City of Melissa

2015 Comprehensive Plan Update

Chapter 5: Transportation Plan

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Introduction

> **Streets and their sidewalks, the main public places of a city, are its most vital organs.**
>
> **- Jane Jacobs, *Life & Death of the Great American Cities***

A community's transportation system is vital to its ability to grow in a positive manner. Transportation is inherently linked to land use. The type of roadway dictates the use of adjacent land, and conversely, the type of land use dictates the size, capacity and flow of the roadway. Many of the decisions regarding land uses and roadways within Melissa have already been made; three major highways run through the City, and local rights-of-way in much of the City have been constructed or planned. A major challenge for Melissa now lies in the accommodation of population growth within the existing transportation system and in the accommodation of new land development through the expansion of that system.

More specifically, the transportation system should:

- Provide mobility and accessibility at appropriate levels according to the type of roadway.
- Focus on multi-modal transportation options, including pedestrian/bicycle access and transit.
- Expand as needed to meet the needs of the City's growing population and additional development.
- Be economically feasible for the citizenry and the City.
- Be correlated with regional considerations, such as new/expanded highway systems and transit availability.

It is important to note that the references made herein regarding the transportation system should not be viewed as references solely to roadways. Communities across Texas and the nation are becoming increasingly aware of the problems inherent in constructing a system for the automobile alone. Pedestrian and bicycle accommodation is important to creating a community that will be sustainable for decades to come. Therefore, another challenge for the City lies in the integration of pedestrian and bicycle facilities such that these facilities actually create alternative modes of transportation.

This Transportation Plan is divided into several sections, as follows.

- First is a discussion of regional roadways.
- Next is an explanation of the various recommended types of localized roadways. Both regional and local roadways, existing and recommended, are shown on the Transportation Plan Map. This map, **Figure 5-6**, will help guide decisions within the City and its ETJ regarding right-of-way connections (i.e., how roadways will connect as development occurs) and allocation (i.e., how much right-of-way is needed to accommodate travel) as development occurs.
- Third is a discussion of the other modes of transportation that should be considered by Melissa as the City continues to expand its transportation system; these modes will become increasingly important as the City and the region continue to grow in population and development.

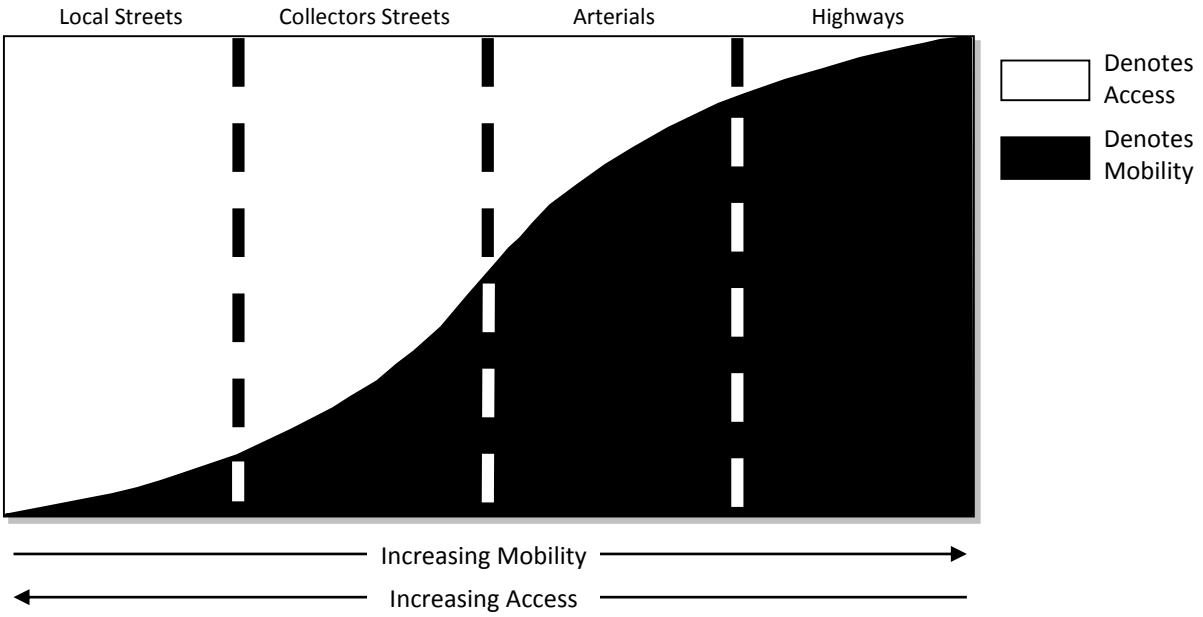
- Finally, the transportation policies are outlined. These policies should be used in conjunction with the Transportation Plan Map to guide transportation decisions as Melissa continues to grow in population and geographic area.

Roadway Types and Standards

The Functional Classification System

The Transportation Plan (shown in **Figure 5-6**) for Melissa is based upon a road classification system that depicts the function of every roadway in the thoroughfare system. Roadway types, as discussed in the following sections, include highways, arterials, collectors, and local streets. Their functions can be differentiated by comparing their ability to provide mobility with their ability to provide access to various locations. These different functions of each roadway type are illustrated in **Figure 5-1**.

Figure 5-1. Access and Mobility According to Roadway Type



As the illustration shows, access decreases as the thoroughfare type changes from local streets to freeways, while mobility increases. It also shows that roadways that are intended to provide mobility, such as arterials and freeways, should not be compromised by an abundance of separate access points for land uses. This will be addressed later within this Transportation Plan.

Regional Roadways

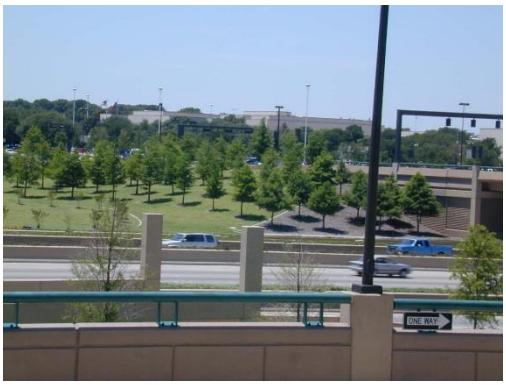
Highways are defined as high-capacity thoroughfares along which direct access to property is generally minimal or eliminated altogether, with ingress and egress controlled by access ramps, interchanges and frontage roads. Of Melissa's three identified highways, there are two to which this definition does not apply – that is, there is direct access to the land uses along them. One of these highways is State Highway 5, locally known as McKinney Street. The other is State Highway 121.

Construction and maintenance of highways is not usually the responsibility of municipalities. The Texas Department of Transportation (TxDOT) and federal monies generally fund improvements of this type of roadway facility. However, the local entities that are affected and impacted by improvements to highways often participate in decision-making and in the public input process. The three highways that currently traverse Melissa are discussed in the following sections. Another east/west highway proposed along the northern City limits is also discussed.

Highways

U.S. Highway 75

U.S. Highway 75 travels through the western part of Melissa in a north-south direction. It not only provides regional access to and from Melissa, but also state-wide access. At its southernmost point, this highway begins in Galveston, Texas, as Interstate Highway 45 and extends north across the state through Houston, the Dallas-Fort Worth Metroplex (and Melissa), and then into Oklahoma. The regional access that this highway provides allows citizens of Melissa easy connection to numerous employment centers, major retail areas, and other Metroplex cities.



This highway provides opportunities for Melissa to expand its local tax base with retail uses. Visibility is one of the prime considerations for retail businesses, and locations within the City that are along U.S. Highway 75 afford such visibility. Therefore, retail uses in a mixed use scenario (i.e., with office and residential in a cohesive development) have been recommended for this corridor, as shown on the Future Land Use Plan Map. It is also important to note that this corridor is included within the Commercial Corridor Overlay zoning district, which is intended to ensure desirable development along U.S. Highway 75 while allowing for market flexibility.

State Highway 121

State Highway 121 travels through Melissa in a northeastern direction. It provides regional access to and from Melissa from Fort Worth to Bonham (northeast of the City). This highway has become a major transportation route within the Metroplex in recent years.

The accessibility of developments along State Highway 121 is largely dependent on its ultimate configuration through Melissa. Currently, it is an at-grade highway, but it may be raised to allow for more travel lanes in the future. This will affect future land development along it. Regardless, this highway provides good opportunities for nonresidential development. A variety of nonresidential uses have been recommended along State Highway 121, including retail, mixed use, and industrial. Some residential uses have also been recommended (with appropriate buffering elements).

State Highway 5

State Highway 5 travels through Melissa in a northern direction parallel to the railroad line, and likely because of its association with the railroad, it is the roadway along which the City first developed. This highway provides for semi-regional access from the city of Howe (north of Melissa) to the city of Allen. Locally, this highway is known as McKinney Street.

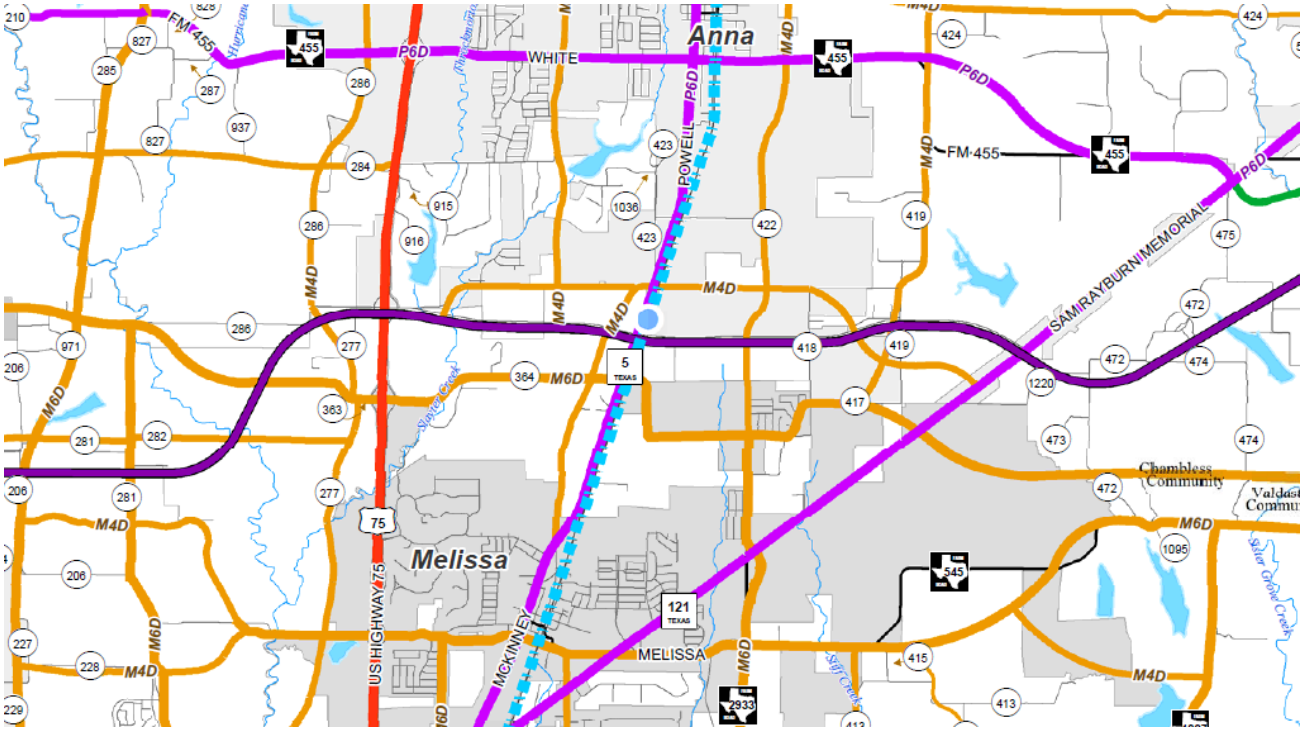
It is along this highway that Melissa's new Town Center is located. This is a good location that will allow for the Town Center to be both visible and accessible. Also significant in terms of land use is the fact that the City's Old Town area is adjacent to State Highway 5, which may provide a catalyst for the area's redevelopment (discussed in detail within the City Center Concept Plan, Chapter 8). Another important land use concept in relation to this highway is the recommended Transit-Oriented Development (TOD) that is envisioned adjacent to the planned light rail stop. Although the TOD is intended to be a pedestrian-oriented area, it will need the visibility and accessibility provided by State Highway 5 to truly become a dense urban environment. Other land uses recommended along State Highway 5 include retail, commercial, and industrial. Some residential uses (with buffering) have also been recommended.

The Collin County Outer Loop

The Collin County Outer Loop study began in 2002 as a proactive planning approach to the foreseeable need for another connection in the northern Collin County area – an area that has experienced marked residential and nonresidential development in the past 15 to 20 years. The Outer Loop will be a major highway approximately 500 feet in right-of-way width. The portion of the highway nearest to Melissa is recently completed and open to traffic – U.S. Highway 75 to SH 121.

- Freeway
- Tollway
- P6D — Principal 6 Lane Divided (120' ROW)
- P4D — Principal 4 Lane Divided (100' ROW)
- M6D — Major 6 Lane Divided (120' ROW)
- M4D — Major 4 Lane Divided (100' ROW)
- M4U — Major 4 Lane Undivided (70' ROW)
- RA4 — Regional Arterial 4 Lane (110' ROW)
- RA2 — Regional Arterial 2 Lane (90' ROW)

Figure 5-2. Collin County Thoroughfare Plan - Outer Loop (east-west Tollway shown in dark purple)

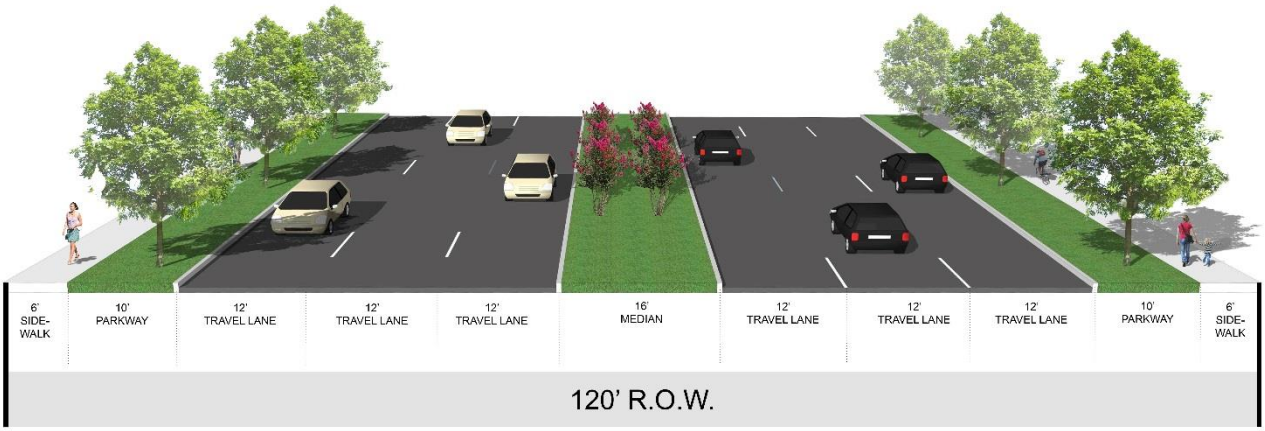


Localized Roadways

Arterials

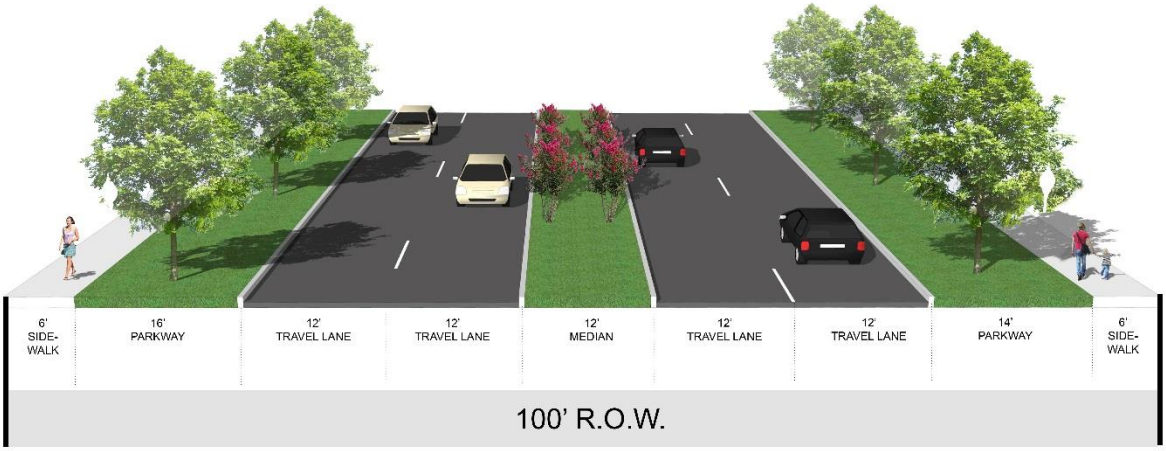
Roadways identified as arterials are designed to convey relatively heavy volumes of traffic. These roadways are primarily intended to provide mobility, and because of the speed and volume of traffic, access to properties should be minimal. It should be noted that both the major and minor arterials have been recommended as divided roadways with a center median. While the median could be a painted turn-lane that allows for less controlled left turns, the recommendation is for a raised median. Not only has a raised median been proven to be the safer alternative[5-1], it provides for better access control to developments adjacent to the arterial roadway, thereby allowing for greater mobility. Raised medians also provide an area for streetscape enhancements such as lighting, landscaping, and special signage. Refer to the Transportation Plan Map, **Figure 5-6**, for the recommended locations of new arterial roadways. The recommended major and minor arterial roadway sections are shown in **Figure 5-3** and **Figure 5-4**, respectively. These are generally consistent with the City's current Subdivision Ordinance requirements.

Figure 5-3. Type A - Major Arterial Roadway (120' Total ROW)



[5-1] TRIP: The Roadway Information System, "National Information: Highway Safety Fact Sheet: How Road and Bridge Improvements Save Lives"; ADDRESS: www.tripnet.org/hsfactsheet.htm.

Figure 5-4. Type B - Minor Arterial Roadway (100' Total ROW)



Collectors

Collector streets are generally designed to distribute traffic from local access streets and funnel it to arterial roadways (i.e., from residential developments). Collectors should provide more access to adjacent land uses than do arterials, but access should still be controlled through the use of shared driveways and other techniques that minimize disturbance of the free-flow of traffic (see Transportation Policy 1). This type of roadway should provide an equal amount of mobility and access to land uses, and is intended to carry lighter volumes of traffic than arterials. Refer to the Transportation Plan Map, **Figure 5-6**, for the recommended locations of new collector roadways. The recommended major and minor collector roadway sections are shown in **Figure 5-** and **Figure 5-**, respectively. These are generally consistent with the City's current Subdivision Ordinance requirements.

Figure 5-5. Type C - Major Collector Roadway (80' Total ROW)

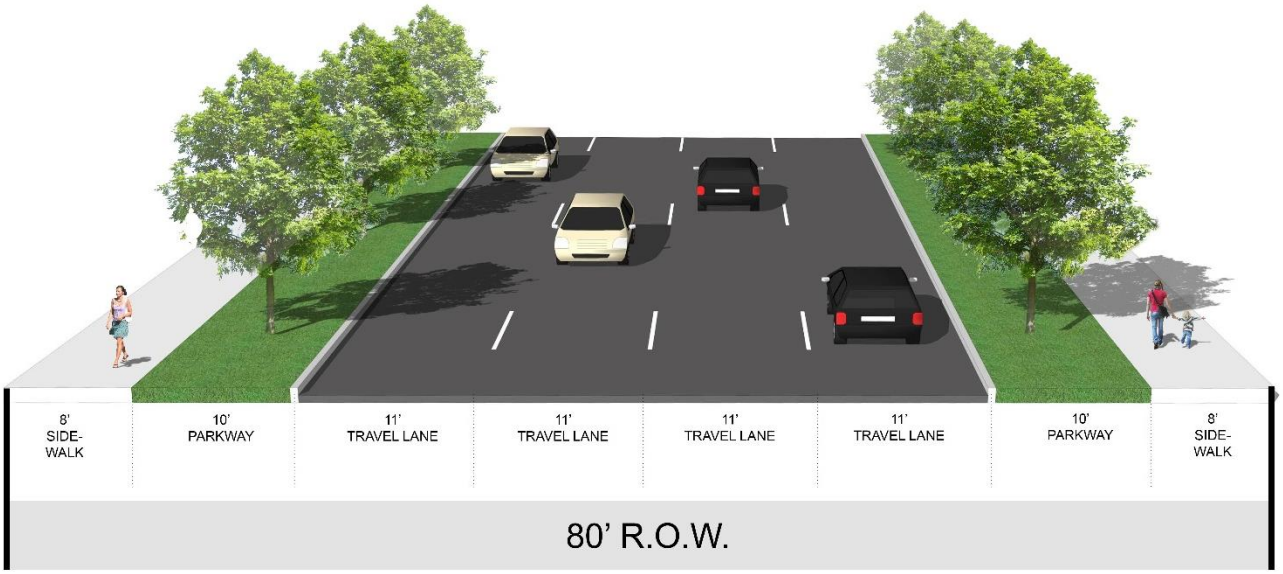
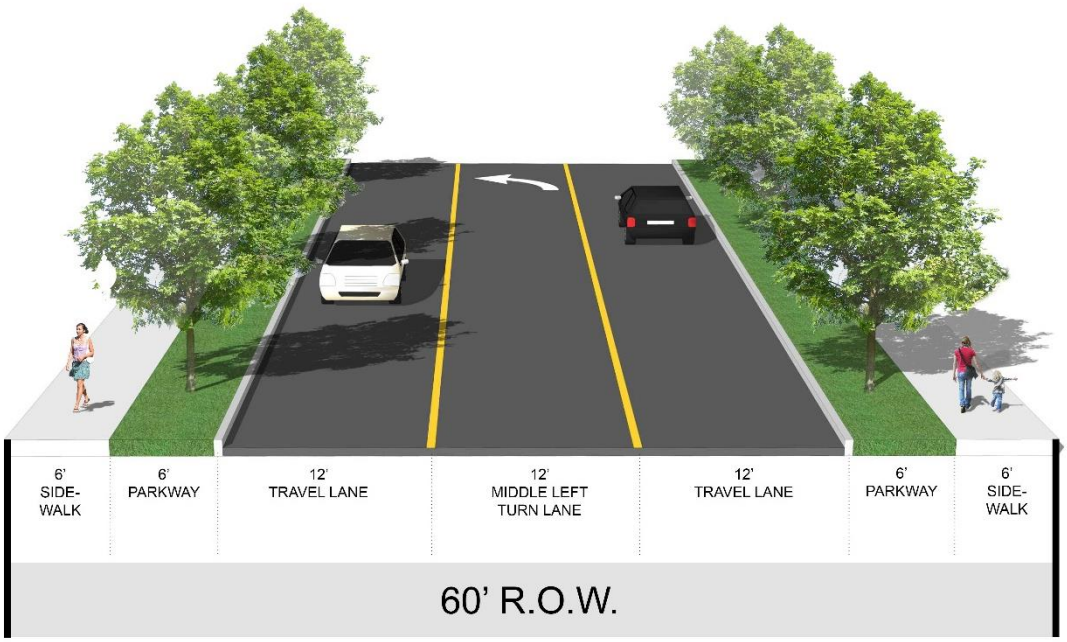


Figure 5-6. Type D - Minor Collector Roadway (60' Total ROW)

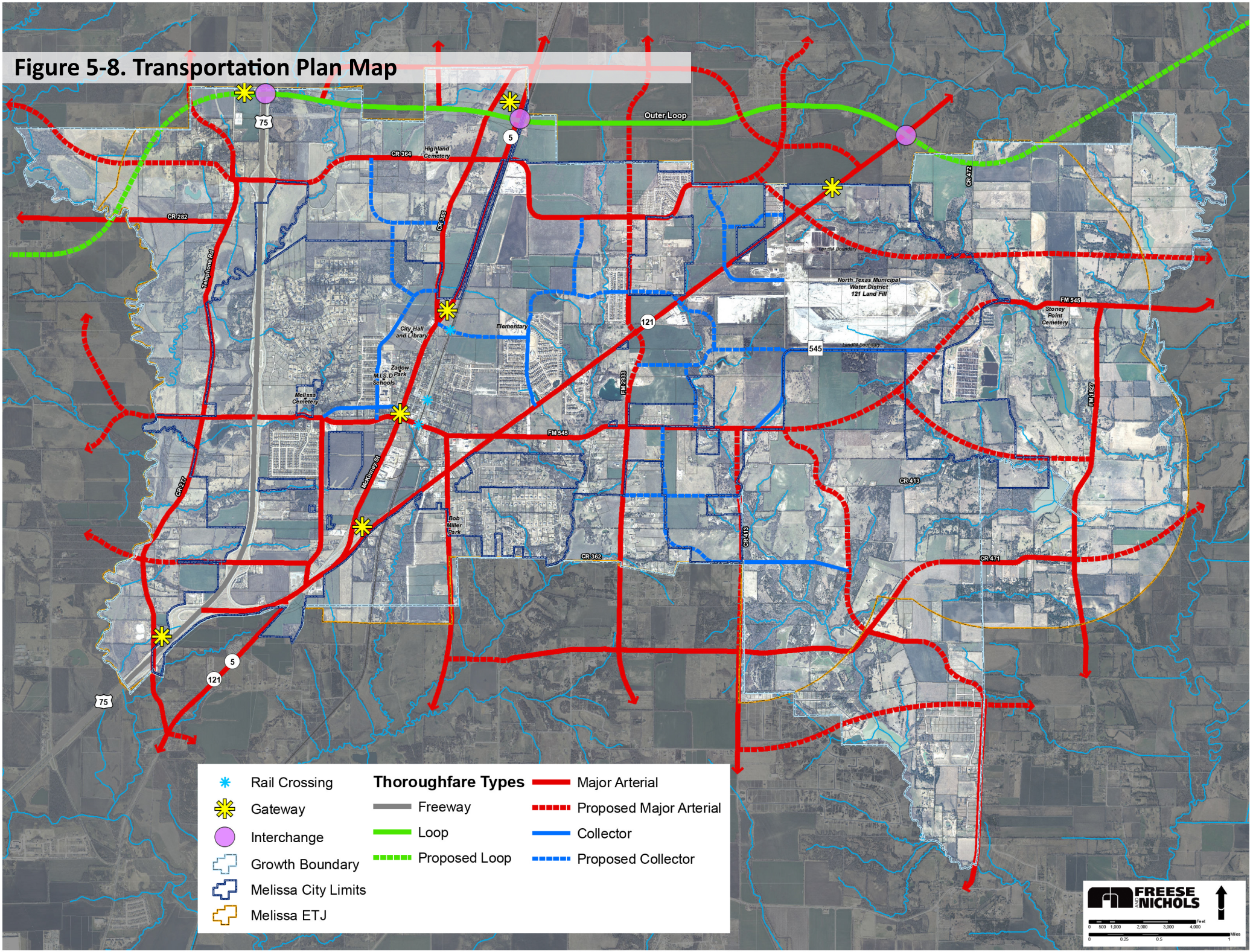


Local Streets

Whereas the principal objective of arterial roadways is to provide mobility, the principle objective of local streets is to provide access to adjacent properties. The mobility aspects of local streets are secondary to accessibility. Due to the fact that local streets are generally constructed within residential areas, safety is an important issue. To ensure that these roadways are not used a great deal for mobility purposes and to ensure that their ability to provide access safely, local streets should be configured to discourage through-traffic movement by using traffic calming elements, such as offset intersections, curvilinear streets, discontinuous streets, and stop signs. Local streets are not shown on the Transportation Plan Map because decisions as to the locations of local streets are usually made as development occurs; such decisions are heavily dependent on the type of development that is occurring and the need for connectivity to/with adjacent developments. (Also refer to Transportation Policy 3.) The recommended local street section is shown in **Figure 5-5.** This section is consistent with the City's current Subdivision Ordinance requirements.

Figure 5-5. Type E - Local Street (50' Total ROW)

Figure 5-8. Transportation Plan Map



Alternative Transportation Options

One of the objectives of this Transportation Plan is to put forth concepts of transportation options that will provide an alternative to the automobile, specifically transit and pedestrian/bicycle modes. The major challenge to meeting this objective is putting forth these concepts in a way that make such alternatives realistic and convenient for the citizens of Melissa to use. Transit and trail concepts, and why they should be proactively pursued by the City, are discussed below, and policies that support these concepts are outlined within Transportation Policy 2.

Transit Opportunities

The North Central Texas Council of Governments (NCTCOG) has completed a Regional Rail Corridor Study that examines how the current rail system (generally operated by Dallas Area Rapid Transit) could be expanded to meet the future anticipated travel demand in the Metroplex. The NCTCOG's study revealed that with the amount of ridership expected, a connected regional rail system could have the effect of adding on additional freeway lane in each direction to some of the most congested highways and tollways in North Central Texas. The DART rail has recently been expanded as far north as Plano, and there are plans to extend the line further north to address the increasing traffic along U.S. Highway 75.

The fact that Melissa has a railroad line through the center of the City makes the eventual expansion of rail services to and through Melissa an increased possibility. The easements associated with these railroad lines can be used for light rail or commuter rail lines. In anticipation of an eventual light rail or commuter rail line through Melissa, a proposed location for a transit station has been established (refer to the Transportation Plan Map, **Figure 5-6**).

One of the major factors in transit ridership is convenience, specifically in terms of 1) accessibility to and from the transit stop itself, 2) accessibility to other locations in the Metroplex, and 3) reliability of the transit system. Meaning that in order for people to use transit, it is not enough simply to establish the transit system and transit stop – the transit mode must be as convenient or

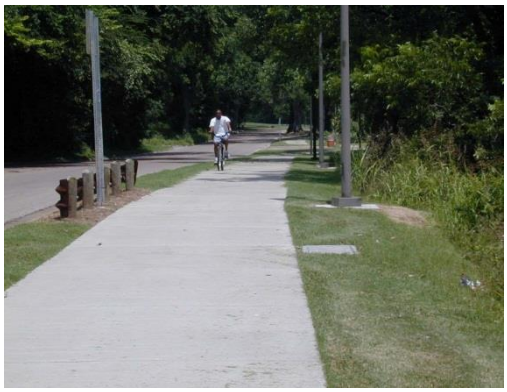
Admittedly, a transition to patterns in which walking, bicycling, and public transportation will be effective alternatives for large percentages of residents will take 20 to 30 years or more…Communities need not be completely transformed before they begin to attract attention as more livable spaces. Simply getting the process in motion, backed up by long-term plans and firm public commitments, may encourage potential new residents to become pioneers.

William H. Lucy & David L. Phillips. ***Suburban Decline: The Next Urban Crisis.*** Issues in Science and Technology Online website.

The distance a person will walk and the mode of transport he or she will use are strongly affected by the walking environment. Real and even perceived delays and inconveniences such as lack of sidewalks, inadequate signage, dangerous walkways, poor appearance, and factors that create a sense of insecurity can cause potential riders to choose use of their personal automobiles

Sean O'Sullivan & John Morrall. ***Walking Distances to and from Light-Rail Transit Stations.*** Transportation Research Record 1538.

more convenient for people to use than their private vehicle. Therefore, it will be extremely important for the transit stop in Melissa to be accessible by pedestrians and by automobile (i.e., a park-and-ride situation). It will also be important for the transit system to connect with other areas of the Metroplex that people desire to go on a daily/weekly basis, such as employment centers or concentrated shopping areas. And finally, the system itself must be reliable for people to use it – transit must be available consistently at peak travel times, such as during morning and evening rush hours.



Pedestrian and Bicycle Trail Opportunities

Another method of reducing the number of automobiles on the roadways in Melissa is to provide pedestrian and bicycle connections. This would be more effective at reducing traffic locally than would a transit system, which is really focused on addressing regional transportation needs. The recommended system of trails is shown in in Chapter 6, the *Parks & Trails Plan*. Although some of the trails are more recreation-based, others are focused on providing connections between residential and nonresidential land uses. They are intended to provide an alternative form of transportation between neighborhoods and schools, retail areas, public areas, and the future transit station (and transit-oriented development area). These trails can be developed in a way that is both pleasant and practical, preferably off-street, but also along streets as part of the right-of-way. Chapter 3, the *Future Land Use Plan*, and Chapter 6, the *Parks & Trails Plan*, both discuss the importance of the integrating a trail system in Melissa—these chapters have integrated trail concepts by locating land uses, parks and public uses to maximize the effect of the trails, and the connection between trails and recreation opportunities is discussed in detail.

The City is currently experiencing a high level of development and related population growth. The time to consider the integration of a trail system throughout Melissa is now—when the City still has ample developable land to make trails a viable transportation alternative as development occurs. Retroactive integration of trails is much more challenging and costly than if such trails are completed at the time the initial development occurs.

Recommended Transportation Policies

Following are the transportation policies. The Transportation Plan Map is intended to be used in conjunction with these policies. The Implementation Plan, Chapter 9, will outline specific ways in which the City can implement the transportation policies, along with other recommended policies from within this *2015 Comprehensive Plan*.

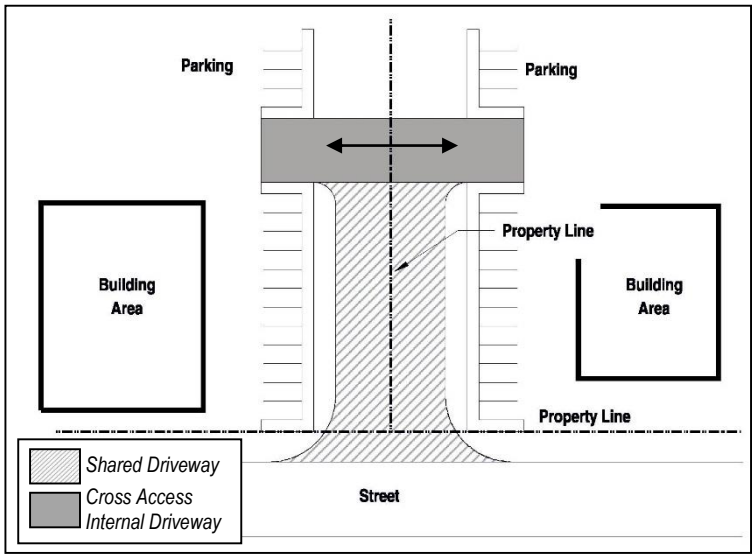
Policy 1: Design for Shared Access and Cross Access

Roadways that are intended to provide mobility, such as arterials, should not be compromised by an abundance of separate access points for land uses. Collector roadways are intended to provide both mobility and access, but the former is much more effective if the latter is controlled.

T1.1 | The City should require new nonresidential developments along arterial and collector roadways to establish shared access driveways.

- New nonresidential developments should be required to share the driveway of the adjacent development, if possible (i.e., if the driveway is positioned near the lot line/setback line of the lot that is being developed).
- New nonresidential developments should be required to make provision for sharing their driveway with the adjacent development in the future, if the adjacent lot is not yet developed.
- New nonresidential developments that require more than one driveway (by current regulations) should construct at least one driveway such that it is or can be shared.
- These requirements should be added to the applicable ordinances to ensure the standards are enforced.

Figure 7. Shared Access Driveway and Cross Access Internal Driveway



T1.2 | The City should require new developments along arterial and collector roadways to establish cross access with adjacent developments.

- New developments should be required to provide access to adjacent development through an internal driveway.
- If adjacent development has not yet occurred, provision for future cross access should be made.
- The standards should be removed from the Engineering Design Manual and moved to the Subdivision Ordinance to ensure the standards are enforced.

Policy 2: Reduce Vehicular Trips by Offering Transportation Mode Choices

The only way to reduce the dependence on the automobile is to provide viable and realistic transportation alternatives. The specific means by which this Transportation Plan recommends reducing such dependence in Melissa are regional transit and local pedestrian/bicycle connections. Integration of these two elements within the City – now, when the City has much room for population growth and land development – will make Melissa a more sustainable and livable community in the long-term.

T2.1 | The City should actively pursue establishment of a City-wide trail system.

- New residential developments and nonresidential developments of all types should be required to make provision for pedestrians and bicyclists, including access to and through the development in accordance with the Trail Plan Map.
- All new roadways should have sidewalks constructed alongside them. However, these on-street trails should not be the only type of trails provided. Off-street trails should also be actively established.
- More detail about trail concepts is contained within the *Parks & Trails Plan*, Chapter 6.
- The on-street trail system could be utilized for golf carts and other types of small motorized transportation vehicles not intended for highway use.

Every transportation agency has the responsibility and the opportunity to make a difference to the bicycle-friendliness and walkability of our communities. The design information to accommodate bicyclists and pedestrians is available, as is the funding.

Design Guidance Accommodating Bicycle and Pedestrian Travel: A Recommended Approach. **U.S. Department of Transportation Federal Highway Administration website.**

Policy 3: Ensure Coordination between Roadways and the *Future Land Use Plan*

The recommended Transportation Plan is based primarily on the recommended Future Land Use Plan. As stated in the Introduction of this chapter, transportation is inherently linked to land use. Therefore, as changes are made to the Future Land Use Plan Map, changes may need to be reflectively changed in relation to the Transportation Plan Map.

T3.1 | The City should consider the placement of new developments in relation to roadway types.

- Ideally, neighborhoods should be developed between major thoroughfares and collector streets in the future so that traffic may be diverted from residential areas.
- Homes should only be oriented to front onto residential local streets, not collector streets. When homes back to collector streets, an alley should be provided so that access is not from a collector street.

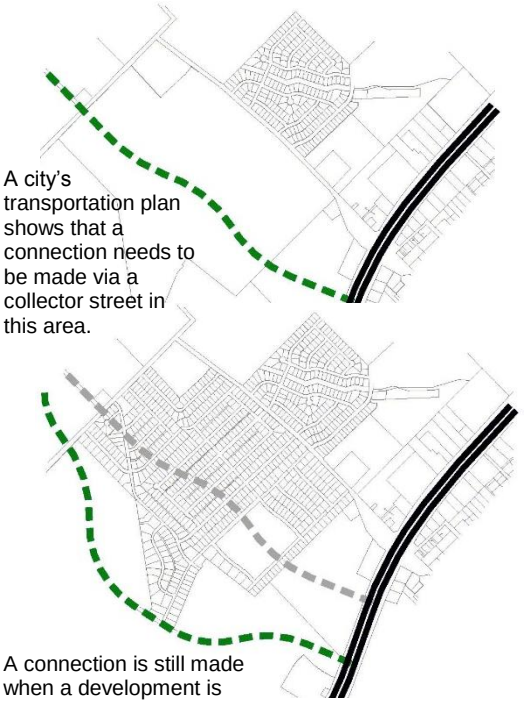
T3.2 | The City should secure rights-of-way as development occurs.

The Transportation Plan shows various areas of the City linked by arterial or collector roadways. These are not actually engineered locations for these roadways, these are simply locations that need to be connected with roadways as development takes place in relation to these locations.

- The appropriate amount of right-of-way should be secured at the time of development.
- If a development proposes to locate in an area that a roadway has been recommended, the roadway could be moved to allow for the development to take place. However, it is still important for a connection to be made with a roadway, and therefore, an alternative location for the roadway should be established (see the illustration at the right).
- Incorporating this right-of-way requirement into the Subdivision Ordinance would help to strengthen the requirement.

T3.3 | The City should consider existing development as roadway improvements are made.

- Wherever existing rights-of-way that have been identified as a different type of roadway than the type it is as it exists currently (e.g., an existing minor collector is shown as a major collector), this is a recommendation that the roadway be widened when and if development occurs. Existing residents and businesses should be disturbed to the least extent possible.



Policy 4: Use Positive Aesthetics along Roadways to Enhance Melissa's Character

The highest level of visibility that Melissa has is along its roadways. It is likely that more people will travel on a thoroughfare through the City than will live in Melissa, visit the Town Center, use a park facility, or use a trail. The image of Melissa that people encounter while traveling to and through the City is extremely important – this image will affect whether the City is perceived as a quality place to live, shop, work, etc.

T4.1 | The City should recognize the importance of its image along roadways, and should take proactive measures to ensure that this image is positive.

- Corridor aesthetics are important to promote Melissa's community image. The City should identify strategies to enhance Melissa's character along the major corridors and City roadways. The major corridors play an important role in the ultimate perception and identity for the community.
- Streetscape enhancements should be considered as roadways are constructed or improved.
    - Examples include articulated pedestrian hike/bike facilities, pedestrian crosswalks, landscaped medians, and street trees. Each recommended roadway cross-section within this Transportation Plan includes these elements, as appropriate, within the rights-of-way.
    - The various highways that traverse Melissa, such as U.S. Highway 75 and State Highway 121, provide prime opportunities for a positive image of the City to be reflected.
    - The Collin County Outer Loop also provides such opportunity.
    - Special lighting elements, banner signs, and gateways are effective streetscape elements that would enhance these highway corridors. The gateway concept is described in more detail in Chapter 8, *City Center Concept Plan*.

- Many cities require easements along arterial roadways for streetscape enhancement. The City should consider requiring a 10-foot-wide landscape/access easement along arterials when subdivisions are platted. This easement would serve to open up the visual corridor, provide an enhanced image for the community, and provide space for trails.
- More detail about streetscape concepts is discussed in relation to the new Town Center, Old Town area, and the Transit-Oriented Development area within the *City Center Concept Plan*, Chapter 8.

Policy 5: Investigate Increased Developer Participation in Roadway Infrastructure

T5.1 | The City should continue to monitor whether roadway impact fees are an appropriate funding mechanism for the roadway infrastructure that will be needed as development occurs.

Chapter 395 of the Texas Local Government Code addresses the issue of developer participation in the construction of off-site facilities such as water, wastewater, and roadways. This state law allows cities in Texas to decide whether to assess fees for roadway construction to new residential and nonresidential development. Impact fees can be described as fees charged to new development based on that development's impact on the infrastructure system. The primary advantage to having this funding source is that it provides cities with the increased ability to plan and construct capital facilities so that the needed infrastructure system capacity is available when the market warrants.

- Conducting an impact fee study would help the City understand the extent of the expenditures that will have to be made for new development in the coming years.
- With impact fees, the development community is responsible for paying its related share of the cost of growth and the impact of that growth on local infrastructure systems.
- Without impact fees, new roadway facilities will likely be financed through taxes (e.g., ad valorem, sales tax), which are paid by existing as well as future residents.

T5.2 | The City should continue to implement a traffic impact analysis, when necessary for determining the impact of a new development on the roadway system.

A Traffic Impact Analysis (TIA) is a way to evaluate the impact of large developments on a roadway system. For example, a residential development that is over 1,000 lots generates much more traffic than a development that is 500 lots. Assessing the impact of development on the roadway system would help the City plan for needed improvements in advance of development, thereby staying ahead of the curve.

- Incorporating a TIA requirement into the Subdivision Ordinance would help Melissa to assess the extent to which new development will affect local roadways.
- This information will be increasingly important as Melissa continues to develop and its roadways approach capacity in terms of traffic volume.

Policy 6: Continue to Work with State, County, and Regional Planning Agencies

T6.1 | The City should ensure that it has active participation and representation in making decisions about roadway infrastructure in the region.

- Coordination with the Texas Department of Transportation (TxDOT) will continue to be needed to optimize access and circulation on State roadways within the City.
- Interaction with the North Texas Tollway Authority (NTTA) will continue to be needed to optimize access and circulation on State Highway 121, if it becomes a toll road in the future.
- Coordination with Dallas Area Rapid Transit (DART) mobility plans will continue to be needed to optimize the opportunity for Melissa to obtain rail service and a rail stop in the future.
- Communication with Collin County authorities will continue to be needed to ensure that Melissa's interests are reflected in any decisions regarding the Collin County Outer Loop, especially in terms of alignment and access. It is important to maintain coordination with the Collin County Transportation Plan effort.
- Participation in NCTCOG planning efforts, specifically the Mobility 2035 Plan, may also help Melissa foster relationships that would ultimately help with transportation planning as well as with funding transportation improvements.