3.0 Mobility

Adopted 05.14.13

PURPOSE

On Mobility

Mobility includes a multitude of components that collectively create a system that facilitates the movement of goods and people to, and throughout, the community. These components include not only roadways for motorized vehicles, but also sidewalks, bike lanes, multi-purpose pathways and transit facilities. A comprehensive and efficient transportation system provides for the ease of circulation within a community, and enhances the community's environmental, economic and social environs. People of all ages, abilities and modes of movement must have the ability to circulate throughout the community from their home to workplace, shopping, dining and entertainment activities. To achieve this end, an integrated and multi-faceted strategy must be implemented that addresses the interconnections between land uses and mobility demands.

Informed and anticipatory transportation planning and thoroughfare development will help prepare the City of Plainview for future traffic demands and create a safe and efficient system of travel to, from, and within the community. A well balanced and comprehensive transportation system should offer a choice of travel modes for residents, businesses, and visitors. It should also be appropriately designed for both safety and visual appeal. The Mobility Plan element of the Plainview Comprehensive Plan establishes the framework for such a system to accommodate local and regional travel demand through the year 2030 and beyond.

The purpose of this chapter is to plan for the long-range transportation needs of the community. This involves the preservation of rights-of-way for thoroughfare system development, as well as coordinating improvements and initiatives for all other modes of transportation. This chapter addresses the means for developing an adequate street network to collect, distribute, and convey traffic within and through the community, while also providing for development of pedestrian and bicycle infrastructure, public transportation, and systems for the movement of goods.

ISSUES AND OPPORTUNITIES

This chapter focuses on the issues that must be addressed for the community to achieve its vision for the future transportation system. The origin of these issues was, in part, the result of input from community residents during the early stages of the plan development process. These comments were supplemented by the observations and professional research of City staff and the consultants.

This chapter provides a 20-year (and beyond) policy framework for the future development of Plainview's multi-modal transportation network, addressing:

- **Regional multi-modal mobility.** Engaging the full spectrum of transportation assets and facilities for the movement of citizens, goods and services.
- **Thoroughfare development.** Preservation of rights-of-way both within the City and the extraterritorial jurisdiction (ETJ) and development of "complete streets," with respect to suitability for all modes of transportation.
- **Traffic management.** In order to provide for an efficient movement of vehicles, the traffic carrying capacities of area roadways must be preserved. This relates to the use of land adjacent to the City's corridors, as well as their means of access. It also relates to the design of roadways.
- **Pedestrian mobility.** There must be an increased emphasis on pedestrian improvements to safeguard the community's small-town feel and quality of life. This includes sidewalks along area roadways, safe and accessible crossings, and provisions for on-street bike lanes and off-street recreational trails.
- **Corridor appearance.** The community's corridors offer an opportunity to establish a positive first impression of Plainview. The design and appearance of the roadway, as well as the properties that abut it, are of essential importance to enhance community aesthetics and contribute to a quality visual environment.

FOCUS AREAS

Throughout the planning process, several issues and concerns were expressed relating to the transportation system in Plainview, including poor street conditions, corridor appearance, and pedestrian safety.

These discussions formed the basis of the following focus areas, along with analysis of existing conditions, review of current development regulations, and local planning practices. Following the identification of the focus area is a series of strategies and their rationale, along with advisable implementation measures.

Fifth Street reconstruction is nearing completion. Ensuring an interconnected thoroughfare system involved periodic reconstruction of the roadway.

Source: Kendig Keast Collaborative

Efficient roadway repair and maintenance remains a key objective of the City and concern of Plainview's citizens.

Source: Kendig Keast Collaborative

The four focus areas are:

- Focus Area 3.1 - Improving regional mobility;
- Focus Area 3.2 - Ensuring a well-connected and high-quality street network;
- Focus Area 3.3 - Improving corridor design and appearance;
- Focus Area 3.4 - Providing enhanced pedestrian and bicycle mobility.

Thoroughfare Development

The basic transportation system is formed by a network of streets, each having a different functional role and designed traffic carrying capacity. Each street segment contributes to the interconnectivity of the network. Without a continuous system, there are unnecessary interruptions that divert traffic movements onto streets that are not designed to carry an increased volume, which quickly become congested and unsafe. For a network to operate efficiently, it is essential for there to be a hierarchical system including highways (such as Interstate 27, Business Highway 27, and U.S. Highway 70), arterial streets (such as 24th Street, 11th Street and Quincy Street), collector roadways (including 16th Street, 7th Street and Kirchwood Street), and local residential streets. Each link in the system is intended to function according to its design capacity, in effect, distributing traffic from the lowest (e.g., local streets) to the highest (e.g., arterial streets and highways) functional classification. Connectivity is essential for providing an efficient, safe, and convenient roadway network.

An optimum street network is composed of a grid of streets, with parallel and perpendicular arterial streets spaced uniformly, forming neighborhood superblocks. Within the superblock, collector roadways should be spaced at roughly equal intervals in each direction. While Plainview's street network generally follows this arrangement, growth and development within Plainview has happened incrementally and without adherence to the adopted thoroughfare plan. As a result, the street network is typically constructed in a piecemeal fashion resulting in a pattern of discontinuous and disconnected streets.

Therefore, a primary purpose of this plan is to avoid perpetuating these circumstances in the developing areas of the City and the ETJ. Subdivision regulations that stipulate roadway design criteria and capacities are necessary to accomplish an efficient street network.

The amount of development within and adjacent to the City strongly warrants the development and implementation of a Thoroughfare Plan. Over time, a complete grid of thoroughfares is needed to provide an efficient local system that may be integrated into the larger metropolitan transportation plan.

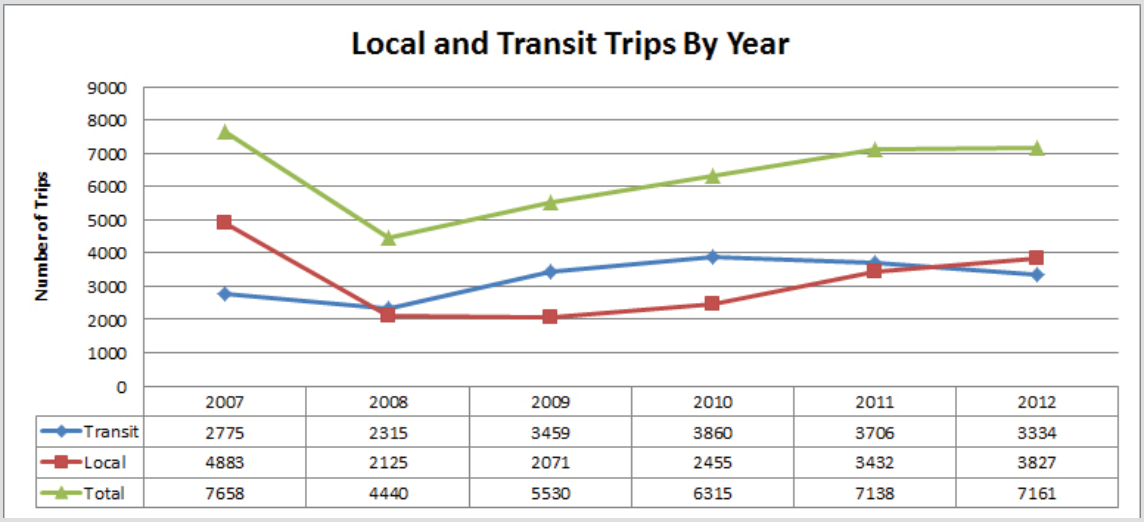
At the time of land subdivision, the City must ensure conformance with the adopted Thoroughfare Plan and compliance of the street and lot layout consistent with the subdivision design standards. The subdivision regulations must, therefore, have definitive rules relating to street continuity, rights-of-way and pavement cross sections, intersections and street offsets, lot access, medians and entranceways, traffic calming, and provisions regarding cul-de-sacs and alleys, among others. It is imperative for each subdivision to provide connection to the adjacent land as a means for continuing development of the street pattern established by the Thoroughfare Plan. Whether the development is small or large or constructed in one or more phases, it must adequately tie into to the planned roadway network.

Spartan Public Transportation provides Plainview residents with inter- and intra-City transportation options.

Source: Kendig Keast Collaborative

Citizens at public meetings indicated that they want increased pedestrian mobility, and barrier-free, safe and continuous pedestrian facilities remains a key concern.

Source: Kendig Keast Collaborative



	2007	2008	2009	2010	2011	2012
Transit	2775	2315	3459	3860	3706	3334
Local	4883	2125	2071	2455	3432	3827
Total	7658	4440	5530	6315	7138	7161

Figure 3.1, *Airport Traffic Trips By Year*

Although local- (i.e., area citizens flying for recreational purposes) and transit-related (i.e., pass through flights) air traffic decreased from 2007 to 2008 (possibly related to the recession), overall traffic has been increasing for the past several years. It is anticipated that the pending Hale County Airport Master Plan will provide a proactive plan of action to further increase use of this resource.

Source: Hale County Airport

FOCUS AREA 3.1: IMPROVING REGIONAL MOBILITY

While community mobility is often primarily focused upon the ability to move and circulate within the community, thoroughfare planning is also concerned with the interactions and interconnections of the local circulation system with broader regional, state and federal, multi-modal transportation facilities. The economic viability of a community is dependant upon the ability for people, products, and goods to circulate to and throughout the community.

Air Transportation

Hale County Airport (PVW) is a public airport located approximately one mile south-southwest of Plainview. The airport consists of two runways: Runway 4/22 is 5,997 feet long by 100 feet wide. Runway 13/31 is 4,000 feet long by 100 feet wide. Both runway surfaces are asphalt and are in good condition. As of September 2012, 50 aircraft are based on the field; 42 of which are single engine and eight aircraft are multi-engine planes. From 2007 through 2012, there was an average of nine transit-related and 10 local aircraft operations per day (refer to **Figure 3.1, *Airport Traffic Movements***).

The airport is jointly owned by Hale County and the City of Plainview and provides general aviation service. The City is involved with airport operations and the county administers the airport's finances. Rocket Aviation, L.P. maintains a 10-year lease on the airport's land, with a 10-year option. Rocket Aviation owns all the buildings around the airport, which include:

- a rotating beacon and tower;
- terminal;
- business office;
- fixed-Base Operator (FBO) office;
- National Guard Armory;
- 17 conventional aircraft hangers;
- 13 T-hangers; and
- airport storage.

Rocket Aviation also provides aircraft fueling and ground support. Aircraft fueling operations consists of one 8,000 gallon aviation fuel tank and two 10-thousand gallon aviation fuel tanks.

Hale County Airport Master Plan

The City of Plainview and Hale County are currently co-sponsoring the development of a master plan for the Hale County Airport, the goal of which is to forecast the future aviation demand in order for the Texas Department of Transportation (TxDOT)[1] to make a determination regarding the level of improvements required to meet projected demand. The master plan's scope of work will include, but not be limited to, the following elements:

1. evaluate alternative governance, ownership and management structures for the airport and how this may impact capital funding and economic development enterprises;
2. inventory and condition assessment of all facilities within the boundaries of Hale County Airport, including buildings, runways, taxiways, airfield lighting, aprons, on-airport roadways, and navigational/electronic landing aids;

1 Texas is one of four block grant states in the U.S. whereby the state transportation department (TxDOT) administers federal funds on behalf of primary and non-primary commercial service airports.

3. inventory of all existing land use and zoning patterns within the airport environs;
4. inventory and assessment of the utilization of airspace in the vicinity of the airport;
5. environmental conditions inventory and analysis of likely impacts to new development, including floodplains and flood ways, soils, wetlands, air concerns, remediation areas, etc.;
6. financial inventory regarding the structure, constraints, requirements and opportunities for financing airport activities as related to the development of a capital improvement program;
7. analysis of the current operational use and future demand forecast at the airport, to enable the determination of potential impacts created by the type and magnitude of future operational activity; including based aircraft, aircraft mix, annual aircraft operations, and related factors;
8. future air-side and land-side facilities requirements analysis; and
9. preparation of development alternatives based on agreed-upon goals; culminating with the development of an Airport Layout Plan, Land Use Plan, cost estimates and implementation schedule.

Strategy 3.1.1: *Position the Hale County Airport to become a significant economic development catalyst for the City of Plainview.*

Initiatives and Actions

1. Work with the Plainview / Hale County Industrial Foundation to identify and market Hale County Airport facilities to regional / national manufacturing, packaging, and distribution companies requiring warehousing and air transportation facilities.

Rail Transportation

The Burlington Northern Santa Fe (BNSF) Railroad Company operates two freight rail lines that pass through Plainview. The north-south "Plainview Sub" rail line runs from south of Lubbock, through Plainview, north to Amarillo. In Amarillo, the Plainview Sub line connects with major lines heading eastbound and westbound. BNSF owns the second railroad line, the "Dimmitt Spur," but does not maintain it. The Dimmitt Spur runs northwest to Dimmitt and ends at a rail yard. On average, both rail lines accommodate approximately 10 to 15 freight trains per day.

Switching Yard

Within Downtown Plainview, along the Plainview Sub rail line, there is an eight-lane rail yard that can accommodate approximately 275 cars.

Railroad Crossings

There are a total of 37 railroad crossings within Plainview's City limits. On the Dimmitt Spur, to the principal T-intersection westbound, there are two vehicular crossings within Plainview's City limits. From the principal T-intersection westbound, along the Dimmitt Spur, there are 21 vehicular crossings within Plainview's City limits.

On the Plainview Sub, from the northern corporate limit southbound to the principal T-intersection, there are six vehicular crossings within Plainview's City limits. From the principal T-intersection southbound along the Plainview Sub, there are eight vehicular crossings within Plainview's City limits.

During the planning process, several of Plainview's citizens voiced concerns regarding modal conflicts between vehicles and trains. Because freight trains vary in length, it is difficult to coordinate where they stop within the City limits. Vehicular rail crossings invariably become blocked to through traffic. Fifth Street (U.S. Highway 70) is the only vehicular corridor that passes over the BNSF Plainview Sub rail line. The overpass is undivided and consists of four lanes. For additional railroad crossing information, refer to **Table 3.1, *BNSF Railroad Crossings***.

The BNSF Railway Company owns and operates freight trains on both the Plainview Sub and Dimmitt Spur railroad lines.

Source: Kendig Keast Collaborative

Table 3.1, *BNSF Railroad Crossings*

No.	Location	Crossing Type	Traffic Control Device
Dimmitt Spur, to the T-intersection westbound (east to west):			
D1	County Road Y	at grade	crossbuck signage
D2	Hilton Street	at grade	crossbuck signage
Dimmitt Spur, from the T-intersection westbound (east to west):			
D3	N Date Street	at grade	crossbuck signage, flashing light signals and automatic gates
D4	Ash Street	at grade	crossbuck signage
D5	Broadway Street	at grade	crossbuck signage
D6	Walter Griffen Street	at grade	crossbuck signage
D7	Baltimore Street	at grade	crossbuck signage
D8	Business 27	at grade	crossbuck signage, and flashing light signals
D9	Denver Street	at grade	crossbuck signage
D10	El Paso Street	at grade	crossbuck signage
D11	Fresno Street	at grade	crossbuck signage and stop sign
D12	Galveston Street	at grade	crossbuck signage
D13	Houston Street	at grade	crossbuck signage
D14	Independence Street	at grade	crossbuck signage
D15	Joliet Street	at grade	crossbuck signage, flashing light signals and automatic gates
D16	W 14th Street	at grade	crossbuck signage
D17	Kokomo Street	at grade	crossbuck signage
D18	Lexington Street	at grade	crossbuck signage
D19	W 16th Street	at grade	crossbuck signage
D20	Quincy Street	at grade	crossbuck signage, flashing light signals and automatic gates
D21	W 24th Street	at grade	crossbuck signage, cantilevered flashing light signal, and automatic gates
D22	Utica Street	at grade	crossbuck signage
D23	Interstate 27	at grade	crossbuck signage, flashing light signals and automatic gates
Plainview Sub, north to south, to the T-intersection			
P1	County Road 65	at grade	crossbuck signage, flashing light signals and automatic gates
P2	34th Street	at grade	crossbuck signage, flashing light signals and automatic gates
P3	E 32nd Street	at grade	crossbuck signage
P4	Smith Street	at grade	crossbuck signage
P5	E 24th Street	at grade	crossbuck signage, flashing light signals and automatic gates
P6	W 16th Street	at grade	crossbuck signage, flashing light signals and automatic gates
Plainview Sub, north to south, from the T-intersection			
P7	E 9th Street	at grade	crossbuck signage
P8	E 7th Street	at grade	crossbuck signage
P9	E 6th Street	at grade	crossbuck signage
P10	E 5th Street	four-lane overpass	
P11	E 4th Street	at grade	crossbuck signage
P12	E 3rd Street	at grade	crossbuck signage
P13	S Date Street	at grade	crossbuck signage and cantilevered flashing light signal
P14	S Broadway Street	at grade	crossbuck signage, flashing light signals and automatic gates

U.S. Dept. of Transportation, 2007. Railroad Highway Grade Crossing Handbook, Federal Highway Administration. Revised Second Addition. http://www.ite.org/decade/pubs/TB-019-E.pdf

Strategy 3.1.2: *Reduce rail and vehicular conflicts.*

Initiatives and Actions

1. Partner with TxDOT and BNSF to seek capital resources to fund an evaluation study regarding the adequacy of existing railroad crossing signage, signalization and preventative crossing measures, compared to thoroughfare capacity, vehicular traffic counts and rail traffic volume.

Interstate and Regional Bus Transportation

Plainview is connected to the rest of the state by Interstate 27, which runs north - south, from Lubbock to Amarillo. From Amarillo, Plainview can access Interstate 40 and Albuquerque to the west and Oklahoma City to the east. U.S. Highway 70 (East 5th Street) connects Plainview with the towns of Lockney and Floydada to the southeast, and Muleshoe to the west. Texas State Highway 194 (Dimmitt Road), extends from Plainview to northwest, ending at the Town of Dimmitt. Plainview is located within TxDOT's Lubbock District.

Greyhound Bus Lines

Greyhound Bus Lines provides bus transportation from Plainview to and from Lubbock and Amarillo twice daily, seven days per week.

Spartan Public Transportation

Spartan Public Transportation (SPT) is a public transportation company that offers a variety of reliable and affordable complementary paratransit services for the regional community, including intra- and inter-city transportation within and around the City of Plainview, health care-related transportation services to and from medical centers in Lubbock, as well as employment-related transit for members of the area's workforce. SPT is a division of South Plains Community Action Association, Inc. (SPCAA). SPT and SPCAA central administrative offices are located in Levelland. SPT is funded primarily by the Federal Transit Administration (FTA) and the Texas Department of Transportation (TxDOT). Secondary sources of funding

Spartan Public Transportation provides paratransit services throughout 17 counties within the Texas Panhandle.

Source: Spartan Public Transportation

Fifth Street (U.S. Highway 70) reconstruction is nearing completion. The new road is supposed to last more than 20 years before any significant maintenance is required.

Source: Kendig Keast Collaborative

comes from third-party contracts with municipalities and fares. SPT's central office staff handles general management functions and operational services including vehicle maintenance, dispatch, and scheduling. Satellite transportation centers in the rural areas are located in the county seats and/or the largest city of each county. SPT covers 17 counties in Texas, including Bailey, Lamb, Hale, Floyd, Motley, Cochran, Hockley, rural Lubbock, Crosby, Dickens, King, Yoakum, Terry, Lynn, Garza, Scurry, and Mitchell Counties.

In 2010, SPT provided 22,718 trips. In 2011, SPT provided 23,970 trips. It is estimated that 2012 trips will follow this upward trend. It is also expected that over time, the demand for public transportation service will likely increase in the community. This is due, in part, to an aging population and the presence and general desire for more retirement living options, as well as increased gas prices and an understanding and concern that less vehicular emissions is better for the environment. Therefore, ensuring alternative public transportation options will be important to enhancing mobility. Likewise, given limited resources, maximizing partnerships will be important as a long-term implementation strategy.

While SPT's paratransit services are solely in response to ridership demand, as a result of increased intra-City demand in Plainview, SPT is applying for a grant through the FTA (and administered by TxDOT) to fund a planning study for SPT to offer fixed-route transportation services within Plainview, from key nodes along primary north-south / east-west transportation corridors, such as 5th Street and Columbia Street, to chief places of employment, including the Wal-Mart Distribution Center and the Cargill meat packing plant.

Strategy 3.1.3: *Develop a system to project future public transit demand.*

Initiatives and Actions

1. Work with SPT, South Plains College and area employers to develop an assessment program through which to more accurately determine the demand for paratransit and fixed-route transportation services within the City of Plainview. For example, a shuttle service operating on a loop system may operate at 30-minute intervals to take employees to and from their places of employment, as well as daily destinations for medical appointments, social service appointments, and convenience trips.
2. Partner with SPT to regularly analyze the City's current and potential ridership to determine areas and sites with a high propensity for transit use. These areas may help to support a fixed-route circulator service as a long-term goal.
3. Work with SPT to identify locations where the City may help to improve transit stops, including streetside transit improvements such as bus pull-out bays. Additional transit-oriented street improvements include:
    - prevention of obstructions for wheelchair access;
    - installation of pedestrian actuated traffic signals;
    - sidewalks of an increased width with curb cuts and handicap accessible ramps;
    - marked, signed, and/or signaled pedestrian crossings;
    - non-slip surfaces;
    - special left-turn lane signal phases at select intersections;

- preferential signal timing to aid bus travel time;
- initiation of parking regulations to clear the curb lane for bus operations;
- improved identification of bus stop locations and installation of no parking signs; and
- pavement markings in support of signing at transit stops.

4. Continue to make improvements to the City's street and sidewalk/trail systems, which helps to improve the efficiency of transit services and aids in community-wide mobility.
5. Amend the zoning regulations to incorporate transit-supportive site development standards and design criteria. Considerations include pedestrian access within parking lots and to adjacent sites and transit stop locations; sheltered areas for transit patrons; access and site circulation for transit vehicles; site geometrics for vehicle maneuvering; and siting of transit stops and user amenities.

Local Context

The City is comprised of local streets which move residents through the community from their homes to employment and shopping centers, schools, and places of leisure.

As development and redevelopment continues in and around the City, ensuring through-movement along the arterial street system, adequate connectivity, and ample options for travel on the roadway network will be important for enhancing local mobility.

Since there has been limited new development for several decades, the City's primary transportation focus should remain on maintenance and repair of the existing thoroughfare system.

Transportation improvement projects that are currently underway or are programmed, budgeted and scheduled for construction include:

- Fifth Street reconstruction. Reconstruction, asphalt overlay and re-striping of corridor, including construction of new sidewalks; from the BNSF railroad overpass west to Interstate 27;
- Interstate 27 access road modifications. Interstate 27 is flanked by two-lane, two-way access roads. Because of safety concerns (between 2008-2010 there were several head-on collisions, resulting in five fatalities), TxDOT is reconfiguring the access roads to be one-way only; and
- Interstate 27 SW 3rd Street Overpass. The current SW 3rd Street overpass over Interstate 27 is being replaced with an Interstate 27 overpass over SW 3rd Street.

FOCUS AREA 3.2: ENSURING A NETWORK OF WELL-CONNECTED AND HIGH-QUALITY STREETS

General Existing Conditions

The community has a good street network composed of evenly spaced arterial roads and collectors. This provides good north-south and east-west intra-City mobility within the community. Regional and statewide connectivity is provided by Interstate 27, U.S. Highway 70 and Texas State Highway 194.

Within the superblocks, it is important for there to be continuous collector roadways connecting adjacent neighborhoods with the arterial street system. In the original town area where the local streets are laid out on a grid, there is good interconnectivity. The more recently developed neighborhoods, such as Westridge and Westgate, are separated from the original town, and as a result, there is significantly less interconnectivity.

Discontinuous streets interrupt the efficient flow of traffic and create congestion elsewhere. For this reason, as the community continues to develop or redevelop over time, it is important for the collector street system to be extended and expanded. *Table 3.7, Connectivity Analysis* (later in this chapter), provides a brief analysis of roadway and sidewalk continuity throughout the community, which is divided into nine regions, respecting the City Limits and delineations of the various superblocks and neighborhoods.

Additionally, the mobility-related goals outlined within Plainview's 1989 Comprehensive Plan remain relevant and continue to underscore important principles and issues pertaining to thoroughfare planning:

1. Provide a structural framework which allows for the creation of logical community units bounded by high capacity major thoroughfares;

2. Minimize the traffic movements through residential areas or neighborhood units;
3. Utilize major thoroughfares to maintain and strengthen existing commercial development;
4. Coordinate thoroughfare development with guides to the subdivision of land and basic frameworks for the organization of urban land uses in the community;
5. Provide an adequate local thoroughfare system which is interconnected with the regional (and Interstate) highway system and coordinated with all agencies responsible for thoroughfare development in the area (federal, state, county, City and private developers) for unified development and improvement efforts;
6. Provide thoroughfare standards designed to assure that future traffic volumes move in a uniform and efficient manner;
7. Provide a guide for the expenditure of funds on streets, major thoroughfares, and highways as future growth in the area requires improvements and additions to the thoroughfare system; and
8. Minimize the land and pavement required to properly handle the anticipated increases in vehicular traffic and the environmental impact of vehicular transportation on the living quality of the community.

As discussed in **Chapter 1.0, *Introduction***, based on the several meetings with community leaders and residents, several commonly-held beliefs about broader planning issues emerged which helped to inform and frame key plan elements, including:

- Reducing conflicts between automobile and rail traffic;
- Implementing an improved street maintenance program; and
- Expanding non-vehicular facilities, such as sidewalks and multi-purpose recreational trails, to provide increased intra-City and intra-neighborhood circulation options.

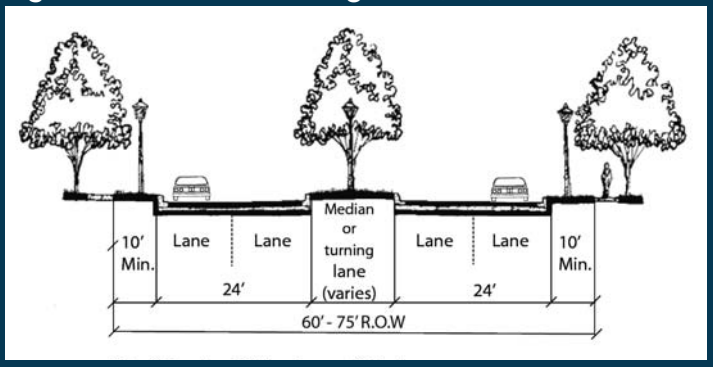
Strategy 3.2.1: *Provide a framework which allows for the creation of logical community and neighborhood units bounded by a hierarchy of high-capacity thoroughfares.*

The purpose of the City street system is to provide for the orderly and efficient navigation within the community by all modes of transportation. The distribution of land uses and the transportation system often leads to the channelization of traffic as people and goods circulate from origin to destination, from home to work, shopping and other destinations. Each road or street segment thus plays a particular role in serving the mobility needs of the community and in turn the desirable attributes of that segment (such as width, access, amenities and capacity) through its functional classification. It is important to note that while the functional classification system is important and necessary to accommodate and plan for future transportation needs, it must be complemented with a well-connected street network that provides for reduced trip distance, improved street system function and the orderly and efficient delivery of community services.

Initiatives and Actions

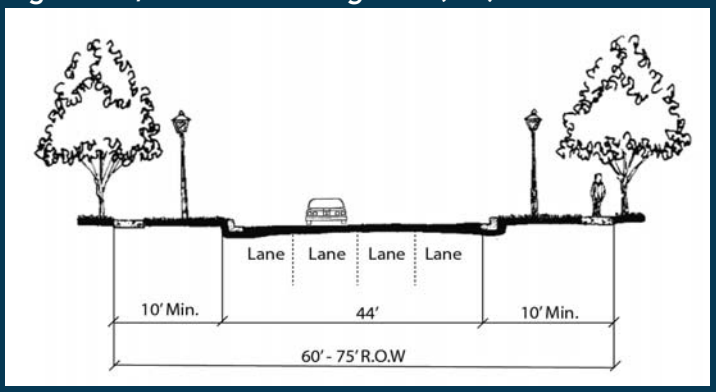
1. With all new roadway construction, adhere to Plainview's 1989 Comprehensive Plan's Thoroughfare Plan Classification System, which classifies streets in the City into four functional categories:
    - Expressway-Freeway System - provides for the expeditious movement of traffic between areas across cities, is not designed to provide direct access to the land it traverses. The main purpose of the expressway-freeway is to move large volumes of traffic at relatively high speeds with as few delays and interruptions as possible. Since expressway-freeway systems are designed to carry the inter-regional traffic, normally they do not have at-grade intersections. Expressways and freeways have right-of-way width requirements of 300 to 400 feet and access to abutting property is usually provided by parallel service roads and/or separate streets.
    - Arterial Thoroughfare System - has two principal functions: the primary function is the movement of through-traffic between areas throughout the City. The secondary function is the provision of direct access to abutting properties. However, this access is subject to necessary controls on entrances, exits and curb uses. The continuity of the arterial thoroughfare routings is of extreme importance. The more important primary traffic arterials

Figure 3.2, *Arterial Thoroughfare (M2)*



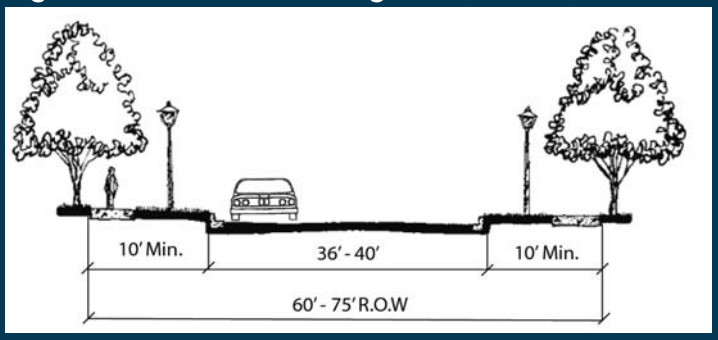
Four-lane, Divided, 60-75 ft. ROW

Figure 3.3, *Arterial Thoroughfare (M1)*



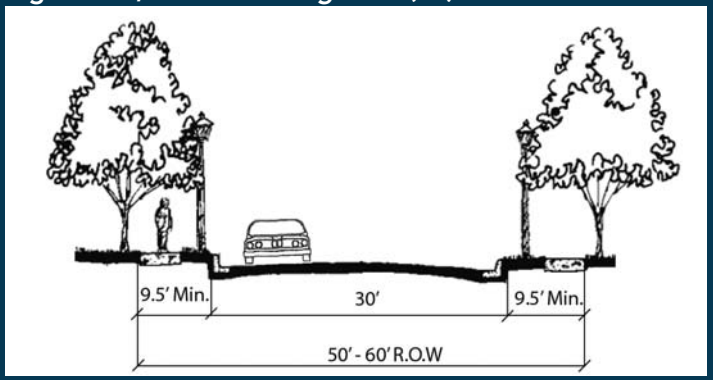
Four-lane, Undivided, 60-75 ft. ROW

Figure 3.4, *Collector Thoroughfare (C1 / C2)*



Two-lane, Undivided, 60-75 ft. ROW

Figure 3.5, *Local Thoroughfare (L1)*



Two-lane, Undivided, 50-60 ft. ROW

are usually improved with median strips which increase the traffic capacity and permit better traffic control. **Figure 3.2, *Arterial Thoroughfare (M2)*** and **Figure 3.3, *Arterial Thoroughfare (M1)*** illustrate divided and undivided arterial classifications.

- Collector Thoroughfare System - not only provides through traffic movement within the various areas or neighborhoods of the City but also provides direct access to the abutting properties. The collector thoroughfare serves as a distributer or collector street between the primary arterials and the local or residential streets. Continuity and continuation of collector thoroughfare routings outside the neighborhood limits are not necessary. Refer to **Figure 3.4, *Collector Thoroughfare (C1 / C2)***.
- Local Street System - provides local streets for the internal traffic movement and for direct access to the residential-commercial-industrial land uses (refer to **Figure 3.5, *Local Thoroughfare (L1)***.

2. Utilize the following north-south and east-west corridors to provide intra-City circulation and define residential and commercial districts. The principal north-south corridors include (from west to east):
   - County Road T (Westridge Road), is a two-lane, unmarked local road, 40 mile per hour (mph) speed limit; classification: C1.
   - Interstate 27 is a four-lane, divided freeway, flanked on either side by two-lane, bi-directional frontage roads,[2] divided by a broken white line, 55 mph speed limit; classification: P1.
   - Ennis Street is a two-lane, undivided collector, 35 mph speed limit, classification: C1. Although this street is classified as a collector, because of numerous direct residential access points, it functions as a local road (RES).
   - Yonkers Street is a two-lane, undivided, residential collector, 30 mph speed limit, classification C1. As with Ennis Street, because of numerous direct residential access points, it functions as a local road (RES).

2 As of December 2012, Interstate 27 northbound and southbound frontage roads will change from two-lane, bi-directional corridors to one-way corridors..

- Quincy Street (Texas State Highway 194) provides through access from SW 3rd Street to 34th Street (Industrial Blvd.) and is a four-lane, divided minor arterial with a central turning lane, 35 mph speed limit, classification: M2.
- Joliet Street is a two-lane collector with a white broken center stripe, 30 mph speed limit; classification: C1.
- Business Highway 27 (Columbia Street), provides through access from south of Plainview to 34th Street (Industrial Blvd.) and is a four-lane, divided state highway (minor arterial) separated by a grass median, 55 mph speed limit; classification: M2. After crossing 5th Street, the corridor narrows, becomes undivided and is separated by a double yellow stripe, 35 mph speed limit; classification: M1.
- Broadway Street is a four-lane, undivided minor arterial with a double yellow center stripe and white, broken lane stripes, 40 mph speed limit; classification: M1.
- Date Street is a four-lane minor arterial with a double yellow center stripe and white broken lane stripes, 45 mph speed limit, reducing to 40 mph just south of 5th Street.; classification: M1.

Access within the core of the City is facilitated by a traditional grid system of streets. East-west streets function as collectors, where access is mainly confined to local, residential (north-south) streets (RES). The principal east-west corridors include (from north to south):

- 34th Street (Industrial Boulevard) is a two-lane, collector with a white broken center stripe, 40 mile per hour (mph) speed limit; classification: M1.
- 24th Street provides through access from the Interstate 27 frontage road to the eastern City limits and becomes FM 400. It is a four-lane minor arterial with a double yellow center stripe and white broken lane stripes, 40 mph speed limit; classification: M1.
- 16th Street provides through access from the Interstate 27 frontage road to the eastern City limits and becomes FM 2286. It is a two-lane collector with a white broken center stripe, 30 mph speed limit; classification: C2.
- 11th Street is a two-lane collector with a double yellow center stripe, 35 mph speed limit; classification: C1. There is parallel parking on both sides of the road.
- Fifth Street (U.S Highway 70) provides through access westward, beyond Interstate 27, across the City to destinations to the east of the City. It is a five-lane, minor arterial composed of two, two-lane roads (divided by a white broken stripe), separated by a center turning lane; 45 mph speed limit; classification: M2.
- SW 3rd Street is a five-lane arterial composed of two two-lane roads (divided by a white broken stripe), separated by a center turning lane; 55 mph speed limit; classification: M2.
- Dimmitt Road (State Highway 194) departs south from 24th street and parallels the BNSF railroad in a diagonal pattern southeastward to Quincy Street). It is a is a four-lane minor arterial with a double yellow center stripe and white broken lane stripes, 45 mph speed limit; classification: M1.

3. To increase neighborhood cohesion and integrity, improve development regulations and other programs to incentivize vehicular through-traffic to use specified east-west streets including 34th, 24th, 16th, 11th, 5th, and SW 3rd Streets, and Dimmit Road. This could include such things as:

- Prohibiting new access points or removing existing unnecessary access points during redevelopment along east-west collector roads (C1 and C2);
- Improving signal timing on the east-west collector roads;
- Disincentivizing through-traffic on other east-west routes through the use of neighborhood traffic calming measures, e.g., speed humps, curb bump outs, chicanes, added stop signs, etc.

The City currently enforces access onto roadways through ARTICLE 3.14 PUBLIC RIGHT-OF-WAY. Division 1. Generally. Section 3.14.001 Entrances and Driveways, which states that, "it shall be unlawful for any person to make any entrance or driveway, or otherwise remove any curb and gutter, without first obtaining a permit therefor from the city

engineer" (2000 Code, sec. 21-1).

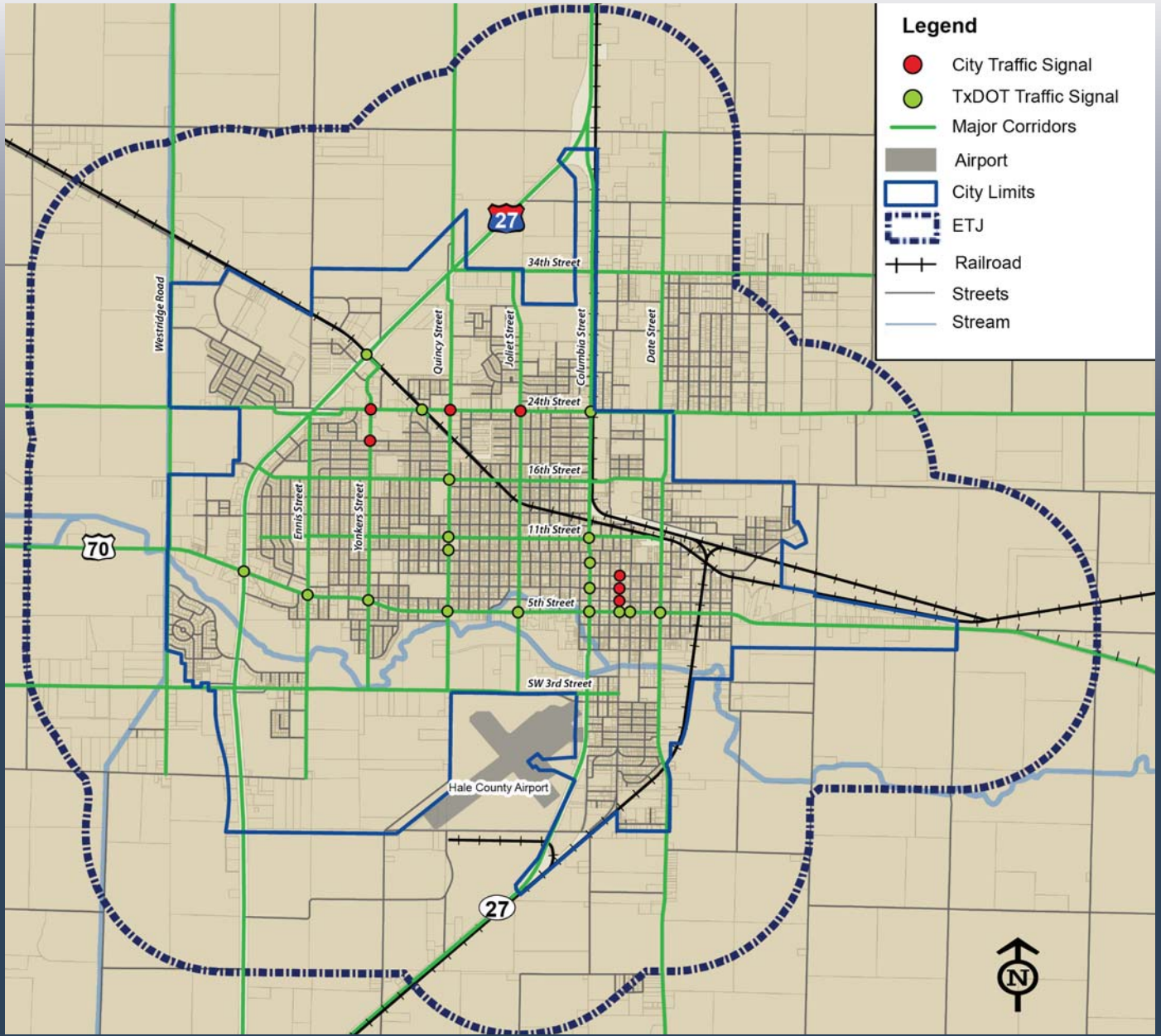
4. Utilize major thoroughfares to maintain and strengthen existing commercial developments, including Interstate 27 access roads, Quincy Street, Business 27, 5th Street and 24th Street. *See* **Figure 3.6, *Plainview's Major Corridors***, on next page.
5. Concurrent with new development, require conformance with the adopted 2013 Thoroughfare Plan, particularly including the dedication of right-of-way for collector roadways. Furthermore, adopt a policy requiring collector streets to avoid where possible, but traverse when necessary, streams, drainageways, and other natural features, to ensure continuity of the street system.

Based on the 1989 Comprehensive Plan's Thoroughfare Plan, **Table 3.2, *Roadway Design Standards*** provides the design standards for each functional classification. (Note that Table 3.2 is at the end of this chapter).

Strategy 3.2.2: *Using a Level of Service (LOS) Analysis, provide thoroughfare standards designed to assure that future traffic volumes move in a uniform and efficient manner.*

To understand local traffic patterns and the operating conditions of City streets, a level of service (LOS) analysis was performed. A LOS is a letter designation that describes a range of operating conditions on a particular type of facility. The 1994 Highway Capacity Manual defines levels

Figure 3.6, *Plainview's Major Corridors*



of service as, "qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers."[3] Within a LOS analysis, several key measures are used to describe service quality, including:

- **speed and travel time** - one of the most easily perceived measures of service quality is speed, or its inverse, travel time;
- **density** - describes the proximity of vehicles to each other in the traffic stream, and reflects ease of maneuverability in the traffic stream;
- **delay** - the excess or additional travel time due to traffic conditions or controls.

For the purposes of this chapter, the LOS was based on an analysis of traffic volume (*see* **Table 3.3, *Average Daily Traffic Volume),*** relative to the design capacity (vehicles per day) of each street. LOS is represented by letter designations along a continuum from "A" to "F" with "A" meaning free flow conditions and "F" indicating heavy congestion.

General descriptions of each are as follows:

- LOS "A" - Free flow traffic conditions with very little delay;
- LOS "B" - Good traffic flow and signal progression with some delays at intersections (higher than A);
- LOS "C" - Stable operating conditions with average traffic delays;
- LOS "D" - Rating conditions result in lower travel speeds and higher delays at intersections;

3 Highway Capacity Manual. Transportation Research Board, National Research Council (U.S.). Washington, D.C.. 2000. ISBN 0-309-06681-6.

Table 3.3, *Average Daily Traffic Volume*

	Average Daily Traffic Volume				
Street Location	1989[1]	2009[2]	2010[2]	2011[2]	2012[3]
North - South					
Interstate 27 (south of 5th St.)		11,100	11,800	11,900	
Interstate 27 (north of 5th St.)		17,400	18,100	17,300	
Interstate 27 (north of Hwy 194)		9,800	10,400	10,300	
Ennis Road (south of 5th Street)					3038
Ennis Road (south of SW 3rd Street)					1,227
Quincy St. (south of 5th St.)				2,900	
Quincy St. (north of 5th St.)	9,070	6,400	6,900	6,400	
Quincy St. (between 13th & 14th St.)	10,810	6,500	7,500	7,100	
Quincy St. (north of 24th St.)	2,280				
Quincy St. (south of Interstate 27)	4,700	5,200	5,700	5,400	
Quincy St. (north of Interstate 27)	4,200	3,500	4,000	3,800	
Bus 27 (south of CO Rd. 110)		2,200	2,300	2,400	
Bus 27 (south of SW 3rd St.)		4,700	4,500	5,100	
Bus 27 (between 3rd and 6th St.)	4,150				
Bus 27 (south of 8th St.)	7,040		8,300	8,100	
Bus 27 (south of Campbell St.)	7,600	7,100	7,000	7,800	
Bus 27 (north of 24th St.)	4,800	5,100	6,400	6,700	
Bus 27 (north of Industrial Blvd.)		3,400	4,000	4,100	
Columbia Street (south of SW 10th)					1,311
Date Street (south of SW 3rd St.)		1,750	2,000	1,700	
Date Street (north of SW 3rd St.)		2,600	2,900	2,700	
Date Street (south of 5th St.)	2,200	2,900	3,300	2,900	
Date Street (north of 5th St.)	5,390	4,100	4,300	4,100	
Date Street (north of FM 2286)	5,200	3,800	4,100	3,700	
East - West					
SW 3rd St. (east of Interstate 27)		2,500	2,100	3,100	
SW 3rd St. (west of Bus 27)		3,800	4,200	4,400	
SW 3rd St. (east of Bus 27)		3,200	3,700	3,400	
5th St. (west ETJ)		3,600	4,100	3,500	
5th St. (west of Interstate 27)	4,100	5,900	6,200	6,100	
5th St. (west of Ennis St.)	16,600	14,200	15,200	15,000	
5th St. (and Quincy St.)		13,500	15,000	14,800	
5th St. (west of Bus 27)	15,050	11,000	12,400	12,300	
5th St. (east of Bus 27)		10,700	11,300	11,200	
5th St. (east of Date St.)	5,100	6,800	7,400	6,900	
5th Street (west County Rd Y)		5,400	5,900	5,300	
FM 2286 (east of Date St.)		740	950	840	
24th St. (west of Date St.)	4,800				
24th St. (east of Date St.)		4,000	4,000	3,700	
Industrial Blvd. (east of Bus 27)		2,200	2,200	2,100	
Industrial Blvd. (east of Well Rd.)		1,150	1,250	1,100	
Industrial Blvd. (east of Xray Rd.)		230	210	270	

1 1989 Hunter Comprehensive Plan, Plainview, Texas

2 TXDOT Traffic Maps (http:// www.dot.state.tx.us/travel/traffic_maps/default.htm)

3 City of Plainview, Texas

- LOS "E" - Unstable flow, poor signal progression, traffic near or at roadway capacity; and
- LOS "F" - Roadway operations are over capacity with extreme delays at intersections.

The analysis was conducted for the principal north-south and east-west streets previously identified and for which traffic volume data was available. This included each of the major streets (including, but not limited to, Ennis Street, Yonkers Street, Joliet Street, Quincy Street, Business 27 (Columbia Street), Broadway Street, Date Street, SW 3rd Street, 5th Street, 11th Street, 16th Street, 24th Street and 34th Street (Industrial Boulevard). The purpose of this assessment was to evaluate roadway conditions and areas of congestion.

As depicted in ***Table 3.4, Street Classification and Level of Service***, the streets that were evaluated in the community are operating at a level of service of "A" through "C" - each of which is an acceptable operating condition. As a result of this analysis, the only street segment in need of service improvement is the segment of 5th Street, between Interstate 27 and Ennis Street. This may include improved transportation systems management (TSM), lane re-striping, roadway widening or other capacity improvements.

Strategy 3.2.3: *Evaluate vehicular and pedestrian thoroughfare connectivity within the City.*

Discontinuous streets interrupt the efficient flow of traffic and create congestion elsewhere. For this reason, as the community continues to develop, it is important for the collector street system to be extended and expanded. There are several times and ways connectivity can be increased:

- during roadway and pathway planning;
- when subdivisions are designed;
- by adopting street connectivity standards or goals;
- by requiring alleyways and mid-block pedestrian shortcuts;
- by constructing new roads and paths connecting destinations;
- by using shorter streets and smaller blocks; and
- by applying traffic calming strategies, tools and techniques rather than closing off streets to control excessive vehicle traffic.

New Urbanism and Smart Growth development practices emphasize a high degree of street connectivity. A Connectivity Index can be used

Table 3.4, *Street Classification and Level of Service*

Street Name	Functional Classification	Capacity (vpd)[1]	Level of Service	1989 Thoroughfare Plan	2012 Thoroughfare Plan
North - South					
CO Road T (Westridge Rd.)	RES	18,000	A	M1	M1
Interstate 27	P1	30-42K	A	P1	P1
Ennis Street	C1	18,000	A	M1	C1
Yonkers Street	C1	18,000	A	C3	C1
Quincy Street	M2	18,000	A	M1 > M2 > M1	M1
Joliet Street	C1	18,000	A	C3	C1
Bus 27 (Columbia St.)	M2 > M1 > M2	18,000	A	M2	M1
Broadway Street	M1	18,000	A	M1	C1
Date Street	M1	18,000	A	M1	M1
East - West					
SW 3rd Street	M2	20,000	A	M1	M1
5th Street	M2	20,000	A (C*)	M2	M1
11th Street	C1	18,000	A	M1	C1
16th Street (Campbell St.)	C1	18,000	A	M1	C1
24th Street	M1	18,000	A	M1 > M2 > M1	M1
34th Street (Industrial Blvd)	C2	18,000	A	M1	M1

*vehicles per day

** 5th Street LOS rating from Interstate 27 to Ennis St only. The rest of 5th Street LOS rating: A

to quantify how well a roadway (and pedestrian) network connects destinations. Indices can be measured separately for motorized and non-motorized travel, taking into account non-motorized shortcuts, such as paths that connect cul-de-sacs, and barriers such as highways and roads that lack sidewalks. Several different methods can be used:

1. The number of roadway links divided by the number of roadway nodes.[4] Links are the segments between intersections; nodes are the intersections themselves. Cul-de-sac heads count the same as any other link end point. A higher index means that travelers have increased route choice, allowing more direct connections for access between any two locations.
2. The ratio of intersections divided by intersections and dead-ends, expressed on scale from zero to 1.0.[5] An index over 0.75 is desirable.
3. The number of surface street intersections within a given area, such as a square mile. The more intersections, the greater the degree of connectivity.

A connectivity index, as with other indices discussed in this chapter, is affected by how each area is defined, such as whether park lands and industrial areas are included in the analysis. It is therefore important to use professional judgment in addition to quantitative measurements when evaluating connectivity.[6] **Figure 3.7, *Connectivity Analysis*,** and **Table 3.5, *Connectivity Analysis***, provides a brief analysis of roadway and sidewalk continuity throughout the City, which, for the purposes of this demonstration, has been divided into nine areas, respecting City Limits, predominant superblocks and neighborhoods.

Initiatives and Actions

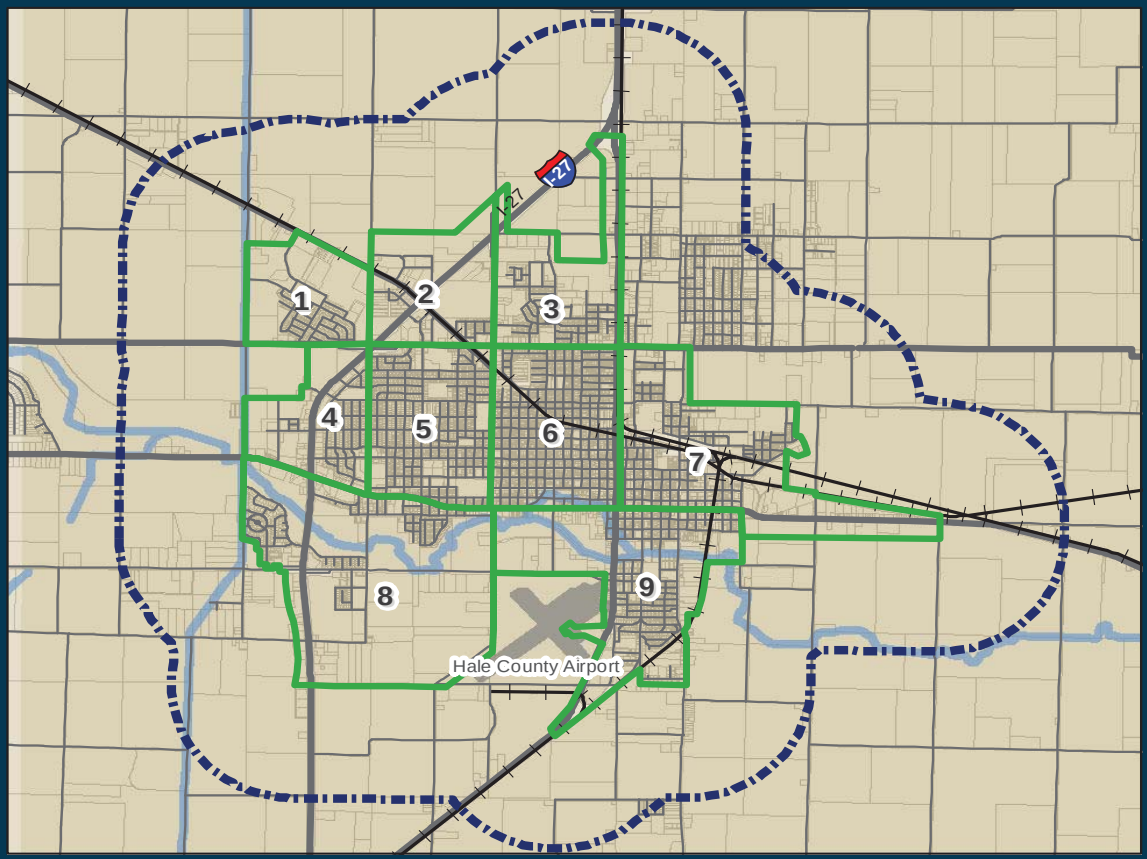
1. Prepare a Comprehensive Connectivity Index for all vehicular thoroughfares within the City, extending into the ETJ. Use the Index to identify areas in need of enhanced connectivity. Develop a street connectivity

4 Reid Ewing (1996), Best Development Practices; Doing the Right Thing and Making Money at the Same Time, Planners Press (www.planning.org), 1996.

5 USEPA (2002), Smart Growth Index (SGI) Model, U.S. Environmental Protection Agency (www.epa.gov/smartgrowth/topics/sgipilot.htm), 2002. (www.epa.gov/smartgrowth/pdf/4_Indicator_Dictionary_026.pdf).

6 Victoria Transport Policy Institute, 2012. Roadway Connectivity, Creating More Connected Roadway and Pathway Networks. TDM Encyclopedia. http://www.vtpi.org/tdm/tdm116.htm.

Figure 3.7, *Connectivity Analysis*



Discontinuous streets interrupt the efficient flow of traffic and create congestion elsewhere.

For this reason, as the community continues to develop, it is important for the collector street system to be extended and expanded. **Table 3.5, *Connectivity Analysis*** (next page), provides a brief analysis of the roadway and sidewalk continuity within Plainview's City limits, which is divided into nine areas.

program consisting of a prioritized list of projects, including schedule and budget information and build into the City Capital Improvement Program.

2. Revise the subdivision regulations to include provisions to maximize thoroughfare connectivity for all new subdivisions and road construction projects.

FOCUS AREA 3.3: IMPROVING CORRIDOR DESIGN AND APPEARANCE

Traffic Management

Essential to managing traffic is preserving the capacities of major thoroughfares and collector streets. The capacity and, hence, the level of service is affected by the following:

- number of access points (streets and driveways);
- impedance of traffic flow by vehicles entering and exiting properties;
- number of intersections;
- lane width;
- synchronization of traffic control devices;

Table 3.5, *Connectivity Analysis*

Area	Roads	Sidewalks and Trails
1	Though the Westgate subdivision (approximately 425 homes) has ample connectivity out of the subdivision, with five local access points onto W 24th Street, the predominant collector is Kermit St. Eastbound, W 24th St. provides a single connection to I-27 overpass and abuts the I-27 frontage road. Westbound, W 24th St. connects with County Road T which connects with U.S. Highway 70 (5th Street).	The few sidewalks within the Westgate Subdivision are confined to blocks along perimeter collector, Garland Street and W 29th and provide no connectivity to the rest of the subdivision. There are no pedestrian connections from Westgate to the rest of the City via 24th Street.
2	Excellent vehicular connectivity with 24th St.., I-27, Dimmitt Rd. (TX Highway 194), Yonkers St. and Quincy St.	There are no sidewalks in this area. No pedestrian connections between residential subdivision and major employment and educational centers, including the Wal-Mart Distribution Center, Covenant Hospital, Houston School and South Plain College.
3	Excellent vehicular connectivity, and is bounded by arterials. Direct access onto most residential collectors has not been restricted.	Excellent connectivity along local residential streets, though no sidewalks on collectors, such as Joliet St. and Fresno St. Poor pedestrian connectivity to Coronado Junior High School.
4	To the east of I-27, predominantly residential area with grid pattern and well-defined hierarchy of streets. Ample east-west collector connectivity with Downtown. Collector connections to I-27 frontage road within two blocks. Vehicular access to west side of I-27 confined to 5th St. and W 24th St.	There are no sidewalks in this area, resulting in no pedestrian connectivity. No pedestrian connectivity to commercial areas on west side of I-27 and north side of 5th St.
5	Residential area with gridded streets, bounded by arterials. East-west residential collectors have limited direct access, with the exception of mid-block alley-ways. Area is bounded by 5th St., which provides corridor for commercial land uses.	Sidewalks confined to only a few north-south local residential corridors, providing little to no connectivity with major population centers, such as Wayland Baptist University and Plainview High School.
6	Area is primarily residential; grid street pattern is bounded by arterials and bisected by BNSF railroad tracks, although connectivity is only marginally impacted. East-west collectors have little direct access from residential driveways.	There are no sidewalks within the residential neighborhood north of the railroad tracks. To the south, the main sidewalks are along 11th St. Some north-south blocks have sidewalks though there is little to no connectivity.
7	Urban, downtown area, with residential to the north. Railroad tracks severely restrict connectivity in this area. Gridded streets provide connectivity to the west and south of this area.	There are no sidewalks within the residential neighborhood north of the railroad tracks. On south and west side of railroad tracks, south of 11th Street, practically all blocks are wrapped with sidewalks.
8	Westridge subdivision has ample access to SW 3rd St., I-27 southbound frontage road and County Rd. T; although eastbound connectivity is limited to 5th St. and SW 3rd St. To the east of I-27, residential neighborhoods are bounded by arterials. Collectors Yonkers St and Thomas Boulevard are local in scale and degree of direct access. Running Water Draw prohibits connectivity to the south.	Sidewalks are confined to one side of the street in residential area south of W 4th Street. There is minimal pedestrian connectivity.
9	U.S. Highway 70 provides east-west commercial spine, transitioning to light industrial east of Bus 27, and residential east of Broadway St. Good east-west connectivity with minimal direct access.	Recreational trail within Running Water Draw park provides east-west connectivity across area. Neighborhood east of airport has no sidewalks, resulting in no connectivity.

- allowances for deceleration and/or acceleration at ingress/egress points; and
- the presence or absence of a center turn lane or median.

Currently, the City does not have any regulations to manage the number, spacing, or locations of driveways accessing City rights-of-way. Access management is important to promote safety, improve mobility and access, and to improve travel conditions by minimizing conflicts between through vehicles and turning vehicles.

Strategy 3.3.1: *Preserve traffic capacity by implementing access management and other Transportation Systems Management (TSM) provisions in the City and in the ETJ.*

Initiatives and Actions

1. Prepare an access management plan for 11th Street, which identifies and evaluates appropriate TSM measures that would be suitable and feasible along this corridor of concern.
2. Develop an access management program and guidelines that provide appropriate strategies and access design requirements based on the roadway's functional classification as identified on the Thoroughfare Plan.

   These measures could include the addition of right or left turn lanes at certain locations (with or without planted center medians), consolidation of driveways, and signal timing. There are a number of sources and criteria that could be used in determining appropriate TSM measures in the community, including those identified in TxDOT's Access Management Manual and the Transportation Research Board's Access Management Manual.
3. In conjunction with TxDOT, prepare an access management plan for 24th Street, which identifies and evaluates appropriate TSM measures that would take into consideration the high volume of truck traffic and the need for expanded sidewalks.

Increasing Connectivity

Typical street connectivity standards or goals include the features listed below. Of course, such standards must be flexible to accommodate specific conditions, such as geographic barriers.

- Encourages average intersection spacing for local streets to be 300 to 400 feet.
- Limits maximum intersection spacing for local streets to about 600 feet.
- Limits maximum intersection spacing for arterial streets to about 1,000 feet.
- Limits maximum spacing between pedestrian/bicycle connections to about 350 feet (that is, it creates mid-block paths and pedestrian shortcuts).
- Reduces street pavement widths to 24 to 36 feet.
- Limits maximum block size to 5 to 12 acres.
- Limits or discourages cul-de-sacs (for example, to 20 percent of streets).
- Limits the maximum length of cul-de-sacs to 200 to 400 feet.
- Limits or discourages gated communities and other restricted access roads.
- Requires multiple access connections between a development and arterial streets.
- Requires a minimum connectivity index, or rewards developments that have a high connectivity index with various incentives.
- Specifically favors pedestrian and cycling connections, and sometime connections for transit and emergency vehicles, where through traffic is closed to general automobile traffic.
- Creates a planning process to connect street "stubs," that is, streets that are initially cul-de-sacs but can be connected when adjacent parcels are developed in the future.
- Creates Pedways, which are walking networks within major commercial centers that connect buildings and transportation terminals.

Victoria Transport Policy Institute, 2012. Roadway Connectivity, Creating More Connected Roadway and Pathway Networks. TDM Encyclopedia. http://www.vtpi.org/tdm/tdm116.htm.

Benefits of Access Management

Research indicates that a well-designed and effectively administered access management plan can result in the following tangible benefits:

- accident and crash rates are reduced;
- roadway capacity and the useful life of transportation facilities are prolonged;
- travel time and congestion are decreased;
- better coordination between access and land use is accomplished;
- economic activity is enhanced by a safe and efficient transportation system;
- urban design and transportation objectives are reconciled;
- the character and livability of the community is preserved through the coordination of land use and transportation.

Traffic Calming

There are several techniques to calm and slow vehicular traffic. As identified within the adjacent column, some examples include changes in paving materials, chokers (which narrow the road for some distance), elevated pedestrian crossings, medians, on-street parking, speed tables, marked gateways and street trees.

Safety

A good street network is a powerful tool for reducing traffic crashes and fatalities while creating beautiful places. From 2007 to October 2012 there were 1,926 vehicular traffic accidents in the City. Twelve of these accidents resulted in fatalities (*see* **Map 3.1, *Traffic Accidents, 2007-2012***); 379 accidents were driveway access-related; 611 accidents occurred at an intersection; 385 accidents were intersection-related; and 548 accidents were non-intersection-related.

Is there a relationship between vehicular safety and urban form? A 2011 study of 24 California cities found a 30 percent higher rate of severe injury and a 50 percent higher chance of dying in cities dominated by sparsely connected cul-de-sacs compared with cities with dense, connected street networks.[7] A 2009 study from Texas found that each mile of arterial is associated with a 10 percent increase in multiple-vehicle crashes, a 9.2 percent increase in pedestrian crashes, and a 6.6 percent increase in bicyclist crashes.[8]

7 Marshall, W. and Garrick, N., "Does the Street Network Design Affect Traffic Safety?" Accident Analysis and Prevention 43[3]: 769-781).

8 Dumbaugh, E. and Rae, R., "Safe Urban Form: Revisiting the Relationship between Community Design and Traffic Safety," Journal of

Traffic Calming

Traffic calming is the installation of safety solutions to slow traffic in order to enhance safety for pedestrians and motorists. Traffic calming reduces accidents, collisions, noise, vibration, pollution, and crime. Some examples include changes in paving materials, bulb-outs (which narrow the road for some distance), elevated pedestrian crossings, on-street parking, speed tables, marked gateways and street trees.

Speed tables are flat-topped speed humps often constructed with brick or other textured materials. Speed tables are good for locations where low speeds are desired but a somewhat smooth ride is needed for larger vehicles.

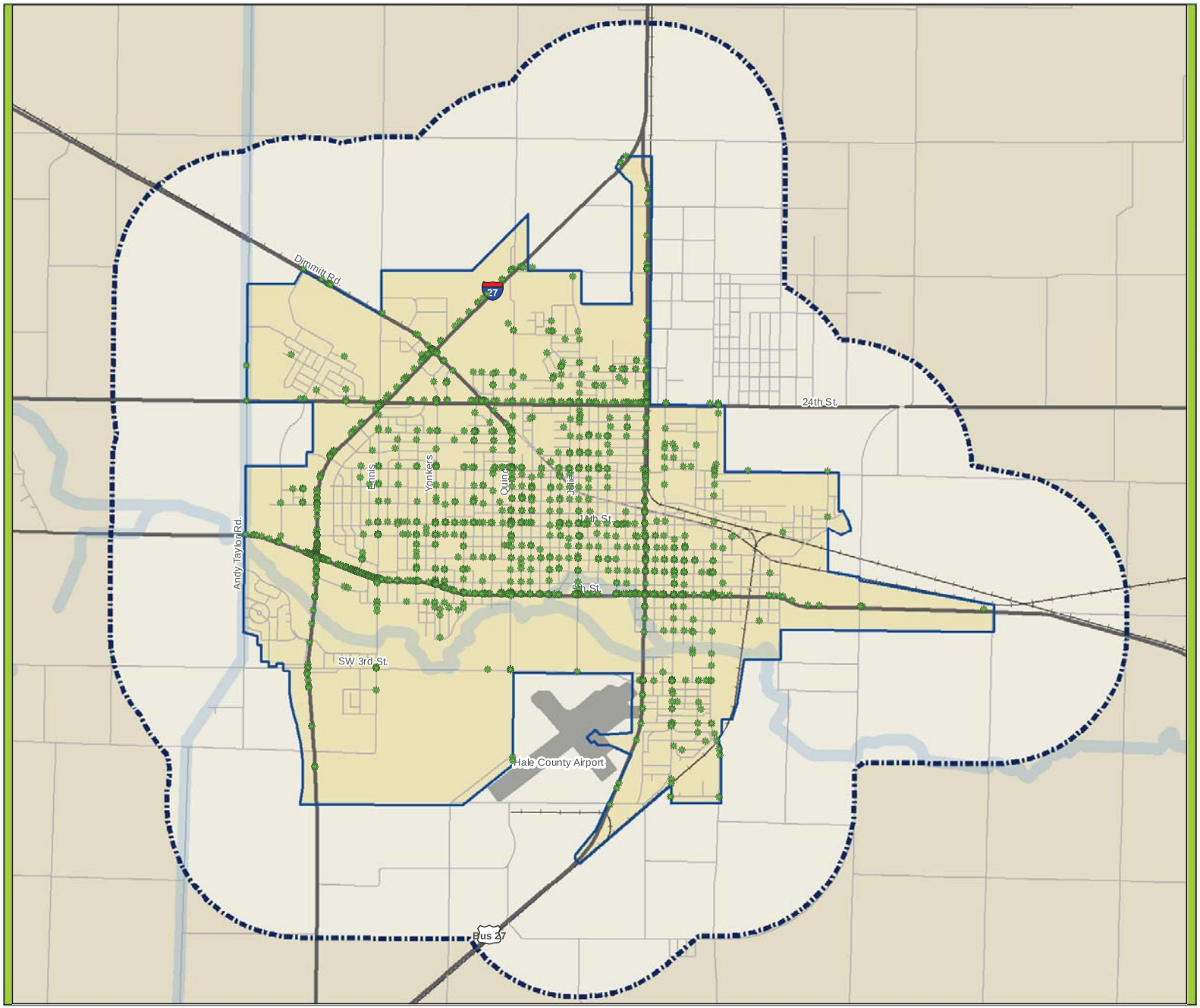
Source: Ewing, Reid, Traffic Calming: State of the Practice (1999).

A traffic circle calms traffic, is more efficient than a four-way stop, and creates a visual break from a long street segment, while also providing a streetscape opportunity.

Source: Kendig Keast Collaborative

By extending the corner sidewalk at an intersection, pedestrian bulb-outs shorten the distance at street crossings, improve the visibility of pedestrians by motorists, and slows traffic.

Source: Kendig Keast Collaborative



Adopted
05.14.13

Map 3.1

Traffic Accidents
2007 - 2012

Legend

- Accident Location

0 0.25 0.5 1 1.5
Miles

N

Source: City of Plainview

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Complete Streets

The streets of our cities and towns are an important part of our communities. They allow children to get to school and parents to get to work. They help to organize and orient our built environment – our neighborhoods, centers of commerce and public institutions. As such, these streets ought to be designed for everyone – whether young or old, on foot or on bicycle, in a car or in a bus – but too often they are designed only for speeding cars or creeping traffic jams.

Now, in communities across the country, a movement is growing to "complete" the streets. States, cities, and towns are requesting their planners and engineers to build roads that are safer, more accessible, and easier for everyone. In the process, they are creating better communities for people to live, play, work, and shop. Complete Streets are streets for everyone. Pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across a Complete Street.

According to the National Complete Streets Coalition, instituting a complete streets policy ensures that transportation planners and engineers consistently design and operate the entire roadway with all users in mind – including bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities.

An ideal complete streets policy includes:

- a vision for how and why the community wants to complete its streets;
- specifies that 'all users' includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles;
- applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right-of-way;
- makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions;
- encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes;
- is adoptable by all agencies to cover all roads;
- directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs;
- directs that Complete Streets solutions will complement the context of the community;
- establishes performance standards with measurable outcomes; and
- includes specific next steps for implementation of the policy.[1]

1 Smart Growth America, National Complete Streets Coalition. http://www.smartgrowthamerica.org/

Hamburg, New York's main street is welcoming to all users. Wide sidewalks, curb extensions, and well-marked crosswalks help pedestrians travel to the various businesses along the street. On-street parking gives those traveling by car easy access. Colored pavement narrows the travel lane, keeping speeds at an appropriate level.

Photo: Dan Burden, Walkable & Livable Communities Institute

Two primary reasons why sustainable grid street networks work better for emergency response are (1) maximizing the number of addresses served from each station and (2) providing a redundancy of routes. Studies in Charlotte, North Carolina, found that when one connection was added between cul-de-sac subdivisions, the local fire station increased the number of addresses served by 17 percent and increased the number of households served by 12 percent. Moreover, the connection helped avoid future costs by slowing the growth of operating and capital costs; most of the cost to run a fire station is in salaries. Furthermore, the Congress for the New Urbanism's (CNU) report on emergency response and street design found that emergency responders favor well-connected networks with a redundancy of routes to maximize access to emergencies. Emergency responders can get stuck in culs-de-sac and need options when streets back up.[9]

Strategy 3.3.2: *Improve safety conditions of Plainview's thoroughfare system.*

Initiatives and Actions

1. Study intersections which were the site of 10 or more accidents, to determine whether there are cost effective improvements that could reduce the likelihood of accidents.
2. Amend the subdivision regulations to discourage the development of cul-de-sacs, and encourage street connectivity through extending a grid network of streets.

Signage

The primary function of traffic control signs is to enable drivers to react promptly, naturally, and safely to the traffic and design conditions encountered, to inform on the regulations and use of streets and highways, to warn of unexpected highway conditions which require extra care in driving and to provide guidance to major destinations. Secondary functions of traffic control signs are to advise drivers of various services normally required to complete an extended journey (e.g., emergency services, motorist services, public transportation), and of supplemental services, such as recreational facilities, places of interest and attractions.

Regarding enforcement of traffic regulations, there is a provision within the Plainview Code of Ordinances, Article 12.06, *Signs, Signals and Devices*, that states, "no provision of this chapter for which signs are required shall be enforced against an alleged violator if at the time and place of the alleged violation the official traffic-control device or sign is not in reasonable position and sufficiently legible to be seen by an ordinarily observant person." Under Federal Highway Administration (FHWA) regulations, communities are required to improve the nighttime visibility of roadside signs — such as stop, yield and railroad crossing signs. The FHWA is also requiring communities around the United States to change street name signs from all capital letters to a combination of capital and lowercase letters. The issue pertains to legibility for an aging population[10] as well as how well a sign redirects light from an automobile's headlights back toward the vehicle.

Signs that fail to meet minimum standards must be replaced. Communities will be allowed to change the street name signs as they wear out. The changes are called for in the Manual on Uniform Traffic Control Devices, which sets standards for traffic control devices, including signs, signals and pavement markings.

Strategy 3.3.3: *Improve pedestrian safety conditions in areas where pedestrians must enter / cross a traffic lane.*

A provision within the Plainview Code of Ordinances, regarding the designation of crosswalks and safety zones, states that, "the police chief is hereby authorized to:

- Designate and maintain, by appropriate devices, marks or lines upon the surface of the roadway, crosswalks at intersections where in his opinion there is particular danger to pedestrians crossing the roadway, and at such other places as he may deem necessary; and
- Establish safety zones of such kinds and character and at such places as he may deem necessary for the protection of pedestrians."

The provisions further state that, regarding the marking of traffic lanes:

the American Planning Association 75[3]:309-329

9 "Effect on Connectivity on Fire Station Service Area and Capital Facilities," 2009 presentation by the Charlotte, North Carolina Department of Transportation, http://charmeck.org/city/charlotte/city-manager/CommunicationstoCouncil/2009Comm unications/Documents/CNUPresentationcolor.pdf

10 Copeland, Larry, 10/21/2010. ALL CAPS? "Not OK on road signs, federal government says." USA Today. http://usatoday30.usatoday.com/news/nation/2010-10-21-road-signs-all-caps-lowercase_N.htm

- "The director of public works is hereby authorized to direct the marking of traffic lanes, as determined and established by the chief of police, upon the roadway of any street or highway where a regular alignment of traffic is necessary.
- Where such traffic lanes have been marked, it shall be unlawful for the operator of any vehicle to fail or refuse to keep such vehicle within the boundaries of any such lane except when lawfully passing another vehicle or preparatory to making a lawful turning movement."

Throughout the City there are streets that have no striping and intersections that do not have crosswalks delineated. As pedestrian mobility enhancements outlined within the chapter are implemented, it will be important to provide signage and lane striping to further indicate and reinforce citizen understanding of areas within the vehicular realm that are shared with pedestrians.

Initiatives and Actions

1. To improve pedestrian and vehicular safety, the police chief and director of public works should analyze all of the streets and intersections that currently do not have signage and lane striping, and make a determination whether signage / striping is warranted.
2. For all pedestrian-related improvements within the vehicular realm, such as on-street bike lanes and adjacent sidewalks, lane striping requirements should be implemented.
3. As street wayfinding, directional and traffic enforcement signage becomes worn out, it should be replaced with signage that adheres to FHWA requirements outlined within the Manual on Uniform Traffic Control Devices.

Street Trees

Trees are highly visible elements within any streetscape. As a dominant element, they define spatial volume and rhythm along the length of the streetscape. They provide spring bloom, summer shade, fall foliage color, winter branching, and an opportunity for holiday lighting and decorating during the winter.

Trees provide more than just a decorative element in a streetscape. In addition to softening an otherwise hard urban environment, trees increase storm water retention, provide a defense against the "urban heat island effect," and protect residents from harsh summer conditions. Trees and plantings improve air quality by producing oxygen and removing carbon dioxide and particulate matter. For example, 13 mature trees remove the particulate matter generated by a car driven 12,000 miles a year.

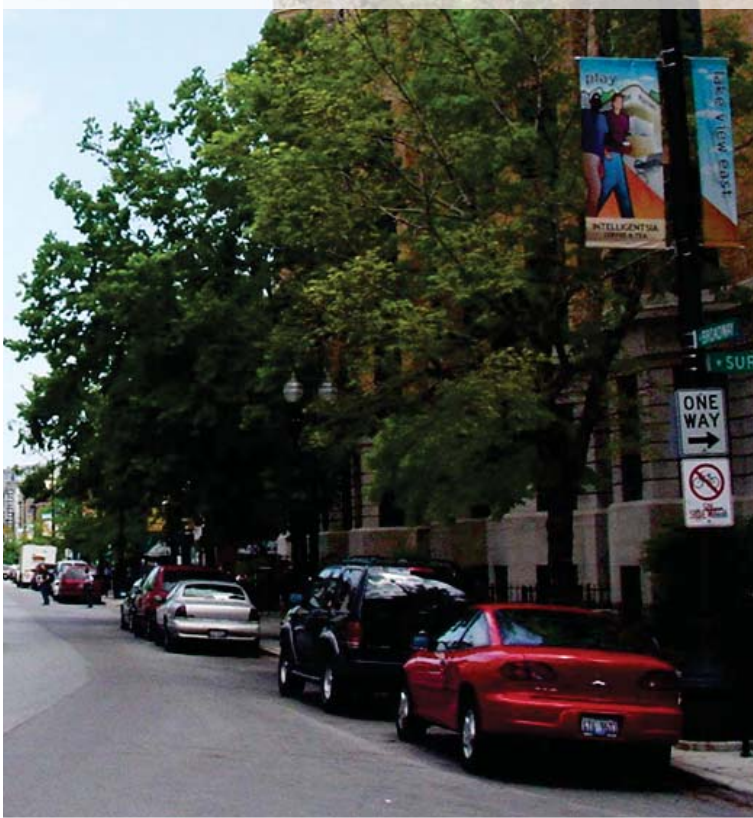
When selecting street tree species for Plainview 's roadways it is important to select species that are drought-tolerant, have minimal die-back in winter, maintain an upright branching pattern, and do not drop seed pods that can damage automobiles.

Parking

Parking is an integral component of the vehicular transportation system. During public meetings, citizens expressed concerns about the lack of adequate parking in Downtown Plainview. On-street parking within Downtown is typically angled.

Trees, combined with other streetscape elements, such as ornamental street lighting, benches, bollards and decorative waste receptacles, can add character and human scale to a street.

Source: City of Chicago Streetscape Guidelines



Trees can help define a pedestrian corridor, as well as provide shade from Plainview's hot summers.

Source: City of Chicago Streetscape Guidelines

Strategy 3.3.4: *Maximize parking availability in Downtown Plainview.*

Initiatives and Actions

1. Inventory all of the available on-street parking in Downtown Plainview. Utilize the boundaries of the National Register of Historic Places listed Commercial Historic District.
2. Identify the times when there is greatest demand for parking and compare to on-street parking availability.
3. Work with property owners to determine the potential availability of and physical renovation requirements for on-site parking.
4. Conduct a professional study to determine whether regulation and metering of on-street parking may be the most effective means of controlling parking and increasing turnover on the highest volume streets.

Street Maintenance

The City Street and Traffic Safety Department is responsible for vector control, street signage installation, and street maintenance within the City limits. Street maintenance-related activities are subject to annual funding (which has increased each year) and are based on a prioritized list of streets that have been identified as being in need of repair. Every year the City hires a consultant to conduct a windshield survey of the City's streets. Streets are evaluated, prioritized, listed and color-coded on a map, in order of priority. The degree of maintenance severity determines whether the City will repair the street or whether they must advertise for bids to conduct more extensive roadway reconstruction.

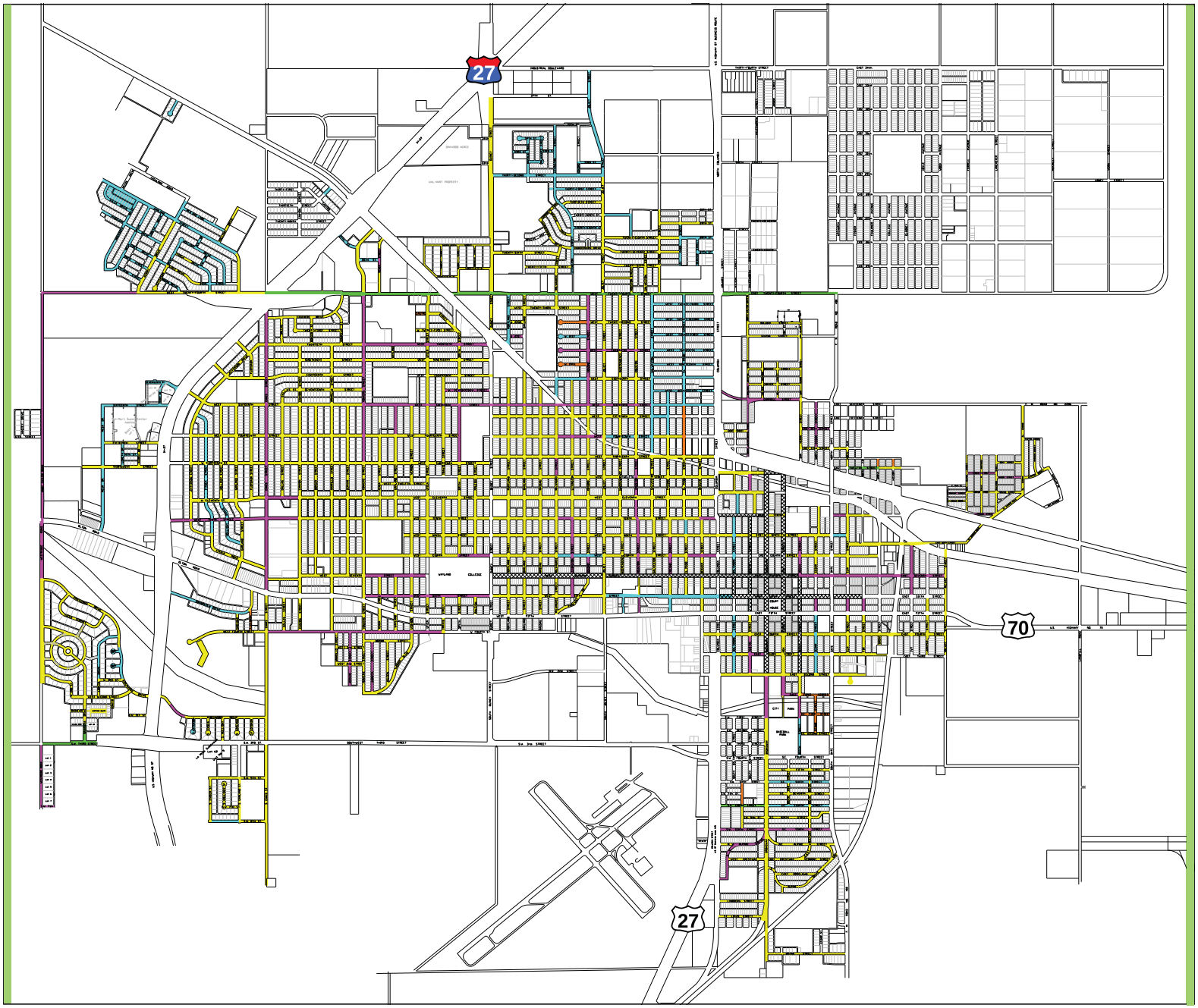
The City's maintenance activities are limited to applying a seal coat on the surface of streets, which consists of a layer of liquid tar, overlayed with a wearing course of aggregate. A seal coat fills-in cracks and protects the main road bed from wear. A seal coat typically has a seven-year lifespan. The City Street and Traffic Safety Department applies a seal coat over approximately 25 lane miles each year. Since 1999 the annual budget for street repair has doubled.

Map 3.2, *Street Condition Assessment, 2011*, depicts the results of the April 2011 street evaluation and rating program. The majority of local residential streets have been rated in "Fair" condition, and a seal coat is required to mitigate further surface wear (*see* **Table 3.6, *Street Condition Rating Guidelines*** for a description of the surface rating categories). The condition of important minor arterials such as Ennis Street, Yonkers Street, and much of 16th Street have been rated in "Poor" condition; and would benefit from a structural overlay. Most of 24th Street has been rated in "Failing" condition, meaning the roadway is in need of significant reconstruction

Strategy 3.3.5: *Prepare a multi-year street maintenance program.*

Initiatives and Actions

1. Develop a comprehensive street evaluation and maintenance program that anticipates street maintenance based not only on streets in need of repair and maintenance, but also anticipates the next time a recently repaired street will require maintenance, based on the most recent level of maintenance provided.
2. The following streets have been identified as requiring significant repairs and should be scheduled and budgeted within the City's Capital Improvement Program:
    - Ennis Street (from 7th Street to 20th Street);
    - 7th Street (from Quincy Street to Columbia Street);
    - 6th Street (from Columbia Street to Joliet Street);
    - 4th Street (from Quincy Street to Yonkers Street).; and
    - 24th Street, from Interstate 27 to FM Road No. 400.
3. Work with the Texas Department of Transportation (TxDOT) to transfer management of 24th Street into TxDOT's administrative jurisdiction. Replace (24th Street) Interstate 27 overpass.



Adopted
05.14.13

Map 3.2
Street Condition Assessment, 2011

Legend

- Street Condition = Excellent
- Street Condition = Good
- Street Condition = Fair
- Street Condition = Poor
- Street Condition = Failing
- Street Condition = Dirt

N

Source: Parkhill, Smith & Cooper

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Strategy 3.3.6: *Implement a program to preserve Plainview's brick streets.*

Plainview's brick-paved streets provide character and charm to its National Register listed Commercial Historic District. As a flexible paving material, brick is incredibly durable and can last many years longer than a conventional asphaltic concrete street. If a utility trench must be cut through a brick paved street, the bricks can be removed and then replaced when the trench has been filled and compacted, with little evidence that any excavation had taken place. However, installing brick paving requires a skill set and level of expertise that exceeds the capabilities of an average asphalt street workman.

As the cost of oil continues to increase, it will become more expensive to fix potholes and apply seal coats; and as a result, brick paving may become the preferred paving material.

Initiatives and Actions

1. Identify and train one individual within the City's Street and Traffic Safety Department to install brick paving and repair the City's brick paved streets. Develop a brick paving crew around this individual.
2. To satisfy public concerns regarding street maintenance, identify, prioritize and repair uneven brick paving.
3. Develop a program to repave with brick, the historic, brick paved streets Downtown, focusing on the National Register of Historic Places listed Commercial Historic District.
4. Stockpile and clean bricks that are found during road repair projects.

Table 3.6, *Street Condition Rating Guidelines*

Surface Rating	Visible Distress	Condition / Treatment
1 Excellent	No longitudinal cracks except reflection of paving joints. Occasional transverse cracks, widely spaced (40' or greater). All cracks sealed or tight (open less than 1/4").	Recent sealcoat or new cold mix. Little or no maintenance required.
2 Good	Very slight or no raveling, surface shows some traffic wear. Longitudinal cracks (open 1/4") due to reflection or paving joints. Transverse cracks (open 1/4") spaced 10' or more apart, little or slight crack raveling. No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
3 Fair	Moderate to severe raveling (loss of fine and coarse aggregate). Longitudinal and transverse cracks (open 1/2") show first signs of slight raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition.	Surface aging. Sound structural condition. Needs sealcoat.
4 Poor	Severe surface raveling. Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. Severe block cracking. Some alligator cracking (less than 25 percent of surface). Patches in fair to poor condition. Moderate rutting or distortion (1" or 2" deep). Occasional potholes.	Significant aging and first signs of need for strengthening. Would benefit from a structural overlay (2" or more).
5 Failed	Alligator cracking (over 25% of surface). Severe distortions (over 2" deep) Extensive patching in poor condition. Potholes. Severe distress with extensive loss of surface integrity.	Severe deterioration. Needs reconstruction with extensive base repair. Pulverization of old pavement is effective.

FOCUS AREA 3.4: PROVIDING ENHANCED PEDESTRIAN AND BICYCLE MOBILITY OPTIONS

Introduction

A transportation system is not complete unless it meets the needs of all travelers. This is to say that "complete streets" are designed equally for vehicles, bicyclists, and pedestrians. This was acknowledged by comments received through the public input process regarding the need for sidewalks within and between neighborhoods, a desire for a City-wide trail system, and concerns for the safety of pedestrians. To abide by the premise of "complete streets," the pedestrian system must not be overlooked in the City's capital improvement program. While there are many streets within Plainview that do not have adjacent sidewalks or Americans with Disabilities Act (ADA) compliant crosswalks, there is a strong desire on behalf of the City to enhance street, sidewalk, and trail systems for increased use by pedestrians and bicyclists. Furthermore, where there are sidewalks, there are often obstacles (e.g., trees, light poles, brick mail boxes, utility boxes, etc.) that impede pedestrian circulation. These obstructions and other considerations should become a priority when encouraging increased pedestrian use.

Accessibility for People with Disabilities

A critical component of pedestrian mobility is the provision of equal access and use of the pedestrian network irrespective of age or ability. In accordance with the Federal Americans with Disability Act (ADA) requirements, all new sidewalk and pathway improvements in the City must comply with ADA accessibility standards. Currently, most of Plainview's existing sidewalks contain barriers to persons with disabilities due to their poor condition or lack of pedestrian ramps at street intersections.

Sidewalk and Crosswalk Facilities

A complete sidewalk network is essential to provide adequate and safe connections within neighborhoods and to nearby recreational trails, bike lanes, parks, and schools. In many of the well-established neighborhoods, there are no sidewalks, or their conditions have deteriorated to the point where they are hazardous to use. While sidewalk repair or replacement is costly (in light of the demands for other infrastructure), as stated in Section 3.14.004 Conformance with Specifications of City Engineer, of the Plainview Code of Ordinances states, "All streets, curbs and/or gutters and sidewalks, or extensions and appurtenances thereto, shall be constructed in accordance with plans and specifications as determined by the City Engineer. Further, Section 3.14.031 requires, "owners, occupants and users of real property abutting upon streets in the city, at their own cost and expense, to maintain and keep the sidewalks and paving laid thereon bordering their property at curb-grade." Within Chapter 10: Subdivision Regulations, Section 7.10: Required Improvements, No. 3 states that, "Sidewalks not less than four (4) feet in width may be required on

Attributes of Good Sidewalk Corridors

1. **Accessible** - The sidewalk corridor should be easily accessible to all users, whatever their level of ability.
2. **Of Adequate Width** - In most areas, two people walking together should be able to pass a third person comfortably, and different walking speeds should be possible. In areas of intense pedestrian use, sidewalks should be wider to accommodate the greater volume of walkers.
3. **Safe** - Sidewalk corridors should allow pedestrians to feel a sense of safety and predictability. Sidewalk users should not feel threatened by adjacent traffic.
4. **Continuous** - The walking route along a sidewalk corridor should be obvious and should not require pedestrians to travel out of their way unnecessarily.
5. **Landscaped** - Plantings and street trees in the sidewalk corridor should create desirable microclimates and should contribute to the psychological and visual comfort of sidewalk users.
6. **Configured for Social Interaction** - Sidewalk corridors should provide places for people to interact. There should be places for standing, visiting, and sitting. The sidewalk corridor should be a place where children can safely participate in public life.
7. **Of High Quality** - Sidewalk corridors should contribute to the character of neighborhoods and business districts, and strengthen their identity.[1]

1 1998, Portland Pedestrian Design Guide

both sides of all major and collector streets and along one or both sides of certain specified local streets."

The development community as well as the users of the City's pedestrian network must ensure that these City-required sidewalk improvements are provided if Plainview is to have and maintain an effective and safe pedestrian thoroughfare system for its citizens.

Strategy 3.4.1: *Utilize an Accessibility Index to determine the degree of pedestrian accessibility and connectivity.*

An Accessibility Index is calculated as actual travel distances divided by direct travel distances (Actual Walking Distance / Direct Distance). If streets are connected, blocks relatively small, and have good sidewalks, people can travel nearly directly to destinations, resulting in a low index. If the street network has many unconnected dead-ends and blocks are large, people must travel farther to reach destinations, resulting in a higher index. An index of 1.0 is the best possible rating, indicating that pedestrians can walk directly to a destination. An average value of 1.5 is considered acceptable.

The Walking Permeability Distance Index (WPDI) is an accessibility index specific to walking trips (Allan 2001; Soltani and Allan 2005). It aggregates walkability factors such as street connectivity, street width, and sidewalk quality.

Initiatives and Actions

1. Utilize Street Smart Walk Score to evaluate Plainview's Downtown, key neighborhoods and commercial areas.

Street Smart Walk Score is an Internet-based program that calculates a score by mapping out the walking distance to amenities in nine different amenity categories. In amenity categories where depth of choice is important, the program counts multiple amenities in a given category. Categories are also weighted according to their importance. The distance to a location, counts, and weights determine a base score of an address, which is then normalized to a score from zero to 100. After this, an address may receive a penalty for having poor pedestrian friendliness metrics, such as having long blocks or low intersection density.

The amenity categories have been determined from the available research to be of either high importance to walkability, medium importance or low importance. This is reflected in the category weights. Grocery store and restaurants/bars

Tree roots have heaved the concrete panels of this sidewalk. This brief segment appears to be one property owners' attempt at developing a continuous, connected sidewalk system. City subdivision regulations do not require sidewalks to be constructed in residential areas.
Source: Kendig Keast Collaborative

Apparently some work was done on this natural gas riser that required a section of sidewalk to be removed. Municipal codes should specify the location of utilities within the right-of-way and the minimum distance from the edge of sidewalk. Any damage to the sidewalk should be repaired.
Source: Kendig Keast Collaborative

New sidewalk construction along 5th Street. Clearly an effort was made to widen the sidewalk so people could walk around the utility pole. Municipal codes should restrict any obstructions within the pedestrian right-of-way.
Source: Kendig Keast Collaborative

have total category weights summing to three, while shopping and coffee shops have weights summing to two, while the other categories sum to one. Grocery stores receive the heaviest weight because they have been found to be drivers of walking (Lee and Moudon, 2006), as well as the most common walking destination in surveys.[11]

Streetscape Furnishings

Plainview's streets play an important role in the livability, vitality, and character of its neighborhoods and commercial areas. They form the grid that weaves the quilt of the City into a whole cloth. Through renovating and improving the quality of Plainview's streetscapes, the City can promote the economic and social development of neighborhood commercial areas, thereby beautifying the City and creating a greener, more friendly environment in which citizens live, work, and play. Just as rooms within a house are not complete without furniture - tables, chairs, a couch, decorative wall treatments, etc.; streets are not complete without proper furnishings which are provided for the comfort of pedestrians.

As discussed, drought-tolerant street trees are very beneficial in providing shade and human scale to a busy thoroughfare; but additional elements are needed to complete the pedestrian dimension. Indeed, corridors are designed to assist in traveling from one place to another, but there can be several nodes, or resting points along the way. At these nodes, a bench or arrangement of seating, in combination with drought-tolerant street trees, can transform an area traditionally for movement, into an area for temporary relaxation. Additional streetscape furnishings may include a drinking fountain, a waste receptacle and ornamental street lighting. These elements serve the basic needs of pedestrians. Where the

11 Walkscore, 2011. Walkscore Methodology. http://www2.walkscore.com/pdf/WalkScoreMethodology.pdf

Clearly striped, on-street bike lane

Source: Alliance for Biking and Walking

Principles for Pedestrian Design

The following design principles represent a set of ideals which should be incorporated, to some degree, into every pedestrian improvement.

1. The pedestrian environment should be safe. Sidewalks, pathways and crossings should be designed and built to be free of hazards and to minimize conflicts with external factors such as noise, vehicular traffic and protruding architectural elements.
2. The pedestrian network should be accessible to all. Sidewalks, pathways and crosswalks should ensure the mobility of all users by accommodating the needs of people regardless of age or ability.
3. The pedestrian network should connect to places people want to go. The pedestrian network should provide continuous direct routes and convenient connections between destinations, including homes, schools, shopping areas, public services, recreational opportunities and transit.
4. The pedestrian environment should be easy to use. Sidewalks, pathways and crossings should be designed so people can easily find a direct route to a destination and delays are minimized.
5. The pedestrian environment should provide good places. Good design should enhance the look and feel of the pedestrian environment. The pedestrian environment should include open spaces such as plazas, courtyards, and squares, as well as the building facades that give shape to the space of the street. Amenities such as street furniture, banners, art, plantings and special paving, along with historical elements and cultural references, should promote a sense of place.
6. The pedestrian environment should be used for many things. The pedestrian environment should be a place where public activities are encouraged. Commercial activities such as dining, vending and advertising may be permitted when they do not interfere with safety and accessibility.
7. Pedestrian improvements should be economical. Pedestrian improvements should be designed to achieve the maximum benefit for their cost, including initial cost and maintenance cost as well as reduced reliance on more expensive modes of transportation. Where possible, improvements in the right-of-way should stimulate, reinforce and connect with adjacent private improvements.[1]

1 City of Portland, 1998. Portland Pedestrian Design Guide. Office of Transportation. http://www.portlandoregon.gov/transportation/article/84048

pedestrian corridor expands to become a plaza or public square, additional elements may include drought-tolerant landscape ("xeriscape") planting treatments, a decorative fountain, a kiosk where information can be displayed, interpretative signage that may explain the significance of the plaza, and tables and chairs that provide places for people to have lunch.

Bicycle Mobility

Bicycle and pedestrian facilities enhance the quality of life of Plainview's residents. Not only do these facilities offer important mobility options within the community, but they also help to meet the recreational needs of citizens. Through the public involvement process, residents articulated their desires for Plainview to become a more pedestrian-oriented community.

On-Street Bike Lanes

Bike lanes provide extra width on the roadway that allows motorists to pass bicyclists with more ease, comfort, and safety. The American Association of State Highway Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, defines a bike lane as, "a portion of a roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists."[12] As levels of bicycling have increased in the United States, there has been a growing amount of support for bike lanes on urban and suburban roadways. In that the development of on-street bike lanes is promoting the shared use of a vehicular corridor it is very important that on-street lanes adhere to design specifications outlined by AASHTO and TxDOT, including lane width, striping and signage provisions.

12 AASHTO Task Force on geometric Design, 1999. Guide for the Development of Bicycle Facilities. American Association of State Highway Transportation Officials, Washington, D.C.

Off-road recreational trail in Running Water Draw Park

Source: Kendig Keast Collaborative

Planning for and providing the roadway width necessary to include bike lanes is relatively easy for new street construction. It is more difficult, however, to retrofit streets with bike lanes once curbs are in place and the street width is fixed. Retrofitting streets with bike lanes may involve trade-off decisions involving numbers of traffic lanes, width of traffic lanes, and provision of on-street parking.

Recreational Trails

The City has taken a great first step with the construction of the recreational trail system along Running Water Draw. Residents at public meetings expressed support for extending this system throughout the City. Incremental and phased implementation of this plan will eventually form a thorough network of non-motorized connections. Recreational trail improvements must remain a funding priority for the City to achieve this objective.

In order to satisfy TxDOT funding requirements, it is import that off-street recreational trails are designed according to AASHTO and TXDOT recommended recreational trail design specifications, which dictate horizontal and vertical curve tolerances, intersection and signage requirements, off-trail grading and drainage tolerances, etc. Recreational trails alignments should be designed for effective security and police patrolling practices. Provisions for trail lighting should be considered. Trails should be visible from many different vantage points, including from a patrol car, to ensure efficient surveillance.

Strategy 3.4.2: *Ensure bicyclist safety by developing on- and off-street bicycle facilities.*

Initiatives and Actions

1. Develop a plan for a complete, connected system of on- and off-street bike lanes along key arterials and collectors, where anticipated traffic speeds and volumes warrant their installation.

Proposed Bicycle Mobility Plan

Map 3.3, *Bicycle Mobility Plan*, depicts a proposed bicycle mobility plan, including a connected system of on-street bike lanes and off-street recreational trails. Functional objectives included creating linkages between public parks, schools, neighborhoods, and public institutions; as well as developing complete circuits of

varying lengths for recreational purposes. A key criterion was to utilize minor arterial streets with generous rights-of-way, wide enough to be able to accommodate the addition of a bike lane.

PRIORITY IMPROVEMENT PROJECT: 11TH STREET "COMPLETE STREET"

Eleventh Street is a two-lane, two-way, collector street that extends from Jefferson Drive eastward to North Date Street. During this progression across the City (from west to east), the corridor right-of-way and corresponding roadway width (curb face to curb face) transitions from:

- 85 feet wide, from Jefferson Drive to Garland Street;
- 75 feet wide, from Ennis Street to Quincy Street;
- 100 feet wide, from Quincy Street to Columbia Street; and
- 80 feet wide (approximate), from Columbia Street to Date Street.

At Kokomo Street, the 11th Street roadway decreases from 74 feet wide to 56 feet wide, although the right-of-way remains the standard 100 foot width.

Although the roadway consists of two individual lanes, divided by a double yellow stripe, drivers continue to pass one another, as if the roadway consists of four lanes. The City is interested in how the corridor may be redesigned to reinforce the roadway's design and functional classification.

Three blocks of 11th Street were chosen to demonstrate how the principles and elements of Complete Streets can be applied to an existing vehicular corridor to provide greater legibility, provide traffic calming, and appeal to multiple modes of mobility.

As illustrated within **Figure 3.8, *11th Street, "Complete Street,"*** (Note that Figure 3.8 is an 11"x17" foldout) in addition to on-street parallel parking in between planting island extensions, two, five-foot wide bike lanes have been added in both directions. Striped crosswalks composed of special paving provide safe, visible access for pedestrians to cross the street. East of Kokomo Street, where the roadway narrows, the bike lanes transition off the roadway and merge with the existing sidewalk which requires widening to create an expanded off-street recreational trail. Along the length of the corridor, additional street trees have been included.

THOROUGHFARE PLAN

Thoroughfare system planning is intended to facilitate the development of the most efficient and appropriate street system necessary to meet existing and future travel needs. The primary objective of the Thoroughfare Plan is to ensure that adequate right-of-way is preserved on appropriate alignments to allow the orderly and efficient expansion and improvement of the street system.

The Thoroughfare Plan will affect the growth and development of Plainview as it guides the future development of the City's street network. While other elements of the plan examine foreseeable changes and needs over a 20-year horizon, thoroughfare planning requires a much longer-range perspective.

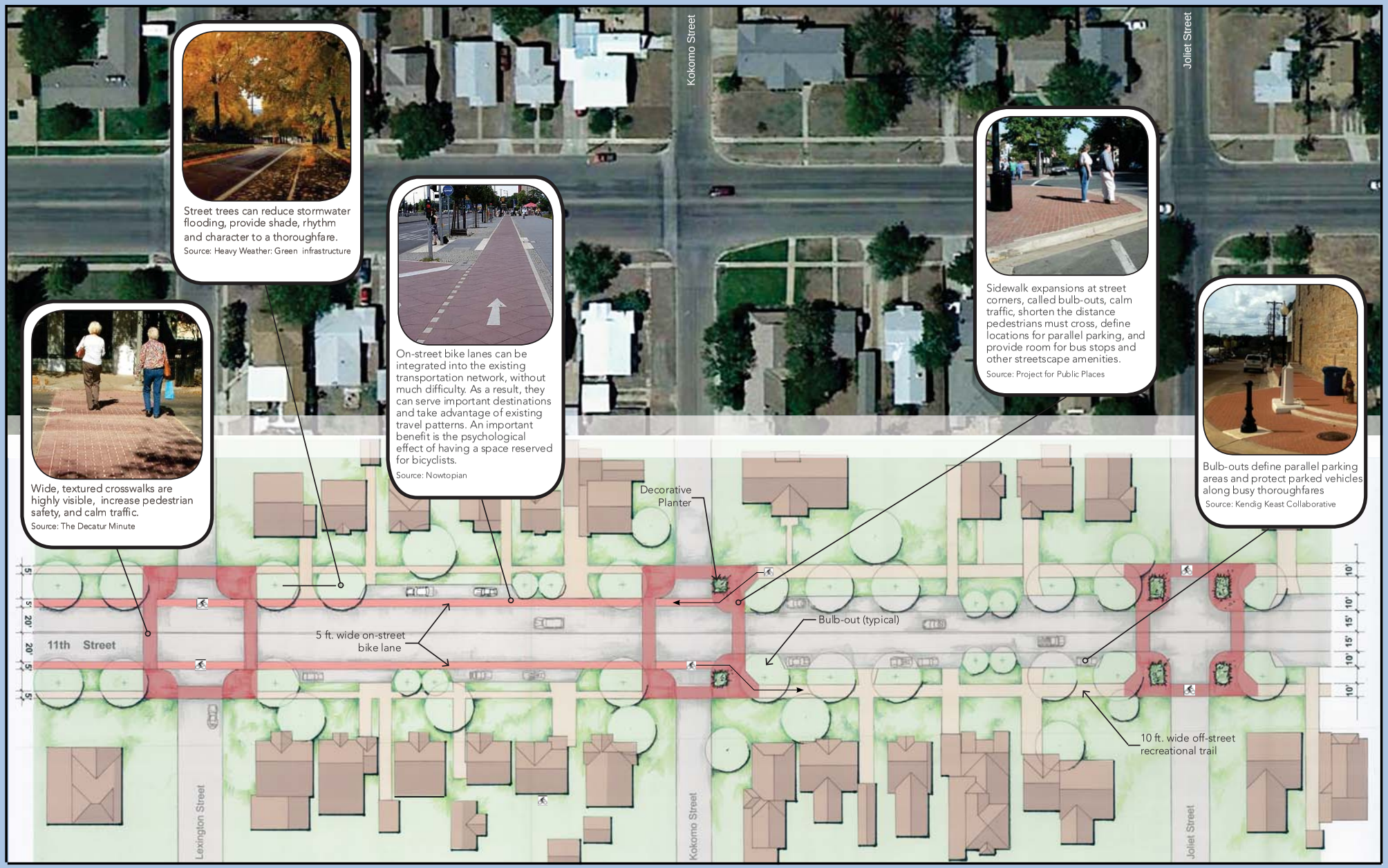
Future changes in transportation technology, cost structure, service demand, and long-term shifts in the economy and urban growth patterns require a farsighted approach to thoroughfare planning decisions.

As depicted in **Map 3.4, *Thoroughfare Plan***, the proposed general conceptual future alignments for new and existing arterial and collector streets are illustrated. The location and alignment of thoroughfares within proposed developments should generally conform to the Thoroughfare Plan, but actual alignments will be determined at the time of development in consideration of topography, logical and orderly development layout and other considerations. Any proposed significant change in thoroughfare alignment should be reviewed to ensure it will not adversely impact the function and connectivity of the street system.

Some elements of the thoroughfare system may require new or wider rights-of-way and depending on need, may be developed as two-lane or multi-lane roadways with various cross sections. Some streets identified as collectors on the plan may not ever be widened due to physical constraints and right-of-way limitations. Instead, the collector designation signifies its traffic-handling role in the overall street system and the importance of maintaining it in good condition.

The plan does not show future local streets because they function to provide access to individual sites and parcels and their future alignments will vary

Figure 3.8, ***Priority Improvement Project: 11th Street - Complete Street***



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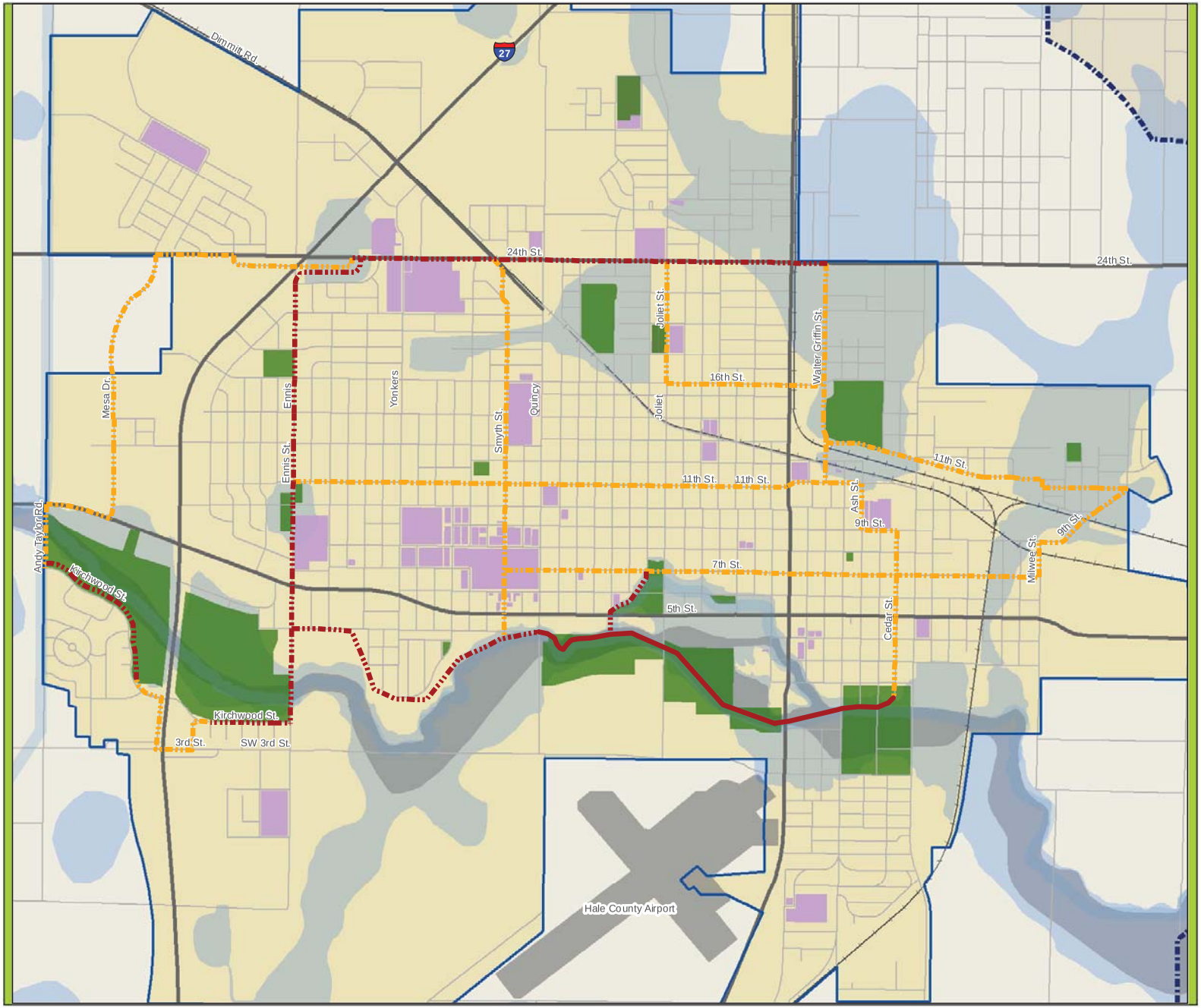

Adopted
05.14.13

Map 3.3
Bicycle Mobility Plan

Legend

- Existing Off-Street Recreational Trail
- Proposed Off-Street Recreational Trail
- Proposed On-Street Bicycle Lane
- ETJ
- Creeks
- Parks
- School Properties
- Airport
- Railroad
- City Limits

0 0.25 0.5 1 Miles

N

Source: City of Plainview

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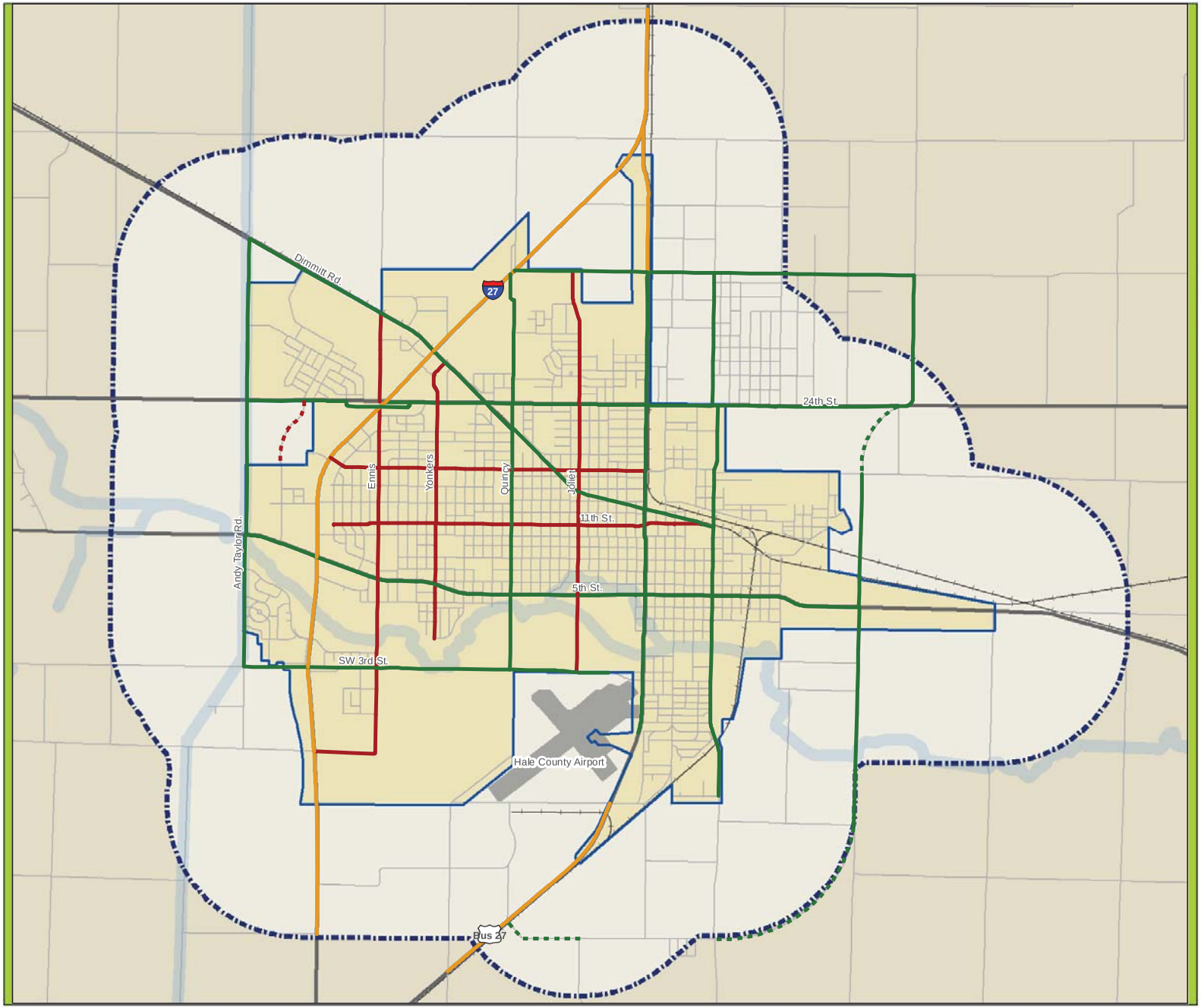

Adopted
05.14.13

Map 3.4
Thoroughfare Plan

Legend

- C1 Collector
- Proposed C1 Collector
- M1 Arterial
- Proposed M1 Arterial
- P1 Expressway
- Airport
- City Limits
- ETJ
- Creeks
- Railroad

0 0.25 0.5 1 1.5
Miles

N

Source: City of Plainview

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depending upon individual land development plans. Local street alignment can be determined by the City in conjunction with landowners as part of the subdivision development process. Likewise, collectors are required with new development, but may not all be reflected on the Thoroughfare Plan since their alignments will depend on the surrounding street system and the particular development concept. They are, nevertheless, vital to an efficient and viable transportation network and must, therefore, not be overlooked during the subdivision development review process.

Key features and policies of the Thoroughfare Plan are as follows:

- General development plans, and preliminary and final plats must be in compliance with the Thoroughfare Plan.
- The general location and alignment of proposed thoroughfares must be in conformance with the Thoroughfare Plan. Any thoroughfare alignment that is inconsistent with the Plan requires the approval of the Planning and Zoning Commission, through a public hearing process. A change includes any proposal that adds or deletes a thoroughfare designation or changes the alignment that would affect adjacent lands.
- Variances from the Thoroughfare Plan should not be approved unless there is substantial evidence through a qualified traffic circulation and impacts study establishing a warrant for such amendment and showing how an alternative alignment or area street plan will provide improved circulation and an equal or improved level of service on all affected roadways.
- Landowners are responsible for the dedication of rights-of-way and may be responsible for constructing sections of roadways located within or adjacent to their property.
- The total width of street rights-of-way must be dedicated at the time of development. The dedication of one-half of the required right-of-way should not be accepted unless the other half already exists or there is a plat on file for the adjacent land.
- To maximize mobility, collector streets must provide access and circulation both within and between neighborhoods. Collectors should connect arterial streets rather than allowing development to have a street system with no points of ingress and egress other than the major entrance.
- Collectors must be situated to connect arterial streets with other collectors and local streets. Their continuity in the roadway system is essential to its function of distributing traffic within the hierarchical system. The fact that a thoroughfare is shown on the Plan does not represent a commitment to a specific time frame for construction or that the City or other governing body will build the roadway improvement.
- Individual thoroughfare improvements may be constructed by a variety of implementing agencies, including the City, Hale County, TxDOT, private developers, and/or inter-governmental agencies.

The Thoroughfare Plan has been informed by Plainview's 1989 Comprehensive Plan, public meetings with Plainview's citizens, funded roadway renovation and new roadway construction projects and planned, future roadway construction projects. Featured thoroughfare improvements include the following:

- Extension and structural improvements to Mesa Drive, to increase its functional classification to a C2 - commercial collector (to include an on-street bike lane);
- Extension of 34th Street (Industrial Blvd.), to connect with U.S. Highway 70 eastbound; including structural improvements to increase its functional classification to a M2 - four-lane, divided minor arterial; and
- Extension of County Road Y southbound to connect U.S. Highway 70 with County Road 120 and on to Business Highway 27; including structural improvements to increase its functional classification to a M2 - four-lane, divided minor arterial.

Although a more in-depth Level of Service (LOS) analysis of Plainview's collector and arterial corridors is recommended, the LOS analysis that was performed for the purposes of this chapter indicate that the functional classifications proposed within the 1989 Comprehensive Plan for Plainview's principal arterials exceed the current and projected traffic volumes resulting from the anticipated modest 3,000+/- population growth to 2030 and beyond. In almost all cases, the Thoroughfare Plan proposes to maintain the current functional classification of principal collectors and arterials, with the following exceptions:

Table 3.2, *Roadway Design Standards*

Thoroughfare Class (Abbrev.)	Thoroughfare Class	Number of Traffic Lanes	Lane Width	Divided / Undivided	ROW Width (face)	Pavement Width (face to face)	Design Speed (m.p.h.)		Minimum Grade (percent)	Maximum Grade (percent)	Stopping Sight Distance (feet)		Min. Centerline Radius for Horizontal Curves with no Super-elevation (feet)		Vertical Clearance	Lateral Clearance	Minimum Length of Crest Vertical Curves (feet)		Minimum Length of Sag Vertical Curves (feet)	
							1	2			1	2	1	2			1	2	1	2
Alleys	Alleys	N/A	N/A	N/A	20-25	10	N/A	N/A	0.5	14%	N/A	N/A	N/A	N/A	15	6	N/A	N/A	N/A	N/A
RES	Local (Residential)	2	12	U	50-60	30	25	20	0.5	10%	150	110	350	230	15	6	20A	15A	20A	20A
C1	Collector (Residential)	2	12	U	60-75	36	30	25	0.5	8%	200	150	440	350	15	6	28A	20A	20A	20A
C2	Collector (Commercial)	2	12	U	60-75	40	30	25	0.5	8%	200	150	440	350	15	6	28A	20A	20A	20A
C3	Collector	4	11	U	65-75	44	35		0.5	7%	250		590		15	6	38A		27A	
M1	Minor Arterial	4	11	U	65-75	44	40		0.5	7%	300		750		15	6	55A		35A	
M2	Minor Arterial	4	12	D	100	24/24	45		0.5	6%	400		940		15	6	69A		44A	
M3	Minor Arterial	6	11	D	100	33/33	45		0.5	6%	400		940		15	6	69A		44A	
P1	Principal Arterial	4	12	D																
P2	Principal Arterial	6	12	D	120	36/36	50		0.5	6%	450		1000		15	6	85A		55A	