

FINANCIAL ASSESSMENT SUMMARY

Water System

In summary, the following conclusions and recommendations can be made for the City's financial viability based on the information reported by the auditor in the City's 2011 CAFR:

1. The City's water utility is self-supporting; however, additional rate increases may be necessary in the future to offset capital expenditures pending CIP and financing decisions.

2. The City's water utility ranks high both qualitatively and quantitatively regarding financial viability based on the following:

 \mathbb{H}^{2} City's operating ratio is > 1.0, which represents sufficient revenue to meet current expenses;

Set City's expense ratio exceeds 0.5 (similar to the other municipalities); and

12 City's revenue per connection exceeds expenses per connection.

3. Continue to prioritize CIP items on a quarterly and annual basis and review impact fee study in conjunction with CIP updates.





Wastewater System

"Don't dig for water under the outhouse."

-Cowboy wisdom

Wastewater System

Existing Wastewater System

Planning for infrastructure improvements for wastewater collection and treatment facilities is important in order to address issues associated with aging infrastructure, service area growth due to new planned developments, and potential water quality degradation from failing collection lines and septic systems.

TREATMENT PLANT

The City's existing wastewater treatment plant was originally constructed in the 1950s and has undergone numerous plant modifications. The current treatment plant design consists of a lift station, bar screen, parallel primary treatment system with an oxidation ditch and carousel basin, three clarifiers, ultraviolet disinfection system, sludge drying beds and discharge facilities.

The City is currently proceeding through the permit renewal process with TCEQ since their wastewater discharge permit expired on May 1, 2009. The effluent limits that are likely to be proposed for the plant's discharge permit will be a 5.0-5.0-1.3-1.0 treatment level, which corresponds to effluent limits of five milligrams per liter (mg/L) of carbonaceous biochemical oxygen demand (CBOD5); 5 mg/L of total suspended solids (TSS); 1.3 mg/L of ammonia nitrogen (NH3-N); and 1.0 mg/L of total phosphorus (TP); the City is limited to a maximum daily flow of 1.42 MGD and a maximum 2-hour peak flow of 2,958 GPM. Based on staff feedback, the City is currently using approximately 66 percent of the treatment plant design capacity.

Although the City's wastewater permit has included ammonia nitrogen on the list of permitted discharge parameters in the past, discharge limitations of total phosphorus are currently being proposed by TCEQ for inclusion in the City's permit renewal. Based on draft nutrient guidelines developed by TCEQ, the existing and any new wastewater treatment plants will have a total phosphorus (TP) effluent limit of either 0.5 mg/L or 1.0 mg/L, depending on the size of the treatment facility. Typical effluent limits for total phosphorus (TP), as a daily average concentration, generally fall into the following ranges:

- Free Permitted flow < 0.5 MGD: TP = 1.0 mg/L
- Permitted flow ranging between 0.5 3.0
 MGD: TP ranges between 0.5 1.0 mg/L
- \Rightarrow Permitted flow > 3.0 MGD: TP = 0.5 mg/L

TCEQ has proposed a screening model for TP to be used to assess the impact of wastewater on the main pool of large reservoirs, rivers and creeks. According to the draft nutrient guidelines from TCEQ, existing plants will likely have total phosphorus limits included in their new discharge permits. As a result, the City will need to modify the treatment process at their existing wastewater treatment plant in order to satisfy stringent discharge limitations for total phosphorus.

Treatment plants with capacities less than 1.0 MGD and with total phosphorus effluent limits of less than 2.0 mg/L would include the following processes: preliminary screening, activated sludge with nitrification, chemical addition to precipitate phosphorus, tertiary filters, disinfection using chlorine, de-chlorination, a sludge holding basin,

and sludge drying beds. These plants would be capable of meeting the following effluent limit combinations: 5-5-1.9-1.0, 5-5-1.5-1.0 and 5-5-1.0-0.5. To obtain the lower effluent limits for CBOD and ammonia nitrogen, longer sludge retention times (SRTs) would be incorporated in the design, thus increasing the cost of aeration basins. The tertiary filters would ensure that the TSS limit of 5 mg/L would not be exceeded and the filters would also assist in the removal of CBOD and phosphorus that might be associated with any carry-over flocculant from the clarifier. For phosphorus removal, chemical addition is assumed for small plants since biological nutrient removal (BNR) systems are more difficult to operate and smaller plants typically do not have the personnel to attend to these plants.



Wastewater System

Treatment plants with capacities equal to or greater than 1.0 MGD and with total phosphorus effluent limits of less than 2.0 mg/L would include the following processes: preliminary screening, grit removal, activated sludge with BNR, tertiary filters, disinfection using chlorine, de-chlorination, aerobic digesters and a belt press for sludge dewatering. Estimated costs also include a back-up chemical addition system for phosphorus precipitation when the BNR system fails to reach the required effluent limit.

The assumptions related to phosphorus removal are based on total phosphorus levels of about 7 to 9 mg/L in the influent wastewater, removal rates of about 2 mg/L for conventional activated sludge, and removals down to about 1 mg/L for the BNR process. As noted above, chemical addition can be used in lieu of BNR in small plants and should be incorporated into the design as a backup to BNR when the total phosphorus effluent limit is greater than 1.0 mg/L. For limits below 1.0 mg/L, chemical addition is recommended in addition to BNR due to the problem of consistently removing total phosphorus to levels of 1.0 mg/L and lower.

COLLECTION SYSTEM

The collection system lines, ranging in size from 6-inch to 30-inches in diameter, are primarily comprised of vitrified clay and concrete pipe material; these pipelines have been in service for over 30 years. Staff has verified that sections of the pipe material in various parts of the collection system have deteriorated and require necessary rehabilitation and/or replacement. The City purchased video inspection equipment (i.e. closed circuit robotically controlled television camera) a few years ago in order to televise and record the interior condition of the collection lines.

Based on the CEC 2008 Water & Wastewater Master Plan, the collection system was divided into three sewersheds (East, Regional and Atascosa Sewershed) in order to evaluate the capacity of each. The results of the evaluation showed that the City's collection system has experienced considerable infiltration and inflow (I&I) conditions, especially during heavy rain events. In addition, the City previously reported a number of sanitary sewer overflows to TCEQ due to the size (pipeline diameter), condition of the collection system, I/I, grease and sand. As a result, the City voluntarily participated in TCEQ's Sanitary Sewer Overflow (SSO) Initiative Program in 2009; a number of problematic areas of the system were highlighted in the City's SSO Plan.

Projects identified in the City's SSO Plan that still require a video inspection and upgrade include the collection lines located on Oakhaven and Oaklawn Roads. The City has already completed or is scheduled to complete the following collection system projects by next year:

- 🔁 Airport Road
- 🗄 Atascosa River Project (Phase 2)
- 🖻 Atascosa River Project (Phase 3)
- 🖙 East Side
- 🖻 Sanchez Street
- 🗄 Sutton Street

LIFT STATIONS

The City's wastewater currently includes four lift stations (Dowdy, Goodwin East, Industrial Park, and FM 476). Based on the evaluation of these lift stations provided in the CEC 2008 Water & Wastewater Master Plan, the City is in the process of decommissioning the FM 476 Lift Station and extending the gravity collection system. The Goodwin West lift station has been recently decommissioned. The City also plans to install backup generators at the other two remaining lift stations.

The Dowdy Lift Station is located north of the intersection of First Street and US Highway 281; this lift station serves approximately 12 houses situated on large size lots within a small sewershed northeast of US Highway 281. This lift station has not been experiencing any maintenance issues recently. The Industrial Park Lift Station is located on the south side of Pleasanton near the intersection of Industrial Boulevard and US

EFFLUENT REUSE

As the City's population continues to grow, additional water sources should be considered to diversify the City's water supply portfolio. The City should evaluate the possibility of using treated wastewater effluent for irrigation needs. The City should also consider partnership opportunities to implement a city-wide wastewater reuse program to provide treated effluent to future golf courses, ball fields, open park spaces, etc. to reduce the demand on groundwater supplies. These potential reuse sites need to be large enough to justify the installation of a reuse system and located relatively close to an existing wastewater treatment plant.

It is important to note that implementing a reuse system generally requires additional capital upfront from a developer and/or the City to install a 'purple pipe' reuse distribution system. Texas Water Development Board offers funding assistance for constructing these types of environmentally 'green' projects.

Highway 281; this lift station serves the commercial tenants within the Industrial Park. The Goodwin East Lift Station is located near the intersection of Oakhaven Road and Old Pearsall Road; this lift station will have sufficient capacity and cycle time to remain in operation after the Goodwin West Lift Station is decommissioned.



Wastewater System

Identified CIP Projects

Although a number of projects identified in the CEC 2008 Water & Wastewater Master Plan have been completed, including the sanitary sewer improvements on Sutton Street, Sanchez Street and East Side, further CIP projects have been identified by staff:

CONDUCT A SYSTEMATIC EVALUATION OF THE COLLECTION SYSTEM using the video inspection equipment purchased by the City to televise and record the interior condition of the collection lines. The evaluation should focus on problematic areas of the system, as well as areas highlighted in the City's 2009 Sanitary Sewer Overflow (SSO) Plan. The City should also conduct a smoke test to detect the source of infiltration and inflow (I/I) conditions.

2 CONTINUE TO REPLACE VITRI-FIED CLAY AND OUT-DATED CONCRETE PIPELINES IN THE COLLECTION SYS- TEM by using either the pipe bursting technology or inserting new liners to address deteriorating pipeline materials, as well as infiltration and inflow (I/I) conditions. Projects identified in the CEC 2008 Water & Wastewater Master Plan that still require a video inspection and upgrade include the collection lines located on Oakhaven and Oaklawn Roads. By addressing the I/I conditions, the expansion of existing wastewater facilities to convey and treat larger volumes of flow can be postponed.

3 CONDUCT A 'RE-RATING' THE CITY'S TREAT-MENT PLANT CA-PACITY in their TCEQ discharge permit following the completion of the I/I program. TCEQ requires the City to initiate planning for a treatment plant expansion when the average annual flow reaches 75 percent of the treatment plant's permitted capacity; construction activities must be initiated when the plant reaches 90 percent of its permitted capacity.

4 COMPLETE THE ATASCO-SA RIVER PROJECT (PHASE 2) identified in the CEC 2008 Water & Wastewater Master Plan in order to complete the extension of the collection line and to decommission the FM 476 Lift Station; this lift station has been problematic due to limited system capacity and equipment failures.

EVALUATE THE POSSIBILITY OF **CONSTRUCTING A** NEW WASTEWATER TREATMENT PLANT (multi-phased project; 0.4 MGD initial phase), lift station and collection lines to serve new developments located along the SH-97 east corridor, as well as areas located downstream of the existing wastewater treatment plant; the proposed new plant would discharge into Galvan Creek. The boundary of this new treatment plant would be limited to the area west of Interstate 37, the edge of the City of McCoy's Wastewater CCN.



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6 ADDRESS TREAT-MENT MODI-FICATIONS OF THE CITY'S EXIST-ING WASTEWATER TREATMENT PLANT in order to satisfy stringent discharge limitations for total phosphorus. The City is currently proceeding through the permit renewal process with TCEQ. The effluent limits that are likely to be proposed for the

plant's discharge permit will be a 5.0-5.0-1.3-1.0 treatment level, which corresponds to effluent limits of five milligrams per liter (mg/L) of carbonaceous biochemical oxygen demand (CBOD5); 5 mg/L of total suspended solids (TSS); 1.3 mg/L of ammonia nitrogen (NH3-N); and 1.0 mg/L of total phosphorus (TP). After addressing the I/I issues with the collection system, INITIATE PLAN-NING ACTIVITIES TO DETERMINE THE IMPLEMENTA-TION SCHEDULE AND AMOUNT OF CAPACITY NEEDED FOR EXPAND-ING THE EXIST-ING TREATMENT PLANT.

O SEVEN CIP PROJECTS HAVE BEEN IDENTIFIED and documented on initial data summary sheets in Appendix D based on input from City staff. Note that the cost estimates listed in these summary sheets are conservative estimates for planning purposes only. These projects should be included in the scoring and ranking process of developing the final CIP.





Wastewater System

Additional Recommendations

Apply for a Certificate of Convenience and Necessity (CCN) for the City's existing wastewater service area in order to secure the City's existing customer base for repayment of debt service

and protect wastewater infrastructure assets. The City should expand their CCN boundary to align with the City's ETJ and annexation plans if the proposed area is not already served by another CCN holder. As a result, the City will be able to expand their customer base and receive additional revenue.

2 Develop and implement an asset management plan that considers risks and alternatives as a basis for developing a strategic CIP and budget. This plan should be used to make informed decisions regarding maintenance, repair, and replacement of fa-

THERE ARE NO CERTIFICATED SEWER AREAS DIRECTLY SURROUNDING PLEASANTON



cilities. It should also be used to prioritize upgrades and additions to the system, considering multiple alternatives to select functional and costeffective options. **3** Complete and maintain an infrastructure inventory and system map for use in developing an asset management plan. Also, develop and implement a work order system to allow City staff

to properly track operations and maintenance.

4 Continue to encourage developer participation, which typically occurs through two means: upfront capital contributions or payment of impact fees for a water/ wastewater infrastructure project. The City can negotiate with a developer and require them to completely finance the entire cost of an infrastructure proj-



Wastewater System

ect and then dedicate it to the City to own and operate on their behalf upon completion.

The City can also require a developer to pledge capital towards an infrastructure project through an upfront cash payment or a letter of credit for the utility to drawdown on if needed to reduce the level of risk on the project; developers can also contribute toward the cost of new water/wastewater infrastructure through the payment of impact fees in order to prevent the existing utility rate payers from subsidizing the cost of new infrastructure serving new utility customers.

5 Consider partnership opportunities to implement a city-wide wastewater reuse program to provide treated effluent to future golf courses, ball fields, open park spaces, etc. to reduce the demand on groundwater supplies; funding is offered through the Texas Water Development Board for constructing these types of 'green' projects.







Background

Drainage

Proper drainage is a critical component of a healthy city. During routine rain events, positive drainage ensures that little water is left standing, which can be a source of unsanitary conditions. During flood events, storm water can damage property and take lives. Therefore, an understanding of the likely behavior of the waterways of the city is imperative to safeguarding public health.

LOCALIZED VS. RIVERINE FLOOD RISK

Engineers and floodplain managers typically divide the response to strong rain events in one of two ways. Localized flooding is also often described as nuisance flooding, and is characterized by areas of poor positive drainage that are not able to direct storm runoff away from inhabited structures and accessory structures. By contrast, out-of-bank, or riverine flooding occurs when larger waterways "back up", coming out of the normal banks of the waterway to inundate surrounding areas. Localized, nuisance flooding typically involves smaller areas while riverine flooding can affect hundreds of acres at a time. Localized flooding occurs more frequently than riverine flooding.

The capital improvement response to these threats is also markedly different in scale. Small collection system design or street improvements, small diversion dikes, leveling, re-routing of building runoff, and often simply the maintenance of driveway culverts can usually alleviate nuisance flooding problems. Riverine flooding problems require a comprehensive look at a much larger area, an upstream watershed that is usually more than 600 acres. Solutions may be structural, such as channelization or detention, or non-structural, such as heightened drainage criteria and other regulatory controls.



FLOOD SOURCES

The City of Pleasanton experiences flooding from two main sources, the Atascosa River and Bonita Creek. According to the Flood Insurance Study, the Atascosa River has "narrow, shallow and fairly straight low water channel...[of] small capacity, and most of the flood flow is carried in the overbanks". Thus, a fairly broad floodplain can be anticipated.

Pleasanton is situated in the Gulf Coastal Plain and is subject to hurricane-strength winds and rainfall intensities. Hurricane Beulah caused the most significant damage on record for the city in September 1967. Tropical intensity rainfall is not uncommon in south central Texas, as occurred in June/ July of 2002. Major flash flooding occurred as recently as 2007.







THE FLOOD INSURANCE STUDY

In order to properly determine the risk of flooding, the Flood Insurance Study (FIS) should be evaluated and more detail developed through engineering study. Many reaches of the current FIS (dated November 4, 2010) have been studied at an "approximate" level by FEMA - not a detail level that would provide base flood elevation information to guide development with some accuracy around the risk present. For example, Galvan Creek, which will be critical to the future growth corridor of SH 97 east is identified with only approximate study.

An example of a detail study reach is below. There are significant limits to this information, however, considering that the detail hydraulic cross section information dates back to 1978. It is highly likely that this cross section geometry is out of date, as each channel-forming event that has occurred in the last 35 years has resulted in scour and deposition along the stream corridor. In addition, new bridge and culvert data, such as from TxDoT's work on SH 97 and US 281, has likely changed these conveyance structures – and an accurate model should reflect those conduits.

There have been some major drainage public works undertaken to-date on the Atascosa River and Bonita Creek. For example, a non-certified unmappable earthen levee has been built along the left bank of Bonita Creek. The Missouri-Pacific railroad branch line embankment acts as a levee to the Atascosa River and keeps the northeast part of the City from flooding. The FIS notes, however, that this levee is not certified or mappable.

IMPACT OF DEVELOPMENT

New development changes the runoff pattern of a site, and this can have an impact to adjacent sites – both downstream and upstream. The introduction of impervious surfaces, such as concrete, asphalt, and rooftops changes the rate of runoff, and also reduces the amount of surface infiltration that can occur. This can result in increases in runoff downstream, and if an impoundment is created, an increase in water surfaces upstream. Studying these potential impacts should be done on a comprehensive watershed basis, since each watershed functions as a system.

The consultant team recommends the following:

Continue participation in the National Flood Insurance Program, and actively discourage the placement of fill and structures within the regulatory floodplain.

Request funding under the Texas Water Development Board's Flood Protection Planning Program, which can offer 50% grant funding to study the comprehensive flood risk to the community. This information often provides better detail about the risk, and is intended to help the community study project alternatives – both structural (capital) and nonstructural (regulatory).

Incorporate solutions to localized drainage problems into local street improvement reconstruction projects.



Thoroughfare

Introduction

Thoroughfare

lthough located approximately 30 miles from central San Antonio, Pleasanton has still maintained its relatively rural, small town nature, even when considering its location in the eight-county, San Antonio-New Braunfels metropolitan statistical area (MSA) and that a large portion of its residents commute daily to work in San Antonio. Pleasanton and the rest of Atascosa County, for the most part, have been immune to the fastpaced, suburban-type growth as compared to a few other counties in the MSA. Nonetheless, new energy development in the Eagle Ford Shale region of South Texas, which includes such counties as Atascosa, has spurred an economic boom in the past few years, resulting in a doubling of crude oil production in Texas from 2009 to 2012. The local. South Texas counties have benefitted in thousands of added jobs to support extraction efforts, thus leading to recent growth in population and increased traffic volumes, among other things.

Like many communities experiencing growth, the availability and accessibility of quality infrastructure to support new development are significant issues. In terms of transportation infrastructure in Pleasanton, these significant issues mostly translate to the continued ability of existing roadways, as well as the availability of new roadways, to support increased traffic volumes. This is especially in light of recent, increased heavy truck traffic that puts more wear and tear on the roadways. To address these prominent concerns, this chapter serves as Pleasanton's Thoroughfare Plan to identify policy frameworks and major strategies for building the roadway network to meet 2025 scenario needs.

HIGHLIGHTS

The Thoroughfare Plan serves to work together with the Future Land Use Plan and the overall Master Plan to guide future policy, program, and project decisions necessary to sustain Pleasanton through 2025. The sections that follow highlight the following:

- He A context for transportation planning in Texas
- ▶ Public input to-date regarding transportation in Pleasanton
- Evaluating the existing transportation system, featuring an overview of the functional classification system and available transportation data
- E Current and future strategies overview to address key aspects

identified from public input and quantitative data

- Thoroughfare Plan, including tools to guide future roadway improvements through the subdivision ordinance and platting process.
- Implementation and funding of the Thoroughfare Plan
- Recommendations for strategic goals, policies, and actions

TxDOT and Transportation Planning in Texas

The Texas Department of Transportation (TxDOT) is the main conduit for transportation data and planning resources for many local governments in the State of Texas, and this is also true for Pleasanton. In contrast, communities in more urbanized areas, such as the Houston, Dallas/Fort Worth, San Antonio, Austin, and El Paso vicinities, have metropolitan transportation planning organizations (MPOs),

which are federallymandated and federally-funded transportation policy-making organizations, made up of local government representatives. MPOs

are required for any urbanized area with a population greater than 50,000, and serve to channel funding for transportation projects and programs through the continuing, cooperative, and comprehensive transportation planning process,

which MPOs serve. Texas currently has approximately 23 MPOs.

Like metropolitan transportation planning processes, federal law, as contained in 23 U.S.C. §§ 134–135, prescribes processes for statewide transportation plan-

ning. In Texas, statewide transportation planning, construction, and maintenance of state roadways are coordinated by TxDOT. The 25 TxDOT district offices (see map below) oversee various planning, programs, and projects for their respective areas. As



seen in the map below, the Pleasanton area and Atascosa County, as a whole, are under the purview of the TxDOT San Antonio District.

Thoroughfare

To facilitate efforts to reach a consensus on statewide, transportation needs, the Statewide Long-Range Transportation Plan (SLRTP) 2035 serves as Texas' 24-year guide for the planning process. In particular, the rural component of the SLRTP is contained within the Texas Rural Transportation Plan (TRTP). The TRTP serves as a blueprint for the planning process in the rural areas to guide the collaborative efforts between all transportation stakeholders to reach a consensus on needed transportation projects and services through 2035. For the purposes of the TRTP, the term "rural" is defined as any area outside of MPO boundaries. Although Pleasanton is in proximity to San Antonio,

it is not part of the San-Antonio-Bexar County MPO, and thus is defined as "rural" for transportation planning and coordination purposes. Contents of the TRTP and projects identified relevant to the Pleasanton area will be highlighted later in this chapter.



Public Input to Date

During the community engagement process, various stakeholders expressed several concerns regarding transportation near and around Pleasanton, including the need for a thoroughfare plan in general, some means of alleviating congestion, and adequate sidewalk infrastructure. This input is important in determining and prioritizing the best approach for transportation improvements in Pleasanton.

Several community members expressed the need to have a future thoroughfare plan produced in tandem with a future land use plan in order to direct future growth and transportation infrastructure appropriately. Simply put by one participant at a community workshop, avoiding the "cart before the horse" scenario is important in planning a well-designed community. The benefits of a future thoroughfare plan are discussed throughout this chapter.

Another theme that was consistently mentioned was regarding Pleasanton not being a "walkable

city". Numerous citizens attested to Pleasanton either possessing sidewalks in poor condition or generally not having enough sidewalks conducive to walking. Moreover, some citizens noted that Pleasanton did not contain an appropriate mixture of land uses in certain parts of the community, especially clusters of neighborhood conveniences, which would enable residents to walk as an alternative to driving. This all combined, they emphasized, impacts the community negatively in terms of its public health and options for transportation alternatives. As one Planning and Zoning Commissioner commented, providing for adequate sidewalk infrastructure may be "expensive on the front end, but the value for the community in gaining them would be huge."

By far, the most significant concerns expressed have been in relation to the overall, increased traffic volumes, and especially, the increased commercial vehicular traffic, resulting from energy development in the Eagle Ford

Shale region. While the economic development and growth potential are positive aspects of the energy activity, increased traffic volumes and heavy truck traffic and their impacts on a community, such as increased congestion, noise, air pollution, roadway maintenance, and safety issues, are particular concerns challenging any community's quality of life. To mitigate these impacts, community input has underscored the necessity of implementing a rural-region truck route to the south of Pleasanton, connecting SH 97 from the west to IH 37 to the east, thereby providing a viable alternative for heavy truck traffic and other energy development-related traffic to bypass Pleasanton. The San Antonio District of the Texas Department of Transportation (TxDOT) commissioned the Texas A&M Transportation Institute (TTI) to study the potential of this rural-region truck route. Data and conclusions from this report are summarized in later sections of this chapter.

Thoroughfare

Evaluating the Transportation System

The availability and quality of transportation networks and infrastructure have a symbiotic relationship with growing areas and various land uses. The purpose of such networks is to provide accessibility to different types and intensities of land uses. It is very much a supply and demand relationship, whereby the demand for land for development and growth is dependent upon, among other things, the supply and type of transportation available. At the same time, the transportation system must also function to provide effective and efficient mobility to the traveling public and transport of goods. Roadways, in particular, are a key infrastructure

in Pleasanton serving the purposes above, and thus, the primary focus of this chapter. Evaluating the body of existing information, which reflects current travel patterns and the functioning of the roadway system, together with community input, is crucial in planning for a balanced, transportation improvements approach. The sections below review Pleasanton's current roadway



The distinction between major and minor in describing certain arterials and collectors is made as a function of volume.

functional classification, data collection efforts, and a few roadway system metrics available from the TTI study mentioned previously.

FUNCTIONAL CLASSIFICATION

When considering and planning for a transportation network, roadway facilities and infrastructure have generally been allocated and placed according to a hierarchical structure of freeways, major and minor arterials, collectors, and local roadways, which serve separate, important functions in the overall system. Functional classification, as exhibited in the graph at left,

is the process by which roadways are grouped into categories according to two important variables: mobility and access.

Freeways, at one end of the spectrum as depicted at left, are accesscontrolled facilities that provide the principal means of travel through a region (or mobility), with ideally uninterrupted service. From there, arterials, typically subdivided into major and minor arterials, also serve a primary function of moving traffic, but within more locallydefined parts of a region and are especially important for accessing various destinations and land uses at a local scale.

Continuing in this same pattern, collectors act as the next immediate relief facilities to distribute traffic and provide access to local roadways within a community. The distinction between major and minor in describing certain arterials and collectors is made as a function of volume. At the other end of the spectrum from freeways, local roadways provide the most immediate access to adjacent property in the community.

The table, p.100, provides additional details regarding the functional classification of a roadway network and classifies existing roadways within Pleasanton for additional context.

DATA COLLECTION EFFORTS

TxDOT serves as the main resource for transportation data and planning for Texas, and particularly for more rural areas, such as Pleasanton. As such. TxDOT has maintained a strong commitment to data collection efforts to support its travel demand modeling and forecasting program, and hence, its understanding of how Texas' roadway network operates holistically now and in the future. In particular, thousands of traffic counts are collected annually in every TxDOT District and on a five-year cycle for each urbanized area in the state. Additionally, comprehensive and thorough travel surveys are conducted on a ten-year cycle for all of the urban areas in the state, which coincide with the five-year urban area count collection program.

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TxDOT's count collection program includes two, separate programs that monitor continuous operations and short-term traffic. Continuous operations monitoring is provided through the use of permanent, automatic traffic recorders (ATRs), which collect traffic data for each hour of the day and for each day of the year at 162 locations throughout Texas. Short-term traffic monitoring is provided by

counts at approximately 75,000 to 95,000 locations throughout the state on both on-system (TxDOT maintained) and off-system facilities on an annual basis, depending on the count collection cycle for each TxDOT District.

Other data which sheds light into the functioning of the existing roadway network and the efficiency of intersections include known high-crash locations. TxDOT maintains

crash data through its Crash Records Information System (CRIS), which is collected from the crash information submitted by various law enforcement agencies across the state on form CR-3, Texas Peace Officer's Crash Report. TxDOT publishes annual summary reports of various data collected from reportable motor vehicle traffic crashes online as the Texas Motor Vehicle Crash Statistics,

which is available by August each year for the previous year's data. Requests for locationspecific data can be submitted through an online request form. As such, it is recommended that Pleasanton, as resources provide, pursue crash records from TxDOT and conduct a crash analysis of high-crash locations overtime to understand safety needs that should be addressed through roadway improvements.

FUNCTIONAL CLASSIFICATION	ROADWAY CHARACTERISTICS	EXISTING PLEASANTON EXAMPLES
Freeway	High speed, divided highway with full control of access and grade separated interchanges Moving inter- and intra regional traffic and providing access Providing mobility across metropolitan areas and between major activity centers (2 or more miles) Interstates especially serve longer trips in high traffic volume corridor	IH 37
Major Arteriał	Typically divided street with major access points at intersections with the surface street system Some direct access permitted to abutting land uses Primary function to serve major centers of activity. Service to adjacent land uses are secondary to mobility service.	US 281, SH 97, FM 3350, FM 3006, FM 476
Minor Arterial	Number of lanes and type of median directly relate to traffic volumes and adjacent land use Augments and feeds major arterial system and distributes traffic to geographic areas smaller than those served by the higher system, with more emphasis on service to adjacent land uses	SS 242, SS 199, FM 1334, FM 3510
Collector	High access to local streets and driveways Connect local streets to the arterial system. Typically used for trips that are near their origin or destination point, primarily connecting neighborhoods within and among communities	N. Main St., Adams St., E. Hunt St , Pulliam Dr, Oakhaven Rd.
Local	High access to driveways Provides direct access to adjacent property	Clover Ridge, Virginia St., Jodi Ln., Dallas St.



DATA HIGH-LIGHTED FROM THE TTI REPORT

As mentioned earlier, the TxDOT San Antonio District contracted with TTI to conduct an evaluation of the potential for a rural-region truck route around Pleasanton and Jourdanton, Texas. Among other things, the TTI study also provided data, which included an overview of 24-hour

traffic counts performed in the area, peak hour turning movement counts (TMCs) during peak hours at two major intersections, Tx-DOT Automatic Traffic Recorder (ATR) station data, and average, annual daily traffic volumes (AADT) recorded from in the area overtime to give insight on traffic volume trends. Besides being useful to study the potential for a truck route bypass, some of this data is also useful to review in this thoroughfare chapter for overall, transportation planning purposes.

ACCESS FUNCTION



MOVEMENT FUNCTION

Recent, 24-hour traffic counts were conducted of the Pleasanton/Jourdanton area, as reported in the TTI study. The counts also included classification information to derive percentages of the overall traffic volumes that contained the largest trucks with three or more axles and all trucks larger than pickup trucks at each count location. These count locations and associated data are presented in the figure below. As shown, the count location with the heaviest truck traffic and highest traffic volumes overall is found along SH

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97 between Pleasanton and Jourdanton. This is followed in second by the count location east of Pleasanton, also along SH 97. From these data, new thoroughfares and future transportation improvements could conceivably help to redistribute traffic to other areas in order to take congestion away from other major roadways, such as SH 97.

The TTI study also provides some insight on traffic volumes and traffic composition over time, as recorded by ATR station data, which the study notes as being the most consistent source for these types of data. According to the study, the closest ATR station to the Pleasanton and Jourdanton area is located along SH 16 near Tilden, Texas, about 30 miles south of Jourdanton. From data collected at this station from 2004 to 2010, the TTI study team was

Highest traffic volumes overall is found along SH 97 between Pleasanton and Jourdanton.

able to ascertain that overall traffic volumes were generally increasing from 2004 to 2007, but was followed by a decline in 2008, most likely as a result of the economic recession. In contrast, traffic volumes from 2009 and 2010 showed volumes increasing again towards 2009 and then increasing sharply in 2010, with gains of 50 percent or more as compared with previous years. The study reasons that the later volume increases are a result of energy development activity in the area. In addition, the study also found at this ATR station that, while the proportion of standard sized vehicles has slightly declined, the proportions of pickup trucks and larger trucks

have increased, with five-axle trucks (typically called "tractor-trailers," "semi-trailers," or "18 wheelers") making up the largest percentage of the increase in large truck volume.

To provide additional insight on traffic growth directly attributed to the immediate area around Pleasanton and Jourdanton, the TTI study also evaluated data from TxDOT annual traffic maps from 2004 to 2010. The figure below, adapted from the TTI study, highlights this information at several locations in the study area. As indicated by the TTI study, overall traffic volumes peaked around 2007 but declined in 2008 and 2009, followed by some volume recovery in 2010. This decline, again, is assumed to be attributed to the US economic recession. However, the volume recovery was not as prominent as data collected from the ATR station near Tilden, and therefore, not what the TTI study had expected. The TTI study reasoned that perhaps "energy development impacts in Pleasanton and Jourdanton are shifted in time (perhaps by a year or two later) relative to sites to the south near Tilden." Moreover, the recent, 24-hour count data would indicate that AADT volumes will be increasing for the Pleasanton and Jourdanton area, when official 2011 and 2012 traffic volumes are released.



Source: TTI report on "Truck Route Considerations for Pleasanton and Jourdanton"

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Strategy and Best Practices Overview

To manage the future growth of the transportation network, the City will need to employ both capacity and non-capacity enhancements in a coordinated manner. The term "capacity enhancements" refers, as the name implies, to building more capacity – more physical ability for the system to move travelers. Non-capacity enhancements are a set of other best practices which can work in other ways to address congestion. It should be noted that capacity improvements are limited, in: funding, available land or avoiding conflict with adjacent uses, and timing of the improvements to meet demand (especially if the community's growth has already outpaced its previous transportation planning efforts). Non-capacity improvements include such practices as signalization timing, demand management, routine maintenance and repair.

LAND USE AND URBAN DESIGN CONSIDERATIONS

Transportation and land use work in a symbiotic, integrated manner. How a city is planned in terms of the types of land uses has a direct effect on how the transportation system is developed. This is also true for how the transportation system is planned and how it can affect future land use. For example, new or improved transportation infrastructure, combined with other services, enables a community to extend into new areas of development. Thus, promoting smart and integrated land use and transportation development planning policies is vital for the overall health of a region. A few best practices in integrating land use and urban design considerations with transportation systems include the following:

Connected street pattern – A road system best serves the transportation needs of a region in a hierarchical (e.g. freeways, arterials, collectors, and local roads, as discussed previously), well-connected grid-like street pattern, which acts to more evenly distribute traffic volumes over multiple roadways. The grid system provides redundancy, which can more easily respond to interruptions or problems. Further, it offers more direct travel options and connectivity for vehicles as well as bicyclists and pedestrians. Finally, a street pattern and land use arrangement that works from a connected or grid-system is more costeffective to maintain over the long term, than an isolated street pattern. An ideal street network would consist of complete blocks and road segments; many of the older sections of the city have this foundational structure.

Complete Streets – This concept seeks to convert roadways from auto-centric thoroughfares into people or community-oriented streets that accommodate the safe and efficient movement of all transportation users. The complete street principle offers a "complete" roadway



- for all transportation modes and includes design enhancements such as medians, street trees, and bike lanes set in an attractive, urban scale environment.
- Context Sensitive Solutions Context sensitive solutions are concerned with involving all stakeholders and design professionals in a collaborative way to develop a transportation facility that not only provides for

the safe and efficient mobility for transportation users, but also blends into its physical and cultural context and preserves historic, natural, and other existing environmental resources. This type of approach focuses on considering the total context and community setting of each transportation improvement project (rather it be rural or urban and/or in a residential, commercial, or mixed-use setting, etc.).

 Corridor Preservation –
 Corridor preservation can be achieved in a community by identifying existing and future transportation corridors in a thoroughfare plan (discussed further in this chapter). This is necessary in order to preserve future right-of-way and ensure a continuing and connected roadway system for future use.

Development of the Thoroughfare Map

The Thoroughfare Map serves as a guide to strategically direct vehicular traffic to key roadways and specialized routes (e.g. truck route bypass) according to their function. This, in turn, benefits Pleasanton by focusing land development, growth, and revitalization efforts (e.g. the historic downtown) appropriately to sustain a rural, small town feel, while providing the mobility needs of regional and local traffic.

The sophistication of this roadway delineation and hierarchy is appropriate for Pleasanton's size. Larger communities and metropolitan areas typically possess more detailed future thoroughfare maps, developed from larger datasets and typically involving a detailed travel demand model.

The existing roadway network was classified based on TxDOT roadway network data downloaded from TNRIS (Texas Natural Resources Information System) online in the form of a GIS (Geographic Information System) shapefile, as well as roadway network data from the Census Bureau's MAF/TIGER (Master Address File/Topologically Integrated Geographic Encoding and Referencing) database, also provided as a GIS shapefile. These data provided a basic understanding of the existing roadway network. Professional judgment was used to assign a basic hierarchy of freeways, major arterials, minor arterials, and major collectors according to the broad definitions on functional classifications, as appropriate to the context of Pleasanton.

From there, the future classification of roadways was assigned, in coordination with the development of the Future Land Use Plan. Thoroughfare



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These roadways are shown on Appendix C. In particular, the "major arterial - rural" classification proposes roadways, which will act as major arterials, but be designed to preserve rural character by incorporating traditional fencing, native landscaping, and employing wide parkways (the area behind the curb) and medians. All other proposed roadways are classified as "major collectors" to connect the higher, functionallyclassified roadways

(e.g. freeway, major arterial, minor arterials) with the local roadways. The following points also pertain to the proposed classification of roadways:

- to "Major collectors" are assumed to include " collectors" that serve higher functions of mobility as opposed to "minor" ones.
- * "Minor collectors" are reserved for future uses as Pleasanton grows, and with the understanding that these should be assigned in the future.
- "Local" roadways are determined during the
 subdivision process and are not typically shown on the Thoroughfare Map.
 - ⁴ This map showcases the approximate location and alignment of future roadways; it is intended to serve as a conceptual depiction of future roadway needs.
- Environmentally-sensitive areas (e.g. floodplains) and existing development were avoided to the extent possible.



LOCAL AND COLLECTOR STREETS

While TxDoT and the FHWA are responsible for the maintenance of the Farm-to-Market roadway system and the U.S. Highway and Interstate system, the City of Pleasanton is responsible for the maintenance of local and many collector streets.

In order to plan for the funding of, and prioritize the maintenance and reconstruction of these streets, a ten year capital improvements plan for local and collector streets has been developed by the city engineer based on three central criteria:

- 😤 Condition of the road
- 😤 Congestion in the neighborhood served
- 😤 Even distribution of projects across the city

The projects (table, current page, and map, next) have been identified, representing nearly 20 miles of improvements. Where possible, these projects should be considered in connection with other utility improvements, to minimize disruption and build upon an economy of scale for mobilization.

PROJECT	DESCRIPTION	STREET AREA (SF)	LENGTH (LF)	2" ASPHALT OVER 50% BASE REPLACE	3" ASPHALT OVER 50% BASE REPLACE
	<u>an an an an ail an ann is ann i an ann a' bhidh ann ian an a</u>	(SF)	(LF)		
Unit Prices				23.45	28.125
1	First Street/ Uvalde Street/ Sixth Street from Spur 242 to SH 97	109,279	4,436	\$ 284,732.51	
2	Commerce Street/ from SH 97 to Cul-de-sac	63,709	2,246	\$ 165,997.34	
3	Market Street/ from US 281 to SH 97	24,386	875	\$ 63,539.08	
4	Fifth Street Sanchez Street to Commerce Street, to Commerce street from SH 97	67,948	2,584	\$ 177,042.29	
5	Bowen Avenue From SH 97 to Fifth street/Fifth to Eighth Street	87,961	3,269	\$ 229,187.27	
6	East Hunt/Short/East Adams from US 281 to Fifth street/ Fifth Street to City Limits	180,657	6,323		564,553.13
7	North Main/ from West Hunt to Spur 242/from Spur 242 to Haverlah	207,947	5,807		649,834.38
8	West Adams/ from NorthReed to North main/ FM 476 to North Reed	86,546	2,640	\$ 225,500.41	
9	South Reed/ Noth Reed/ Live Oak from 5H 97 to West Adams/ West Adams to Patrick Street	144,186	4,529	\$ 375,684.63	
10	North Mansfield West College to West Adams/ West Adams to Virginia Avenue	75,150	2,881	\$ 195,807.50	



		STREET AREA	LENGTH	2" ASPHALT OVER	3" ASPHALT OVER
PROJECT	DESCRIPTION	(SF)	(LF)	50% BASE REPLACE	50% BASE REPLACE
11	Duck FM 476 to North Mansfield/ North Mansfield to Live Oak	46,322	1,727	\$ 120,694.54	
12	HEB Loop(South Bryant/ Mansfield/Jackson/Preston) from SH 97 to SH 97	93,437	3,276	\$ 243,455.29	
13	Stadium from FM 476 to Jolly	58,446	1,778	······································	182,643.75
14	Jolly/ Grant/ Bluebonnet SchoolLoop/ Stadium to FM 476	159,200	5,261		497,500.00
15	High Meadow from FM 3350 to Jolly	91,803	2,867		286,884.38
16	Oak Valley from FM 476 to Southgate	65,576	2,767		204,925.00
17	Winship Road from SH 97 to FM 3350	108,235	4,326		338,234.38
18	Colony Drive from FM 3350 to Dead End	68,914	2,254		215,356.25
19	Cynthia Drive from Pulliam Drive to Crestline	54,234	2,655	\$ 141,309.70	
20	Encino/ Yellowstone Yosemite to Fm 476	59,206	2,040	\$ 154,264.52	· · · -
21	Oakhaven from SH 97 to FM 3350	163,668	5,066		511,462.50
22	Vickers/Kathleen/Mark from FM 3350 to FM 476	97,383	2,999	\$ 253,736.82	
23	Lantana Lane SH97 to Oakcrest/ Oakcrest to FM 3350	57,078	1,814	\$ 148,719.90	
24	Georgia Ann from FM 3350 to Georgia Ann	25,595	934	\$ 66,689.19	
25	First Street from Uvalde to US 281	72,114	2,235	\$ 187,897.03	······································
26	Austin Street from First Street to SH 97	81,971	2,509	\$ 213,579.99	
27	Houston SH 97 to Seventh Street	68,798	2,372	\$ 179,257.01	
28	Haverlah from FM 476 to North Main	93,385	3,845		291,828.13
29	Martin Street from Lyons to SH 242	58,409	2,142	\$ 152,187.89	**************************************
30	Chaparral Drive/Oakcrest/ Greenlawn Avenue from SH 97 to FM 3350	86,950	3,001	\$ 226,553.06	
31	Sandylane from Oakhaven Drive to Winship Road	37,291	1,530	\$ 97,163.77	
32	Plestex Drive from SH 97 to Dead End	54,178	3,275	\$ 141,163.79	
33	Sunrise/ Crestline Drive from Pulliam to Crestline Drive	139,426	6,501	\$ 363,282.19	
. K	TOTALS	2,869,388	102,755	\$4,407,445,74	5 3 743 221 88









Goals, Policies, and Actions

Thoroughfare

The policies and actions over the city over the next 10 years should promote the following goals:

1TRANSPORTATION GOAL #1:ACHIEVE A BALANCE IN LAND USE ANDTRANSPORTATION INFRASTRUCTURE that makes living,working, shopping and playing in Pleasanton safer and more convenientfor residents and visitors.

POLICY **T-1**: Traffic generating uses such as employment centers, retail centers, industrial centers, and schools are located to ensure they are accessible and compatible with adjacent land uses.

ACTION T-1.1:	Truck traffic-generating uses should be located adjacent to arterial roadways with ease of access to the region.
ACTION T-1.2:	High trip-generating uses such as employment and regional centers should be located adjacent to arterial roadways, major collector streets, or freeway front- age roads in accordance with a Traffic Impact Analysis.
ACTION T-1.3:	Coordinate with Pleasanton ISD on bus routes and alternative routes to exist- ing and new schools.
ACTION T-1.4:	Pursue a Safe Routes to School program to encourage walking and bicycling to schools.



POLICY **T-2**: Use the Thoroughfare plan as a guide to determine, classify, locate and schedule roadway development improvements.

ACTION T-2.1:	As development applications are considered, consult the Future Thoroughfare Plan to determine connectivity and route alignments, as well as right-of-way dedication requirements.
ACTION	As CIP projects are considered, consult the Future Thoroughfare Plan to de-
T-2.2:	termine connectivity, route alignments, as well as right-of-way dedications.

POLICY **T-3**: Maintain access while not affecting the flow of traffic for primary and secondary roadways.

ACTION T-3.1:	Continue to employ access management techniques such as shared driveways and cross-access easements to reduce the number of driveways on high-volume roadways.
ACTION T-3.2:	With state and regional partners, coordinate the construction of a bypass to re-route truck traffic congestion away from downtown Pleasanton. Review the potentional for this route to serve hazardous cargo.
ACTION T-3.3:	Employ context-sensitive design to reinforce rural streetscape elements and tree preservation.



Thoroughfare

POLICY **T-4**: Monitor the growth and function of the City's roadway network continuously, including a broad base of stakeholders, in order to promote safety.

ACTION T-4.1: Form a Street Committee from members of the general community, business community, and Eagle Ford industry, and task this advisory group with evaluating the roadway network on an annual basis, with the goal of promoting safety. The Committee should have ex officio participation from the public works, police, and fire departments.

ACTION T-4.2: Develop a GIS dataset to assist the committee and public works and engineering staff in documenting road condition and other details.

ACTION T-4.3: Collect and analyze data for high crash locations.

ACTION T-4.4: Review TxDoT's traffic count program and coordinate locations and timing to augment TxDoT's efforts with locally collected data.

2 TRANSPORTATION GOAL #2: 2 THE COST OF DEVELOPING TRANSPORTATION INFRASTRUCTURE WILL BE SHARED IN PROPORTION BY THOSE WHO BENEFIT FROM IT THE MOST – developers, the City, other government entities and existing residents.

POLICY **T-5**: Develop a long range and incremental plan for budgeting and prioritization of projects identified in the master plan.

ACTION T-5.1:	Consider the development of a model for evaluating existing and future road- way capacity needs.
ACTION T-5.2:	Develop a multi-year CIP that reflects the prioritization and revenue sources.
ACTION T-5.3:	Continue to seek funding through TxDoT and other entities to collaborate with the City in accomplishing transportation-related projects.

Thoroughfare

POLICY **T-6**: Establish a comprehensive impact fee structure for the City.

ACTION T-6.1: Consider adopting a roadway impact fee for new, developing areas in the City.

ACTION T-6.2: Establish requirements for Traffic Impact Assessments and proportional developer participation.

POLICY T-7: Develop a mid-range and incremental plan for budgeting and prioritization of existing local street construction and reconstruction.

ACTION T-7.1:	Formalize a Street Improvement Program to actively rebuild existing, local streets, and fund this program annually. Potential funding mechanisms apart from the General Fund could be: dedicated sales tax, 4A Sales Tax Revenue, grants, or local street assessment.
ACTION T-7.2:	Task the Street Committee to evaluate the existing road network and assist in prioritization of the Street Improvement Program.
ACTION T-7.3:	Coordinate the projects with County, TxDoT, and utility providers to find leveraging opportunities.
ACTION T-7.4:	Review the current right-of-way and design standards and standard specifications for street construction to determine the appropriate balance between long- lasting streets and installation cost.

$3^{\rm transportation\ GOAL\ \#_3:}_{\rm residents\ of\ pleasanton\ will\ have\ choices}_{\rm to\ get\ from\ a\ to\ b}$

POLICY **T-8**: Ensure the development of a well-connected network of streets and sidewalks.

ACTION	Review the policy of the subdivision regulations that directs avoidance of con-
1	nectivity and a grid-like pattern.

ACTION Review the block length requirement of the subdivision regulations to require shorter block lengths or pedestrian paths.

ACTION Require the extension of streets (as with utilities) to connect adjacent, undeveloped property.



Thoroughfare

POLICY **T-9**: Promote transportation and active living choices as an integral part of the growth of the city.

ACTION T-9.1:	Identify bicycle and pedestrian connections to key community facilities, such as schools, parks, and downtown amenities.
ACTION T-9.2:	Review the requirements for sidewalk construction in the subdivision regula- tions.
ACTION T-9.3:	Review the potential for "complete streets" as a requirement for new develop- ment, and the integration of complete street principles in CIP projects.
ACTION T-9.4:	Consult the bicycling community, Parks and Recreation committee, and other area interest groups in planning safe routes through the community.
ACTION T-9.5:	Coordinate bus routes and Safe Routes to School with Pleasanton ISD.
POLICY T-10	Promote easy access to and from the airport.
ACTION T-9.1:	Airport Road is recognized as a major collector roadway.
ACTION T-9.2:	Continue funding of the courtesy car program.
ACTION	Provide ample parking at the airport

T-9.3:

Implementation and Phasing

Onstructing and sustaining a safe and efficient roadway system requires considerable investments of resources. Planning carefully to implement future policies, programs, and projects in Pleasanton is necessary in order to make the most cost-effective decisions for the roadway system. Further, working closely or partnering with various entities (e.g. TxDOT, the county, developers, etc.) to jointly implement or fund these significant investments optimizes and leverages limited resources.

From a fairness perspective, it is generally understood that new growth should pay its own way, and that a larger percentage of the revenue from existing tax payers should go to operations and maintenance of existing infrastructure. To maximize this concept, funding sources should be "best matched" to the type of project. Overall, the following funding sources are available to the City:

DEVELOPMENT OBLIGATIONS

The traditional mechanism of land development is that private development assumes the cost of constructing the infrastructure necessary to serve the development, which may include the extension of offsite roads (and other utilities), in proportion to the size and impact of the development.

DEVELOPMENT PARTICIPATION

In instances where additional capacity is needed to serve beyond the immediate development, a cost reimbursement approach or "capital recovery" fee is often used. Thus, the developer participates according to his or her proportional obligation, but the city can increase the capacity of the project to serve future needs based on the opportunity and available funding.

TRAFFIC IMPACT ANALYSIS

Although not a funding strategy, a Traffic Impact Analysis (TIA) is an effective tool to evaluate the impact of large developments on a roadway system, and provide a quantifiable means of determining the proportionality of developer and city participation. As an example, a TIA can ensure that any large, residential developments that generate more than 2,000 trips per day or any large, nonresidential development that generate more than 2,500 trips per day minimizes the impact on the roadway system. The requirement of a TIA can be implemented through the City's subdivision regulations and would serve to ensure the proper planning and siting of large developments in relation to existing roadway capacities.

TRANSPORTATION IMPACT FEE

An alternative to traditional funding mechanisms, transportation impact fees can be charged