The focus of this study is principally on the three-dimensional form of the built environment, meaning the scale and character of existing uses within the area, and the contextual relationship of this area to the broader community. It is unique due to the existence of permanent uses, many of which may not change in the near term. Therefore, rather than focusing on land use, the study will focus on more specific characteristics of the existing uses, as a means for determining the desired future form and character of development. The intent is not to make wholesale changes, but to manage the type, scale, and form of future development consistent with the City's vision and desired community character.

Analysis & Recommendations

1 HISTORY

The relevance of this Context and Form Study is a result of recent development pressure for mid- to high-rise condominium and/or mixed use development within El Lago, in each of the neighboring communities, and throughout the greater Clear Lake area. For instance, on the vacant property adjacent to the west of the Marker I Marina in Seabrook, situated roughly one third mile to the east of El Lago, there was a recent inquiry for a 180 foot tall condominium project with first floor and street frontage commercial use. Similar to El Lago, the City of Seabrook is in the process of evaluating the probable impacts of such development on the community and analyzing its options for regulating such development consistent with the values and expectations of community residents. Located immediate west of El Lago, within the City of Pasadena, is a 30-story high-rise condominium project, referred to as The Endeavour. This project is in the pre-leasing stage of development and, as of September 2005, had sold 53 percent of its 80 units. Also, there is yet another similar project planned near the Hilton Hotel along NASA Parkway in Nassau Bay.

Within the study area, there are three sites for which near-term inquiry for mid- to high-rise development is probable. In fact, the El Lago Marina site has already been the subject of a request for such development, as shown by the

STUDYTASKS

1. Perform an existing conditions study to identify lot sizes and dimensions, land use types, and specific characteristics about each use.
2. Construct a 3-D model of the current built environment to visualize the current form, such as building height, scale and bulk; setbacks; landscape surface area, and other essential design factors.
3. Evaluate the relationship of the study area within its environment, including visual perceptions, scale and bulk relationships, and other perceptible observations.
4. Review the regulations to evaluate their impacts and influence on the study area.

The El Lago Marina Condominiums were proposed on the marina site in 2004.

graphic illustration displayed in the margin. The other two properties include the site where the Endeavour model is located, adjacent to the east of the Lakeshore Condos, and a currently undeveloped 1.4 acre site abutting NASA Road 1 in front of the Marina Bay Condos. According to public input received during a workshop on September 10, 2005, there are several other properties within El Lago for which redevelopment will likely occur should mid- to high-rise development be allowed by the City. Several of the apartment/condominium complexes were built in the late 1960s and early 1970s and are, hence, warranting redevelopment.

2 STUDY AREA

The limits of this study are concentrated within the area on the south side of NASA Road 1 - between the street right-of-way and the Clear Lake waterfront - from the western City limits generally aligned at Kirby Road (as extended) approximately three-quarter mile to the eastern City limits. This area, together with the properties on the north side of NASA Road 1, represents the higher density and non-residential properties within the community.

3 BACKGROUND

Presently, the study area is within Zone B, Commercial and Business District, with the western portion of the study area – from Kirby Road east to Taylor's Bayou – zoned B-4 and the remainder of the study area east to the City limits zoned B-3. Apartment houses or other multiunit dwellings are permitted by right within this zone, as are a host of other uses such as hotels and motels, office and professional buildings, restaurants, retail stores, boat and accessory sales and marine works, and automobile parts and accessories, among other uses. There are also special uses permitted by affirmative vote of four City Council members.

The special regulations of Subzone B-3 require a 35 foot building setback from NASA Road 1. Within Subzone B-4, there is a 20 foot building setback from NASA Road 1 and Kirby Road. In addition, land proposed for multiple family or commercial use that is contiguous to or abuts property that is developed, zoned, or designated for any type of residential use must be setback a minimum of 40 feet from the contiguous property. The side and rear yard setbacks are 10 feet for a one-story building, 15 feet for a two-story building, and 25 feet for a three-story building, which is a performance-based standard requiring an increased setback of proportion to an increase in building height. The maximum allowable height permitted within Zone B is two stories or 35 feet.

As required by **Section 5.09, Special regulations for multiple-family structures**, apartment buildings and condominiums abutting lots used or intended for residential purposes are required to include a two-foot private easement and an eight-foot screening device. Furthermore, the maximum lot coverage[1] – inclusive of buildings and required parking spaces - of a condominium or townhouse project is 55 percent of the total site area. A maximum gross density of 18 dwelling units per acre is permitted.

4 PURPOSE AND NEED

As described in the background section above, there are a range of high-density and non-residential uses permitted within the study area. The dimensional regulations specify a maximum height of two stories or 35 feet and setbacks for multiple dwellings are dependent upon their proximity to NASA Road 1 and Kirby Road as well as the number of building stories. Therefore, there are no provisions within the zoning ordinance that would allow for mid- to high-rise development exceeding a height of 35 feet.

In accordance with the Texas Local Government Code, Section 22.009, Authority of Board, the Board of Adjustment may:

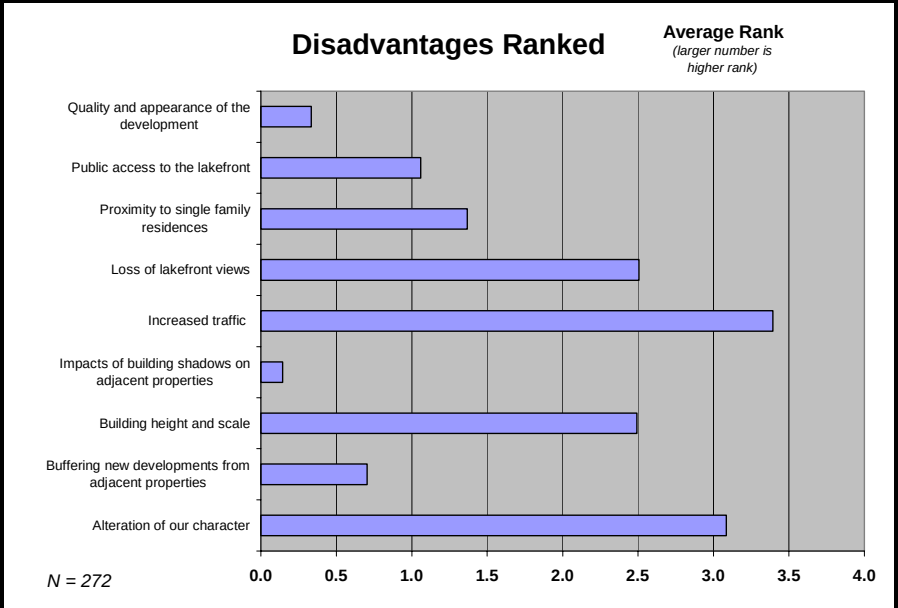
- Hear and decide an appeal that alleges error of an administrative official;
- Hear and decide special exceptions to the zoning ordinance when the ordinance requires the Board to do so;
- Authorize a variance from the terms of the zoning ordinance if it is not contrary to the public interest, due to special conditions, literal enforcement would result in an unnecessary hardship; and,
- Hear and decide other matters authorized by an ordinance adopted under State law.

The only special exceptions for which the Board of Adjustment has the power to grant are those in Zone A regarding a home business or moveable sales office, the exterior finish or construction of a single family residence, and the raising or keeping or specific animals, as well as the exterior finish or construction of buildings within Zone B and C. Therefore, there are no provisions for a variance or exception allowing increased building height.

Based upon a community survey conducted in August 2005, as provided in **Attachment A, Community Survey**, of those who responded to the survey there are a range of interests regarding the advisability of mid- to high-rise development. In fact, the community was generally divided on their support

[1] Lot coverage is defined in the City's Zoning Ordinance, Chapter XVIII, Definitions

Figure 1, Disadvantages



Source: Strategic Forecasting and Development, LLC

or opposition for such development, with 55 percent in support (36 percent of which had some reservations). The advantages were cited, in order of importance, as the tax revenue for the City, attractive developments along the lake, more diverse community, property rights (letting people do what they want with their property), and a larger community.

As displayed in **Figure 1, Disadvantages**, there were even more disadvantages cited for mid- to high-rise development, ranked in order of the highest response as follows:

1. Increased traffic;
2. Alteration of community character;
3. Loss of lakefront views;
4. Building height and scale;
5. Proximity to single family residences;
6. Public access to the lakefront;
7. Buffering new developments from adjacent properties;
8. Quality appearance of new development; and,
9. Impacts of building shadows on adjacent properties.

In addition to those that received the highest rates of response, other relevant disadvantages cited include impacts on the provision of services, such as police and fire protection, water and school capacities; concern for the financial feasibility and fiscal impacts on the community; and, the influence such development may have on the character and identity of El Lago.

The purpose and need for this study, then, is to evaluate the options for managing such development consistent with the values and expectations of the community and its residents. Generally all of the disadvantages may be effectively addressed through policy formulation and regulatory provisions. This study will, therefore, outline the options available to the community to achieve its vision and development objectives, including recommendations as to necessary amendments to ordinances and development practices.

5 EXISTING CONDITIONS

BROAD COMMUNITY CONTEXT

The most significant land uses in the greater Clear Lake area include NASA approximately two miles west, the University of Houston Clear Lake located roughly four miles northwest, Armand Bayou Park situated to the northwest across Taylor Lake and Lake Pasadena, the Port of Houston Bayport Terminal in Seabrook, the Kemah Boardwalk, and numerous marinas along the lakefront.

Generally, the whole area around Clear Lake could best be described as having a suburban or auto-urban character. The area is characterized by low to moderate development density; low building heights (generally under 35 feet); significant mature vegetation and tree cover; liberal green spaces devoted to community parks, golf courses, and the Armand Bayou Regional Park and Nature Center; and, large expanses of water including Clear Lake, Taylor Lake and Bayou, Lake Pasadena, Armand Bayou, and Galveston Bay.

There are a few taller buildings in the larger area, including the 13-story Hilton Hotel along NASA Parkway near Space Center Boulevard, several four to eight story office buildings on the NASA campus, and a few three and four story office buildings on the south side of NASA Parkway in Nassau Bay. Each of these mid-rise buildings are located in a larger office business park or surrounded by large expanses of open space, such as the NASA campus, or water. They are also on moderate to large size tracts of land.

The nearest mid-rise buildings are located on the NASA campus and in the community of Nassau Bay, approximately two miles west of EL Lago.

LAND USE

Within the designated study boundaries – and surrounding areas – the uses are consistent with the zoning designations, including single family residences; high-density residential apartments, condominiums and townhouses; and, non-residential uses such as restaurants, a marina and water-related business activities. The north side of NASA Road 1 is a mixture of commercial office and retail businesses stretching from the NASA 1 Center at the northwest corner of NASA Road 1 and Kirby Road eastward to a gasoline station and offices situated on the northeast corner of NASA Road 1 and Bayou View Drive. Immediately abutting the northern property lines of these commercial uses are single family residences, which extend throughout the rest of the community and into the abutting cities of Pasadena, Taylor Lake Village, and Seabrook. High-density residential and non-residential

The Marina Bay Condominiums is a good example of the existing higher density residential uses within the study area.

development is generally along both sides of NASA Road 1 from I.H. 45 in Webster to S.H. 146 in Seabrook.

The land uses within the area that would be more affected by the proposed higher intensity development are the nearby low-density neighborhoods in El Lago as well as Taylor Lake Village, Pasadena, and Seabrook. In addition, residents of the easternmost portions of Nassau Bay and northernmost League City and Clear Lake Shores, adjacent to Clear Lake, would also be within direct view. Those neighborhoods that are across the lake and, hence, at a greater distance would be impacted less than those within closer proximity, but would nonetheless be affected. Therefore, while the City's zoning ordinance is for the "purpose of promoting the health, safety and the general welfare of the City of El Lago"[2] it also has great influence on the interests and values of those who live in near proximity to the community as well.

Armstrong Park is located on the north side of NASA Road 1, a short distance from the El Lago Marina site.

Also within near proximity to the study area are Whitecap, McNair, and Armstrong Parks within El Lago, as well as Clear Lake Park and potentially the southern reaches of Armand Bayou Park. The public spaces are of significance in terms of their values of open space and scenic beauty.

LAND USE VERSUS CHARACTER

Throughout this report the term character is utilized often. There is an important distinction between this term and land use. The City's current zoning ordinance is based on land use, meaning that its districts each have long lists of permitted uses, and in some cases, uses that are allowable through special consideration of the City Council. These uses are then controlled by typical height and area standards, such as building setbacks, maximum building height, lot coverage in the case of condominiums and townhouses, and maximum density of condominiums. Character, however, recognizes that use alone is not a sole determinant of the impacts on adjacent properties. While it is a consideration, perhaps more so for higher intensity uses, there are several other factors that contribute to their ability to co-exist with adjacent uses in a compatible manner.

Character involves consideration of a range of factors, each of which contribute to the compatibility of the use and its level of impact on adjacent uses. In fact, an individual use may be designed to be compatible in a variety of character settings. As an example, an office building can be of various shapes and sizes. While the use may remain the same, its building height and

[2] Section 1.02, Scope, of the El Lago Zoning Ordinance

bulk, placement on the lot in relation to lot lines and adjacent uses, ratios of impervious area and landscape surface, size and location of parking areas and driveways, amount of landscaping and screening, and opacity of buffering between uses, are better determinants of its character. Therefore, within the same zoning district, an office building may either be compatible or incompatible dependent upon the above factors.

As opposed to the above example, character may be better defined through a series of performance standards. In other words, rather than permitting a use within a district, which may vary widely dependent upon its design, the district is designed for a certain performance. Performance is measurable whereas regulating use is not. Therefore, by using a system based on character versus use, the performance of a use may remain constant. Traffic volume, for instance, may be held constant to that consisting today – assuming the same character is maintained - even though taller building may be allowed. An important decision for this community is the type of character preferred in the study area. If it is to remain with an auto-urban character the standards would be quite different than if it is allowed to be of an urban character. The difference lies in the intensities of the following measurable standards.

GROSS DENSITY

The gross density of the higher density residential properties existing within the study area range from 17.7 to 35.7 units per acre, based upon the lot areas and numbers of units collected from the Harris County Appraisal District (HCAD). Since the maximum allowable density within the zoning ordinance for condominiums is 18 units per acre[3], either different regulations were in place at the time of approval or some of the projects are classified as apartments or townhouses, for which there are no density restrictions within the current zoning ordinance. The name, number of units, lot area, and density of the developments are as follows:

Name	No. Units	Parcel Size	Gross Density
The Landing Condos	144 units	6.19 acres	23.3
Harbor Point Apts.	88 units	4.72 acres	18.6
Yacht Club Condos	16 units	1.42 acres	11.3
Marina Bay Condos	36 units	1.52 acres	23.7
Lake Shore Condos	86 units	2.41 acres	35.7

[3] Subsection 5.11, Condominiums of Section 5.09, Special regulations for multiple-family structures

Gross density is defined as the number of dwelling units per acre of the entire area within the parcel boundary, which includes parking and driving areas, sidewalks, public and private rights-of-way, and open space areas. For condominiums, gross density and lot coverage are the primary factors by which the zoning regulations are based. For apartments and townhouses, the only control factors are the building height and setbacks. This is typical of a conventional zoning approach. However, these factors are poor surrogates for determining – and quantifying – the impacts on adjacent properties and public facilities and services. Rather, there are a host of other factors that contribute to the character of development, including the amount of landscape surface area; impervious surface area devoted to driveways, parking lots and vehicular use areas; floor area ratio; and building volume ratio.

*The **principal building** is that for which the primary use of the lot on which the building is located is conducted. An **accessory building** is a subordinate structure detached from but located on the same lot as a principle building.*

*An **impervious surface** is any non-vertical surface artificially covered so as to prevent or impede the percolation of water into the soil mantle, including but not limited to roof tops, swimming pools, paved parking/drive areas and sidewalks, and water detention/retention facilities.*

LOT COVERAGE

Lot coverage refers to the percentage of the total lot area that is covered by principal and accessory buildings. It relates to the character of development yet there are other factors, such as the amount of parking and drive areas (impervious surfaces) that are also important determinants. In other words, while there may be a relatively low percentage of a lot covered by buildings, for instance taller buildings with a small building footprint, the amount of impervious surface, height and bulk of the building(s), and existence of buffer treatments also lead to determining the type of character. These factors must all be considered toward the level of impact experienced by abutting and neighboring properties. The building coverages of the higher density developments within the study area range from 25 percent for the Yacht Club Condominiums to 41 percent for the Lake Shore Condominiums. The building coverage ratios are as follows:

Name	Lot Area	Footprint Area	% Coverage
The Landing Condos	269,459 sf	88,663 sf	33%
Harbor Point Apts.	205,629 sf	74,664 sf	36%
Yacht Club Condos	61,851 sf	15,767 sf	25%
Marina Bay Condos	66,155 sf	17,766 sf	27%
Lake Shore Condos	104,921 sf	43,137 sf	41%

BUILDING HEIGHT

The zoning ordinance restricts building height within Zone B, Commercial and Business District – the zoning of the study area – to two stories or 35 feet in height.[4] The definition of building height in the ordinance is unique in that

[4] Section 5.05, Zone B – Commercial and Business District

it allows height to be measured from the curb level as opposed to the finished grade around the foundation. In addition, the flood hazard prevention ordinance[5] establishes a method of reducing flood losses with a "requirement that all development in the city's boundaries within each zone be at a minimum elevation of fifteen and seven-tenths (15.7) feet above sea level. In effect, this allows buildings with more stories on those sites where the grade is lower than that of NASA Road 1 and sea level. For instance, many of the higher density developments within the study area have two-story buildings closest to NASA Road 1 and three- or four-story buildings nearest the lakefront due to the change in topography from the street to the lake.

In many cases either car or boat parking is placed beneath the buildings to minimize the impervious surface cover thereby enabling the developer to achieve maximum density on the property. Should surface parking be used, given the requirements of the ordinance for setbacks, maximum building heights, and parking ratios, maximum density could not be achieved.

The average number of stories for each of the higher density properties is as follows:

Name	Average Stories
The Landing Condos	3.5
Harbor Point Apts.	3.0
Yacht Club Condos	4.0
Marina Bay Condos	4.0
Lake Shore Condos	3.5

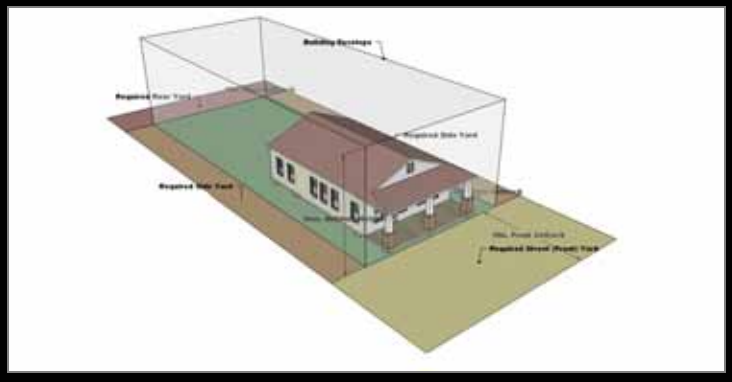
As acknowledged by the current zoning ordinance with the height being measured from the curb level, or its equivalent, line of sight is an important consideration. In other words, that portion of a development that is not of a perceptible height – that below the adjacent street grade or otherwise not visible due to obstructions – must be accounted for in drafting regulations. There is a proportional relationship to perceptible height as the distance increases away from a viewpoint. This is why many ordinances require taller building to be stepped back from the property line with increased building height; creating the appearance of a wedding cake. A building that rises vertically at its required setback is of greater impact to adjacent properties that one that has a greater setback or steps back as the height increases.

***Building height** is the vertical distance from the curb level, or its equivalent, opposite the center of the front of a building to the highest point of the coping of a flat, shed, or folded plane roof, to the mean height level between eaves and ridge for gable, hip, and gambrel roofs; or to the mean height level between the spring line (the line or place at which an arch or vault curve springs from its impost) and the highest point of the structure. For the purposes of this ordinance, the measurement of a building height shall not include chimneys, spires, ornamental towers, antenna, monuments, cooling towers, tanks, water towers, fire towers, necessary mechanical appurtenances, stage towers or scenery lofts, or similar appurtenances.*

(Chapter XVIII, Definitions, Section 18.01, Generally)

[5] Chapter 7, Flood Hazard Prevention, Sec. 7-11. Methods of reducing flood losses

Figure 2, Building Envelope



This example of a building envelope exhibits the building area of a single family lot, represented by the required front, side, and rear yard setbacks and the maximum allowable height.

BUILDING VOLUME

Building volume relates to the bulk of a building or group of buildings. The size and height of a building and its relationships to lot lines, streets, and other buildings; gross floor area in relation to the lot area; and the open space allocated to the building are important factors in determining character. There are two variables in measuring building volume, including the three dimensional volume of the buildings themselves and the calculated volume of the building envelope. The building envelope is the volume of space for building, as defined by the minimum setbacks and maximum allowable building height, as displayed in **Figure 2, Building Envelope**. In the study area, the building envelope is based on a maximum allowable height of 35 feet and the following setbacks:

Dimensional Standard	Subzone B-3	Subzone B-4
Front Setback	35′	20′
Side/Rear Setback (1 story)	10′	10′
Side/Rear Setback (2 story)	15′	15′
Side/Rear Setback (3 story)	25′	25′

6 THREE DIMENSIONAL COMPUTER SIMULATED MODEL

To aid in the context and form analysis, a three-dimensional computer model was developed to visualize the built environment within and immediately adjacent to the study area. The model includes a color aerial photograph as the surface layer, which was not modeled to reflect existing topographic conditions. The aerial imagery was flown in 2003, thereby offering an accurate depiction of the study area, with very few exceptions. Each building within the study area was then modeled in three-dimensional form and placed on the building footprints reflected on the photograph. The building heights were scaled from digital photography and field reconnaissance. Textures and colors were added to further enhance the realism of the model as well as for visual recognition by the public.

The real value of this model is the ability to superimpose proposed developments of varying types and scales on individual properties thereby allowing numerous "what-if" scenarios. By placing mid- to high-rise buildings of varying heights, bulks, scales, and setbacks, the model allows realistic perspectives from any point within the limits of the model. This

Figure 3, Overhead View of the Study Area

The immediate study area, shown outlined in yellow, stretches from the west to east City limits lying between NASA Road 1 and the Clear Lake waterfront.

allows an impact analysis and the ability to gauge the visual and aesthetic impacts on the character of the community prior to development. Furthermore, it may also be used as a tool for drafting improved and more realistic standards and development regulations.

As displayed in **Figure 3, Overhead View of the Study Area**, the boundary of the primary area for which this study focuses stretches from Kirby Road (as extended to the waterfront) east to the City limits and from NASA Road 1 to the waterfront. It encompasses a total of twelve platted parcels, including the following uses:

- Jack in the Box
- Gabachos Mexican Grill
- The Landing Condos
- El Lago Marina
- Clear Lake Marine Center
- Clear Lake Transmission
- Harbor Point Apts.

- Yacht Club Condos
- Marina Bay Condos
- Lakeshore Condos
- The Endeavour Condominiums Sales Office
- Single family residence

Shown in Figure 3 is the immediate context of the study area, including its proximity to Clear Lake on one side and commercial frontage on the other, behind which lies low-density residential neighborhoods. Taylor Bayou traverses the study area connecting Clear and Taylor Lakes. The only single family residential use lies against the easternmost boundary of the study area, yet there are large expanses of neighborhoods beginning within roughly 280 feet from the NASA Road 1 north right-of-way line. Therefore, while there are few occasions of directly abutting single family use they are certainly within an immediate area of influence and potential associated impact.

Exhibited in **Figure 4, Existing West End Development**, are the current uses. This figure illustrates from a northwesterly perspective the sizes and scales of the individual uses as well as the relationships between uses. The Landing Condos includes a series of buildings placed densely on the property, with little space devoted to open space or green areas. A majority of the site is covered with buildings and both surface and covered parking areas. Mature trees help to vegetate the site and improve its appearance from the roadway. There is a six foot fence separating the complex from the two restaurant out-parcels. The only green space is a narrow strip along the parkway of NASA Road 1. From Kirby Road to the eastern boundary of The Landing there are six access points, including two for each property with frontage on NASA Road 1.

Adjacent to the east of The Landing Condos is the El Lago Marina, the site for which a high-rise condominium project was previously proposed. Existing on the site today is a one-story metal building situated close to NASA Road 1, with limited parking and vehicular maneuvering area in the front. The site sets roughly 10 to 12 feet below the roadway grade allowing a view from the roadway toward the rear of the site. Behind the buildings in the front are metal storage buildings and covered boat slips along with outdoor storage of boats and miscellaneous equipment and materials. There are three points of access along the street frontage. There is virtually no landscape surface area on this site, with the only relief along the steep slope separating the site from the adjacent roadway.

Figure 4, Existing West End Development

The existing development toward the west of the study area includes the uses from Kirby Road east to the El Lago Marina.

The center portion of the study area begins on the east side of Taylor Bayou and extends eastward to the Yacht Club Condos. As seen in **Figure 5, Existing Center Area Development**, situated on the site across the channel from the El Lago Marina is the Clear Lake Marine Center along with several docking ports and other uses associated with the marina. Clear Lake Transmission is situated on the east side of the site, adjacent to the Harbor Point Apartments. A majority of the site is devoted to vehicular use areas, with no landscape surface area other than a narrow strip along NASA Road 1. The buildings are largely one story in height with some portions of the docking ports with a two-story height. The openness of the site allows views to the lake as well as Taylor's Bayou. Each of the buildings on this site is constructed of metal with no decorative or architectural materials used.

Abutting the eastern edge of the previously discussed site, immediately adjacent to Clear Lake Transmission, is the Harbor Point Apartments. This site wraps partially around the marina site, with a series of three-story multi-tenant buildings. Similar to the condos within the study area the site is

Figure 5, Existing Center Area Development

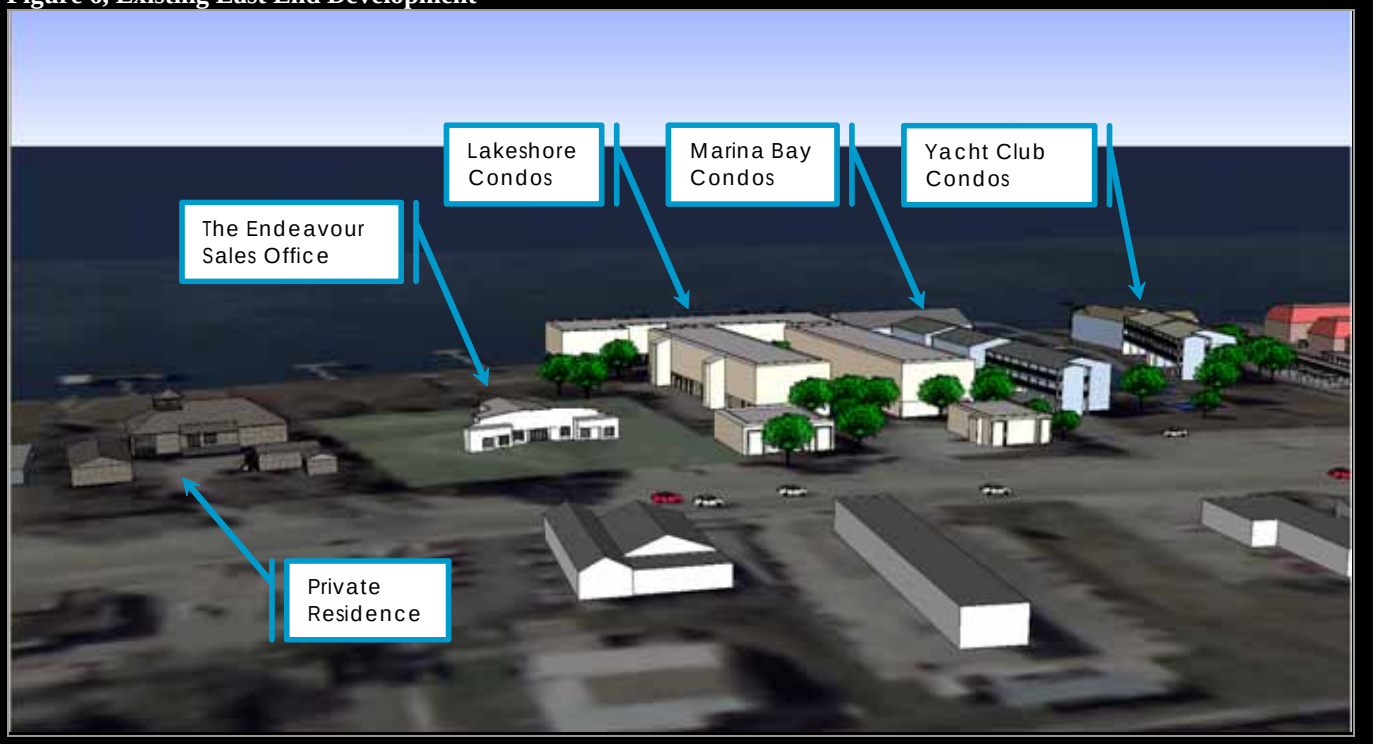
The center of the study area includes the east side of the marina and the Harbor Point, Yacht Club, and Marina Bay Condominium complexes.

relatively dense with buildings and parking areas dominating the site. Amid the site are a few small open areas, but the only green space is situated along NASA Road 1. There is a six foot fence that provides separation and minimal buffering between the apartments, condos, and the adjacent uses.

The Yacht Club Condos are immediately adjacent to the east of the Harbor Point Apartments, which, again, includes a series of multi-tenant buildings arranged densely on the site with little area devoted to open space. However, this site is set back from NASA Road 1 thereby lessening its visual impact from the roadway corridor and the surrounding uses. This undeveloped parcel is subject to possible development in the future, which would alter the openness and character of this immediate area.

Displayed in **Figure 6, Existing East End Development**, is the remainder of the study area. Adjacent to the east of the Yacht Club Condos is the Marina Bay and Lakeshore Condos, both of which include multiple three- and four-story buildings with very limited landscape surface area. A sales office model for The Endeavour, a high-rise condominium development proposed along NASA Road 1 within Pasadena just west of El Lago, is located on two consolidated lots east of the Lakeshore Condos. This is currently a one-story temporary building that will most likely be redeveloped as a different use

Figure 6, Existing East End Development



Development toward the east end of the study area begins to transition to low density residential use, including the current sales office for The Endeavor, which may eventually be the subject of a request for high-rise living.

upon termination of its useful life as a model. This study assumes that this site is also subject to possible mid- or high-rise condominium development. This latter site and the single family residences adjacent to the east are of a suburban rather than auto-urban character due to the low building coverage and high open space ratios. A transition between the more intensively development auto-urban higher density condominiums is thus, needed to protect the values and interests of the abutting and nearby low-density uses.

7 ANALYSIS OF POSSIBLE DEVELOPMENT SCENARIOS

According to the current zoning ordinance, both within Subzone B-3 and for condominiums or townhouses in Subzone B-4, the minimum front yard setback is 35 feet from the right-of-way of NASA Road 1. For apartments, condominiums, and townhouses, the required side and rear yard setbacks are consistent according to the building height, ranging from 10 feet for single-story buildings to 25 feet for three-story buildings. Therefore, these dimensional regulations establish an effective three-dimensional building envelope, as shown in **Figure 7, Illustrative Allowable Building Envelopes**.

Within the building envelope any of the permitted uses of the applicable zone may be constructed, subject to meeting other requirements of the ordinance,

Figure 7, Illustrative Allowable Building Envelopes

The allowable building envelope is determined by the minimum front, rear, and side yard setbacks and maximum permitted building height within each applicable zoning district, in this case Subzones B-3 and B-4.

such as the number of required parking spaces. There are no limitations as to the maximum amount of building coverage, minimum separation between buildings, or minimum ratio of landscape surface area other than the prescribed standards for condominiums and townhouses, which require at least 20 feet of separation or combined side yard between each building group and maximum lot coverage of 55 percent. Such standards - or lack thereof - determine the character of development. In other words, without standards other than maximum density limitations, setbacks, and height, development is maximized on the site leaving the character of development at the discretion of the developer. The existing site conditions described above regarding the density of buildings on the site and minimal amount of landscape surface is a direct result of the current development standards.

The volume of the building envelope may be calculated to quantify (in cubic feet) the effective volume of the three-dimensional space available for development, which varies from site to site depending on its size. Additionally, building volume may be measured allowing a building volume to envelope ratio (B/E Ratio). Using this ratio, the character of existing development may be measured, which may then be used to ensure a comparable character of proposed future development, should the City decide to preserve this character.

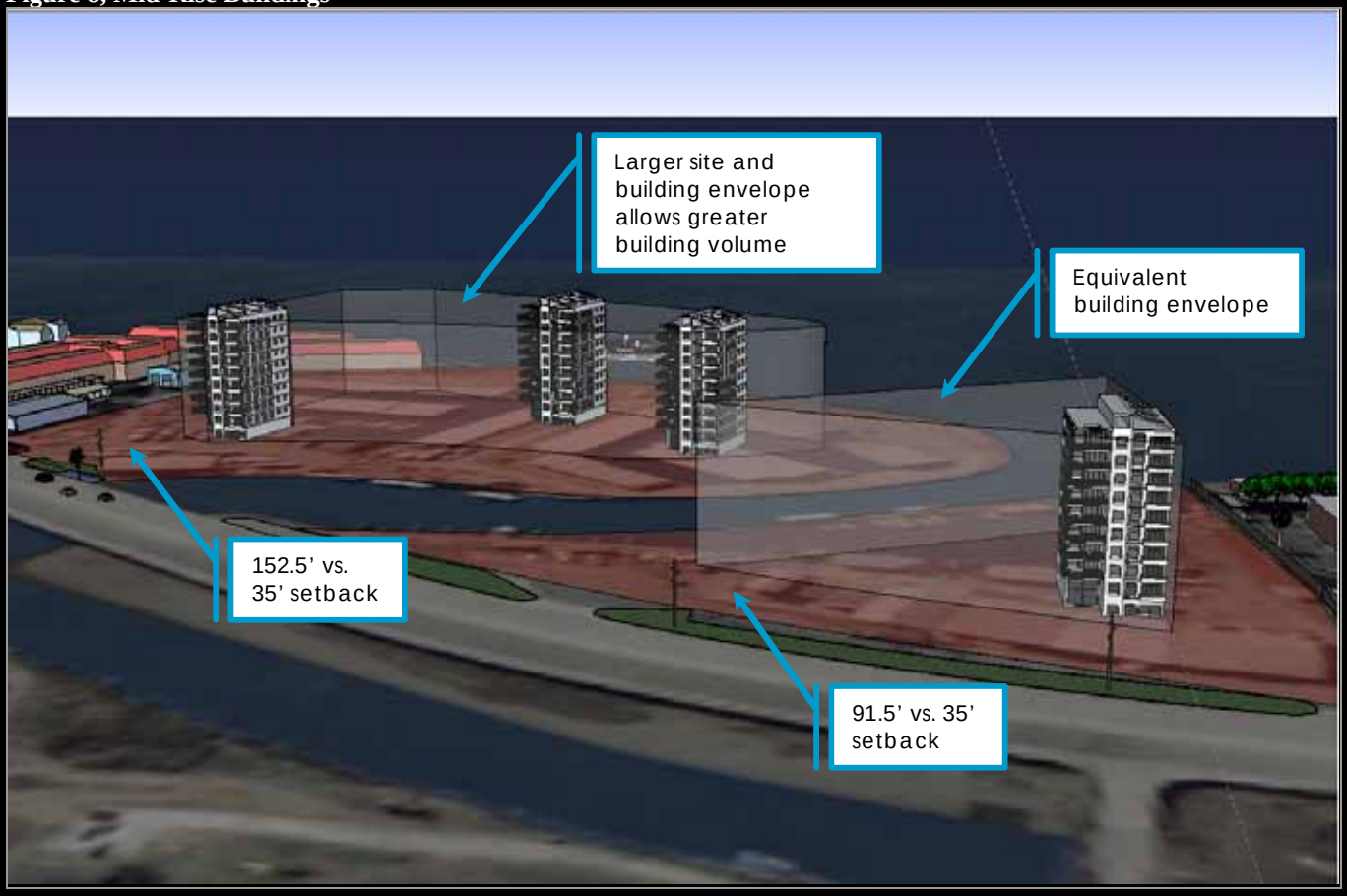
The ratio of building volume to envelope volume reflects a measure of building bulk, as discussed above. This is calculated simply by dividing building volume into envelope volume to get a building-to-envelope ratio, which is as follows for the higher density developments within the study area:

Development Name	Building Volume	35′ Envelope Volume	Building Volume Ratio
The Landing Condos	3,103,205 cf	9,431,065 cf	0.33
Harbor Point Apts.	2,239,920 cf	7,197,027 cf	0.31
Yacht Club Condos	630,712 cf	2,164,785 cf	0.29
Marina Bay Condos	710,644 cf	2,315,436 cf	0.31
Lake Shore Condos	1,509,813 cf	3,672,246 cf	0.41

As shown above, the building volume ratios range from 0.31 to 0.41, indicating that the buildings occupy between 31 and 41 percent of the 35 foot building envelopes. Therefore, if the character is to remain the same for other proposed developments within the study area, the building volume ratio would need to be maintained between – or within some reasonable defined limits - the current values. At the same time, if development intensity is allowed to increase and, hence, change the character, these values may be adjusted upward or downward as desired.

Reflected in **Figure 8, Mid-Rise Buildings**, is a 3D computer modeling image showing how the two El Lago Marina sites may be developed with 10-story buildings while maintaining an equivalent character. While the building heights exceed that presently allowed in the zoning ordinance, the building-to-envelope (B/E) ratio remains the same as a 35-foot tall building covering a much larger percentage of the site with minimal setback and little – if any – open space. In other words, for the western site, by increasing the required setbacks from 35 feet, the minimum currently required by the zoning ordinance, to 91.5 feet, a 110-story building may be erected while maintaining the same proportion of the building envelope volume. In essence, there is a trade-off of increased height for greater setback from the property lines and increased open space. (The increased setback and open space allows for extensive buffering treatments and enhanced site amenities to improve the appearance of the site and lessen its visual impact.) At the same time, while taller, the overall size of the building remains the same thereby the impacts on adjacent properties, e.g. increased traffic, may also be held at a comparable rate to that allowed by the current zoning designation. Since the eastern site is

Figure 8, Mid-Rise Buildings



Ten-story buildings could potentially be accommodated on these sites while maintaining a consistent "character" with development currently allowed by the zoning ordinance.

three times larger it can accommodate three, 10-story buildings while maintaining an equivalent character.

Since the site where The Endeavour sales office model is located is so much smaller than the sites reflected in Figure 8, Mid-Rise Buildings, above, it can accommodate a 10-story building with a 79.5 foot setback, compared to the 30-foot setback required by the zoning ordinance. However, due to the relative small size of the parcel, as shown in **Figure 9, Smaller Scale Mid-Rise Building**, it would be restricted for constructing anything much taller than a 10-story building (assuming a 10-story building could be accommodated), particularly considering other site requirements such as parking. This site is also different from the other sites within the study area due to its immediate proximity to low-density, single-family residential housing. Therefore, the tolerance for such higher-density use would be less than the other sites.

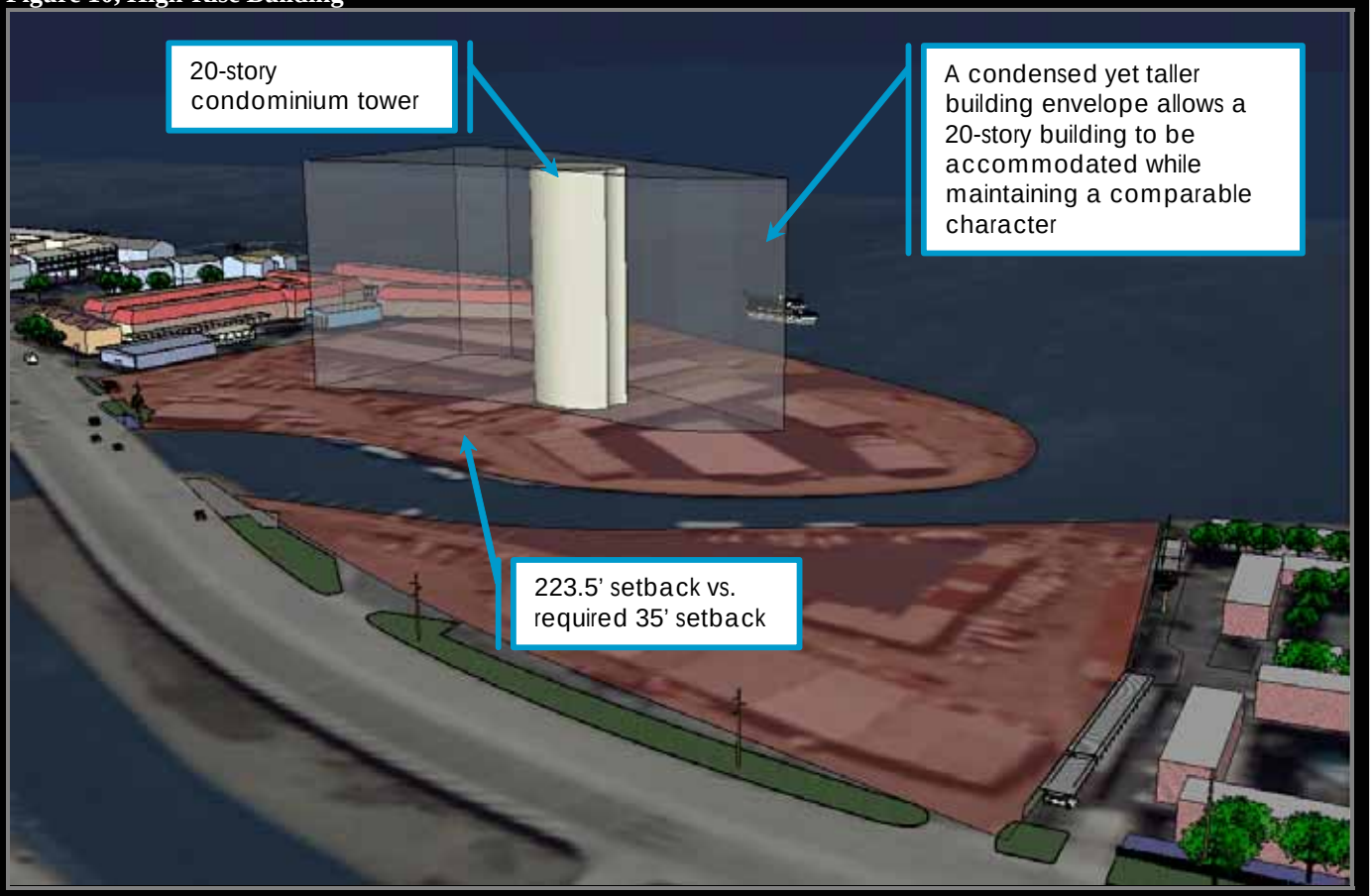
Figure 9, Smaller Scale Mid-Rise Building

A 10-story building could potentially be accommodated on this site with increased setbacks and open space. However, its proximity to single-family housing prompts a higher-level of sensitivity and compatibility standards.

As displayed in **Figure 10, High-Rise Building**, a 20-story building could potentially be accommodated on the marina site, given a 223.5 foot setback compared to the 35-foot setback required by the zoning ordinance. Due to the relatively large size of this site this tall of a building could be accommodated while maintaining a consistent character to that currently allowed by the zoning ordinance. However, there is a point at which the overall height and scale of such building may be considered by the community to be beyond that of reasonable compatibility. While regulations and standards can be drafted to secure comparable, quantifiable impacts, the decision will be one of appropriateness of this scale of development within its community environs and proximity to low-density neighborhoods.

In conclusion, if there is concern as to a perceived increase in the level of quantifiable impact resulting from taller buildings, such as increased traffic, regulations may be written to alleviate this reality. While the larger sites may be able to accommodate taller buildings while maintaining a comparable level

Figure 10, High-Rise Building



A 20-story building could also be accommodated on this larger site while maintaining a comparable level of impact to that currently allowed by the zoning ordinance. However, the appropriateness of scale within its environs must be considered.

of quantifiable impact, there are admittedly visual impacts and perceptual inclinations that may place a limit on an acceptable building height and scale. The use of the 3D computer model will help in defining this threshold, which may then be used in drafting applicable standards and regulations to manage development consistent with the values and expectations of the community.

8 RECOMMENDATIONS AND NEXT STEPS

REGULATORY AMENDMENTS

A high priority for the City is to amend the zoning ordinance to incorporate a new district with the standards and criteria to adequately manage mid- to high-rise condominium and mixed use development, assuming there is interest in allowing such development. As discussed above, the ordinance does not currently accommodate development greater than 35 feet in height. A variance is not warranted or possible since an increase in height and/or density is not within the authority of the Board of Adjustment. In order to warrant a variance the request must not be "contrary to the public interest

and, due to special conditions, a literal enforcement of the ordinance would result in an unnecessary hardship, and so that the spirit of the ordinance is observed and substantial justice is done."[6] Criteria need to be added to the ordinance indicating what constitutes a valid variance application.

An approach used by many communities is to incorporate planned unit development (PUD) provisions into their ordinance. Such district is intended for this type of development. However, there are several fatal flaws with this approach, the most important of which is that this is essentially a negotiated approval process. There are few - and often time no - specific performance criteria or development standards to ensure that the City's interests are protected and well served. If there are standards, they are typically too rigid to apply to a variety of development types thereby rendering them unreasonable and difficult. The outcomes are hence, inconsistent and unpredictable for both the City and applicant often leading to controversy and impasse.

Specific recommendations regarding amendment of the City's zoning ordinance are as follows:

1. Draft a **new waterfront zoning district** permitting by right mid- to high-rise condominium development with specific performance standards and development criteria, as described below. Such district could also have provisions allowing commercial retail uses, such as restaurants, shops, and entertainment venues. The district could be organized with standards applying to four different development types, including standard condominiums and townhouses (1-3 stories), low-rise (4-6 stories), mid-rise (7 – 12 stories), and high-rise (13+ stories), or some variation thereof. This arrangement would allow a table to be inserted into the ordinance outlining the dimensional requirements to construct a project with one of these development types. This would keep the ordinance relatively simple and easy to administer. Specific development and performance standards to be incorporated into the district include:
    a. **Lot Size/Height** - The allowable height should be variable according to the size of the lot. In other words, a larger lot can accommodate a taller building without imposing impacts that exceed those of a smaller lot. Since the waterfront district would be limited to the study area - wholly or a portion thereof - the regulations could anticipate the lot sizes and incorporate them into written standards. By doing so, a dynamic model may not be necessary thereby allowing the standards to be incorporated into the ordinance.

[6] Section 211.009, Authority of Board, Texas Local Government Code

b. **Setbacks/Height** – Similar to the proportional relationship between building height and lot size, adjusting setbacks according to the building height is also an effective means for controlling the impact on adjacent properties. In effect, an increased lot size is required to accommodate taller buildings. As for the above standards these provisions can be drafted for the study area. The suggested organization of the district into four development types would allow the regulations to determine the dimensional proportions of height and setbacks. There should not be a maximum setback required but rather, have it vary according to the building height and meeting other applicable requirements for open space, parking, etc. This would allow the building to be stepped back to gain more floor area while also protecting neighbors.
c. An **open space ratio (OSR)** would require that a certain percentage of a lot remain unimproved for landscaping, green space, buffers, recreational activities, public access, or site amenities. This is an effective control on the intensity of use. As described above and exhibited by the model images, increased open space in exchange for greater height can effectively control the character of development. Open space standards coupled with density limitations is more effective in managing character than the use-based zoning system in place today.
d. **Bufferyards** are used between adjacent properties (including along the streetscape) to mitigate differences in land use by imposing standards for open space and vegetative or structural screening between abutting uses. Bufferyards typically vary according to the use intensity, height, and adjoining use categories. To keep the ordinance simple though, we would propose a table indicating the required bufferyards for each of the four development types. It is important to note that bufferyards are not an effective tool for mitigating building height since their effectiveness is lost with increasing distance. Rather, they are effective to screen ground level activities such as surface parking.
e. **Public access to the waterfront** is also a consideration. This can be written into the regulations as an incentive thereby allowing increased density or height in exchange for providing public access to the waterfront.
f. **Design standards** are essential for buildings of such scale to ensure that they are of a quality appearance that exceeds that found in standard districts. Provisions should be incorporated to address allowable and prohibited building materials, monotony of design

(detail, form and siting), material colors, skyline design treatments, and façade articulation and fenestration.

g. **Construction standards** may need to be written or upgraded to address the construction engineering requirements for development along the Gulf Coast, particularly as it relates to hurricane force winds, tidal surge, and other natural conditions associated with intense storms and flooding.

h. **Amenities** may also be used as an incentive to allow increased height or density. In other words, the allowable density or building height may be factored up a certain percentage in exchange for a public beach or dock, plazas, fountains, art displays, and other public spaces.

i. A **traffic impact assessment (TIA)** is an important requirement to measure the effects upon the surrounding area by traffic as a result of a proposed development, such as increased traffic flows that may require improvements to adjacent roadways. A TIA will identify needed improvements such as a warrant for traffic signals installation of re-timing, turn lanes, access management restrictions, and other traffic-related improvements.

j. **Property maintenance codes** are becoming increasingly popular to manage the maintenance of buildings and cleanliness of properties to prevent unsightly appearances and avoid public nuisances. This may be a consideration for inclusion in the municipal code of ordinances. In addition, some cities require formation of a homeowners' association, or an equivalent, to care for common areas and open spaces, particularly for condominium type units.

k. **Enforcement**, as in the effective administration of any code, must be strict and of a sufficient punishment to warrant compliance. An enforcement officer may be necessary.

l. **Plan submission** - When an application is submitted, a three dimensional model or computer simulated visualization should be required to view the project from various viewpoints within the community or from the water. The City should approve the method of presentation and the area to be included in the program.

COMPREHENSIVE PLAN

In accordance with State Law, "zoning regulations must be adopted in accordance with a comprehensive plan and must be designed to: (1) lessen congestion in streets; (2) secure safety from fire, panic, and other dangers; (3) promote health and the general welfare; (4) provide adequate light and air; (5) prevent the overcrowding of land; (6) avoid undue concentration of

population; or (7) facilitate the adequate provision of transportation, water, sewers, schools, parks, and other public requirements."[7] Therefore, to protect the interests of the community, particularly as they relate to the legal integrity of the zoning ordinance, it is advisable for the City to prepare (or update) a comprehensive plan. At a minimum, the plan should include a section on land use, with the primary focus on the non-residential areas; traffic and transportation; and, public facilities and services. The plan would provide the policy basis for the regulations, with analysis of existing conditions and recommendations as to the necessary improvements and requirements to support the community's economic development and sound fiscal condition. As specifically related to the provision of facilities and services, the Comprehensive Plan would accomplish the following:

- Analyze the current and projected capacity requirements of the water and wastewater systems. Subsequently identify the required capacity improvements to support the development reflected on the Future Land Use Plan.
- Compare accepted "level-of-service" standards for the public safety services and document required future service provisions, facilities and equipment, program ratings and standards, technological upgrades, and increased staffing/facility/equipment needs.
- Identify deficiencies of current facilities and anticipated facility/ staffing/equipment needs to maintain service levels with projected population growth.

MARKET STUDY

As expressed through the community survey, there is concern as to the long term economic sustainability of mid- to high-rise development. There was concern expressed as to the impacts on surrounding property values, including concern for decreased value as well as significantly increased values and hence, higher property taxes. Therefore, it is advisable for the City to require that an independent market study be prepared concurrent with application submittal. Such study should be prepared by a reputable real estate marketing or development firm, with the selection to be made by the City.

The market study should focus on an evaluation of market support factors, assessment of the competitive market environment, and establishing demand measurements. An opinion should be formed concerning the depth of market available, market supported density concepts, and an estimate of the number

[7] Section 211.004, Compliance with Comprehensive Plan, Texas Local Government Code

of units that could be absorbed in the near-term relative to current and foreseeable market conditions.

FISCAL IMPACT STUDY

As essential study for development of such magnitude is for the City to have a fiscal impact analysis completed. Such analysis would quantify the proportionate costs for supporting mid- and high-rise condominium or mixed use development, including those for provision of both facilities and services. Such costs may include, but are not limited to, fire and police protection services, provision of infrastructure, added administrative requirements, and other public facilities such as schools and parks. The requisite costs would be compared to the revenues generated by alternative development densities and assumed assessed values. The result would help to determine the density and value threshold for which fiscal benefit will be derived by the City.

Conducting a fiscal impact study would arm the City with the information necessary to make sound and fiscally responsible decisions. The important decision will be to find a balance between a development density and scale that is feasible yet appropriate within the context and character of the community. Should regulations be written without a fiscal impact study the hazard is that they are too restrictive to accommodate feasible and potentially beneficial development. On the other hand, if they are not restrictive enough the character of the community may be compromised causing undue significant impact and burdens on surrounding properties and the community at large. Without either the study or amended ordinances, this type of development cannot occur thereby potentially missing an opportunity for quality new development.