be given to how the pedestrian and bicycle network could be enhanced. Bicycle and pedestrian elements that should be considered are shown in **Table 6**.

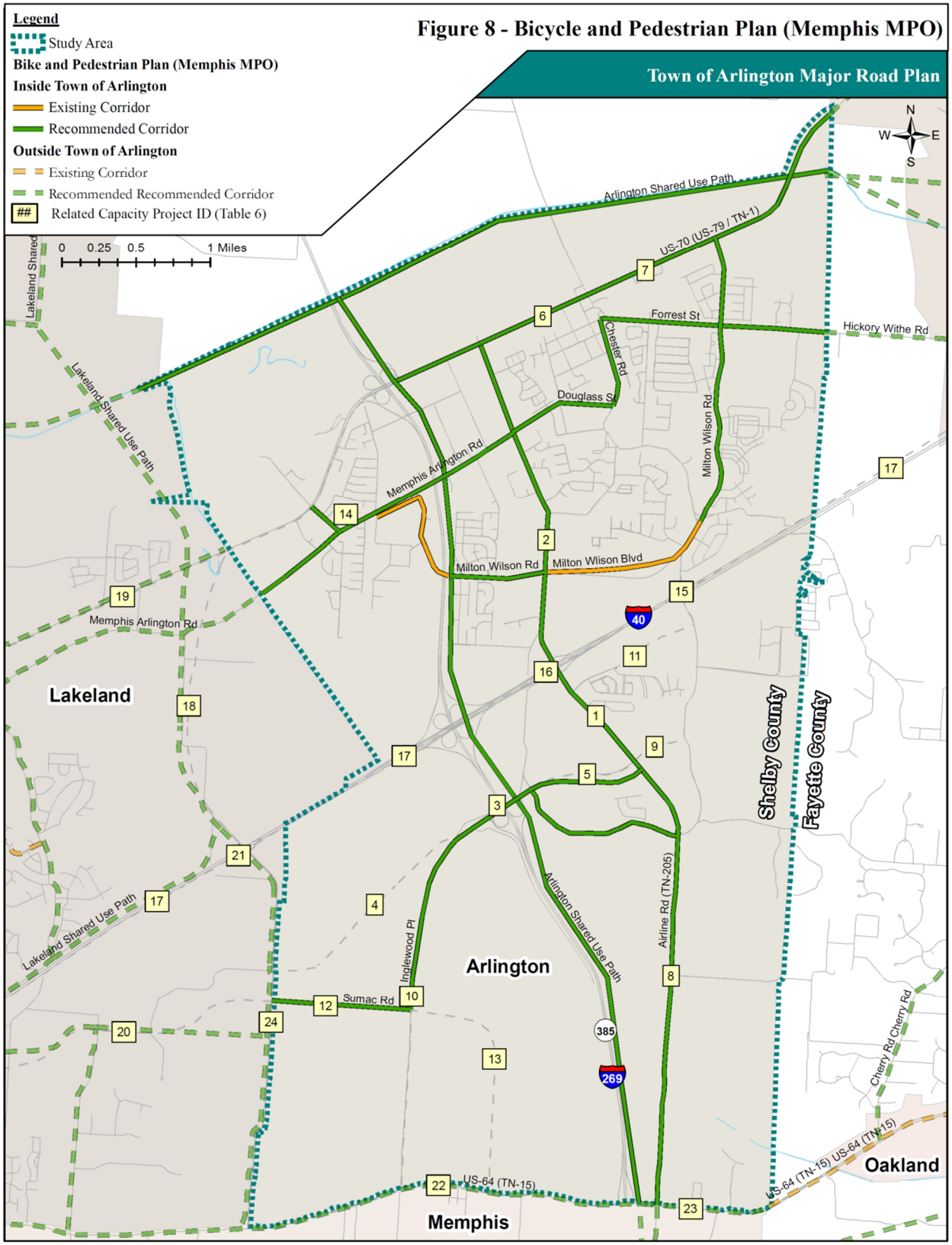

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Table 7 Different Types of Bicycle Facilities

Facility Type	Traffic Volume	Traffic Speed	Setting	Cost	Preferred Width
Shared Lane	Low	Low	Urban/Rural	Low	14ft. +
Marked Shared Lane	Low	Low	Urban	Medium	14ft. +
Paved Shoulder	Low-High	Low-High	Rural	Medium	4ft. +
Bicycle Lane	Low-High	Low-High	Urban/Rural	Medium	6ft.
Bicycle Boulevard	Low	Low	Urban	High	Varies
Cycle Track	Low-High	Low-High	Urban	High	6ft. +
Shared Use Path	N/A	N/A	Urban/Rural	Medium-High	10ft. +

Source: Memphis MPO Regional Bicycle and Pedestrian Plan (2011)

Table 8 Different Types of Pedestrian Facilities

Facility Type	Setting	Adjacent Land Use	Placement	Cost	Preferred Width
Sidewalks	Urban/Rural	Mixed	Parallel to Roadway	Medium	5ft. +
Crosswalks	Urban/Rural	Mixed	Roadway Crossing	Low	8ft. +
Curb Ramps	Urban/Rural	Mixed	Roadway Crossing	Low	5ft. +
Overpass	Urban	Mixed	Over Roadway	High	10ft. +
Transit Stop	Urban	Mixed	Parallel to Roadway	Low-Medium	N/A
Shared Use Path	Urban/Rural	Mixed	Parallel to Roadway	Medium-High	10ft. +

Source: Memphis MPO Regional Bicycle and Pedestrian Plan (2011)

It should be a priority of the Town of Arlington to increase the connectivity of the bicycle and pedestrian network where possible. This would also provide opportunities to make regional connections for bicyclist and pedestrians with the City of Lakeland, the City of Memphis, and Fayette County. Strategies and guidance provided in the Regional Bicycle and Pedestrian Plan and the Town's Major Road Plan should be used in the determination of future bicycle and pedestrian corridors. Separate engineering studies should be conducted on a case-by-case basis to determine appropriate bicycle and pedestrian facility improvements that could be implemented concurrently with any roadway enhancement. Typical sections for roadways with bicycle facilities are provided in Section 5.4.

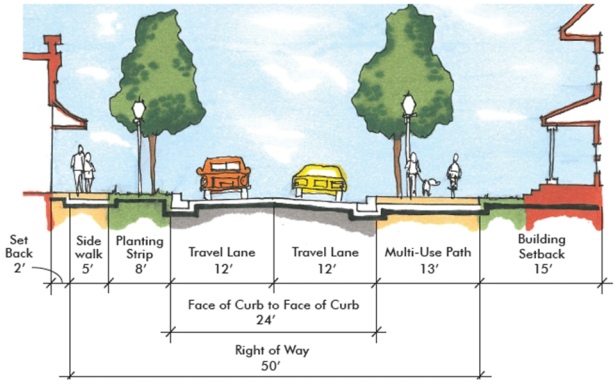
The Memphis Greenline

Additional bicycle and pedestrian facilities that should be considered include greenways along the open and natural areas within the Town of Arlington. Potential areas for greenway facilities include the Loosahatchie River or parallel I-269/S.R. 385, as shown in **Figure 8**. Greenway projects are an attractive feature and can help spur additional growth and draw new residents.

5.3 Complete Streets

Complete streets is a term used to describe the transformation from traditional concepts of vehicle-dominated thoroughfares in urban and suburban areas to more community-oriented streets that safely and conveniently accommodate all modes of travel, not just motorists. Complete street concepts include considerations for better accommodation of all roadway users, including the following elements:

- Safer and more convenient walkways, sidewalks, and crosswalks
- Safer and more convenient bikeways
- Access management to improve public safety and reduce congestion
- Transit implementation and incorporation



Source: Depot Square Master Plan, 2013

Transforming major urban thoroughfares into complete streets is complicated, requiring a diverse range of skill sets and broad support from the community. Successful complete street transformations require community support and leadership, as well as coordination between various disciplines. Common goals for complete streets are economic revitalization, business retention and expansion, and public safety. The following principles embody the most important aspects of a successful complete streets program:

- Achieve community objectives.
- Blend street design with the character of the area served.
- Capitalize on a public investment by working diligently with property owners, developers, economic development experts, and others to spur private investment in the area.
- Design in balance so that traffic demands do not overshadow the need to walk, bike, and ride transit safely, efficiently, and comfortably. The design should encourage people to walk.
- Empower citizens to create their own sense of ownership in the success of the street and its characteristics.

In January 2013, the Town of Arlington adopted the Depot Square Master Plan that details plans to redevelop the Depot area as shown in **Figure 9**. This redeveloped area will incorporate many of the complete street concepts discussed above and will provide new economic and developmental opportunities for Arlington. As the undeveloped area south of I-40 begins to experience new growth, similar opportunities should be explored by the Town of Arlington to determine where areas are appropriate to incorporate these complete street concepts.

Source: Depot Square Master Plan, 2013

Figure 9 Depot Square Master Plan

5.4 Safety

Public involvement feedback identified safety as the most important transportation issue for the Town. Although the Major Road Plan does not address specific safety concerns at individual intersections or roadway segments, there are a number of safety programs or policies that could be implemented.

The Tennessee Department of Transportation (TDOT) maintains a database called the Tennessee Integrated Traffic Analysis Network (TITAN) that contains detailed historic crash information across the State. It is recommended that this database be used to identify and rank high crash locations in the Town. A prioritized safety improvement program could then be developed to address high crash rate locations.

Once the locations with transportation safety issues are identified, mitigation measures can be identified to address the transportation safety issue. Strategies for safety improvements are diverse and should consider the root cause of the problem. The American Association of State Highway and Transportation Officials' (AASHTO) Highway Safety Manual identifies low cost solutions to address crashes on roadway segments, intersections, interchanges and in roadway networks.

5.5 Major Road Plan

The roadway elements of the Arlington Major Road Plan are illustrated by functional classification, typical sections, and roadway laneage. The functional classification system groups roadways according to the land use served (or to be served) and provides a general designation of the type of traffic each street is intended to handle. The roadway functional classification system primarily defines the street in terms of roadway design and character, as well as operational features for the movement of vehicles. Definitions of the functional classifications within the Town of Arlington are provided below:

Interstate/Express/Freeway

- Provides the most mobility and the least amount of access to land
- Access is only available at interchanges
- Serves long distances of travel
- Supports regional mobility
- State will fund roadway improvements and maintenance on these facilities

Principal Arterial

- Serves medium to large distances of travel
- Typically connects minor arterials and collector streets to freeways, expressways and Interstates
- Tightly controlled access and few (if any) individual site driveways
- Roadway improvements and maintenance are funded by localities or the state

Minor Arterial

- Serves a mobility function but often have closely spaced intersections, more individual site driveways, and generally lower design and posted speeds
- Primarily intended to serve travel demand within the local area
- Connects to other minor arterials, to principal arterials and to collector streets
- Provides a higher level of access to adjacent land uses and typically have lower traffic volumes
- Generally maintained by the city or local government, but the cost of improvement may be the responsibility of the state or local governments
- Other characteristics may include sidewalks, signalized intersections and on-street parking (in residential areas and the centralized business district)

Collector

- Rarely constructed and funded with State or Federal funds
- Responsibility usually falls to the local government and the development community for funding, design and construction
- Wide range of physical characteristics, some of which can be attributed to the neighborhoods in which they exist
- Provides good connectivity

Local

- Provides greater access and the least amount of mobility
- Typically connect to one another or to collector streets

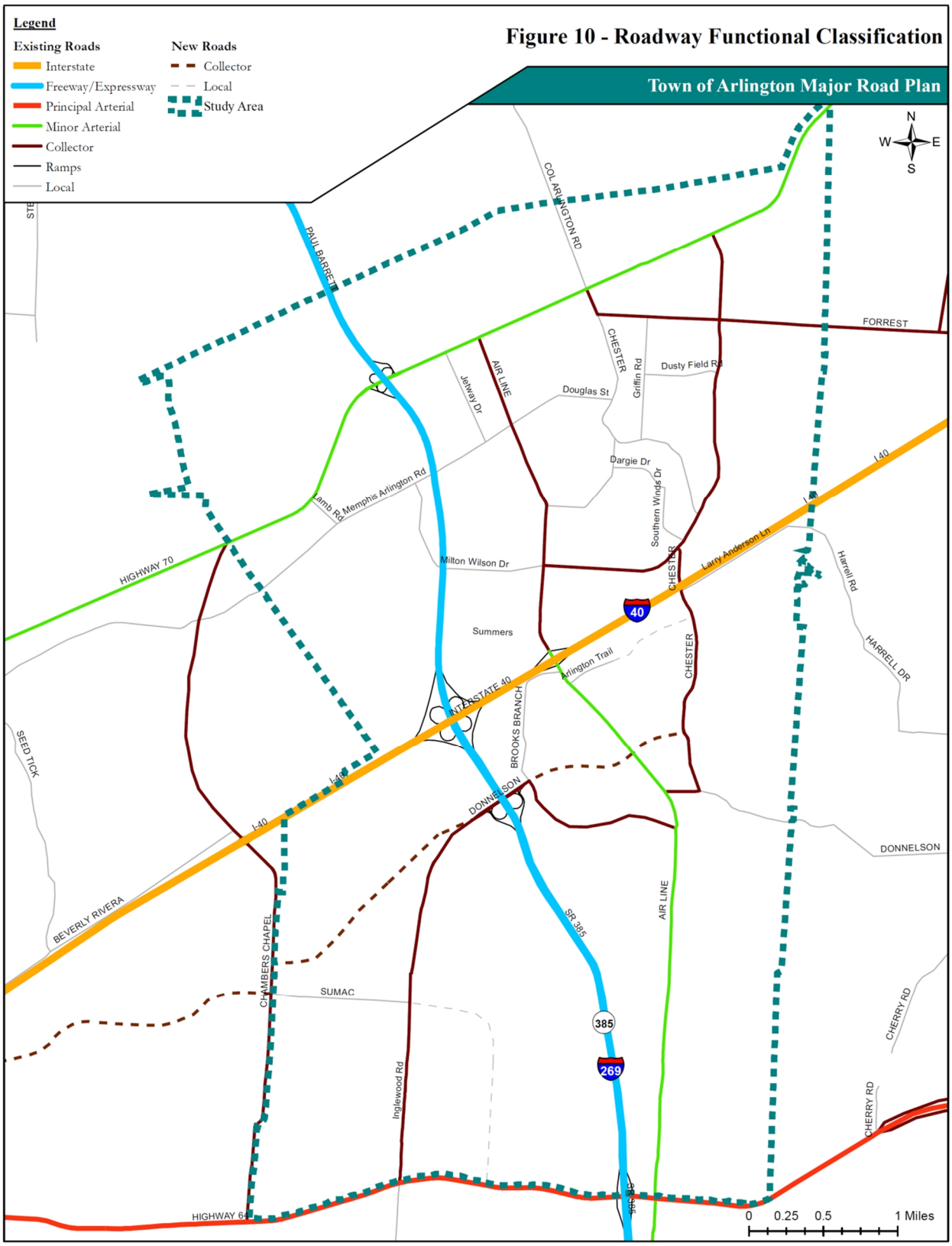
- Provides high level of access to adjacent land uses and developments
- Serves short distances of travel

For the Arlington Major Road Plan, the functional classifications for existing roads are shown in **Figure 10**. In addition, the appropriate functional classifications for new corridors proposed as part of this plan are also shown in **Figure 10**.

Typical cross-sections define the configuration of a roadway so that safe and convenient travel for all modes is provided in the appropriate context of an area. Typical sections identify the roadway laneage, median treatments, and bicycle and pedestrian accommodations for urban and rural facilities. The Town of Arlington's *Subdivision Regulations* provides guidance on minimum values for pavement and right-of-way (ROW) widths depending on the functional classification of a particular road.

Typical cross-sections were developed for the Town of Arlington based on the roadway's functional classification to be used as guidance when new roadways or improvements are being considered. Details for the recommended typical cross-sections for arterials and collectors are shown in **Table 9** with illustrative schematics in **Figure 11** and **Figure 12**.

The Arlington Major Road Plan is shown in **Figure 13**. This illustrates the future roadway network that would be required to address the projected traffic volumes generated by the full build-out of the Town of Arlington.

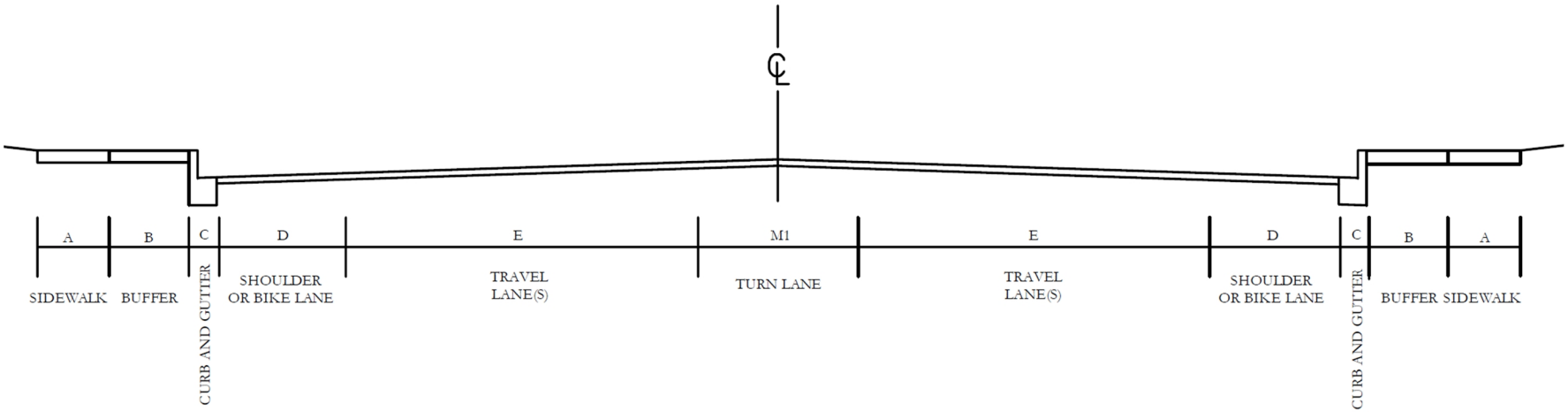


Kimley-Horn and Associates, Inc.

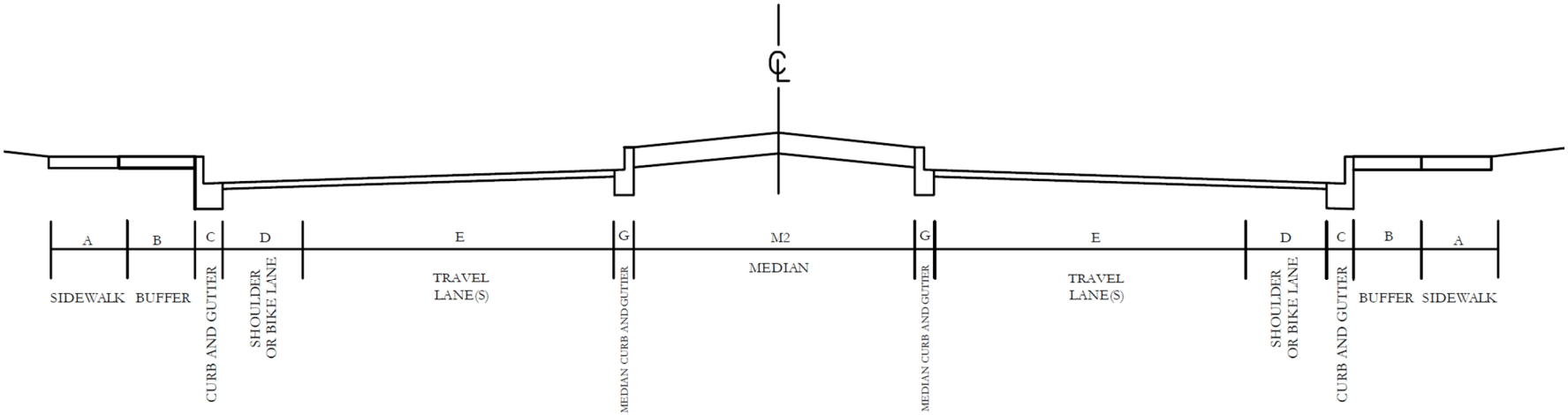
Table 9 Typical Cross-Sections

Number of Travel Lanes	Median Treatment	Subdivision Regulations[1]				A	B		C	D	E	M1	G	M2	I	M3	Face of Curb to Face of Curb Width (ft)	ROW Range (ft)	
		Minimum ROW (ft)		Minimum Pavement Width (ft)		Sidewalk (ft)	Buffer (ft)		Curb/ Gutter (ft)	Outside Shoulder/ Bicycle Lanes (ft)	Travel Lane (ft)	Left Turn Lane (ft)	Median Gutter (ft)	Median with Curb (ft)	Inside Shoulder (ft)	Depressed Median (ft)		Min	Max
		Minor	Major	Minor	Major		Min	Max											
Arterial (Urban)																			
4	Undivided	88	108	64	84	5	8	10	2	6	12	0	0	0	0	0	64	90	94
4	Divided	88	108	64	84	5	8	10	2	4	12	0	1	14	0	0	76	102	106
4	TWLTL	88	108	64	84	5	8	10	2	4	12	11	0	0	0	0	71	97	101
6	Divided	88	108	64	84	5	8	10	2	4	12	0	1	14	0	0	100	126	130
6	TWLTL	88	108	64	84	5	8	10	2	4	12	11	0	0	0	0	95	121	125
Arterial (Rural)																			
4	Undivided	88	108	64	84	*	0	0	0	10	12	0	0	0	0	0	68	68	68
4	Divided	88	108	64	84	*	0	0	0	10	12	0	0	0	6	48	128	128	128
6	Undivided	88	108	64	84	*	0	0	0	12	12	0	0	0	0	0	96	96	96
6	Divided	88	108	64	84	*	0	0	0	12	12	0	0	0	12	64	184	184	184
Collector (Urban)																			
2	Undivided	60	72	30	48	5	4	5	2	4	12	0	0	0	0	0	36	54	56
2	Divided	60	72	30	48	5	4	5	2	4	12	0	1	14	0	0	52	70	72
2	TWLTL	60	72	30	48	5	4	5	2	4	12	11	0	0	0	0	47	65	67
4	Undivided	60	72	30	48	5	4	5	2	4	12	0	1	0	0	0	62	80	82
4	Divided	60	72	30	48	5	4	5	2	4	12	0	1	14	0	0	76	94	96
4	TWLTL	60	72	30	48	5	4	5	2	4	12	11	0	0	0	0	71	89	91
Collector (Rural)																			
2	Undivided	60	72	30	48	*	0	0	0	10	12	0	0	0	0	0	44	44	44
2	Divided	60	72	30	48	*	0	0	0	10	12	0	0	0	6	48	104	104	104
4	Undivided	60	72	30	48	*	0	0	0	10	12	0	0	0	0	0	68	68	68
4	Divided	60	72	30	48	*	0	0	0	10	12	0	0	0	6	48	128	128	128

Source: 1. Town of Arlington Subdivision Regulations
*Notes: *If including sidewalk or multi-use path, add 10 to 20 ft to ROW Range*

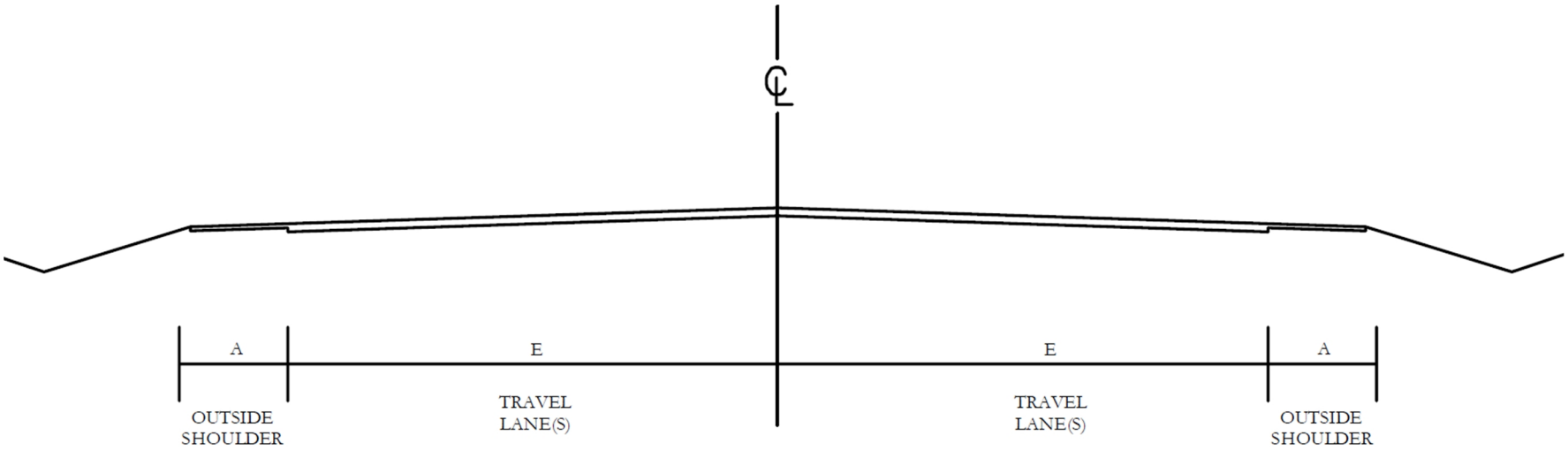


(a) Two-Way Left Turn Lane

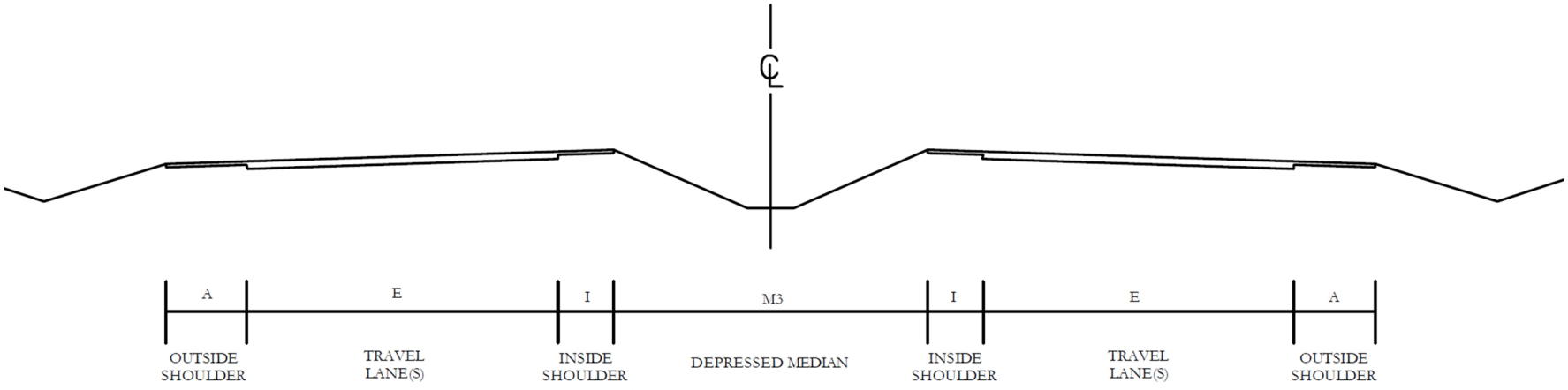


(b) Raised Median

Figure 11 Urban Typical Cross-Sections (Not to Scale)



(a) Undivided



(b) Divided

Figure 12 Rural Typical Cross-Sections (Not to Scale)

Kimley-Horn and Associates, Inc.

5.6 Implementation Strategies

Since the Major Road Plan is based on full build out of the Town, implementation of transportation improvement projects should be based on need and opportunity. The Major Road Plan is not fiscally constrained and specific funding sources are not identified for transportation improvement projects. However, there are several implementation and project funding strategies that should be considered for projects identified in the plan. The sponsoring agency, facility type, location, need, and potential project phasing should all be considered when identifying implementation strategies for transportation improvement projects.

The primary source of revenue for projects of regional significance is the federal government. Generally, local communities in our region must fund local projects that are not considered regionally significant. Local and state agencies provide the local matching funds for the federal funding programs when required. The following is a list of federal funding sources that could potentially be used for transportation improvement projects:

- National Highway Performance Program
- Surface Transportation Program (STP)
- Congestion Mitigation and Air Quality (CMAQ) Program
- Highway Safety Improvement Program (HSIP)
- Railway-Highway Crossings Program
- Transportation Alternatives Program

A detailed discussion of each of these federal funding sources and the eligible use of the funds is provided on FHWA's website.

The Town of Arlington Subdivision Regulations require developers to provide for transportation improvements within and adjacent to their property or pay a fee in lieu of providing the improvements when they seek approval for a change in use for their property. When a proposed development borders or encompasses an existing street, the developer is required to dedicate right-of-way or otherwise improve the street to current Town standards. If the development borders only one side of the street, they are required to improve their frontage.

The Subdivision Regulations also require that developments conform to the Major Road Plan. When a proposed development borders or encompasses the route of a street in the Major Road Plan, the developer is required to dedicate right-of-way and construct the street to current Town standards. When the development fronts only one side of a street in the Major Road Plan, the developer is required to improve their frontage. Arlington should continue to review transportation impacts associated with new development and require the developer to implement infrastructure improvements.

There are a host of alternative strategies that could be considered to fund transportation projects. These alternative strategies will become more important as competition increases for limited federal, state, and local funds. Alternative transportation funding strategies include, but are not limited to:

- Local Option Sales Tax
- Real Estate Transfer Tax
- Impact Fees
- Transportation Bonds
- Developer Contributions
- Toll Facilities
- Bicycle and Pedestrian Funding
- Transportation Alternatives Grants
- Public Private Partnerships (3P)

Appendix A

Public Involvement

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

1. more traffic study / research thru-put and congestion.
incorporating thru roads w/o stops along w/ inter neighborhood effective systems.

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☐	☐	☒	☐
Attractiveness of Roads	☐	☐	☒	☐
Traffic Safety	☐	☒	☐	☐
Sidewalks / Crosswalks	☐	☐	☐	☒
Bicycle Paths / Lanes / Greenways	☐	☐	☐	☒
Traffic Signal System	☐	☐	☒	☐
Condition of Roads	☐	☒	☐	☐

depends on neighborhood

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

2	Traffic Congestion	1	Safety
6	Economic Development	4	Sidewalks / Crosswalks
8	Sustainability	3	Bicycle Paths / Lanes / Greenways
10	Attractiveness of Roads	9	Traffic Signal System
7	Complete Streets	5	Condition of Roads

4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

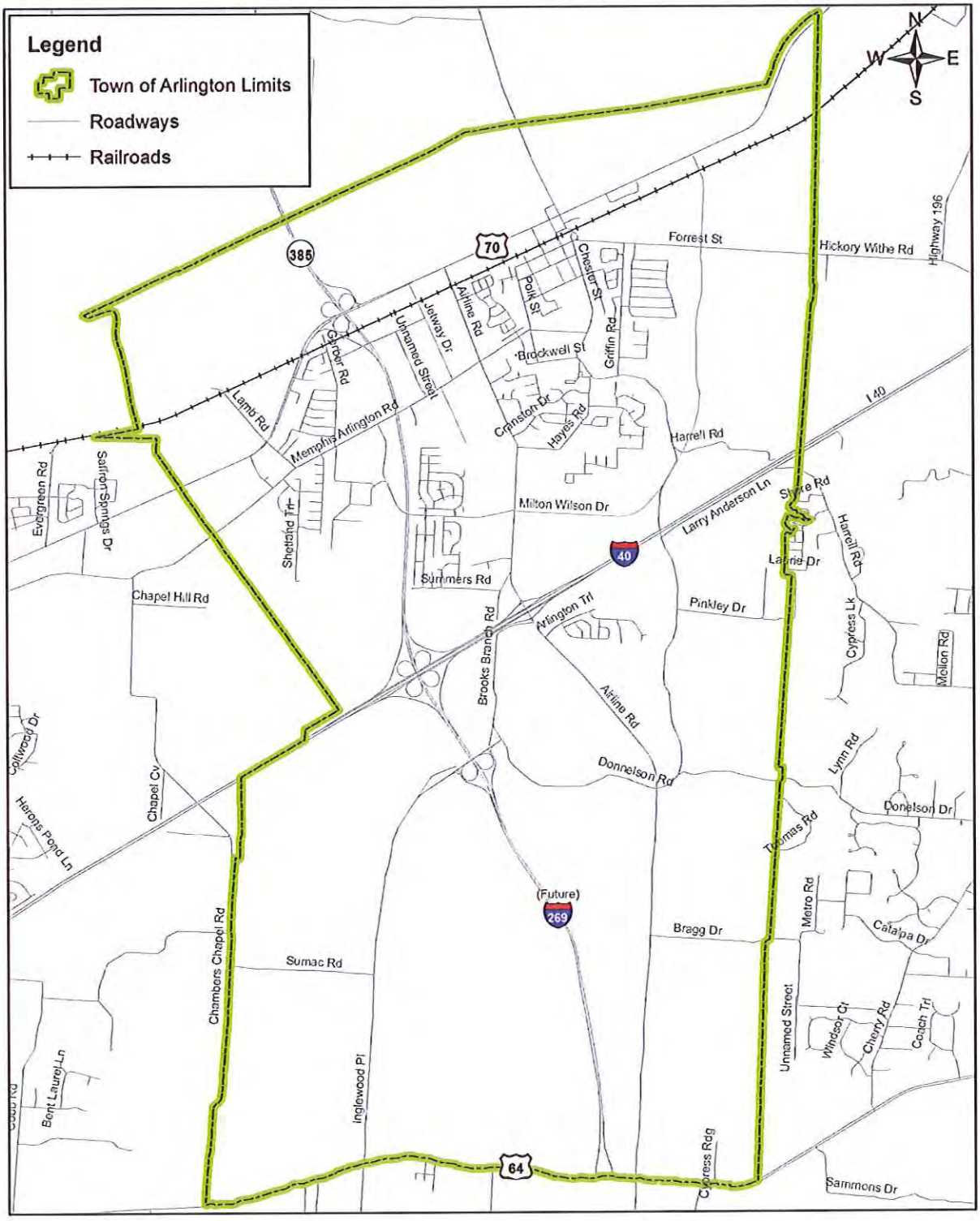
Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

① Continue to plan for bicycle paths - separated from traffic if possible

②

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

_____

_____

_____

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☐	☑	☐	☐
Attractiveness of Roads	☐	☐	☑	☐
Traffic Safety	☐	☑	☐	☐
Sidewalks / Crosswalks	☐	☐	☑	☐
Bicycle Paths / Lanes / Greenways	☐	☐	☐	☑
Traffic Signal System	☐	☐	☑	☐
Condition of Roads	☐	☐	☑	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

7	Traffic Congestion	3	Safety
1	Economic Development	2	Sidewalks / Crosswalks
4	Sustainability	8	Bicycle Paths / Lanes / Greenways
6	Attractiveness of Roads	9	Traffic Signal System
5	Complete Streets	10	Condition of Roads

4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

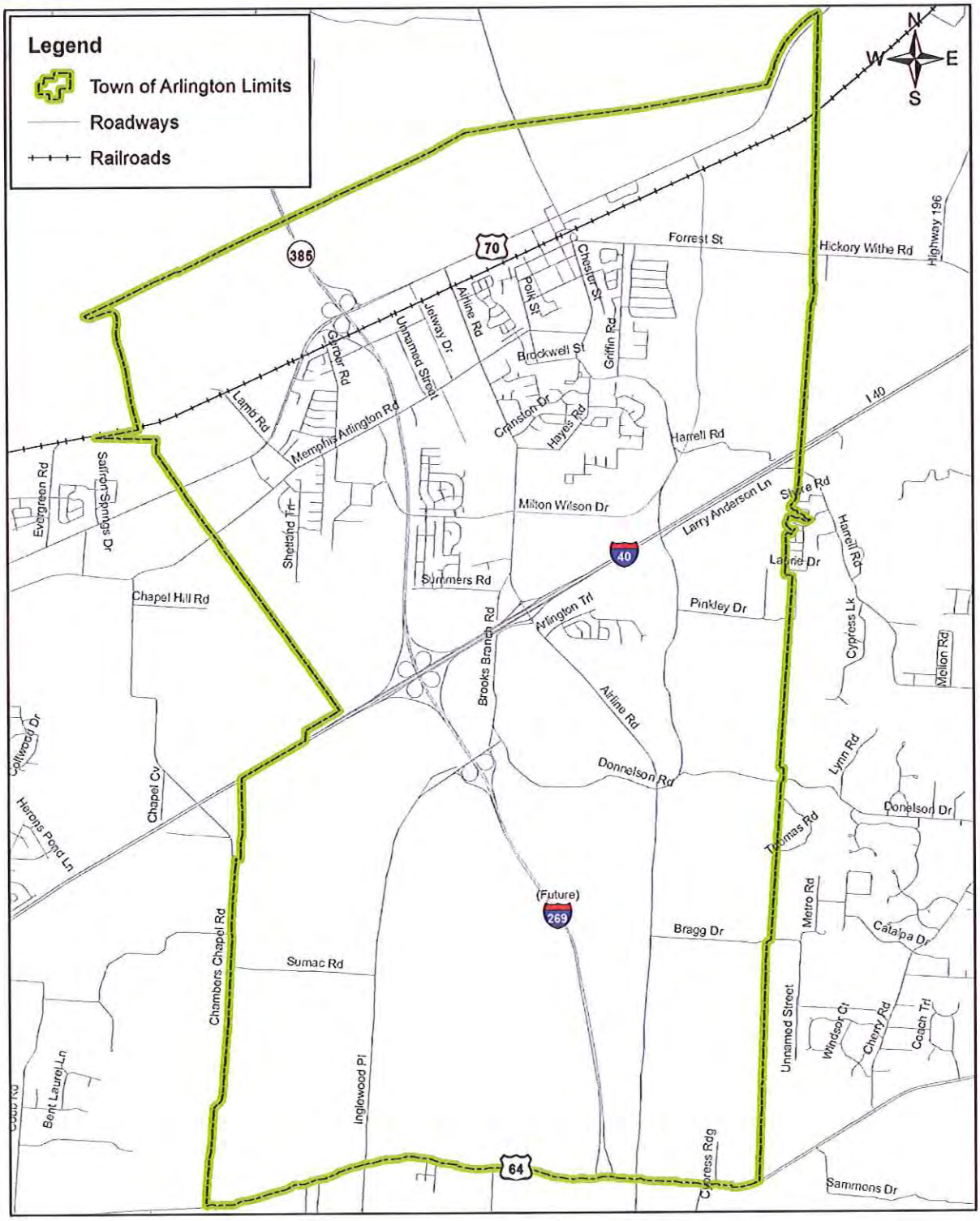
_____

_____

_____

_____

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

something that will work on/and is flexible enough to adapt to future needs

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☐	☒	☐	☐
Attractiveness of Roads	☐	☐	☒	☐
Traffic Safety	☐	☒	☐	☐
Sidewalks / Crosswalks	☐	☐	☒	☐
Bicycle Paths / Lanes / Greenways	☐	☐	☒	☒
Traffic Signal System	☐	☐	☒	☐
Condition of Roads	☐	☒	☐	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

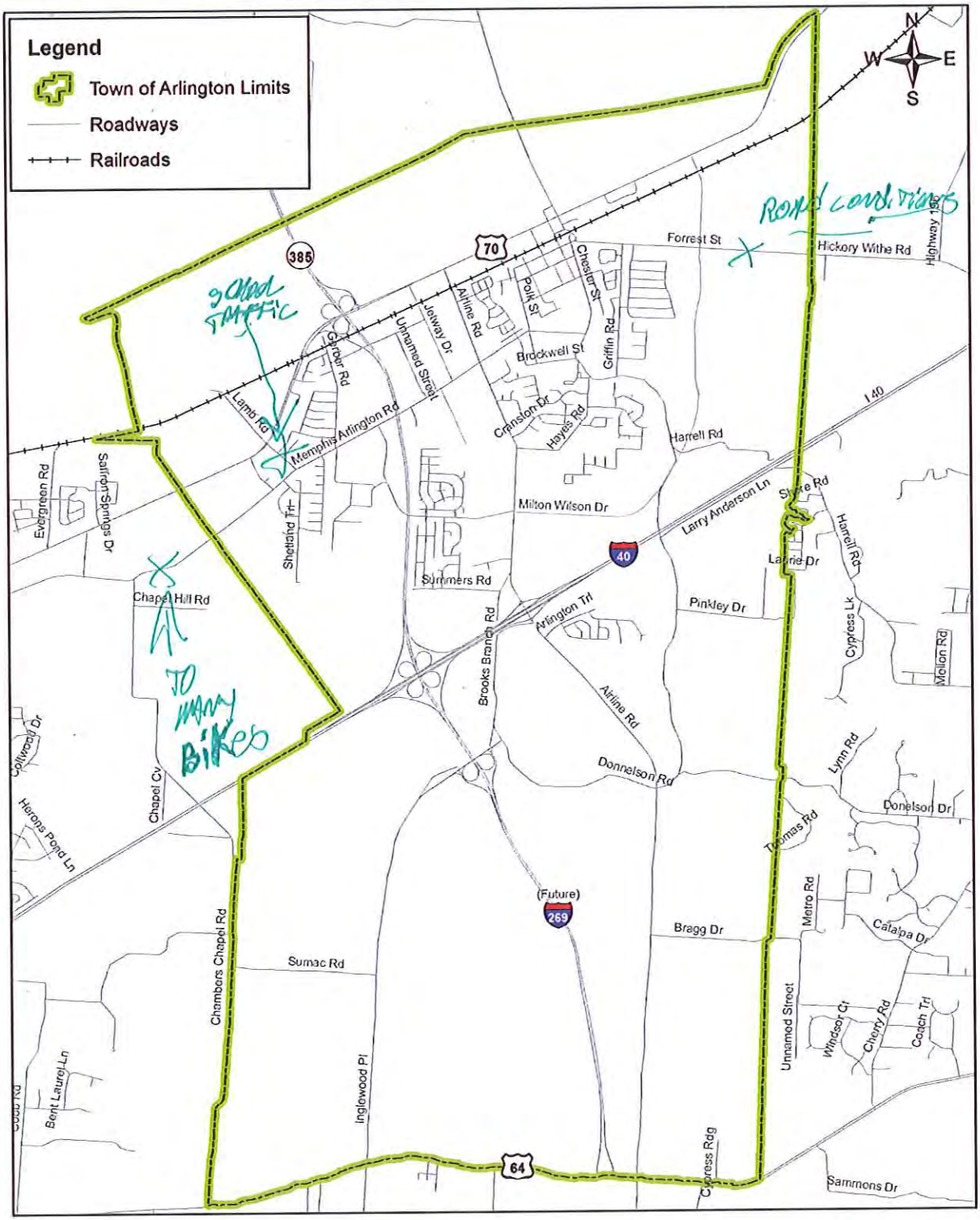
7	Traffic Congestion	2	Safety
4	Economic Development	6	Sidewalks / Crosswalks
9	Sustainability	5	Bicycle Paths / Lanes / Greenways
10	Attractiveness of Roads	3	Traffic Signal System
1	Complete Streets	8	Condition of Roads

4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

Avoid Single main arteries like Collierville has with Poplar (72)
Main arteries should avoid residential areas where driveways connect to the proposed artery
Safety for children playing #1 consideration

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☒	☐	☐	☐
Attractiveness of Roads	☐	☒	☐	☐
Traffic Safety	☐	☒	☐	☐
Sidewalks / Crosswalks	☐	☐	☒	☐
Bicycle Paths / Lanes / Greenways	☐	☐	☐	☒
Traffic Signal System	☐	☒	☐	☐
Condition of Roads	☐	☒	☐	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

2	Traffic Congestion	1	Safety
7	Economic Development	3	Sidewalks / Crosswalks
9	Sustainability	10	Bicycle Paths / Lanes / Greenways
8	Attractiveness of Roads	4	Traffic Signal System
6	Complete Streets	5	Condition of Roads

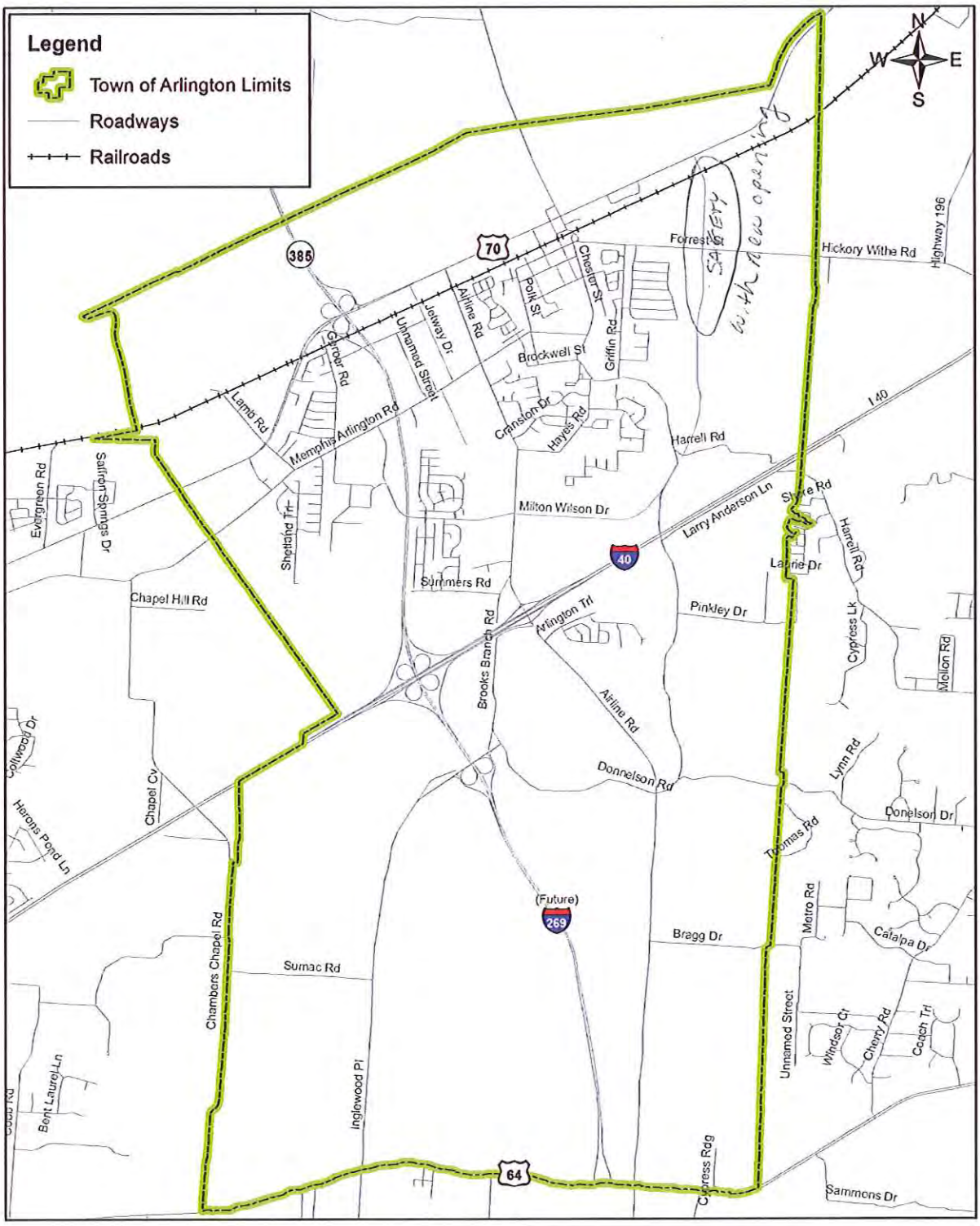
4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

Suggest a traffic study on Milton Wilson after it is opened all the way through to see how much traffic increased

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Arlington Major Road Plan
Public Questionnaire

12/16/13

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

Equal of Balance of Safety, Delayed & Mobility
regardless of Mode to Enhance the Quality of Life for Arlington

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☐	☒	☐	☐
Attractiveness of Roads	☐	☐	☒	☐
Traffic Safety	☐	☒	☐	☐
Sidewalks / Crosswalks	☐	☒	☐	☐
Bicycle Paths / Lanes / Greenways	☐	☐	☒	☐
Traffic Signal System	☐	☐	☒	☐
Condition of Roads	☐	☐	☒	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

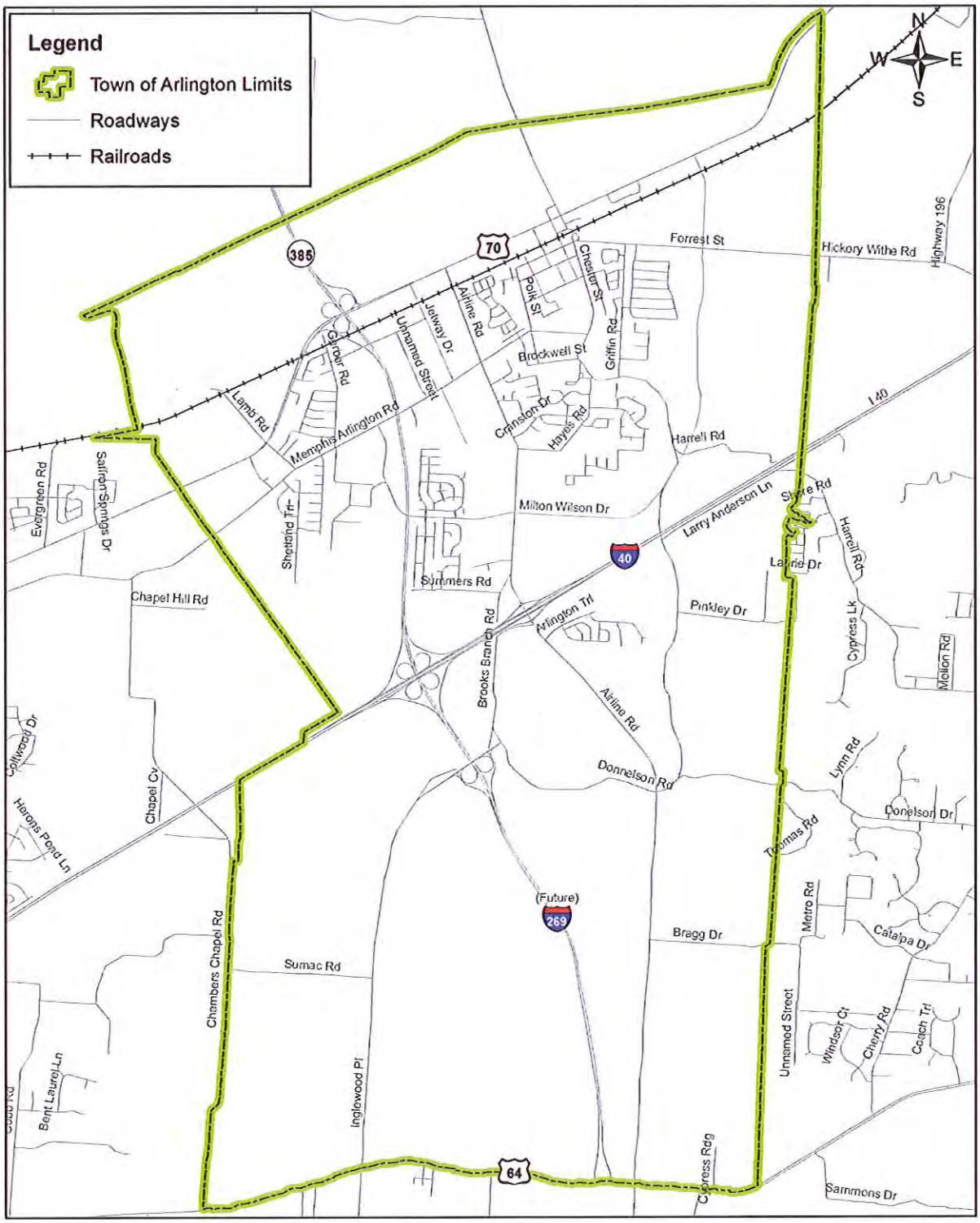
5	Traffic Congestion	1	Safety
2	Economic Development	4	Sidewalks / Crosswalks
3	Sustainability	6	Bicycle Paths / Lanes / Greenways
7	Attractiveness of Roads	10	Traffic Signal System
9	Complete Streets	8	Condition of Roads

4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

Safety, Safety, Safety. Pedestrian friendly.

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☒	☒	☐	☐
Attractiveness of Roads	☐	☒	☐	☐
Traffic Safety	☐	☒	☐	☐
Sidewalks / Crosswalks	☐	☒	☐	☐
Bicycle Paths / Lanes / Greenways	☐	☐	☒	☐
Traffic Signal System	☐	☐	☒	☐
Condition of Roads	☐	☒	☐	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

5	Traffic Congestion	1	Safety
3	Economic Development	1	Sidewalks / Crosswalks
3	Sustainability	2	Bicycle Paths / Lanes / Greenways
5	Attractiveness of Roads	1	Traffic Signal System
2	Complete Streets	3	Condition of Roads

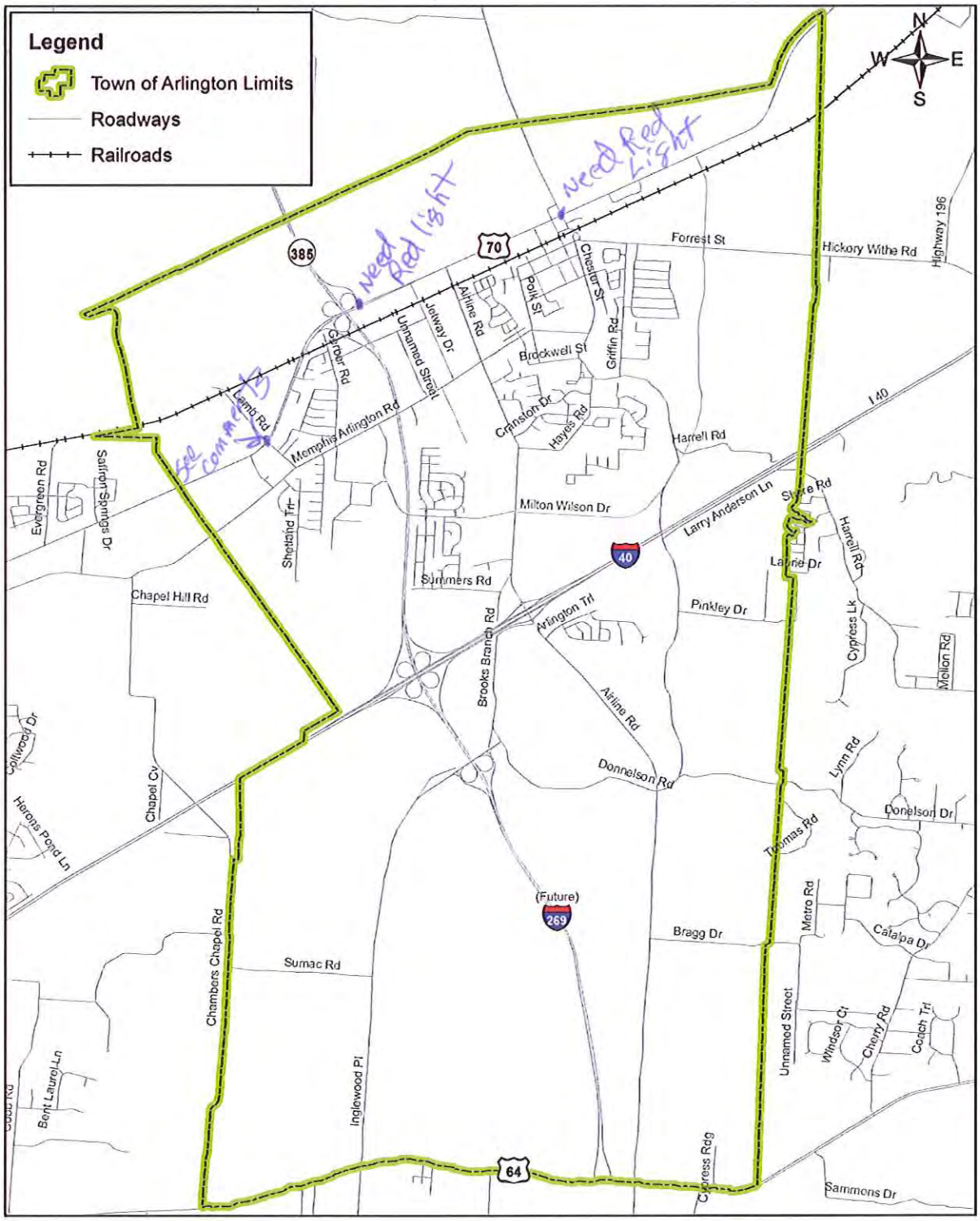
4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

The school zone light configuration is confusing. I don't think most realize there is a school zone there. I drive by every morning and people speed through there.

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

MIKE COOLEY 6323 ANGLIA VALLEY

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

TRAFFIC VOLUME AND SAFETY WHILE MAINTAINING DEVELOPMENT.

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☐	☑	☐	☐
Attractiveness of Roads	☐	☑	☐	☐
Traffic Safety	☐	☑	☐	☐
Sidewalks / Crosswalks	☐	☑	☐	☐
Bicycle Paths / Lanes / Greenways	☐	☑	☐	☐
Traffic Signal System	☐	☑	☐	☐
Condition of Roads	☐	☑	☐	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

2	Traffic Congestion	1	Safety
4	Economic Development	7	Sidewalks / Crosswalks
6	Sustainability	8	Bicycle Paths / Lanes / Greenways
10	Attractiveness of Roads	3	Traffic Signal System
9	Complete Streets	5	Condition of Roads

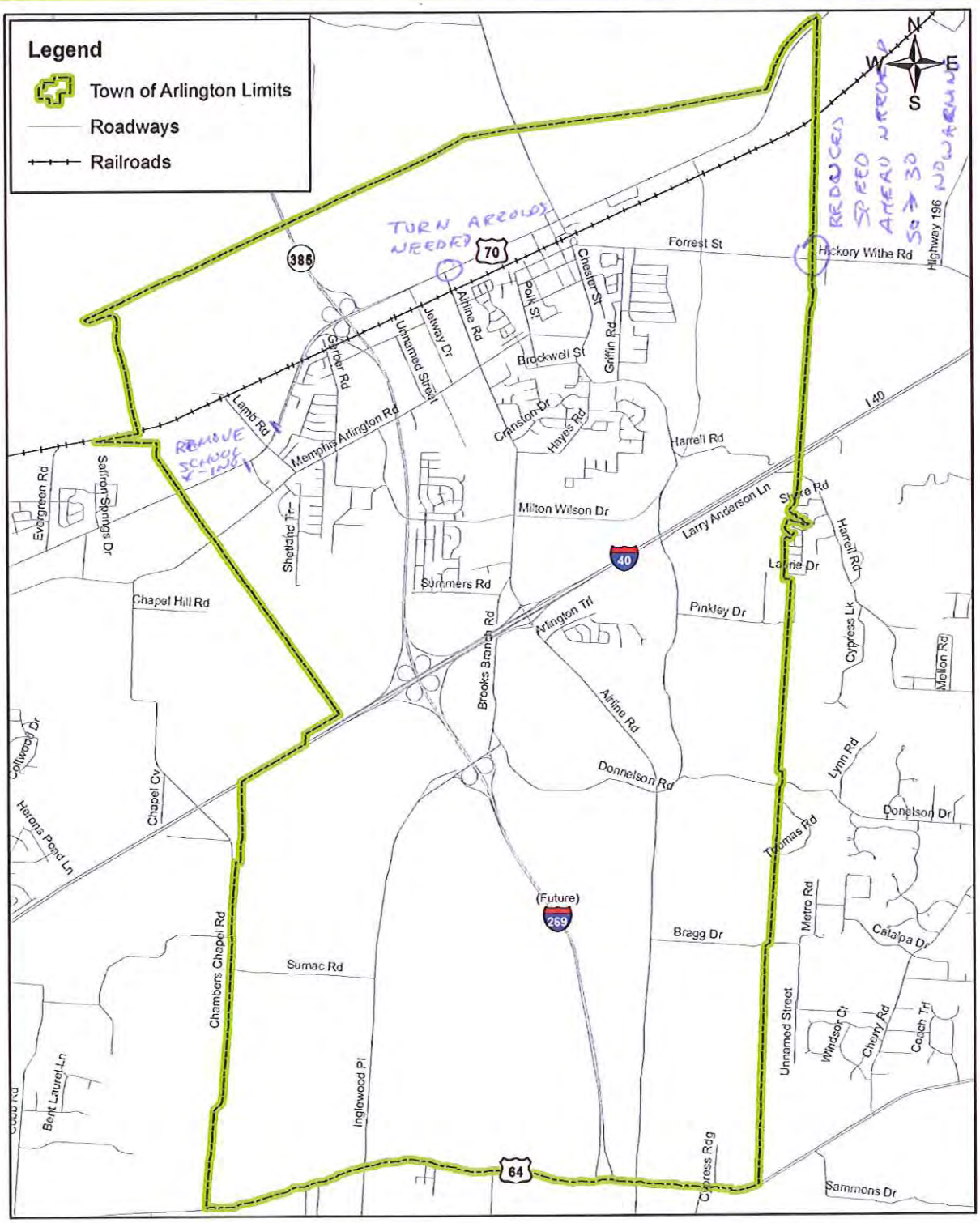
4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

TURN ARROWS AT HWY 70/AIRLINE.
REMOVAL OF 30MPH SCHOOL ZONE ON 70/LAMB. OBSOLETE.
REDUCED SPEED AHEAD ON FORREST AT TOWN LIMITS.
50-30 WITH NO WARNING.

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

Economic Development
Bicycle Paths / Lanes / Greenways
Trucks not cross in middle lane

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☐	☒	☐	☐
Attractiveness of Roads	☐	☐	☒	☐
Traffic Safety	☐	☒	☐	☐
Sidewalks / Crosswalks	☐	☐	☒	☐
Bicycle Paths / Lanes / Greenways	☐	☐	☒	☐
Traffic Signal System	☐	☐	☒	☐
Condition of Roads	☐	☒	☐	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

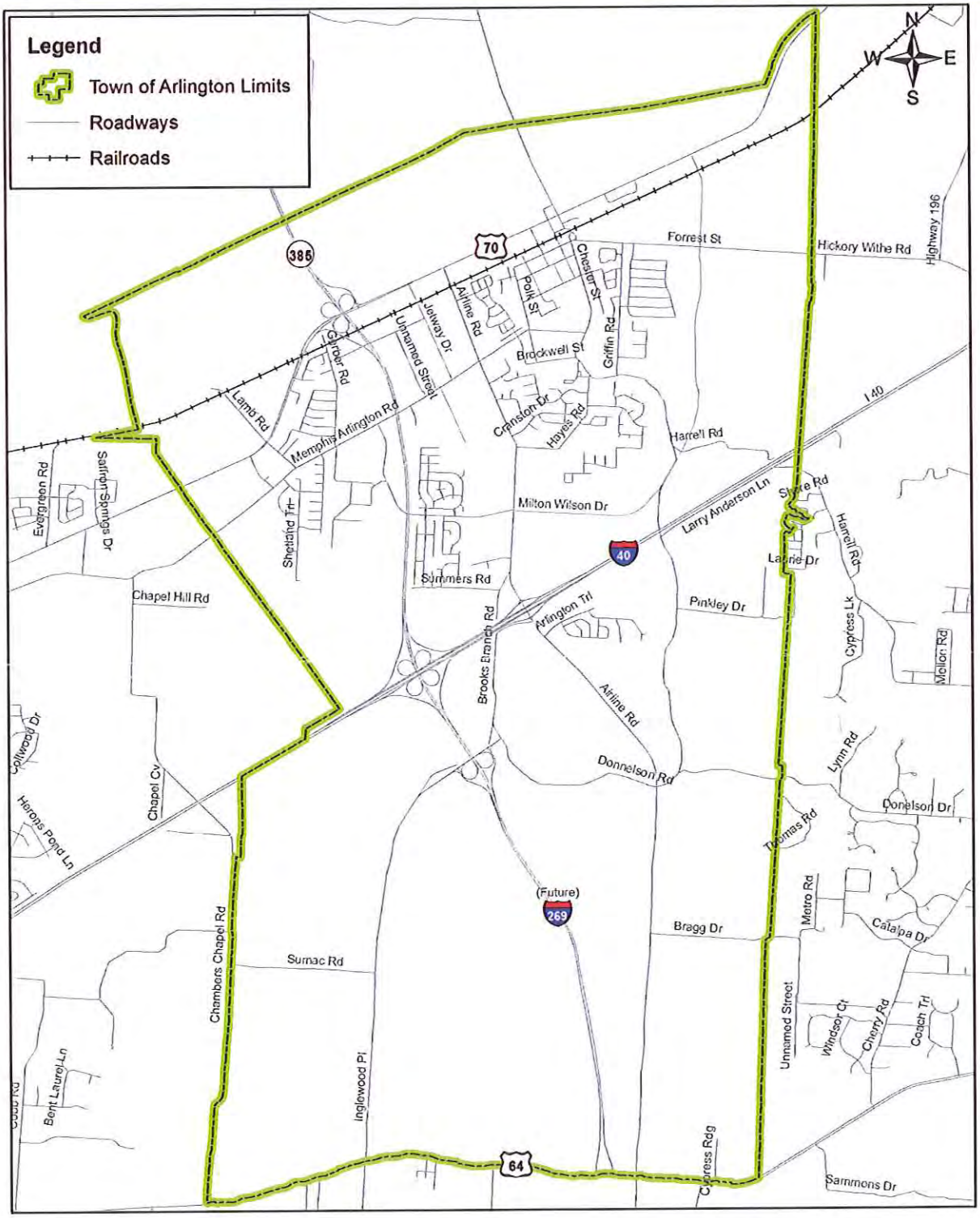
1	Traffic Congestion	4	Safety
5	Economic Development	2	Sidewalks / Crosswalks
2	Sustainability	3	Bicycle Paths / Lanes / Greenways
1	Attractiveness of Roads	3	Traffic Signal System
4	Complete Streets	3	Condition of Roads

4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Town of Arlington Public Meeting
December 16, 2013

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☑	☐	☐	☐
Attractiveness of Roads	☐	☐	☑	☐
Traffic Safety	☐	☑	☐	☐
Sidewalks / Crosswalks	☐	☐	☐	☑
Bicycle Paths / Lanes / Greenways	☐	☐	☐	☑
Traffic Signal System	☑	☐	☐	☐
Condition of Roads	☐	☐	☑	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

2	Traffic Congestion	1	Safety
3	Economic Development	4	Sidewalks / Crosswalks
8	Sustainability	5	Bicycle Paths / Lanes / Greenways
7	Attractiveness of Roads	10	Traffic Signal System
9	Complete Streets	6	Condition of Roads

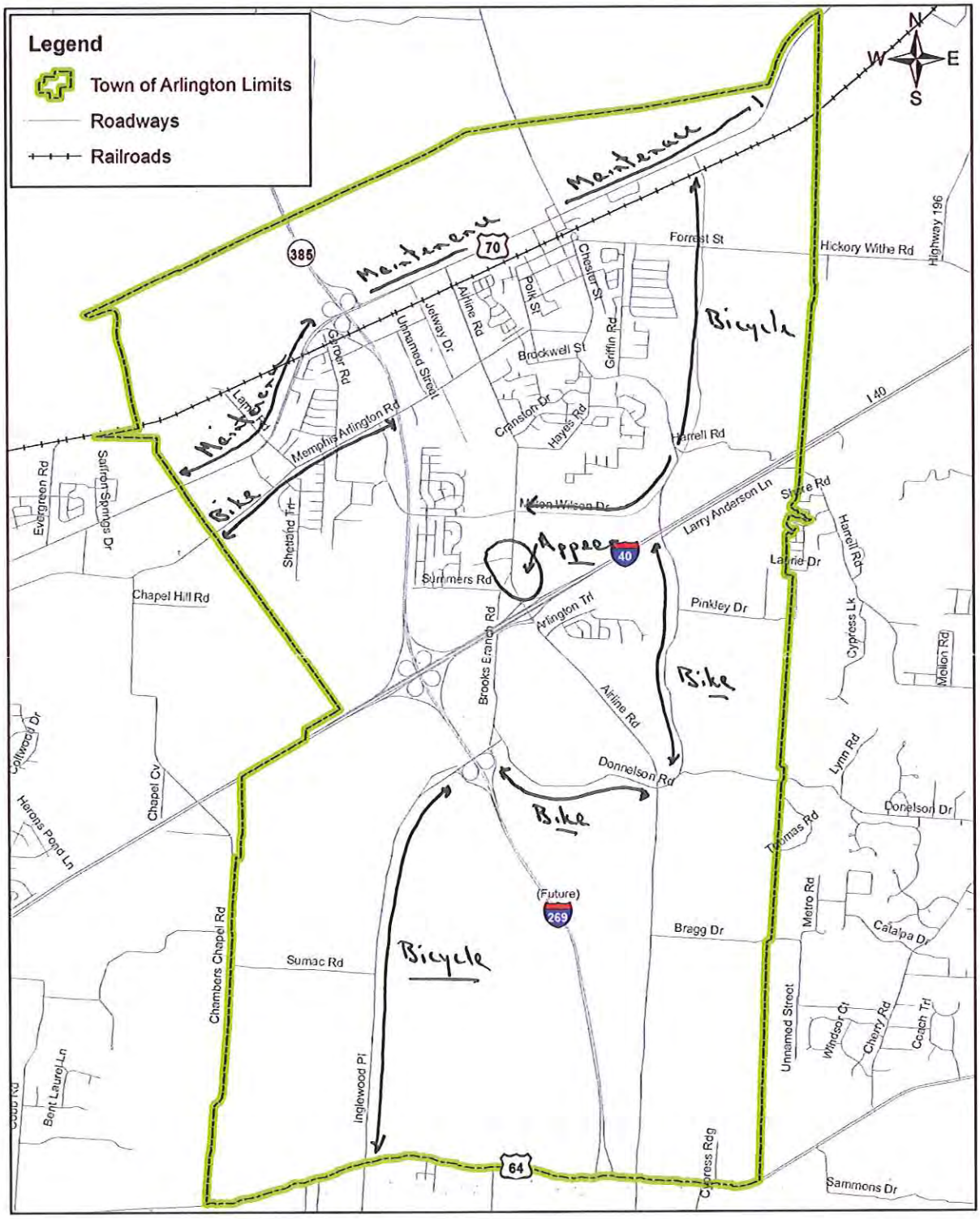
4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

More consideration for building traffic circles

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Arlington Major Road Plan
Public Questionnaire

1. **Goals and Objectives** - What do you think the goals and objectives of this plan should be?
Promote pedestrian and bicycle use, safety and appearance

2. **Existing Transportation Facility** - How would you rate the following items for the Town of Arlington's transportation system? (check one for each)

	Excellent	Good	Fair	Poor
Traffic Congestion	☐	☐	☐	☐
Attractiveness of Roads	☐	☐	☐	☐
Traffic Safety	☐	☐	☐	☐
Sidewalks / Crosswalks	☐	☐	☐	☐
Bicycle Paths / Lanes / Greenways	☐	☐	☐	☐
Traffic Signal System	☐	☐	☐	☐
Condition of Roads	☐	☐	☐	☐

3. **Arlington Priorities** - Please rank the following items that you feel are the "Most Important" (#1) to "Least Important" (#10) for the Town of Arlington:

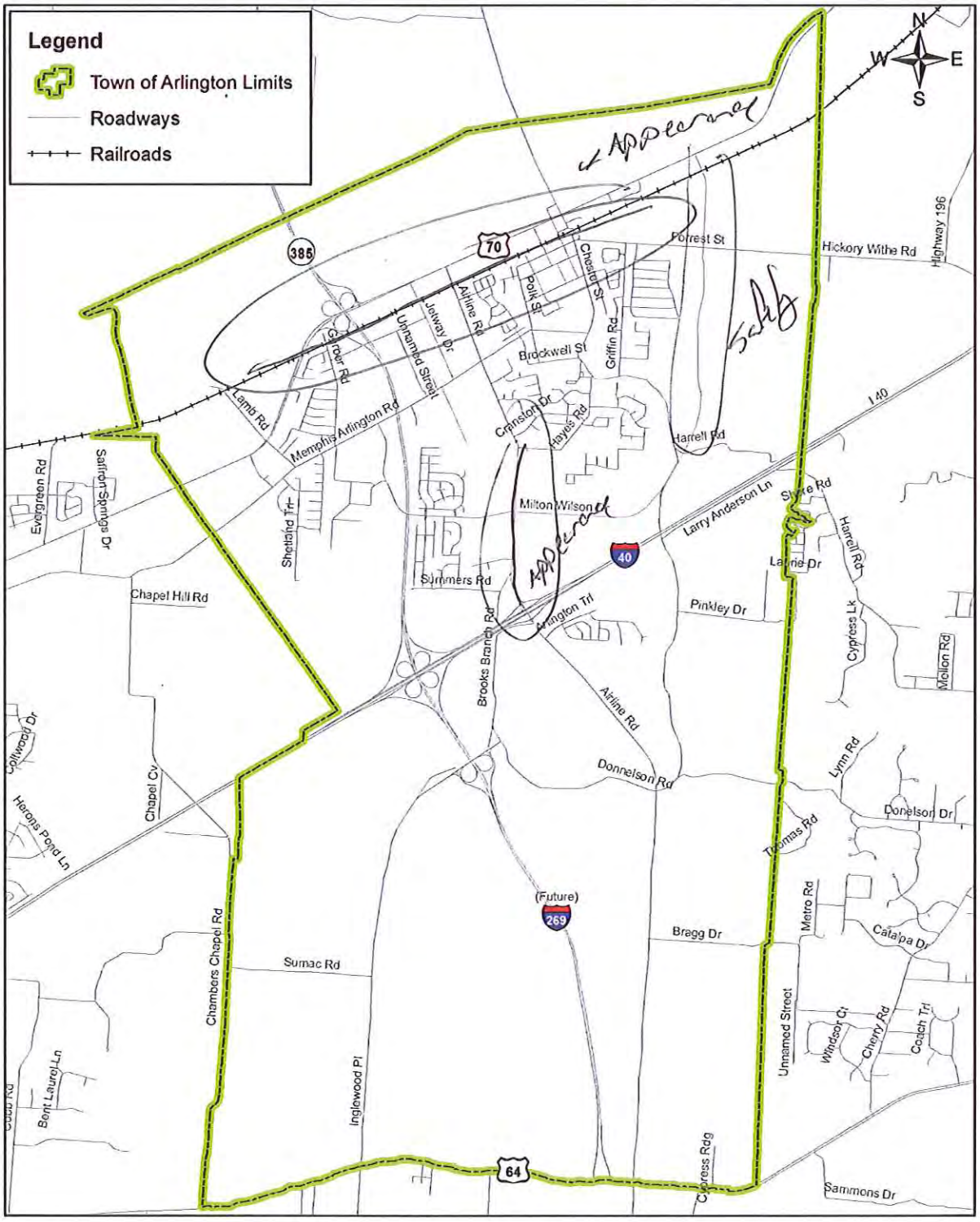
9	Traffic Congestion	1	Safety
4	Economic Development	6	Sidewalks / Crosswalks
10	Sustainability	5	Bicycle Paths / Lanes / Greenways
3	Attractiveness of Roads	2	Traffic Signal System
8	Complete Streets	7	Condition of Roads

4. **Mapping Exercise** - Please use the map on the back of this questionnaire to provide any additional comments or to identify areas of concern that you may wish to address that could include but are not limited to:

Congestion	Bicycle/Pedestrians
Safety	Appearance
Connectivity	Maintenance

5. **Additional Comments** – Please use the space provided below to include any additional comments or questions you may have regarding the Major Road Plan.

Arlington Major Road Plan
Public Questionnaire



When completed with the questionnaire, please return it to the sign-in table.

Thank you for your participation!

Appendix B

Technical Memorandum #1

Technical Memorandum #1

Arlington Major Road Plan

Base Year (2010) Travel Demand Model Development and Assignment Validation

Prepared for: Town of Arlington

Prepared by: Kimley-Horn and Associates, Inc.

Kimley-Horn and Associates, Inc.

July 2013
115059023

Table of Contents

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1 Introduction

As part of the Arlington Major Road Plan update, Kimley-Horn and Associates, Inc. (KHA) developed a subarea travel demand model to forecast the full build-out traffic in the study area. The Arlington Subarea Model is based on the official version of the Memphis MPO Travel Demand Model (the Regional Model) developed and updated for the 2040 Long Range Transportation Plan. Because the Regional Model is mainly focused on arterial roadways in the entire region, it has insufficient granularity on both traffic analysis zones (TAZs) and highway network in Arlington area. To forecast the full build-out traffic more accurately in the Arlington area, a base year (2010) model was developed and validated. TAZs and associated demographic and economic data were refined. More roadways that are significant in the Arlington area were added to the highway network. The traffic assignment results were compared with the traffic counts to evaluate the model performance. This Memorandum details the base year (2010) subarea model development process.

2 Refinement of Traffic Analysis Zone Structure

2.1 Overview

The Regional Model contains 17 TAZs in the study area as defined by the Arlington town limits. **Figure 1** shows the existing regional TAZ boundaries. The 17 TAZs in the study area (shaded green in **Figure 1**) have a density of approximately one zone per 1.4 square land miles. This TAZ density is sufficient for the Regional Model, but not sufficient to capture the future land use and development of the Arlington area. The following section describes the TAZ refinement process and the establishment of criteria used in the development of the Arlington subarea model.

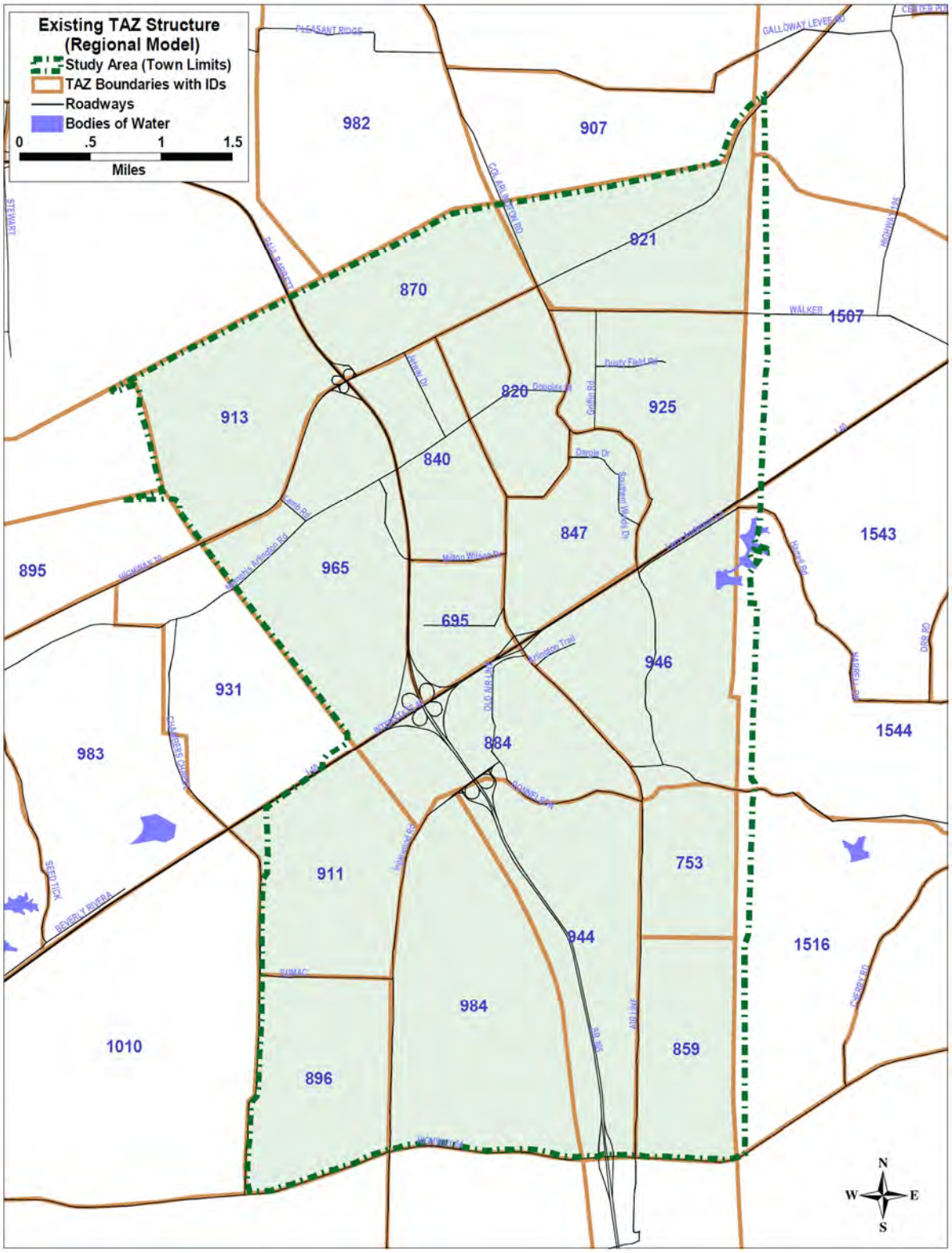


Figure 1 Existing TAZ Structure (Regional Model)

2.2 TAZ Refinement Criteria

In developing and refining the new TAZ structure for the Arlington subarea model, several criteria were established as a basis for development. For example, zones were developed that are homogenous with respect to land use and socioeconomic data. Whenever possible, zone boundaries followed physical and natural geographic features. Traffic analysis zone development and modification was influenced by the following criteria:

- Geographic features, such as rivers, streams, and lakes
- Existing and Planned Transportation facilities
- TAZ boundary configuration consistent with census tract boundaries and census block groups in rural/suburban areas
- Consistent land uses across the zone
- Evaluation of existing land uses and zoning
- Cross reference with the future land use plan
- Configuration consistent with the available transportation network/infrastructure serving the zone
- Configure zones and zonal boundaries such that trips can be loaded appropriately to the internal transportation network within the TAZ itself.

In the development of the new Arlington TAZ structure, these criteria were followed to the extent possible. To accommodate the rapid growth in the study area, TAZs are generally split into smaller geographic areas than the Census Block boundaries. There were also locations where the shape or configuration of the TAZ was illogical in relation to roadway network access or land development. In such cases, these zones were either split or combined with adjacent zones to provide a more desirable zone structure. TAZ boundaries were also updated to coincide with municipal limits provided by the Town.

Additionally, throughout the process TAZ boundary locations were evaluated relative to infrastructure, right-of-way, geographic features, land uses and future land use planning. Existing and future land use maps, model network area coverage, and necessary aerial photography were all used in determining the need for splitting, realigning, or adding additional TAZs.

2.3 Process

The process began using the existing TAZ structure from the regional model and identifying additional zonal needs in the study area. Much of the existing regional TAZ structure was based on a combination of census tract, census block group, and in some cases census block boundaries. By overlaying the regional TAZ structure with the geographical features and a future land use plan provided by the Town of Arlington, current large blocks with inconsistent internal land uses were identified and split. Future planned roadways and new planned developments were then evaluated to make sure that the TAZs will not be divided by major future roadways. The new TAZ structure was then reviewed internally by KHA staff.

2.4 Results

The expanded and refined TAZ structure now consists of 41 internal zones and covers approximately 24.6 square miles. This is approximately one zone per 0.6 square land miles, a relatively dense zonal structure for a suburban area such as Arlington. The new TAZ structure will allow enough granularities to capture the full build-out land use, zoning, and new future roadways.

A map showing the new TAZ boundaries with other geographic features is shown in **Figure 2**.

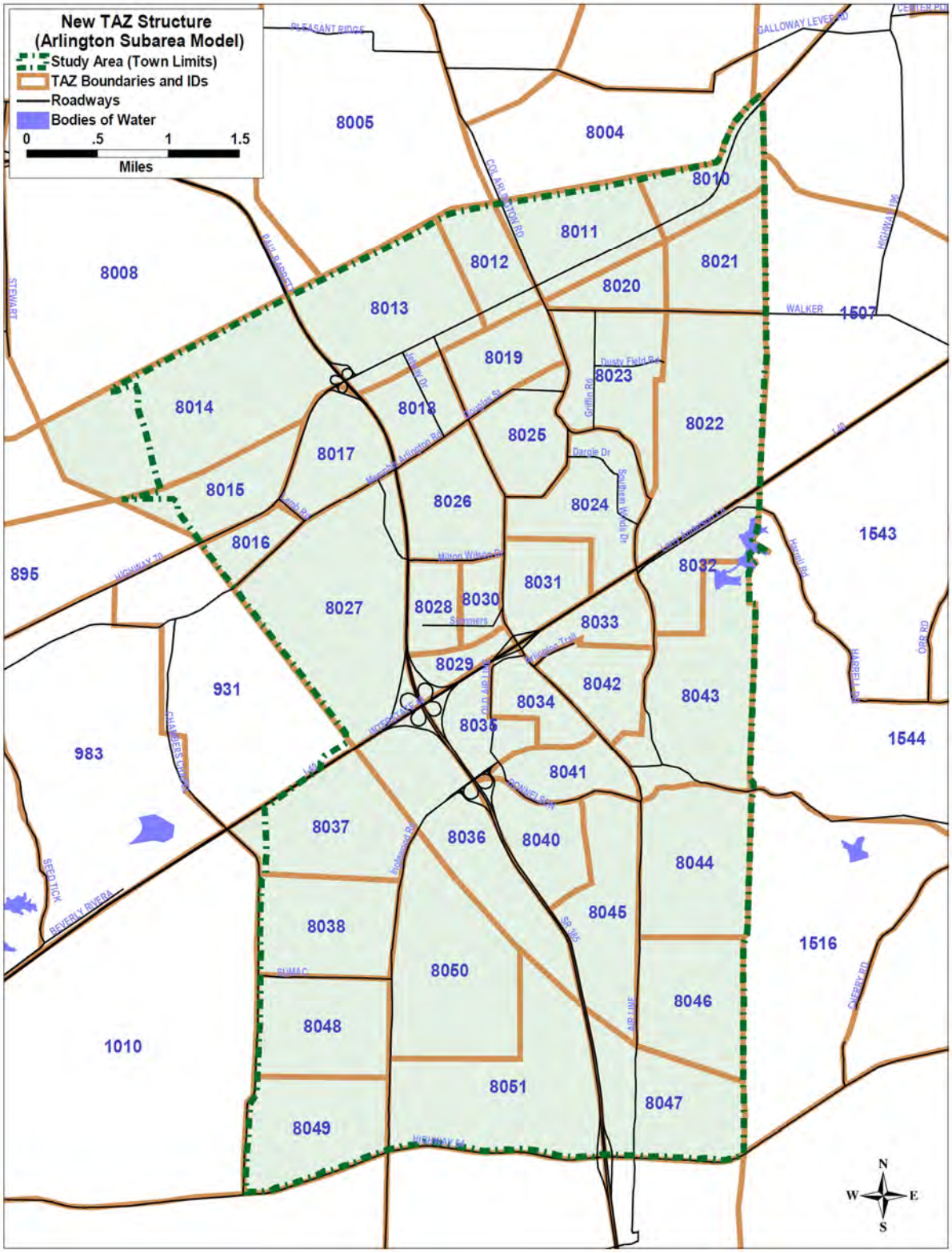


Figure 2 New TAZ Structure (Arlington Subarea Model)

Kimley-Horn and Associates, Inc.

3 Highway Network Development Methodology

3.1 Overview

The highway network from the Regional Model does not include some of the minor collector roads, feeder roads, and local roads in the Arlington area. A review of the regional roadway network was conducted and a set of such roads were identified and added to the Arlington subarea model network. These roads may carry relatively higher traffic volume in a future year scenario and provide necessary connectivity in the Arlington area.

3.2 Network Data Collection and Attributes Coding

The highway network database in the model contains attributes for each link in the line layer used in the TransCAD software. This layer contains all of the necessary attributes for modeling each roadway in the model, including roadway speeds and capacities. For all the additional roadways identified in this step, these attributes were coded. The attributes recorded and coded during the data collection effort included:

- Posted Speed Limit
- Area Type (CBD, Urban, Rural, Suburban)
- Median Treatment (No Median, Divided, Two-Way Left Turn Lanes)
- Roadway Functional Classification (Interstate, Other Freeway, Principal (Major) Arterial, Minor Arterial, Collector, Local)
- Through Lanes per Direction
- Average Lane Width by Direction
- Average Shoulder Width by Direction

3.3 Network Correction

As a part of the network development process, corrections and quality checks were made to the TransCAD network. Corrections made to the network include the following:

Verified roadway alignments and termini

The roadway network was overlaid on aerial photography. Model links were adjusted where the roads were misaligned. The roadway attributes described above were reviewed and adjusted if necessary for all roadway links in the Arlington subarea.

Repaired fragmented roadway links

Many links (roadway sections between intersection nodes) consisted of multiple individual fragments. This increases the likelihood of disconnected roadways, which increases file size and causes traffic assignment problems. Using TransCAD's map editing tools, fragmented roadway segments were combined into continuous links between intersection nodes.

Modified disconnected intersection nodes

Some nodes in the centerline mapping were not properly aligned at existing intersections. Using TransCAD's map editing tools, intersecting roadways were reviewed and connected.

3.4 Centroid Connectors

Centriod connectors are links that connect the centroid of the TAZ to the surrounding roadway network for the purpose of loading trips. With the completion of the TAZ structure and the Arlington model network, centroid connectors for each TAZ were coded into the model network. As a part of this process, current aerial photography was used to code centroid connectors that represent the actual access path of travel.

Figure 3 shows the Arlington subarea model base year highway network with existing functional classification.

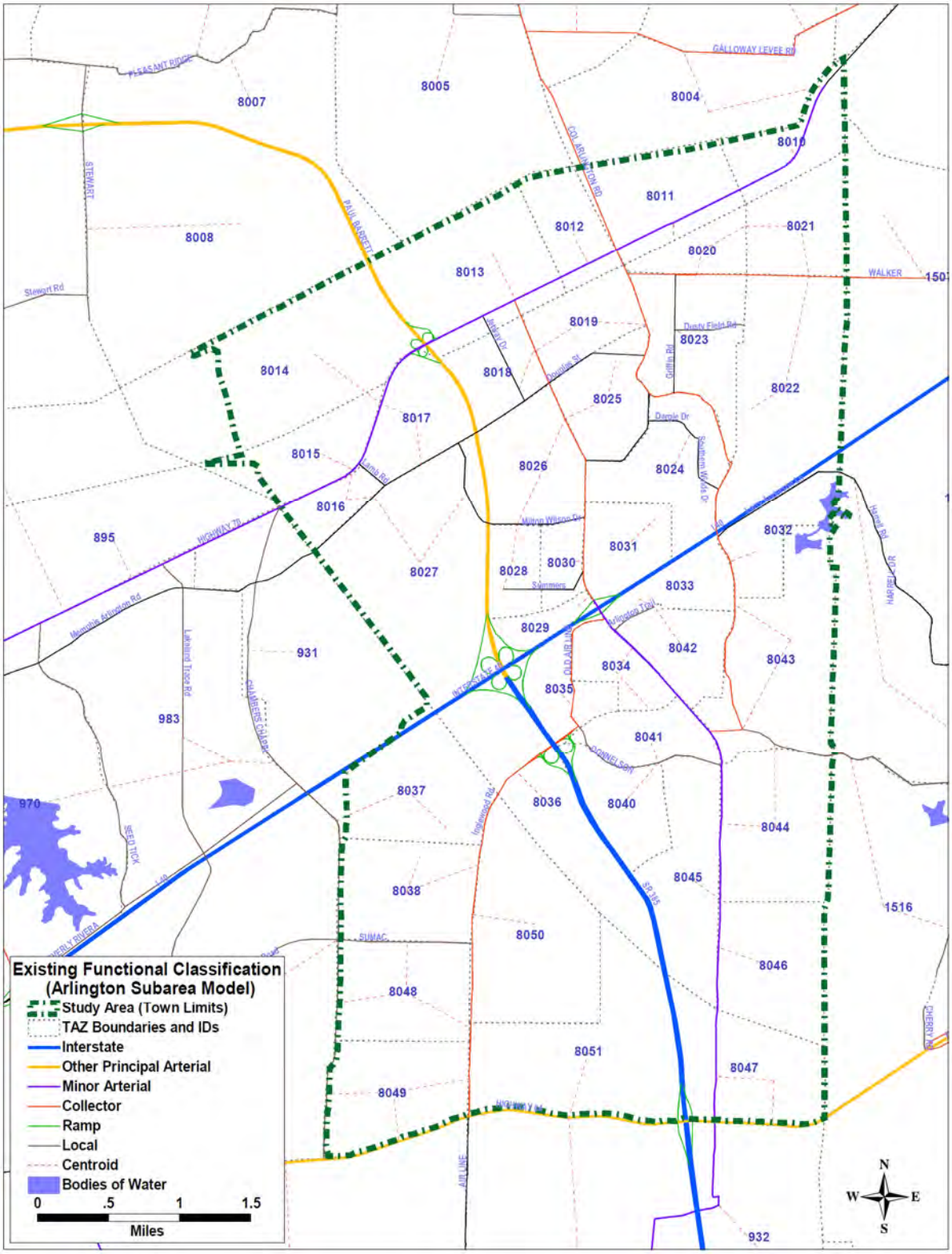


Figure 3 Existing Functional Classification (Arlington Subarea Model)

4 Base Year Household and Employment Data Preparation

Two sets of data are required at the TAZ level to model transportation demand. They include the production related information from the demographic level (household data), and attraction related information from the economic or employment data. Existing employment and population data was allocated to the new TAZs using factors developed based on a review of aerial photography and the location of existing developmental patterns. The following sections describe how the demographic data for the Arlington Subarea Model was further updated and refined.

4.1 Household Data

The household data from the Regional Model was compared to recent aerial photography. Adjustments were made to reflect a more accurate distribution of households for the subarea model based on aerial photography and comments from Town staff. The household distribution by household size, person, worker, and age were carried over from the regional model.

4.2 Employment Data

The employment distribution from the Regional Model was carried over to the Arlington subarea model. The new distribution for employment data was adjusted based on TAZ size and development densities. Distributions for employment data was reviewed by Town staff.

Figure 4 shows the base year household and employment distribution in terms of total number of household and employment for the Arlington subarea model.

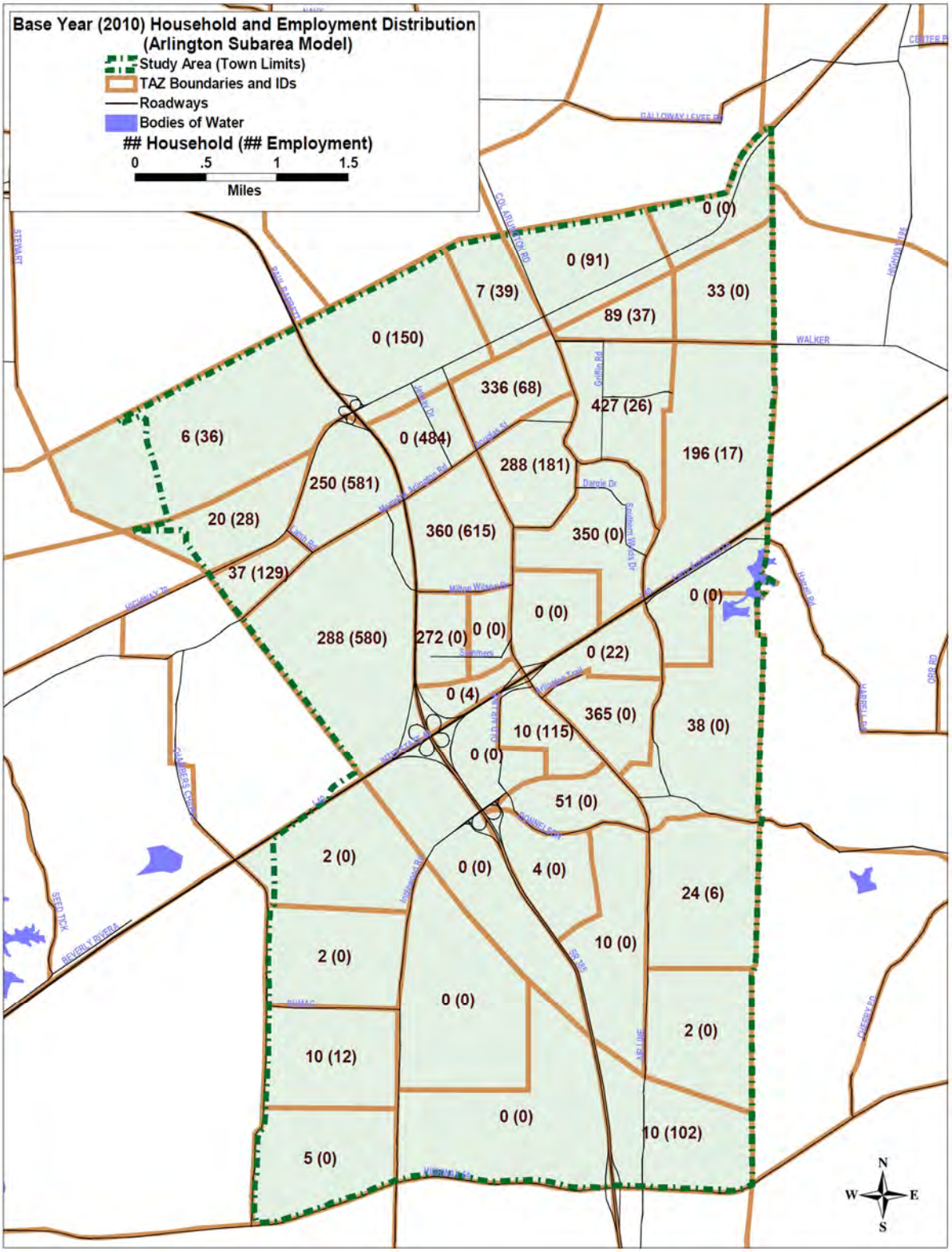


Figure 4 2010 Household and Employment Distribution (Arlington Subarea Model)

5 Base Year Model Validation and Performance Review

5.1 Traffic Counts Collection

To validate the assigned traffic volume against the observed traffic counts in base year (2010), KHA collected 24-hour traffic counts in the study area from the ADAM traffic monitoring database system maintained by Tennessee Department Transportation. In addition, other traffic counts conducted in 2013 were used to help validate the model. A total of 20 counts locations were collected and used in the validation process.

5.2 Traffic Assignment Validation

Since the Arlington subarea model is based on the Regional Model, the criteria used to validate the Regional Model were reviewed in the development process. The validation criteria used in the Regional Model includes:

- Vehicle Miles Traveled (VMT) by functional classifications
- Traffic volume by functional classifications
- Traffic volume by daily volume groups
- Percent of links within a specified percent of counts
- Screen lines and cut lines validation

Given the smaller size of the Arlington area and the limited number of counts available for validation, not all of the criteria discussed above can be used effectively. The following validation criteria were used for the Arlington subarea model:

- Percent of links within a specified percent of counts
- Screen lines and cut lines validation

Percent of Links within a Specified Percent of Counts

For the link level loadings in Arlington area, the traffic counts collected in the previous step were compared against the assigned model volume for the base year 2010. To measure the forecasting accuracy of the model, the percentage of links within a specified range of counts was calculated. **Table 1** shows the criteria used in the regional model for this validation step.

Table 1 Regional Model's Functional Classification Traffic Count Validation Criteria

Functional classification	Target within Count	Range Compared to Counts
Freeway	75%	20%
Freeway	50%	10%
Major Arterial	75%	30%
Major Arterial	50%	15%
Minor Arterial	75%	40%
Minor Arterial	50%	20%

Note: Table 1 can be read as "75% of the freeway links need to be within 20% of counts, 50% of the freeway links need to be within 10% of counts".

Since there are not enough counts to support validation by functional classification for the Arlington area, all locations with traffic counts are compared collectively instead. The criteria used for the Arlington area are:

- 75% of the links need to be within 20% of the counts
- 50% of the links need to be within 15% of the counts

The comparison of base year model volume and counts shows that approximately 65% of the links in the Arlington area are within 20% of the counts, and 53% of the links in the Arlington area are within 15% of the counts. The results show that the base year model results met the second criteria target of 50% links within 15% of the counts. The first criteria target was short by about 10%. It should be noted that the criteria used for Arlington is more rigorous than the regional model, since highways with lower functional classification are generally more difficult to match the counts. When reviewing the model results for roadways with a functional classification of arterial and higher, both of the target criteria are satisfied. Overall, the model assignment results are reasonable and satisfactory. **Table 2** shows the detailed comparison between model volume and counts at each count location.

Table 2 Base Year (2010) Model Volume Compared with Actual Traffic Counts

Counts Index	Roadway Name	Location Description	Functional Classification	Counts (TDOT 2010)	Model ADT	Error (%)
1	SR 385	Between I-40 and Inglewood Pl	Interstate	8,671	6,151	-29.06
2	SR 385	Between Inglewood Pl and US 64	Interstate	8,114	7,272	-10.38
3	SR 385	Between US 64 and Macon Rd	Interstate	4,030	6,928	71.91
4	I-40	Between Canada Rd and SR385	Interstate	53,078	51,898	-2.22
5	I-40	Between Airline Rd and Arlington Town Limits	Interstate	28,727	29,941	4.23
6	SR 385	Between Stewart Rd and US 70	Other Principal Arterial	10,435	12,254	17.43
7	SR 385	Between US 70 and I-40	Other Principal Arterial	13,432	17,009	26.63
8	US 64	Between SR 385 and Inglewood Rd	Other Principal Arterial	16,409	19,483	18.73
9	US 64	Between SR 385 and Hwy 196	Other Principal Arterial	18,520	19,485	5.21
10	US 70	Between SR 385 and Jetway Dr	Minor Arterial	15,846	13,928	-12.10
11	US 70	Between Milton Wilson Blvd and Galloway Levee Rd	Minor Arterial	4,774	5,391	12.92
12	Airline Rd	Between Donnelson Rd and US 64	Minor Arterial	1,398	1,528	9.30
13	Collierville Arlington Rd	Between SR 385 and George R James Rd	Minor Arterial	3,132	3,325	6.16
14	Hwy 196	Between Forrest St and Old Brownsville Rd	Major Collector	1,456	2,620	79.95
15	Collierville Arlington Rd	Between US 70 and Galloway Levee Rd	Minor Collector	2,038	4,899	140.38
16	Forrest St	Between Milton Wilson Blvd and Chester St	Minor Collector	1,912	3,100	62.13
17	Chester St	Between Milton Wilson Blvd and Griffin Rd	Minor Collector	833	825	-0.96
18	Airline Rd	Between I-40 and Milton Wilson Dr	Minor Collector	13,335	9,884	-25.88
19	Memphis Arlington Rd	Between SR 385 and Clear Creek	Local	1,400	1,237	-11.64
20	Donnelson Rd	Between Inglewood Pl and Airline Rd	Local	403	392	-2.73

Screen Lines and Cut Lines

As a part of the model calibration/validation process, screen lines and cut lines were developed to gauge how well the model replicates traffic between different areas with the Arlington Town Limits. Typically screen lines are placed across roads with available traffic count and usually follow a natural barrier, such as a river or railroad tracks to minimize the number of crossings. Cut lines are typically placed across corridors and sections of the model that need attention. Traffic volumes are summed at screen lines and cut lines to validate system wide traffic volumes (cut lines can be thought of as a more localized measure). **Figure 5** shows the screen lines and cut lines used for the validation of the Arlington Subarea Model. The results of the screen line and cut line comparison is shown in **Table 3**. Overall, the model is accurately replicating the flow of traffic across these boundaries.

Table 3 Base Year (2010) Model Screen Line / Cut Line Comparison

Screen Line / Cut Line	Number of Counts	2010 Count Total	2010 Model Total	Percent Difference
North/South	4	18,703	25,114	34.3%
East/West	3	49,160	52,530	6.9%
Town Center	4	29,000	28,495	-1.7%

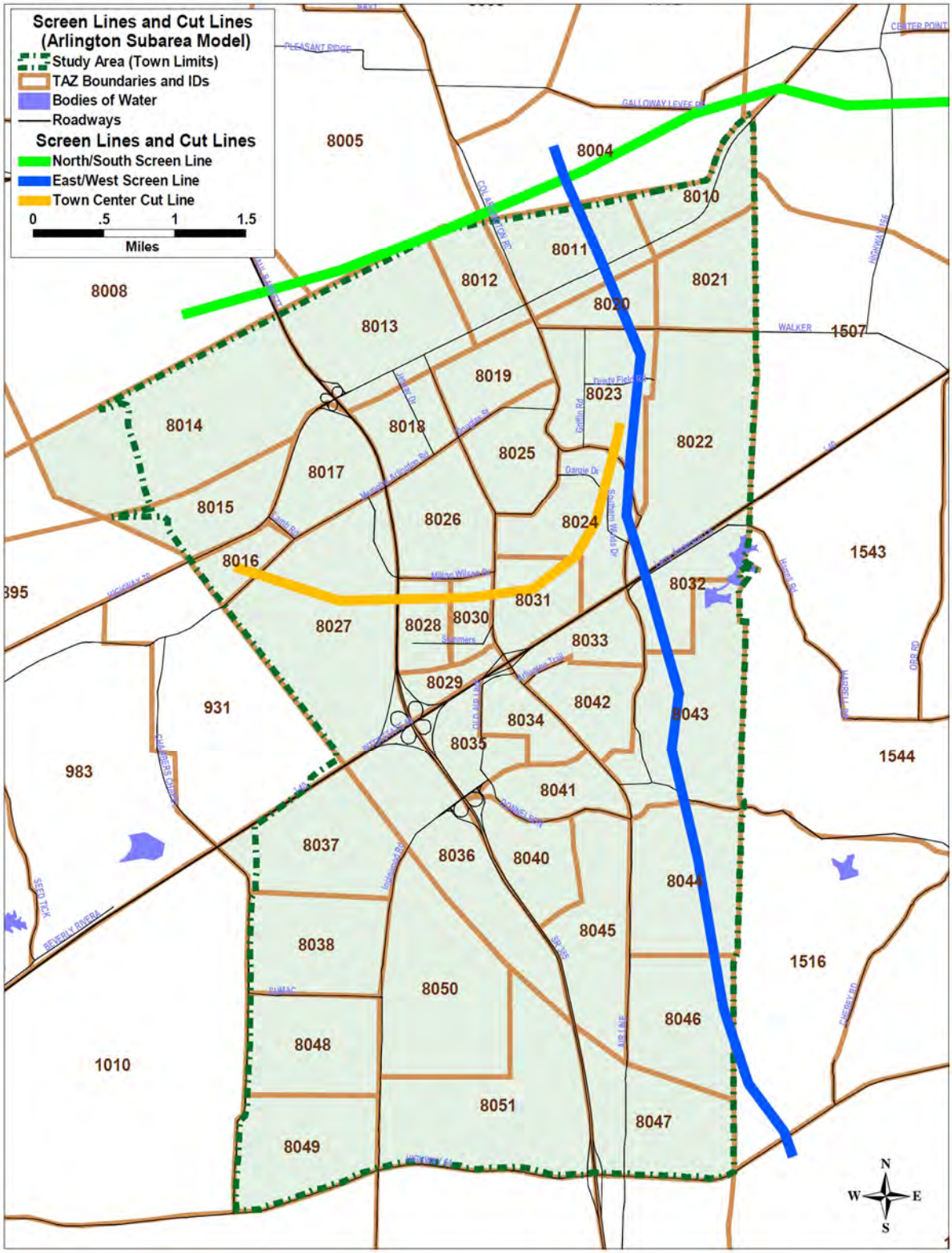
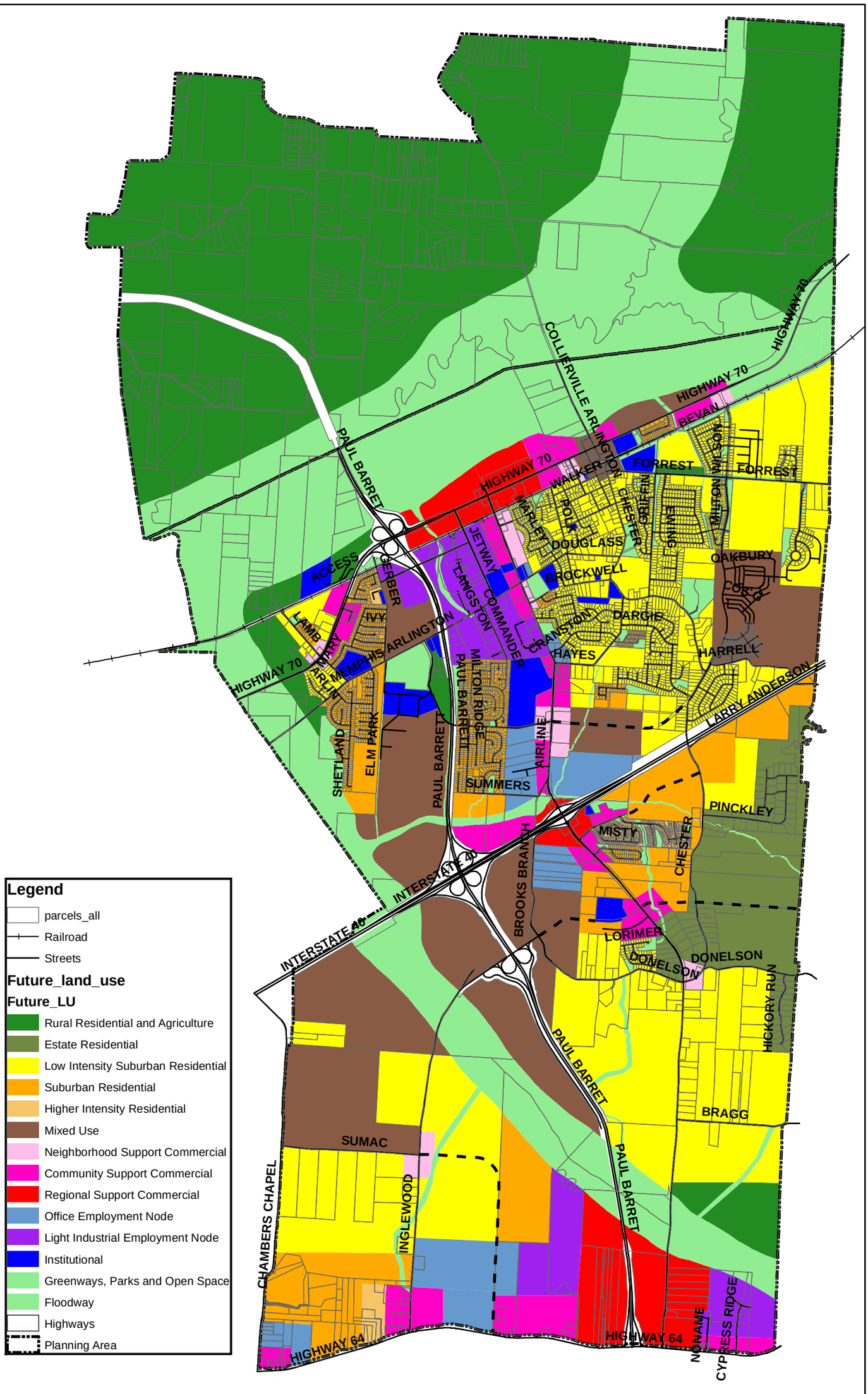


Figure 5 Screen Lines and Cut Lines (Arlington Subarea Model)

Appendix C

Town of Arlington Land Development Plan



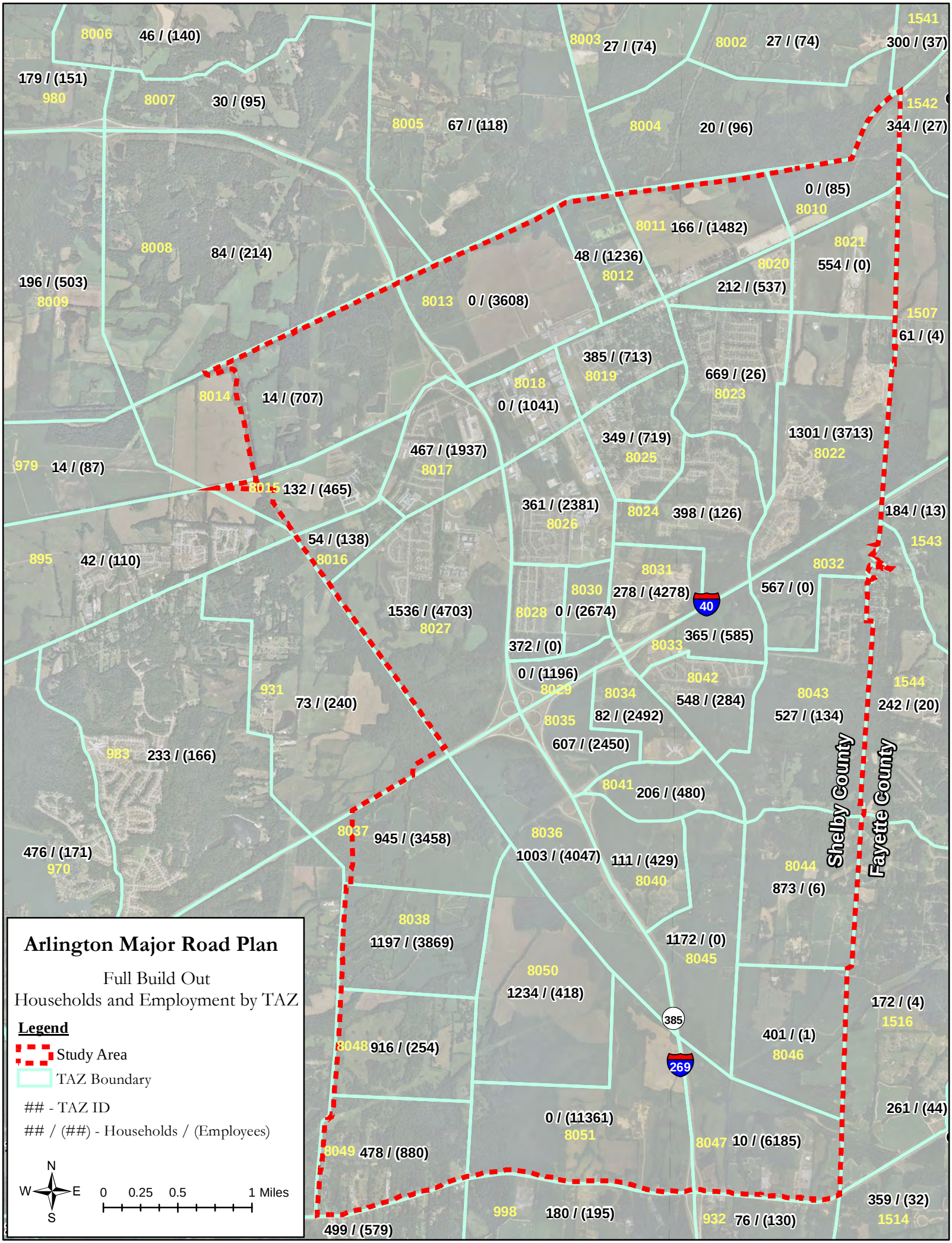
Town of Arlington
Future Land Use Map
October 4, 2010

0 0.25 0.5 1 Miles

1:47,500

Appendix D

Households and Employment by TAZ (Full Build Out)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0 / (85)
8010
8011 166 / (1482)
8021
554 / (0)
8008 84 / (214)
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669 / (26)
8023
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Fayette County
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0 / (11361)
8051
8047 10 / (6185)
8049 478 / (880)
359 / (32)
1514
998
180 / (195)
932 76 / (130)
499 / (579)
Arlington Major Road Plan
Full Build Out
Households and Employment by TAZ
Legend
Study Area
TAZ Boundary
- TAZ ID
/ (##) - Households / (Employees)
N
W
E
S
0 0.25 0.5 1 Miles