

A Toolkit for Texas Watershed Planning

An Analysis of Dickinson Bayou Watershed

Prepared For:



TEXAS COASTAL WATERSHED
P R O G R A M

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To the readers of this booklet, I hope that the information you find in these pages is helpful and educational. It is by no means a magic solution manual for everywhere and I am not claiming to be an expert in all things watershed. Simply put, this booklet is meant to be a good starting place, a resource to help get you headed in a good direction. If you have any questions or suggestions to add please feel free to send them on. No one can know everything so I welcome opportunities to learn more.

Gig'em and God Bless,

Linda K. Salzar '05, '09

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Introduction

Cities can hold the greatest hope for a bright future for our watersheds.¹ Urban development has had a great impact on natural systems since the first cities in earliest civilizations. Modification of natural systems, agricultural methods and systems, transportation methods, as well as health and general living conditions are all greatly influenced by the natural environment.^{2,3} Water and watersheds are particularly vulnerable to the changes that result from urban development.³ This means that wise urban development and smart land use choices can not only make life better for you but also for the environment. More walkable cities, with larger open areas and preserving larger tracts of land will help to keep the environment healthy and functioning well. This is because of the relationship between the amounts of impervious surface created by how we live. Less sprawl, less impervious surface and greater amount of contiguous open space the healthier a watershed can be.

Zoning is the way that cities dictate how they are built. Traditional zoning, along with the advent of personal automobiles have played a large role in what cities look like today – and are in large part responsible for many of the environmental issues our cities and watersheds face. It is this reason that ordinances and their alternatives can play a large role in making cities more environmentally friendly. Creating walkable, livable centers in our cities can greatly help to reduce our impact upon the environment

¹ Rees and Wackernagel, 1996

² Kleppel *et al*, 2006; May *et al*, 1996; Barnett *et al*, 2007

³ Brody, 2008

Diving into the Bayou: About the Dickinson Watershed

The Dickinson Bayou watershed, a natural basin of land, collects water and drains it into tributary streams, then into Dickinson Bayou, the main stream of the watershed. It is located within the San Jacinto-Brazos Coastal Basin, to the southeast of Houston and west of Galveston Bay. The Dickinson Bayou watershed covers a total of approximately 63,830 acres or 99.7 square miles and is elongated in shape, with a length of 22 miles from west to east. The maximum width of the watershed is approximately 7 miles. Water falling with this area eventually makes its way into Dickinson Bayou. ⁴

The bayou begins near the town of Alvin in Brazoria County as an intermittent stream and flows easterly through flat to rolling prairies in Galveston County, approximately 24 miles. The water collected by the bayou flows into Dickinson Bay; a secondary bay of Galveston Bay, Cat's Point, April Fool Point, and Shell Island bound the roughly circular bay just over a mile across. ⁴

About 55% of the watershed is within the 100-year flood plain (a flood plain based on a 1% chance of flooding in any given year). Adjoining watersheds include Clear Creek to the north, Mustang Bayou, Halls Bayou, Highland Bayou, and Moses Bayou to the south. Two major irrigation canals, the Gulf Coast Water Authority's American Canal and Galveston System cross the watershed. ⁴

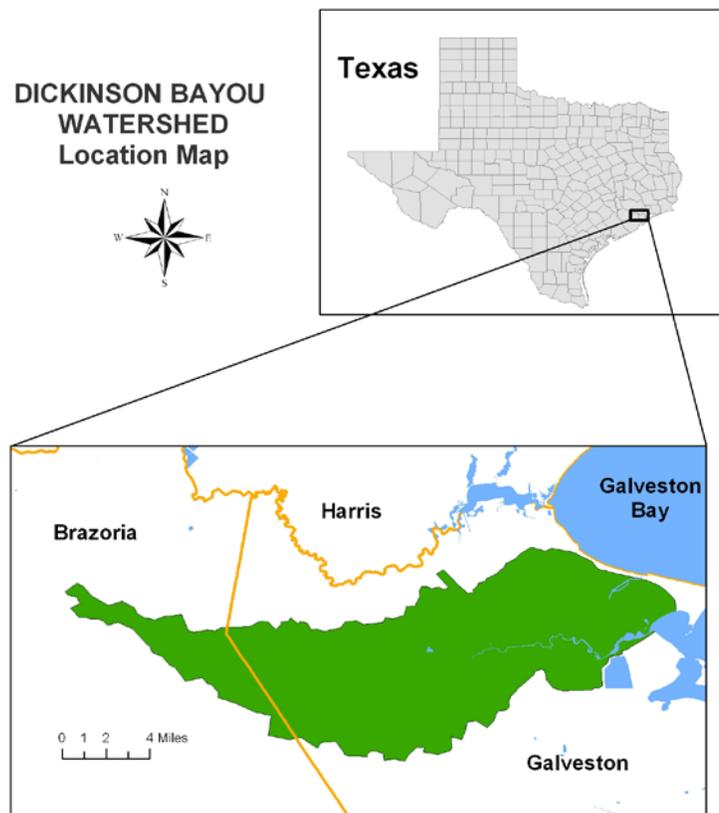


Figure 1 - Location Map of the Dickinson Watershed ⁴

⁴ *Texas Coastal Watershed Partnership (TCWP)* "Dickinson Bayou Watershed Partnership: Watershed Information." As quoted from the Dickinson Bayou Watershed Brochure produced by Galveston County Parks Department, Houston-Galveston Area Council, & Galveston Bay Estuary Program. <http://www.dickinsonbayou.org/watersheds/info/info.htm> Accessed May 2008.

Urban Development and Natural Systems: History and the Need for Change

Urban development has had great impact on natural systems since the first cities in earliest civilizations. Modification of natural systems, agricultural production, transportation, health and general basic living conditions are all greatly influenced by the natural environment. As a result people have been actively seeking ways to improve the tenuous relationship between cities and their 'hinterland'.⁵ The literature is burgeoning with recommendations and methods by which to evaluate growth and urban development. Since the days of Fredrick Law Olmstead, planners, city officials and lawmakers have sought ways to better a city's relationship with nature. As Wiek and Binder attest, within last decade "various indicator-based sustainability assessment approaches for city-regions have been developed and applied, e.g., Environmental Impact Assessment, Integrated Assessment, Pressure-State-Response frameworks, approaches using input– output sets of indicators (Regional Material Flux Analysis) or focusing on land use (Ecological Footprint, Sustainable Process Index), and Carrying Capacity Concepts (cf. compendiums by Moldan et al., 1997; Hardi and Zdan, 1997; Petts, 1999; Bossel, 1999; Rotmans and van Asselt, 2002; Linser, 2002; Robert *et al.*, 2002; Bell and Morse, 2003; Carey, 1993)."

After an elaborate search of the literature I realized quite quickly that incorporating all methods of evaluation would be neither possible nor advantageous. As Wiek and Binder point out, many of the techniques are narrow in scope.⁶ Those broader in scope also do not often clearly provide measureable objectives to adequately determine the ability to address the specific needs of the members of the Dickinson Bayou Watershed Partnership. Therefore, I sought out evaluation methods and recommendations that were concentrated in the field of environmental watershed planning, those directly dealing with land-uses and watersheds, and sustainable urban planning specifically citing examples in watersheds. Sustainable Urbanism, Smart Growth and sustainable development techniques were also areas of great interest as their techniques, motives and desired outcomes are in line with the goals set forth by the Dickinson Watershed Partnership. My project's aim is to give the cities within the Dickinson Watershed an idea of which ordinances in their current code either direct growth in a favorable fashion and those which are negatively driving growth so that it impacts the watershed in a deleterious manner. Cities earn a bad rap, being cited as the cause for long-lasting environmental harm. It has been well documented that urban land development is "linked to many environmental problems, including urban run-off, water pollution, and loss of wildlife habitat. Habitat destruction, fragmentation, and alteration associated with urban development have been identified as the leading causes of biodiversity decline and species extinctions."⁷

While cities (both their development and function) can be both the root cause for alarm, it is often overlooked that they also paradoxically hold the hope for a brighter future. As Rees and Wackernagel

⁵ Reigster 2006

⁶ Wiek and Binder, 2005

⁷ Hascic and Wu, 2006; Mckinney, 2002; Rottenborn, 1999

so eloquently state, “cities are casually linked to accelerating global ecological decline and are not by themselves sustainable. At the same time, cities and their inhabitants can play a major role in helping to achieve global sustainability.”⁸ Urban development has had great impact on natural systems since the first cities in earliest civilizations. The relationship between urban development and the environment has been one of opposites and necessary but estranged relationships. This can be seen by looking back into history and at our cities in the present day. Modification of natural systems, agricultural methods and systems, transportation methods, as well as health and general living conditions are all greatly influenced by the natural environment.^{9, 10} Water and watersheds are particularly vulnerable to the changes that result from urban development. Cities and watersheds have been linked since the dawn of civilization. First modes of long distance travel often were by small water craft and as shipping become prominent

watersheds, rivers, ports and bays all became the foundation for living. Numerous state and federal laws are the result of negative interactions or poor (or nearly lacking) environmental regulations which resulted in unhealthy, unlivable cities. Laws regulating development, habituation of dwellings – in addition to their placement within the great whole of the city all are as a result in shifts in urban planning and the laws that govern it. These include laws such as the Clean Water Act, the Clean Air Act, and Euclid vs. Ambler.^{9, 11} Affects of continued development over the centuries has dramatic impacts upon water quality and water quality. Urban development “ may increase the discharge of DSi-poor rainwater and decrease the discharge of DSi-rich ground water into aquatic ecosystems.” This is directly a result of increases in impervious cover.¹² Cities wishing to become healthy and ecologically sensitive must consider the environmental impacts of their development, function and future well-being.

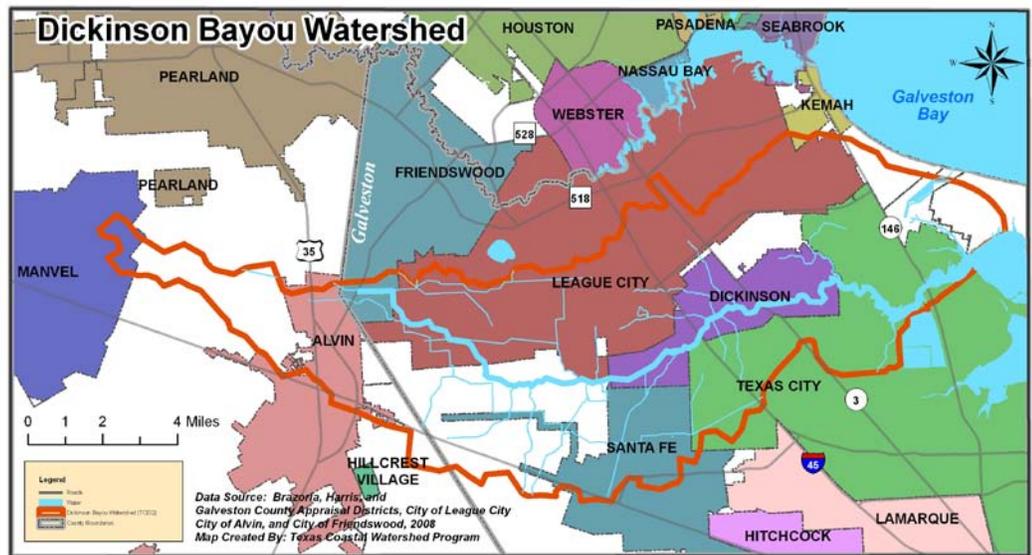


Figure 2 - Urban Areas with the Dickinson Watershed

⁸ Rees and Wackernagel, 1996

⁹ Brody, 2008

¹⁰ Kleppel *et al*, 2006; May *et al*, 1996; Barnett *et al*, 2007

¹¹ Legates, R. T. and Frederic Stout, 2003., Register, 2006; Newson, 1992; Daniels and Daniels, 2003

¹² Loucaides *et al*, 2007

Guiding Development: What are ordinances?, How can they affect how a city is built? and, How do they impact the environment?

Traditional “Euclidian” Zoning

First introduced to the US in 1800’s, zoning – dubbed ‘Euclidian’ after US Supreme case which upheld it’s legal justification (Euclid vs Ambler), is used to achieve better urban form and function. The main test by which you can determine validity of a zoning regulation (commonly referred to as an ordinance) is if the statute is in place to protect health, safety and welfare of your city’s citizens. As many planers and city officials can attest, these lines can become gray and blurry. Often uses are separate to eliminate potential harmful effects and deleterious situations arising from mixing of land uses. Land uses are traditionally categorized into three types, Residential, Commercial and Industrial. As briefly mentioned earlier, Traditional zoning, along with the advent of personal automobiles have played a large role in what cities look like today – and are in large part responsible for many of the environmental issues our cities and watersheds face.

Performance Zoning: Smart Growth, Smart Codes, & Form-Based Codes

One commonly suggested alternative to traditional ‘Euclidian’ zoning is the concept of performance – or form-based codes. As Katz states in his article in the 2004 November issue of Planning, “form-based coding seeks to regulate *the form* of the built environment.” While this new form of development regulation holds promise in many areas, one could argue that considerations of environmental impacts are largely absent in form based codes. Form based codes vary greatly from traditional Euclidian zoning which seeks to regulate land-uses, in particular the act of separating those uses that are incompatible. As Katz put it: “... *conventional zoning primarily seeks to control land use and density, but is largely silent on matters of form beyond the most basic height, floor-area, and setback limits for individual buildings. The new approach builds on the idea that physical form is a community’s most intrinsic and enduring characteristic. It seeks to codify that form in a straightforward way so that planners, citizens, developers, and other stakeholders can move easily from a shared physical vision of a place to its built reality.*”¹³ Use is a secondary concern that takes a back seat to design considerations and building vernacular. While this may seem to improve the built environment, these changes are often seen in the superficial facades of buildings and structures which hardly make monumental changes in the built environment’s sustainability – specifically impacts made upon the environment.

Proponents of form-based codes (FBCs) offer that they “can achieve a more predictable physical result”, “encourage public participation because they allow citizens to see what will happen where —leading to a higher comfort level about greater density, for instance,” and that

¹³ Katz, 2004, pg. 18

“because they can regulate development at the scale of an individual building or lot, FBCs encourage independent development by multiple property owners. According to Katz, this “eliminates the need for large land assemblies and the megaprojects that are frequently proposed for such parcels.” It’s also often stated that FBCs are easier for non-professionals to understand and that they lead to higher quality structures built upon an existing “DNA’ vernacular” FBCs include very detailed descriptions which include specific information as to what is allowed.

The flexibility of FBCs may also hold advantages in achieving some measure of sustainability as they make mixing uses easier to implement. It is important to keep in mind though that FBCs increase the ease of mixing but do not guarantee that proper mixing of uses will occur. Likewise, FBCs do not necessarily result in easier (or shorter) documents. It is important that much of FBCs include specifications for architecture, engineering and aesthetic designs all in the name of a ‘better’ form of the built environment. Most alarming are the facts that FBCs directly neglect placement of these more appealing structures, their relationship to other uses or structures are ignored, and the fact that these regulations have little to do directly with the health, safety or welfare of the citizens inhabiting these beautified buildings. Legal hurdles and challenges still remain for FBCs and environmental concerns still exist even though FBCs may make the environment more appealing for the human inhabitant. Higher density developments are encouraged and good progress may be found using FBCs but as we’ll explore, form-based codes are far from the perfect solution to the gaps left by Euclidian zoning.¹⁴

In his viewpoint address in the January 2007 edition of *Planning* magazine, Peter Pollock concisely illustrated the four main drawbacks of form-based code. He states that “form is not the only thing. Use counts, too.” Regulations that strictly govern form are not enough he says, stating that we need “to manage all of the effects that a building and its users have on the environment.” According to Pollock, use-related issues we deal with include:

“Separation. Face it—some uses should not be mixed. Euclid v. Amber Realty got it right in 1926. Most times, industrial uses are incompatible with residential uses.

Concentration and exclusion. Some uses should be concentrated, and others should be excluded. For instance, excluding professional offices can help to preserve near-downtown residential districts while concentrating those offices in the downtown can contribute to its economic success.

Operation. Some uses need to be carefully managed. By including specific requirements in the zoning code, planners can ensure compatibility. An example is limiting the size and the hours of restaurants and taverns located next to residential areas. The zoning code can also include a

¹⁴ Goldstein, 2008; Berke, 2006

requirement that such establishments develop a management plan.

Protection. A well-written zoning code can protect services that are in danger of being driven out of a neighborhood by rising real estate values. Think of all those auto repair shops that have been forced out by higher value office or residential uses. Zoning provisions can designate such services as the "highest and best use" for the site."¹⁵

Renowned planner Phillip Berke notes that FBCs “are less helpful when it comes to land use and design standards for wildlife habitat and wetland protection, mitigation of natural hazards, watershed-based zoning, reduction of impervious cover, and the dimensions of stream buffers.” Location of a project often also is one of the major drawbacks of FBC projects as site is not regulated. Burke postulates that sometimes FBC developments “can cause even more environmental harm than conventional low-density development if they are placed in the wrong locations. In fact, a low-density project may have less impact on a pristine sub watershed than a higher density development. It all depends where the project is located. If the site is in an appropriate infill location, it may cause little harm even if sub watersheds are already degraded. If it is located in a small watershed at the periphery of a developed area, downstream flooding could substantially increase and water quality could be even more degraded than with a conventional development. In short, projects must be sited based on carefully conceived land-use policy and site development practices. The problem highlights the need to combine both regional and site planning to protect the environment.”¹⁶

In the case of environmentally sound or ‘sustainable’ urban form, form based codes will not be the quick fix to urban sprawl and other land-use related problems inherently encouraged by Euclidian zoning. As Ghosh *et al* recount:

“Sustainability of urban form is significantly shaped by behavioral patterns, energy demand, associated environmental emissions, local decisions of households, transport and land use policy¹⁷ in addition to economic, social and cultural preferences.”¹⁸

It is not hard to conceptualize then that form based codes do not provide full compensation for environmental degradations that are a result of the built environment. Changes to the form and

¹⁵ Pollock, 2007 p 62

¹⁶ Berke, 2006 pg. 39

¹⁷ Anderson *et al.*, 1996, p. 7

¹⁸ Rose, 1967, p. 138

the flexibility to create smaller foot prints through mixed use may offer minimal compensation but do not address the behavior patterns, economic or social patterns resulting in the use of the land. This should be hardly surprising though, as FBCs are not meant to deal with land use –

merely the form and design of the buildings.

It is not all bad news though. FBCs combined with a few changes to traditional zoning and perhaps small behavioral changes – such as auto dependence, can result in powerful positive steps. Ghosh *et. al.* suggests that urban form as a result of tradition zoning often hold promise towards achieving sustainability and decreasing impacts of the urban form on the environment that cannot be realized using form-based codes alone.¹⁸ Initial results

from their study suggest that “lower-density residential developments may have more potential to be sustainable because of the ability of residents to grow food and to make use of on-site renewable energy

technologies, which may require behavior changes among the residents.” Surprisingly, their study also concluded that – at least in New Zealand, “...higher-density residential blocks, despite being closer to the CBD, appear to have a lower potential to be sustainable.”¹⁹ Calculation of local environmental sustainability using ecological footprint techniques in terms of five main aspects - domestic energy; transportation; vegetation cover; food; waste - for five residential urban form case studies in Auckland, New Zealand found conclusively that “*low-density urban forms may have more potential to be sustainable compared with other compact urban forms which may require a change of behavioral patterns for the residents.*”¹⁸ This, again, is likely due to the fact that compaction of building size or regulation of form of a building does not address spatial or behavior affects the built form has on the environment.

Improvements toward sustainability include some aspects of the buildings such as “insulation, photovoltaic modules, permeable paving and other technical/physical issues involve indirect components of behavior” as Ghosh point out. But more critical are the behaviors and timeframes considered – which have little to do with the actual buildings – and so have little involvement in form-based codes. Vegetable gardens, public transport, waste management and appliance choices are some of the behaviors that allow individuals to more directly become

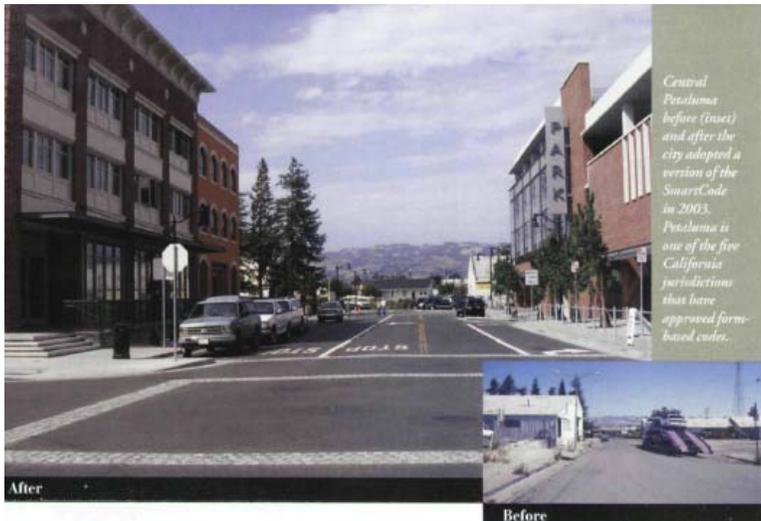


Figure 3 - Before and After photo of an area re-developed using form-based codes. From: Langdon, Phillip. *The Not-So-Secret Code. Planning. American Planning Association. Vol. 72 Issue 1, January 2006. Page 25.*

¹⁹ Ghosh *et al.* 2007

more sustainable. "Bigger changes are related to behavior, and finding ways to encourage different behavior outcomes could significantly impact sustainability." ²⁰

Joel Russell admits that, "the level of physical detail in a form-based code exceeds that of a conventional land-use plan." Russell believes it's "prohibitively expensive" to do form-based coding for an entire community, unless it's a very small place. "Most of what a Form-based



code regulates is at the neighborhood scale or smaller," says Peter Katz. This becomes problematic in environmental context, as most systems are large-scale and must be managed in a much larger context to ensure viability of the system. Watersheds, for example, are often only truly understandable at a county level (or even state scale in some smaller

Figure 4 - A conceptualized drawing of an area developed using form-based codes. From: Langdon, Phillip. The Not-So-Secret Code. Planning. American Planning Association. Vol. 72 Issue 1, January 2006. Page 25.

states). This means that form-based codes could be too little an effect to effectively incorporate this appropriate scope of scale to make it advantageous. When trying to select the most cost-effective measures to implement, cities would likely find alterations to existing codes and encouragement and public relation efforts a greater investment of available means, as well as something more readily received by the citizens of this area of the country.

While it may seem that much said in this section is against form-based codes, this is not the intention at all. The principles behind form based code have merit and that they help (at least in small measure) to correct for some of the inadvertent environmental problems created by traditional zoning. Form-based codes help to make different types of zoning and combinations of uses more possible and they bring a new and encouraging standard to some very deplorable places. As seen in the before and after photographs from Landgon's article, the results of implementing FBCs can be good for decreasing foot prints as well as quality of life for residents of a city. The main concern is that the FBCs seem to be currently touted as the potential driving force to solve all issues related to sprawl and "ugly" cities. There are numerous issues relating to sustainability and better environmentally-planned cities that are grossly neglected by FBCs.

Perhaps then, a hybrid of FBCs and Euclidian zoning would work better. The next questions then become... who would write such a cumbersome document?, how would you make it so all

²⁰ Ghosh *et al*, 2007

could understand it?, and how would you enforce such a code? The answers to these questions are just now being answered.

It is often hard to conceptualize or to tackle to host of related questions but many have tried. Conceptualizing answers to these and countless related questions may seem daunting but thinking outside the box for solutions can help developments solve problems while still fitting neatly within the character of you city. This brings our discussion to Smart codes, smart growth, transects, and transit oriented developments. Transit oriented developments (like the one pictured in Figure 5 in can greatly improve many of the issues raised in the paragraphs above.



Figure 5 - A picture of a Transit Oriented Development. Source: <http://www.transitorienteddevelopment.org/>

Smart growth principles, as described in Chapter 8 of Barnett's book: *Smart Growth in a Changing World*, describe how compact growth of streets, areas and creating more sustainable "green" built environment can be achieved through local zoning and subdivision regulations.²¹ This concept of ecologically sustainable development can have positive outcomes for a community – reducing risks associated with hazards, improved environmental conditions and even improved equity with a community.²²

Transects are another great alternative planning tool that has achieved good results for guiding growth in a more sustainable direction. Douglas Farr's text *Sustainable Urbanism: Urban designing with Nature* is a great resource for seeing how this technique (as well as many others noted in this paper) can make a dramatic difference in how sustainable your city is.²³

It is important however to consider that the current zoning regulations and all the proposed codes still do not individually solve all the issues at hand. Changes of lifestyles and personal choices of your citizens must accompany the move towards more sustainable choices for how to live, work and play in your city. Discussions in the planning profession, with city leaders and

²¹ Barnett, 2007 pp. 107-124

²² May *et al*, 1996 pp 80-85.

²³ Farr, 2008

citizens are going to be the key to planning better and guiding city development- so that perhaps one day we can truly build a sustainable city.

Measuring the Current State: Where are we now?

Methods and Procedures – Choosing the Ordinances

The goal of this case study was to complete an analysis (upon data previously collected by Pat Kultgen) to identify the top twenty ordinances impacting the Dickinson watershed in the greatest severity. Due to difficulties in timing of availability to conduct stakeholder meetings as well as the limited time to complete this ambitious project, ten ordinances were selected based upon their prevalence in current peer-reviewed literature and which might be benefited by the chief interests of the project: land preservation and implementation of ‘smart growth’ principles.

For this paper, one author’s recommendations in particular were used to compare the cities performances. This is because Stephen Wheeler’s principles for planning more sustainable cities provide a list of actual densities, square footages, parking spaces – not simply general text of guidelines without target numbers to reach for. Most articles read throughout the research for this project outlined measures and steps but rarely listed actual numbers to use as a reference point for measure current status or tracking future improvement. Page 158 of Wheeler’s text, summarizes ranges and extensive recommendations as well as listing many of the principles of smart growth and their relation to city planning.²⁴ From this table I selected ten of the most commonly used indicators for measuring urban growth, density or land coverage which might result in negative impacts upon the watershed. For example, lot sizes were selected because they impact sizes and type of developments as well as the amount of open space on the lots. Lot percentages also impact the amount of development per lot. Both of these indicators (lot size and percent coverage allowed) influence water run-off levels, walkability of an urban area and the influences of development on the watershed. The indicators selected for this study from Wheeler’s table are seen in Table 1 and included maximum and minimum lot sizes, percentage of lot coverage, lot width, density units per acre (d.u./Ac), height restrictions, property setbacks, floor area ratios, number of parking spaces required per unit, and the permission of mixed uses.

²⁴ Wheeler, 2004. pg 158

Table 1 – Indicators selected for study- based upon Wheeler’s *Planning for Sustainability: Creating Livable, Equitable, and Ecological communalities and Brody, 2008*

WHEELER- SMART GROWTH ALTERNATIVES	
(1)	LOT SIZE
	Minimum Lot Size
	Maximum Lot Size
(2)	LOT WIDTH
	Single Family Residential
	Townhouses/ Duplexes
	Apartments/ Condominiums
(3)	DENSITY: d.u./Ac / FLOOR-AREA RATIOS
	per lot
	downtown areas
	residential areas
	FAR
(4)	HEIGHT RESTRICTIONS
	downtown areas
	residential areas
(5)	SETBACKS
	front
	side
	from creeks/ waterways
(6)	PARKING
	downtown areas
	residential areas
	transit-oriented areas
	Retail
	Office

		1000 sq ft in other locations
	Charges	monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged
(7)	LOT COVERAGE %	no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space
(8)	MIXED USES	allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts
(9)	TRANSFER OF DEVELOPMENT RIGHTS (TDR)	
(10)	CLUSTER DEVELOPMENT	
(11)	FLOODPLAIN ORDINANCES	

(partially Adapted from Wheeler, 2004 and Brody 2008)

Identification of the top ordinances was completed bearing in mind that cities working along side the Texas Coastal Watershed Partnership’s staff will be looking to gain the most possible from possible correction or alteration of their ordinances while still maintaining fiscal responsibilities (“biggest bang for your buck” possible). The ordinances were selected based upon their impacts relating to land use.

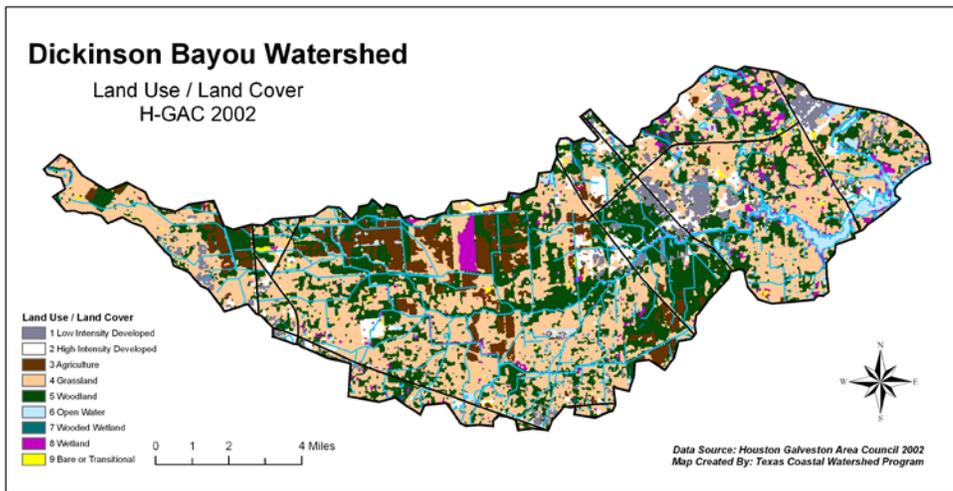


Figure 4 – Land use within the watershed as of 2002.

Accordingly, these ordinances were examined in detail – so as to identify possible ‘road blocks’ to their potential alteration and amendment. While alterations of ordinances have the potential to have legal ramifications, it was not the primary direction for examination. Rather, the potential physical or ‘natural’ barriers to implementation were used as a guide when examining the ordinances. As with any ordinance or legally

biding document, legal road blocks should be determined by the respective city wishing to implement a new measure by means of consultation with a qualified planning professional or municipal lawyer – whose specialty allows for more thorough and sound legal advice. Additionally, the ordinances were assessed to determine which might be easiest to alter and thus would be easiest to implement. The potential benefits and drawbacks of each ordinance type are important to consider as many ordinances are interrelated and decisions to change one will assuredly impact the success of other alternative changes. For example, changing required

parking spaces may decrease paved surface areas and reduce run-off. Changing setbacks and densities will also greatly affect runoff levels per capita but will likely reduce the total net runoff amounts as well. Knowing these benefits and drawbacks, as well as their relationships will be key to effectively allowing TCWP and their clients to better gauge possible implementation and possibility for change.

To maximize accuracy of comparisons between cities, several tables and visual comparisons were created. The tables (found in Appendix i) detail the presence or absence of the 10 indicators in the city ordinances. While many variations may be present, the exact phrasing was used for all cities in an effort to systematically search using standard language. It is understood however that some cities may address these 10 ordinance indicators by use of other language or within their comprehensive plans. While the presence or absence of comprehensive plans was noted and a more comprehensive key-word search was completed by my predecessor – Ms. Pat Kultgen, certain ordinance categories (i.e., setbacks) easily demonstrate the need for select phrases for comparisons within scope of this project. (It is the hope that a Gap Analysis with a much wider scope can be conducted in the future.)

Current Land Uses

As you can see in Figure 4, the current land uses are varied and cover a great deal of the watershed already. Expansion of the urbanized areas and development within the watershed must be properly guided to ensure the health of the watershed and those living within its boundaries. Analysis of the projected changes over time needs to be conducted to determine the key impacts and direction that the current ordinances might 'guide' land use and growth within the watershed if left unchanged. Key also is the ability of the forecasting to illustrate the potential of positive changes that could be made by altering current trends – so as to benefit the watershed's health and vitality. It was the intention that this be completed during this project by means of a gap analysis. The 10 ordinances identified should be examined to determine their current and future impacts upon the Dickinson Watershed, as well as possible projections of intended impacts of changes and amendments to lessen their negative impacts upon the watershed. This could easily be accomplished by using GIS and data layers which are usually available through local municipalities or state agencies. A critical reduction in available time permitted to complete this study meant that the gap analysis will have to be completed in further endeavors. It was possible to code the data and prepare it for analysis but time and resource constraints necessitated the elimination of it from this analysis.

Where to go in the future

Identification of model ordinances was the next step so that stakeholders within the watershed – specifically the city and county planning agencies, may draft new or alter the existing, previously identified ordinances to affect positive changes within the watershed. While this document makes general references to target numbers, suggestions as to what may be a better goal for the 10 types of ordinances listed, these should be considered merely a guide they may not be in accordance with all local and state laws. It is strongly suggested that any alterations to existing

(or creation of new) ordinances using these examples should be reviewed thoroughly by the client's planning staff and legal advisors. (Web links to additional example ordinances and watershed plans were used as a guide for this project as are listed in the references pages.)

Presentation of Findings

The last and final step was to be the presentation of the findings to the TCWP and the cities. Time constraints and academic endeavors made this step of the process and evaluation of the study difficult to gage. It is the hope that presentation of the findings will be able to happen in the future and that additional feedback may be added to this document in time. It is not the intention that this tool-kit or the work for this plan is a static document but rather that it be re-evaluated and added upon. While the knowledge gained throughout this project has been of extensive quality, experts in the field of planning and city governance know that to be most effective at making progress we must strive for continual improvement and implementing new and the most appropriate actions for the people and place for which we plan. Revisions, comments and expansion of this document are encouraged in the hope that planning efforts for the Dickinson Watershed may continue to protect and nurture the ecosystems of such a uniquely rich region of the Texas gulf coast.

Ordinances for Improving Walkability and Creating Compact Growth

What ordinances and zoning practices are most effective? Well, Stephen Wheeler's principles for planning more sustainable cities provide a list of actual densities, square footages, parking space ratios and many more indicator targets – in short, he lists out the numbers to try and achieve. As mentioned previously, most articles outline measures and steps to take but rarely list actual numbers to use as a reference point for measure current status or tracking future improvement. Some commonly used indicators for measuring urban growth, density or land coverage which might result in negative impacts upon the watershed can easily be identified. A few of the most interrelated and most influential zoning practices from Wheeler's large table include: maximum and minimum lot sizes, percentage of lot coverage, lot width, density units per acre (d.u/Ac), height restrictions, property setbacks, floor area ratios, number of parking spaces required per unit, and the permission of mixed uses.²⁵

In addition to Wheeler's recommendations, Jonathan Barnett outlines principles of smart growth in his book: Smart Growth in a Changing World. Barnett describes how compact growth of streets, areas and creating more sustainable "green" built environment can be achieved through local zoning and subdivision regulations.²⁶ This concept of ecologically sustainable development can have positive

²⁵ Wheeler, Stephen .(2004). Planning for Sustainability: Towards More Livable and Ecological Communities. New York: Routledge. Pg. 158- 159.

²⁶ Barnett, 2007 pp. 107-124

outcomes for a community – reducing risks associated with hazards, improved environmental conditions and even improved equity with a community.²⁷

Due to the plethora of suggestions and recommendations ten types of measurements readily used in ordinances to affect the pattern, type and density of urban growth will be examined a little bit further; giving you insight into how they make affect urban development and what this might translate into when it comes to environmental affects.

Minimum and Maximum Lots Sizes

Lot sizes are important to consider because they impact sizes and type of developments as well as the amount of open space on the lots. Lot sizes (and percent coverage allowed) influence water run-off levels, walkability of an urban area, and the influences of development on the watershed. Smaller lots sizes increase densities and decrease urban foot prints. Incredibly, no city within the Dickinson Watershed list maximum lot sizes in their ordinances. This trend should be addressed by future changes to the existing lot size regulations – which currently list only lot size minimums. Minimum lots sizes should be 1500-4000 sq. ft, if any. Better still would be the listing of maximum lot sizes. Changes to existing ordinances to add maximum lots sizes should bear in mind that the recommended maximums should be no more than 5,000 sq ft.

Lot Widths

Lot widths determine how much land is needed when building residential neighborhood or a development so smaller widths decrease urban foot prints, reduce sprawl and increase density allowed.

Nearly all cities except Alvin and Dickinson list minimum lot widths for estate subdivisions. Santa Fe has the lowest lot minimum width required at 60 feet. La Marque and League City listed minimum lot widths for estate subdivisions at 100 feet with La Marque encouraging estate development because “it results in less drainage and traffic demands”²⁸. Friendswood had the largest minimum lot width for estates, listing 150 feet as their minimum. Four cities within the watershed list width minimums for multi-family lots: Friendswood (45 ft), La Marque (60ft), Santa Fe (100 ft) and Texas City (80 ft). It is important to note that of all the cities, Dickinson is the least restrictive – only listing lot sizes for those served for sewer. This could be encouraging sprawl but also represents a good opportunity for flexibility and may make it easier to create a more sustainable city. According to Wheeler, no minimums should be set, showing that Dickinson is indeed providing for the greatest opportunity to allow for more sustainable growth.

Changing of lot widths will case a cascade of changes – with your zoning, platting and will greatly affect the development of current and future projects. Making such changes is almost always met with

²⁷ May *et al*, 1996 pp 80-85.

²⁸ La Marque City Ordinance, 32.IV.41.115.b

resistance by the development firms – as they will see this as even more regulation of their freedoms to create a project. Many developers and architects will likely find such changes exceedingly stressful. The key to overcoming this will be inclusion of the development community, education efforts and a contingency plan for dealing with current project that may not meet the new standards (non-conforming uses, etc.).

Lot Coverage

Lot coverages are very important when trying to measure how much land is being consumed by developments and how much is left over for the environment. It is crucial to link these with lot sizes, widths and setbacks because they all tell you how buildings, structures and parking lots can be placed on a piece of property.

Only the cities of La Marque and League City set generalized lot coverages at 75% and 55% respectively. Even though a couple of cities listed regulations to allow for cluster development (which are talked about later in length) only the City of Friendswood included a lot coverage percentage in the cluster development ordinances – listing a maximum lot coverage of 40%. Santa Fe and Texas City listed maximum lot coverage for estate subdivisions at 20% and 40% respectively. Only the City of Texas City mentioned any lot coverage for Planned Unit Developments (PUDs) and they did not determine a level but left it to be determined at a later time in relation to the specific development. No city within the study mentioned all land use types. The City of Dickinson, City of Manvel and City of League City did not mention maximum lot coverages at all. It would be better if no maximums were listed when parks and other public spaces are nearby and roof tops should be used as open space. These recommendations would be easiest to add to the ordinances of Texas City (especially the PUDs) and to those that specifically address cluster developments. Key to these changes may be the use of overlay districts, special planning zones and the gap analysis using GIS to identify these areas.

Political controversial and sure to raise concerns, lot coverages may take a little work to get approved as a change. Citizens may be upset that their property and homeowner rights are being violated, perhaps claiming that their economic right to build or buy the biggest home you can afford is being taken away.²⁹

Property Setbacks

So, why bother with setbacks? Well, generally speaking, smaller setbacks or zero lot lines allow for buildings to be closer and thus to have a smaller footprint.

Because of the wealth of types and great variety with the land-uses listed in the ordinances it was easiest to get a sense of how each city was doing by comparing average setbacks. With this in mind, Dickinson has the smallest average lot setbacks at 11ft and Friendswood has the largest average - approximately 21 feet. Most cities in the watershed list minimums rather than maximums. This is the

²⁹ Lot Coverage: Theft of Property Rights, Arlington Style
http://acta.us/growls/2005/09/lot_coverage_theft_of_property.html

antithesis to what scholars suggest cities do. Promising though is that nearly all cities within the watershed (all but two) allow for zero-line construction. Dickinson falls behind most cities in how often they mention specific lot setbacks, hardly addressing these by listing either a maximum or minimum. Creek and waterway setbacks are also recommended to be included in city ordinances, especially listing of at least a minimum of 30 ft from the centerline of a waterway.

The same concerns as seen with lot sizes and widths with likely apply here as well. Citizens may be upset that their property and homeowner rights are being violated³⁰ and political support for changing these may be hard to achieve without the proper public relations efforts and education on the benefits to be gained.

Walkability - Density (d.u./Ac) and Floor Area Ratios

According to many scholars, maximum densities are not usually helpful when trying to move towards a sustainable city. More helpful would be a minimum density. Residential developments allowing greater densities may be very helpful in decreasing footprints and allowing cities to become more sustainable. These higher density living spaces could more easily be connected with shopping, services and working environments while using less of the natural area to support these needs. You could even easily include such dwellings as part of a master planned area, (often called planned unit developments) or 'town center'. These could be similar to the Woodlands, Sugar land or any of the developments highlighted in Houston-Galveston Area Council's Livable Centers.³¹ Higher densities (closer to 20 d.u./Ac) provide enough people to develop alternative transportation methods such as transit stops and encourage walkable communities. These higher densities are what the cities within the watershed should be aiming to achieve in downtown areas or centralized gathering spaces. Minimum densities should be required for other areas as well. At an individual lot level developments should be allowed to add second units on existing lots to boost the amount of units per acre of existing development – thus producing minor 'infill' development. In Single family districts, multiple compact dwellings should be built on vacant properties. For new developments in single family residential areas a density of 10 units/ Ac should be achieved and no less than 20 units/ Ac should be achieved for multi-family dwellings.

As a whole, minimum densities are nearly absent across the board in the Dickinson Bayou – with only two cities mentioning them. The City of Texas City is doing well in this regard; listing a minimum density of 18 d.u. /Ac. Friendswood (the only other city to list a minimum) also gets a thumbs-up for including a minimum of 6 d.u. /Ac. Other cities mention specific densities for alternative uses – such as mobile homes and townhomes but rarely list these for normal, everyday type of uses.

³⁰ Lot Coverage: Theft of Property Rights, Arlington Style
http://acta.us/growls/2005/09/lot_coverage_theft_of_property.html

³¹ Houston-Galveston Area Council (H-GAC) <http://www.h-gac.com/community/livable/centers/default.aspx>

Typical Densities...	
Large Lots	One unit per <u>several</u> acres
Suburban/ Single Family Residential Areas	Up to 5 units per acre
Narrow Lots Single Family	Between 8 and 12 units per acre
Townhomes	18-20 d.u./Ac
Multi-family Residential – low rise	20-30 d.u./Ac
Multi-family Residential – mid rise	30- 50 d.u./Ac

Only one city in the watershed (Friendswood) has a maximum density (units/acre) listed for residential areas – 2.7 acres, meaning that most residential areas could have higher densities if desired. Several cities, including Dickinson, La Marque, League City and Santa Fe, all have maximum densities listed for multi-family dwellings.

Floor Area Ratios (FARs) are a numerical measurement of how dense commercial and office areas are. Combined with lot coverages, higher FARs can mean a building that will allow for greater the density structure, constructed upon the same ‘footprint’ of horizontal space. This is well illustrated in the figure below, which compares how a FAR of 0.25 may be configured with differing lot widths allowed.

In the Dickinson Watershed Floor-Area Ratios were completely absent from city ordinances of all municipalities within this study. FARs achieving higher densities, such as those equal to high integers should be the goal. For example, these might include greater than 3-5 in residential areas and in double digits in commercial areas.

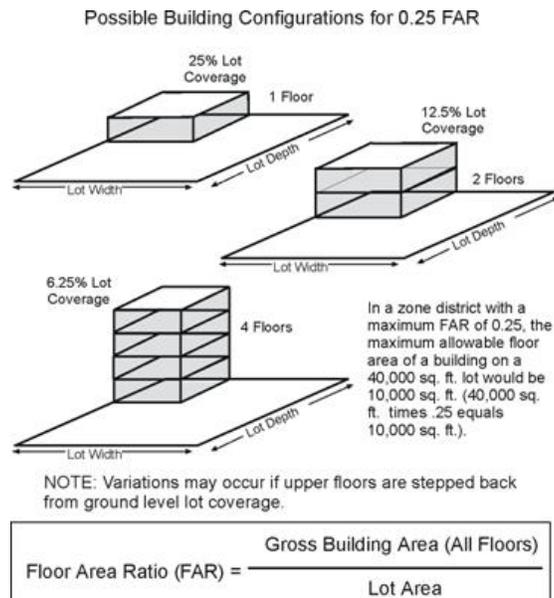


Image of FARs Courtesy of City of Pasadena, CA
 Online Zoning Code: “Glossary of Specialized Terms and Land Use Types”

www.ci.pasadena.ca.us/zoning/p-8.html

There may be challenges when trying increase density in the cities found in the Dickinson Watershed. The most obvious roadblock would be the limited public support and negative perceptions associated with higher densities. Often our culture is very much against density – preferring the “American dream” of your own home with your own piece of land, a yard, home (where you can reach for a while and not ‘touch your neighbor’). This typical suburban setting has been billed as the measure of a successful career and building of a family. Some citizens may also feel that increasing density will increase traffic, increase crime or significantly alter the neighborhood’s character.

According to the Urban Land Institute, studies have shown that people interviewed often hold a negative view when surveyed about higher-density development, but “when shown images of higher-density versus lower-density development, people often change their perceptions and prefer higher density”.³²

Height Restrictions

In lieu of FARs most cities placed height restrictions upon structures by land use type. Most cities still didn’t allow stories to reach as high as Wheeler suggests but having them included in ordinances is a good first step. The higher the number of stories allowed the denser a development maybe, using vertical space rather than horizontal space. Cities should consider high maximum or (even better) a minimum. Height minimums help to encourage greater densities for developments, requiring buildings to grow up as opposed to out over a piece of property. No height minimums were mentioned in ordinances of any of the cities.

Height maximums were listed by land use type and varied slightly across the watershed. La Marque, Manvel, and Texas City list maximum required heights for commercial structures at 50, 60 and 75 feet respectively. Manvel and Texas City also list maximums for heavy commercial uses and manufactured housing. Alvin, Friendswood, La Marque set their maximum height restrictions for patio home subdivisions at 35 ft (approximately 2 - 2.5 stories) and Texas City mandates a maximum of 30 ft. Most cities (except Dickinson, Friendswood and League City) list height maximums for multi-family structures. These range from 25 feet (2 stories) in Santa Fe to 45ft in La Marque. Developments should have a minimum height requirement of at least 3 ½ stories or 40ft.³³

As mentioned earlier, cities would be better served if they listed minimum height requirements instead of listing maximums. Minimum heights of 3-5 stories in commercial or downtown areas are ideal and residential areas should seek to increase their height to at least 3 to 4 stories (or approximately 40 ft.)³⁰

³² Emil Malizia and Jack Goodman, (2000) p. 12.

³³ Wheeler, 2004. Pg. 158- 159.

Roadblocks for changing of height restrictions will also include the negative perceptions associated with density. Citizens will be worried that their view will be blocked – even if the view isn't very great to begin with. Residents may also challenge on legal validity of drastic changes, citing the height changes and affects on sun exposure, changing of air circulation and those factors listed in Penn Central Transportation Co. v. New York City.

Parking Requirements

The large areas of pavement will increase run-off, reduce open space, and create a whole host of other environmentally negative consequences. This is why they must be considered when trying to improve a city's walkability and to improve water quality (and even quantity).

Parking requirements as outlined in ordinances available on Municode also varied greatly by city within the Dickinson Watershed. The cities of Santa Fe, Dickinson and Friendswood have no parking regulations or standards set forth for multi-family units. Most cities require two parking spots per bedroom for residential land-uses while Dickinson and Santa Fe have no parking regulations for residential land-uses. Alvin allows townhome properties to have some parking off-site and requires that only one space be located on-site. This is quite concerning because large and excessive areas of concrete or asphalt add to the area used or land percentage covered by a development. It would be better to have a ratio of 1 space per 1000 sq. ft. at a minimum. Businesses especially should consider off site parking or alternative arrangements for getting customers to their stores.

Changing of parking requirements will be a challenge thanks to the prevalence of currently accepted by other professional groups and their well-accepted concepts for normal requirements – such as those defined in the Manual of Uniform Traffic Control Devices (MUTCD) published by the U.S. Department of Transportation.³⁴ This will mean that better education and cooperation will be needed and scientific proof that bigger parking lots don't equal a better shopping or living experience should be shared with citizens.

Mixed Use

Considered by some to be the cornerstone principle of a walk-able and sustainability minded city, the mixing of land uses allows shorter traveling distances, helps to discourage sprawl and decrease urban footprints - thus reducing the amount of impervious surfaces and run-off per capita.

It is rather startling then to discover that mixed use developments are only mentioned in ordinances of three cities within the watershed: Alvin, Manvel and Texas City. While many others may list them or discuss them in their comprehensive plans, only zoning ordinances provide the legal 'legs to stand on' if a city wants to permit, regulate or otherwise encourage these types of urban development. It is strongly

³⁴ [Manual of Uniform Traffic Control Devices](#), FHWA, 2003, Section 3B-21.

recommended that the other cities with the Dickinson Watershed add ordinances that permit such developments to be allowed.

Roadblocks for implementing mixed use development will likely be as result of misunderstandings and myths associated with this type of development. Concerns over mixing of unwanted uses, increasing of noise levels, 'lower class' people attracting crime and bringing down property values are all often voiced by citizens preferring sub-urban development. In addition, some cities may be reluctant to allowed mixed uses because it is in direct opposition to the found laws and legal framework for planning and zoning.

Cluster Development

Cluster developments allow urban development to make better use of the land – so the property can be used in a way limiting the negative impacts upon the environment by building a development. This is also good for cities who wish to use odd pieces of property for in-fill development. Cluster developments can allow developments in more sensitive areas so you can build in a beautiful spot without doing as much to the environment.

Encouraging is the fact the all the cities except Dickinson and League City, have ordinances to allow cluster development.

Cluster development is likely easier to add to a city's ordinances. Some may worry about legal issues – such as inadvertently creating (and being sued over) 'spot zoning' which was declared unconstitutional in several landmark cases.³⁵

Floodplain Ordinances

Ordinance specifically addressing floodplains can often more clearly address the specific needs of the ecological communities of a specific area. Created based upon the floodway or floodplain's unique situation, these ordinances are a popular way to address the larger spatial concerns of a watershed by making changes at a parcel or property scale.

In the Dickinson Bayou the City of Alvin even has an ordinance that specifically relates to floodplains and specific body of water within their jurisdiction- Mustang Bayou. Most other cities use FEMA's guiding ordinances for regulating development in floodplains. Other cities often restrict development to preserve land in the floodplain or floodways. LaMarque restricts development in their floodplain districts. Manvel doesn't permit developments to encroach on the area marked as the base flood level stage.³⁶

³⁵ Rockhill v. Chesterfield Tp., 23 NJ 117, 128 A.2d 473 (1957); City of Pharr v. Tippitt, 616 SW.2d 173, 177 (Tex 1981); Williams American Land Planning Law and The Police Power (1988 Revision), § 27.02

³⁶ LaMarque Ordinances, Chapter 71, Section 71.19

These type of ordinances can act as overlays and can help achieve regional planning, overlapping jurisdictions and creating a more uniform plan across the floodplain while still addressing the specific city's needs. They are a good bridge between scales and different cities needs and should be developed if you have a floodplain or floodway experiencing a large amount of growth, as is the case in the Dickinson Bayou. This may be difficult to achieve if the adjoining jurisdictions are not on the same page. This may present a challenge in implementation but it can be overcome with regional planning and coordinated efforts – such as that done by the Texas Coastal Watershed Partnership.

Transfer of Development Rights (TDR)

Transfer of Development rights is a common tool used to help combat sprawl while still allowing and encouraging continue growth in a city. As is well explained in the National Association of Realtor's Field Guide to Transfer of Development Rights (TDRs) "TDR is the exchange of zoning privileges from areas with low population needs, such as farmland, to areas of high population needs, such as downtown areas. These transfers allow for the preservation of open spaces and historic landmarks, while giving urban areas a chance to expand and experience continued growth."³⁷

At this time no city has a TDR program. This should be created at a watershed level to do the best job at transferring the development rights to non-sensitive, more appropriate locations the will do the least harm to the watershed.

Public support for this type of a program may be hard to find in a state like Texas and in an area used to developing without complete restriction. Some may even sue cities, claiming a taking if their property rights.

³⁷ National Assoc of Realtors, *Field Guide to Transfer Of Development Rights (TDRs)*
<http://www.realtor.org/library/library/fg804>

Other Topics to Consider: *Unique Opportunities for positive Growth and Development*

Comprehensive Planning and Zoning

Measurable objectives and implementation of goals is key to making and measuring effective changes within the watershed. One way to do this is to connect the links between policies and ordinances and how that will affect the watershed. Comprehensive plans are a great way to accomplish this. Fortunately many cities are already using or are developing this tool. Many cities already have a plan written or they are in the process of developing one. According to a Google® search, all but the city of La Marque have comprehensive plans already or they are in the stages of developing one. While many of these took a little digging to find – it is very impressive to note that so many jurisdictions within the watershed already are thinking of planning on a more regional level. While the City of Manvel’s comprehensive plan was the easiest to understand and most accessible via the web, those who are still in the processing of completing updates appeared to making it clear to those interested that they were hard at work to keep their plans current. Additionally, most cities employ bottom-up, collaborative approaches to planning within their cities. As noted by Brody, comprehensive plans and collaborative planning are key to successful environmental planning because they outline a common vision for the future and how you will get there. To ensure the complete realization of the visions described in these comprehensive plans, the objectives should be measurable, should be re-evaluated throughout the process of implementation and should include updates to adapt to changes within the city or natural systems. Comprehensive plans can also help the cities within the watershed to see the ‘bigger picture’ to allow for systematic thinking of how the watershed will function as a result of changes in policy and planning decisions.

Form-Based Codes (Revisited)

As discussed at the outset of this toolkit, one alternative to traditional zoning it often proposed is Form Based Codes. These codes can be actually “less helpful when it comes to land use and design standards for wildlife habitat and wetland protection, mitigation of natural hazards, watershed-based zoning, reduction of impervious cover, and the dimensions of stream buffers.” Location of a project often is one of the major drawbacks of Form Based Code (FBC) projects because spatial concerns are not written as part of these codes. Burke believes that sometimes FBC developments “can cause even more environmental harm than conventional low-density development if they are placed in the wrong locations. In fact, low-density projects may have less impact on a watershed than a higher density development. It all depends where the project is located. If the site is in an appropriate location, it may cause little harm even if watersheds are already degraded. If it is located in a small watershed at the edge of a developed area, downstream flooding could substantially increase and water quality could be even more degraded than with a conventional development. In short, projects must be sited based on

carefully conceived land-use policy and site development practices. This highlights the need to combine both regional and site planning to protect the environment.³⁸

It is not hard to imagine then that form based codes do not provide full compensation for some of the things that the built environment can do to our environments. Changes to the form and the flexibility to create smaller foot prints through mixed use (and changes in density) may offer some compensation but do not address the behavior patterns, economic or social patterns resulting in the use of the land. This should be hardly surprising though, as FBCs are not meant to deal with land use – merely the form and design of the buildings. This is why we must make useful changes to our existing traditional ordinances in addition to using form-based codes.

Additional Considerations

There are many other non-zoning techniques that can affect and make positive changes and pave the way for a greener city and watershed. Covenants or subdivision regulations include policies that make impacts at a local level – which decisions ultimately create cumulative affects upon the watershed. These and Planned Unit developments, overlays, and special use areas are often useful when trying to manage unique areas, special challenges, or to target particular areas of concern. Developed in conjunction with local citizens, these regulations will often mean greater success in the long run. Citizen participation and ‘buy-in’, for example, is considered by many to be crucial to the most successful implementation of desired changes.

³⁸ Berke, 2006 pg. 39

Conclusions

It is important to remember that the current zoning regulations and all the proposed codes still can not individually solve all the issues at hand. Changes of lifestyles and personal choices must accompany the move towards more sustainable choices for how to live, work and play in our cities. Regardless of urban density or special tactics to be used, as residents we must be willing to make changes in our behavior to be most successful. Creation of gardens, utilization of public transport, improved waste management and careful selection of household appliances are just a few changes we can make to help a city to become more sustainable. As Ghosh et al state: “bigger changes are related to behavior, and finding ways to encourage different behavior outcomes could significantly impact sustainability.”³⁹

Some ask why now? Why is planning for watersheds so important now? In reality planning and better care should have happened long ago. Cities depend upon the ecosystems we build our urban centers on. As a result of cumulative effects of human existence, the natural cycles of the world are changing at a rapid pace. Some call it global warming, others refer it as global climate change, but the fact remains– we have created a mess in which we’ll have to live for decades. Our cities change the environment around us and these effects can be long-term and dynamic. To counter-act these effects we must make wise choices now if we are to create a better future. Devastation in New Orleans then Galveston, rising tides, warmer temperatures, changing weather patterns, greater floods (both more intense and more frequent) and simultaneous severe droughts all demonstrate the potential consequences of continuing to build our cities as we have over the past decades. The future is now. To make truly lasting changes counties, regions, cities and citizens must all make a concerted effort to alter their course.

³⁹ Ghosh et al, 2007

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Appendices

Appendix i – Presence or Absence Tables by City

Minimum Lot Size Ordinance Present? (Yes or no)	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Minimum lot size served by sewer		Yes	Yes	Yes				Yes
Minimum lot size	Yes			Yes	Yes			
Minimum lot size in cluster subdivision with 2%-3% open			Yes					
Minimum commercial lot size								Yes
Minimum heavy commercial lot size	Yes					Yes		Yes
Minimum residential lot size						Yes	Yes	
Minimum lot size for estate subdivision			Yes	Yes	Yes	Yes	Yes	Yes
Minimum lot size in manufactured home subdivision	Yes			Yes	Yes	Yes		
Minimum lot size in mobile home subdivision	Yes		Yes					Yes
Minimum lot size for multi-family	Yes		Yes	Yes			Yes	
Maximum lot size for multi-family	Yes			Yes	Yes		Yes	Yes
Minimum lot size for patio homes	Yes		Yes		Yes	Yes		Yes
Minimum lot size in PUD	Yes			Yes	Yes		Yes	Yes
Minimum lot size in townhome subdivision	Yes							

Maximum Lot Size Ordinance Present? (Yes or no)	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Maximum lot size for multi-family	Yes							

Floor Area Ratios Present? (Yes or no)	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY

Maximum lot size for multi-family								
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	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Minimum Lot Width Ordinance Present? (Yes or no)								
Minimum lot width dimension				Yes			Yes	
Minimum lot width in subdivision with open drainage						Yes		
Minimum lot width for estate subdivision	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Minimum lot width in manufactured home subdivision	Yes		Yes	Yes	Yes	Yes		Yes
Minimum lot width at corner in mod. home subdivision								
Minimum lot width at thoroughfare in mod home subdivision				Yes				
Minimum lot width for patio homes, straight lot	Yes		Yes	Yes	Yes		Yes	Yes
Minimum lot width for patio homes, radial lot				Yes				
Minimum lot width in townhome subdivision	Yes			Yes	Yes		Yes	Yes
Minimum lot width for multi-family	Yes		Yes	Yes			Yes	Yes
Minimum commercial lot width	Yes					Yes		Yes
Minimum heavy commercial lot width	Yes					Yes		Yes

	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Density Ordinances Present? (Yes or no)								
Density in units per acre, minimum residential			Yes			Yes		
Density in units per acre, maximum residential			Yes					
Density in units per acre, townhomes	Yes		Yes	Yes	Yes			Yes
Density in units per acre, minimum multi-family			Yes					Yes
Density in units per acre, max multi-family	Yes		Yes		Yes			Yes
Density in units per acre, mobile home			Yes					

Height Ordinances Present? (Yes or no)	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Height, maximum per modular home								Yes
Height, maximum per townhome	Yes			Yes				Yes
Height, maximum per building in townhome subdivision	Yes					Yes		Yes
Height, maximum per bldg in patio home subdivision	Yes			Yes				Yes
Height, maximum per multi-family	Yes			Yes		Yes		Yes
Height, maximum per residential				Yes		Yes	Yes	Yes
Height, maximum per patio home							Yes	Yes
Height, maximum commercial				Yes		Yes		Yes
Height, maximum heavy commercial						Yes		Yes
Height, maximum in manufactured housing subdivision						Yes		Yes
Height, maximum in PUD/TND						Yes		Yes

Setback Ordinances Present? (Yes or no)	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Setback-commercial front minimum	Yes			Yes				Yes
Setback-commercial rear minimum	Yes			Yes				Yes
Setback-commercial side minimum	Yes		Yes	Yes		Yes		Yes
Setback-corner minimum for multi-family			Yes			Yes		
Setback-corner minimum in mod home subdivision					Yes	Yes		
Setback-corner residential minimum			Yes		Yes	Yes		
Setback-from 6' ROW of future thoroughfare			Yes			Yes		
Setback-from adjoining property to manufactured home			Yes					
Setback-from street to manufactured home			Yes					
Setback-front compact/cluster development commercial		Yes				Yes	Yes	

Setback-front compact/cluster development residential						Yes	Yes	
Setback-front estate subdivision	Yes				Yes	Yes	Yes	Yes
Setback-front minimum for multi-family	Yes			Yes		Yes	Yes	Yes
Setback-front minimum in mod home subdivision	Yes			Yes	Yes	Yes		Yes
Setback-front residential minimum	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Setback-frontage in subdivision with open drainage						Yes		
Setback-fronting 6' street								
Setback-fronting less than 6' street						Yes		
Setback-heavy commercial front minimum	Yes							Yes
Setback-heavy commercial rear minimum	Yes		Yes			Yes		Yes
Setback-heavy commercial side minimum	Yes		Yes			Yes		Yes
Setback-minimum corner in PUD/TND			Yes		Yes	Yes		
Setback-minimum from adjacent manufactured home front to back	Yes							Yes
Setback-minimum from adjacent manufactured home side to side	Yes		Yes		Yes			Yes
Setback-minimum from rear utility easement to patio home			Yes	Yes			Yes	
Setback-minimum front commercial in PUD/TND			Yes	Yes		Yes		
Setback-minimum front in patio home subdivision	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Setback-minimum front in townhome subdivision per bldg						Yes		
Setback-minimum front in townhome subdivision per unit	Yes			Yes		Yes		Yes
Setback-minimum front residential in PUD/TND				Yes	Yes			
Setback-minimum rear in PUD/TND				Yes	Yes	Yes		
Setback-minimum rear in townhome subdivision per bldg			Yes					
Setback-minimum rear in townhome subdivision per unit	Yes		Yes					Yes
Setback-minimum side in patio home subdivision	Yes		Yes	Yes	Yes		Yes	Yes
Setback-minimum side in townhome subdivision per bldg			Yes	Yes	Yes			
Setback-minimum side in townhome subdivision per unit	Yes		Yes			Yes		Yes

Setback-minimum side to adjacent bldg in patio home subdivision	Yes			Yes		Yes		Yes
Setback-rear estate subdivision	Yes		Yes	Yes	Yes	Yes		Yes
Setback-rear minimum for multi-family	Yes				Yes	Yes	Yes	Yes
Setback-rear minimum in mod home subdivision	Yes			Yes		Yes	Yes	Yes
Setback-rear residential minimum	Yes			Yes	Yes	Yes		Yes
Setback-side estate subdivision	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Setback-side minimum for multi-family	Yes				Yes	Yes	Yes	Yes
Setback-side minimum in mod home subdivision	Yes			Yes			Yes	Yes
Setback-side of less than 6' street	Yes			Yes	Yes			Yes
Setback-side residential minimum								
Setback-zero lot lines	Yes	Yes		Yes	Yes		Yes	Yes

Parking Ordinances Present? (Yes or no)	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Parking (General regulations)	Yes			Yes	Yes	Yes		Yes
Parking - residential	Yes			Yes	Yes	Yes		Yes
Parking -modular home	Yes			Yes	Yes	Yes		
Parking -mobile home						Yes		Yes
Parking -townhome	Yes			Yes	Yes			Yes
Parking – multi-family	Yes			Yes	Yes			Yes
Parking -transit-oriented areas								
Parking -retail areas								
Parking -office areas								
Charging for Parking								

Lot Coverage Ordinances Present? (Yes or no)

	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
Maximum lot coverage								
Maximum lot coverage for cluster/compact development								
Maximum lot coverage								
Maximum residential lot coverage							Yes	Yes
Maximum lot coverage for estate subdivision							Yes	Yes
Maximum lot coverage in manufactured home subdivision	Yes	Yes	Yes					
Maximum lot coverage for multi-family							Yes	Yes
Maximum lot coverage for patio home subdivision	Yes	Yes	Yes				Yes	Yes
Maximum lot coverage in townhome subdivision	Yes						Yes	Yes

Mixed Uses Allowed/ Mixed Use Ordinances Present? (Yes or no)

	ALVIN	DICKINSON	FRIENDSWOOD	LA MARQUE	LEAUGE CITY	MANVEL	SANTA FE	TEXAS CITY
	Yes					Yes		Yes

Appendix ii – Comparison to Wheeler (by City)

The City of Alvin Comparison to Wheeler's Benchmarks

				ALVIN	Present? (1 = yes, 0 = no)	Section	Description listed	Notes
(1)	MIN LOT SIZE	WHEELER- SMART GROWTH ALT.	1500-4000 sq. ft, if any	Minimum lot size served by sewer	0			
				Minimum lot size	1	21.37.b	7000	
				Minimum lot size in cluster subdivision with 20%-30% open	0			
				Minimum commercial lot size	0			
				Minimum heavy commercial lot size	1			This applies to specific commercial corridors
				Minimum residential lot size	0			
				Minimum lot size for estate subdivision	0			
				Minimum lot size in manufactured home subdivision	1	21.74.3d	4500	5.24 1/2.41b, 4000 square feet in mobile home park
				Minimum lot size in mobile home subdivision	1	21.74.3d	4500	5.24 1/2.41b, 4000 square feet in mobile home park
				Minimum lot size for multi-family	1	31.4a	1	acre
				Maximum lot size for multi-family	1	31.4a	10	acre
				Minimum lot size for patio homes	1	23 1/2.34	4000	square feet
				Minimum lot size in PUD	1	21.110.e3	4725	square feet
				Minimum lot size in townhome subdivision	1	23 1/2.4	2000	square feet when the width of the lot is 20' or more
(2)	MAX LOT SIZE		5000 sq. ft. or less	Maximum lot size for multi-family	1	31.4a	10	acre
				<i>* Maximum lot size not listed for other types of lots</i>				
(3)	LOT WIDTH	Single Family Residential	no minimum	Minimum lot width dimension	0			
				Minimum lot width in subdivision with open	1	21.57.b.1b	50	1 acre, 50' frontage with less than 80' radius

drainage				
Minimum lot width for estate subdivision	0			
Minimum lot width in manufactured home subdivision	1	21.74.3a	45	in mobile home parks, 35 feet (5.24.1/2.41b)
Minimum lot width at corner in manufactured home subdivision	1	21.74.3e	50	width
Minimum lot width at thoroughfare in manufactured home subdivision	1	21.74.3f	60	width
Minimum lot width for patio homes, straight lot	1	23 1/2.34	45	linear feet
Minimum lot width for patio homes, radial lot	1	23 1/2.34	50	adjacent to curved streets

Townhouses/
Duplexes

Minimum lot width in townhome subdivision	0			
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Apartments/
Condominiums no minimum

Minimum lot width for multi-family	0
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Commercial no minimum

Minimum commercial lot width	0			
Minimum heavy commercial lot width	0			

DENSITY:
(4) d.u./Ac

per lot allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)

downtown areas NO maximum; 20-30 units/Ac minimum

residential areas 8-10 units/Ac for single family residential; 20 units/ Ac for multi-family

Density in units per acre, minimum residential	0			
Density in units per acre, maximum residential	0			
Density in units per acre, townhomes	1	5.23.1/2.11	4	A townhouse subdivision will have a minimum area of one acre and the unit will be built with a minimum of four (4) townhouses per group. Each group will contain a maximum of ten (10) units and each group will be separated by a minimum of twelve (12) feet.
Density in units per acre, minimum multi-family	0			

Density in units per acre, max multi-family	1	5.31.8	15	Apartment buildings shall be built with a min of 3 apartments per bldg. Each bldg shall contain a max of 10 units, each bldg shall be separated by a min of 12 feet
Density in units per acre, mobile home	0			

(5) HEIGHT RESTRICTIONS

downtown areas 3-5 stories; 2-3 min.
residential areas 3 1/2 stories or 40 ft

Height, maximum per modular home	0			
Height, maximum per townhome	1	5.23.1/2.6a	35	max 35 feet or two and a half stories per unit
Height, maximum per building in townhome subdivision	1	5.23 1/2-20	60	no building can exceed 60 feet or 5 stories
Height, maximum per bldg in patio home subdivision	1	5.23 1/2.35	35	max 35 feet or two and a half stories per bldg
Height, maximum per multi-family	1	5.31.5	35	max 35 feet or three stories
Height, maximum per residential	0			
Height, maximum per patio home	0			
Height, maximum commercial	0			
Height, maximum heavy commercial	0			
Height, maximum in manufactured housing subdivision	0			
Height, maximum in PUD/TND	0			

(6) SETBACKS

front no minimum; add maximum permit zero-lot line construction with appropriate design
side from creeks/ waterways min of 30 ft from centerline of creek

Setback-commercial front minimum	1	21.37a	25	
Setback-commercial rear minimum	0			
Setback-commercial side minimum	0			
Setback-corner minimum for multi-family	1	31.4b	15	
Setback-corner minimum in mod home subdivision	0			
Setback-corner residential minimum	1	21.37a	15	
Setback-from 60' ROW of future thoroughfare	1	31.4b	10	additional 10 feet
Setback-from adjoining property to manufactured home	1	24 1/2.41b	5	
Setback-from street to manufactured home	1	24 1/2.41b	5	
Setback-front compact/cluster development commercial	0			
Setback-front compact/cluster development residential	0			
Setback-front estate subdivision	0			
Setback-front minimum for multi-family	1	31.4b	25	
Setback-front minimum in mod home subdivision	1	21.74.4	15	
Setback-front residential minimum	1	21.37a	25	
Setback-frontage in subdivision with open drainage	1	21.57.b2.d	35	
Setback-fronting 60' street	1	21.37a	35	
Setback-fronting less than 60' street	0			
Setback-heavy commercial front	1	35.12.c.1.a	25	applies to commercial corridors

minimum				
Setback-heavy commercial rear minimum	1	35.12.c.4.a	20	applies to commercial corridors
Setback-heavy commercial side minimum	1	35.12.c.2.a	15	applies to commercial corridors, interior side yards are to be a minimum of 10'
Setback-minimum corner in PUD/TND	1	21.110.e.2	10	
Setback-minimum from adjacent manufactured home front to back	1	24 1/2.41b	10	
Setback-minimum from adjacent manufactured home side to side	1	24 1/2.41b	15	
Setback-minimum from rear utility easement to patio home	1	23 1/2.36	5	
Setback-minimum front commercial in PUD/TND	0			
Setback-minimum front in patio home subdivision	1	23 1/2.36	25	10 with fifty foot right of way/25 with sixty foot right of way
Setback-minimum front in townhome subdivision per bldg	1	23.1/2.21	15	
Setback-minimum front in townhome subdivision per unit	1	23.1/2.7	15	
Setback-minimum front residential in PUD/TND	1	21.110.e.1	20	
Setback-minimum rear in PUD/TND	0			
Setback-minimum rear in townhome subdivision per bldg	1	23.1/2.21	10	
Setback-minimum rear in townhome subdivision per unit	1	23.1/2.9	10	
Setback-minimum side in patio home subdivision	1	23 1/2.36	15	
Setback-minimum side in PUD/TND	1	21.110.e.1		
Setback-minimum side in townhome subdivision per bldg	1	23.1/2.21	10	

Setback-minimum side in townhome subdivision per unit	1	23.1/2.8	15	
Setback-minimum side to adjacent bldg in patio home subdivision	1	23 1/2.36	10	
Setback-rear estate subdivision	0			
Setback-rear minimum for multi-family	1	31.4b	25	
Setback-rear minimum in mod home subdivision	1	21.74.4	5	
Setback-rear residential minimum	1	21.37a	10	
Setback-side estate subdivision	0			
Setback-side minimum for multi-family	1	31.4b	10	
Setback-side minimum in mod home subdivision	1	21.74.5	3	
Setback-side of less than 60' street	0			
Setback-side residential minimum	1	21.37a	5	
Setback-zero lot lines	0			

(7) PARKING

downtown areas 1 space per unit max
1 off street; 1 additional on-street for larger units; consider maximums

residential areas

transit-oriented areas 1 space per unit max; car-free housing; encourage car sharing in large projects
1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center;

retail businesses allowed to

Parking	1	5.9		25 categories, parking areas must handle 1" per hour of rainfall
Parking, residential	1	5.9	2	
Parking, modular home	1	21.74.6	2	
Parking, mobile home	0			
Parking, townhome	1	23.1/2.8	2.5	one must be on the lot
Parking, multi-family	1	5.9	1.5	
	0			
	0			

office	contribute in-lieu free instead of providing on-site; 2-3 spaces per 1000 sq. ft. for other locations no minimum for businesses located in downtown, transit-oriented, or neighborhood center; 1-2 spaces per 1000 sq ft in other locations	0
charges	monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged	0

(8) FLOOR-AREA RATIO

at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)

(9) LOT COVERAGE %

no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space

Maximum lot coverage	0			
Maximum lot coverage for cluster/compact development	0			
Maximum lot coverage	0			
Maximum residential lot coverage	0			
Maximum lot coverage for estate subdivision	0			
Maximum lot coverage in manufactured home subdivision	1	21.74.4	40	percent

		Maximum lot coverage for multi-family	0			
		Maximum lot coverage for patio home subdivision	1	23 1/2.35	60	percent
		Maximum lot coverage in townhome subdivision	1	23.1/2.6b	50	50% including parking
(10) MIXED USES	allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts	Mixed use	1			

The City of Dickinson Comparison to Wheeler's Benchmarks

		WHEELER- SMART GROWTH ALT.	DICKINSON	Present? (1 = yes, 0 = no)	Section	Description listed	Notes
(1)	MIN LOT SIZE	1500-4000 sq. ft, if any	Minimum lot size served by sewer	1	85-84.8.J.1	6000	mins: 100 feet deep by 50 feet wide
			Minimum lot size	0			
			Minimum lot size in cluster subdivision with 20%-30% open	0			
			Minimum commercial lot size	0			
			Minimum heavy commercial lot size	0			
			Minimum residential lot size	0			
			Minimum lot size for estate subdivision	0			
			Minimum lot size in manufactured home subdivision	0			
			Minimum lot size in mobile home subdivision	0			
			Minimum lot size for multi-family	0			
			Minimum lot size for patio homes	0			
			Minimum lot size in PUD	0			
			Minimum lot size in townhome subdivision	0			
<hr/>							
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family	0			
<i>* Maximum lot size not listed for other types of lots</i>							
<hr/>							
(3)	LOT WIDTH	Single Family Residential no minimum	Minimum lot width dimension	0			
			Minimum lot width in subdivision with open drainage	0			
			Minimum lot width for estate subdivision	0			
			Minimum lot width in manufactured home subdivision	0			
			Minimum lot width at corner in mod. home subdivision	0			
			Minimum lot width at thoroughfare in mod home subdivision	0			
			Minimum lot width for patio homes, straight lot	0			
			Minimum lot width for patio homes, radial lot	0			

Townhouses/ Duplexes		Minimum lot width in townhome subdivision	0
Apartments/ Condominiums	no minimum	Minimum lot width for multi-family	0
Commercial	no minimum	Minimum commercial lot width	0
		Minimum heavy commercial lot width	0

(4)	DENSITY: d.u./Ac			
	per lot	allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)	Density in units per acre, minimum residential	0
	downtown areas	NO maximum; 20-30 units/Ac minimum	Density in units per acre, maximum residential	0
	residential areas	8-10 units/Ac for single family residential; 20 units/ Ac for multi- family	Density in units per acre, townhomes	0
			Density in units per acre, minimum multi-family	0
			Density in units per acre, max multi- family	0
			Density in units per acre, mobile home	0

(5)	HEIGHT RESTRICTIONS			
	downtown areas	3-5 stories; 2-3 min.		
	residential areas	3 1/2 stories or 40 ft		
			Height, maximum per modular home	0
			Height, maximum per townhome	0
			Height, maximum per building in townhome subdivision	0
			Height, maximum per bldg in patio home subdivision	0
		Height, maximum per multi-family	0	
		Height, maximum per residential	0	

Height, maximum per patio home	0
Height, maximum commercial	0
Height, maximum heavy commercial	0
Height, maximum in manufactured housing subdivision	0
Height, maximum in PUD/TND	0

(6) SETBACKS

front no minimum; add maximum permit zero-lot line construction with appropriate design

side from creeks/ waterways min of 30 ft from centerline of creek

Setback-front compact/cluster development commercial	1	9.5.c		nothing within 10 feet of lot line
Setback-front compact/cluster development residential	0			
Setback-front estate subdivision	0			
Setback-rear estate subdivision	0			
Setback-side estate subdivision	0			
Setback-front residential minimum	1	85-84.8.J.5	25	feet
Setback-side residential minimum	1	85-84.8.J.7	5	10% or 5', whichever is greater
Setback-rear residential minimum	1	85-84.8.J.6	3	percent; garages can be within 3'
Setback-corner residential minimum	0			
Setback-commercial front minimum	0			
Setback-commercial side minimum	0			
Setback-commercial rear minimum	0			
Setback-heavy commercial front minimum	0			
Setback-heavy commercial side minimum	0			
Setback-heavy commercial rear minimum	0			
Setback-fronting 60' street	0			
Setback-fronting less than 60' street	0			
Setback-side of less than 60' street	0			
Setback-frontage in subdivision with open drainage	0			
Setback-front minimum in mod home subdivision	0			
Setback-rear minimum in mod home subdivision	0			

Setback-side minimum in mod home subdivision	0			
Setback-corner minimum in mod home subdivision	0			
Setback-minimum from adjacent manufactured home front to back	0			
Setback-minimum from adjacent manufactured home side to side	0			
Setback-from adjoining property to manufactured home	0			
Setback-from street to manufactured home	0			
Setback-front minimum for multi-family	0			
Setback-rear minimum for multi-family	0			
Setback-corner minimum for multi-family	0			
Setback-side minimum for multi-family	0			
Setback-minimum front in patio home subdivision	0			
Setback-minimum side in patio home subdivision	0			
Setback-minimum side to adjacent bldg in patio home subdivision	0			
Setback-minimum from rear utility easement to patio home	0			
Setback-minimum front residential in PUD/TND	0			
Setback-minimum front commercial in PUD/TND	0			
Setback-minimum corner in PUD/TND	0			
Setback-minimum side in PUD/TND	0			
Setback-minimum rear in PUD/TND	0			
Setback-minimum front in townhome subdivision per unit	0			
Setback-minimum side in townhome subdivision per unit	0			
Setback-minimum rear in townhome subdivision per unit	0			
Setback-minimum front in townhome subdivision per bldg	0			
Setback-minimum side in townhome subdivision per bldg	0			
Setback-minimum rear in townhome subdivision per bldg	0			

		Setback-from 60' ROW of future thoroughfare	0		
		Setback-zero lot lines	0		
(7)	PARKING		Parking	0	
	downtown areas	1 space per unit max 1 off street; 1 additional on-street for larger units; consider maximums		0	
	residential areas		Parking, residential	0	
			Parking, modular home	0	
			Parking, mobile home	0	
			Parking, townhome	0	
			Parking, multi-family	0	
				0	
	transit-oriented areas	1 space per unit max; car-free housing; encourage car sharing in large projects			
	retail	1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center; businesses allowed to contribute in-lieu free instead of providing on-site; 2-3 spaces per 1000 sq. ft. for other locations no minimum for businesses located in downtown, transit-oriented, or neighborhood center;			
	office	1-2 spaces per 1000 sq ft in other locations			
	charges	monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged			

(8)	FLOOR-AREA RATIO	at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)	0
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(9)	LOT COVERAGE %	no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space	<table border="1"> <tr><td>Maximum lot coverage</td><td>0</td></tr> <tr><td>Maximum lot coverage for cluster/compact development</td><td>0</td></tr> <tr><td>Maximum lot coverage</td><td>0</td></tr> <tr><td>Maximum residential lot coverage</td><td>0</td></tr> <tr><td>Maximum lot coverage for estate subdivision</td><td>0</td></tr> <tr><td>Maximum lot coverage in manufactured home subdivision</td><td>0</td></tr> <tr><td>Maximum lot coverage for multi-family</td><td>0</td></tr> <tr><td>Maximum lot coverage for patio home subdivision</td><td>0</td></tr> <tr><td>Maximum lot coverage in townhome subdivision</td><td>0</td></tr> </table>	Maximum lot coverage	0	Maximum lot coverage for cluster/compact development	0	Maximum lot coverage	0	Maximum residential lot coverage	0	Maximum lot coverage for estate subdivision	0	Maximum lot coverage in manufactured home subdivision	0	Maximum lot coverage for multi-family	0	Maximum lot coverage for patio home subdivision	0	Maximum lot coverage in townhome subdivision	0
Maximum lot coverage	0																				
Maximum lot coverage for cluster/compact development	0																				
Maximum lot coverage	0																				
Maximum residential lot coverage	0																				
Maximum lot coverage for estate subdivision	0																				
Maximum lot coverage in manufactured home subdivision	0																				
Maximum lot coverage for multi-family	0																				
Maximum lot coverage for patio home subdivision	0																				
Maximum lot coverage in townhome subdivision	0																				

(10)	MIXED USES	allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts	<table border="1"> <tr><td>Mixed use</td><td>0</td></tr> </table>	Mixed use	0
Mixed use	0				

The City of Friendswood Comparison to Wheeler's Benchmarks

		WHEELER- SMART GROWTH ALT.	FRIENDSWOOD	Present? (1 = yes, 0 = no)	Section	Description listed	Notes
(1)	MIN LOT SIZE	1500-4000 sq. ft, if any	Minimum lot size served by sewer	1	AxC.7 regulation matrix	11,600	This is a standard residential lot, there are two other categories
			Minimum lot size	0			
			Minimum lot size in cluster subdivision with 20%-30% open	1	AxC.7 regulation matrix	6000	
			Minimum commercial lot size	0			
			Minimum heavy commercial lot size	0			
			Minimum residential lot size	0			
			Minimum lot size for estate subdivision	1	AxC.7 regulation matrix	87120	.5 acre
			Minimum lot size in manufactured home subdivision	0			
			Minimum lot size in mobile home subdivision	1	50.215.d		
			Minimum lot size for multi-family	1	AxC.7 regulation matrix	7260	
			Maximum lot size for multi-family	0			
			Minimum lot size for patio homes	1	AxC.7 regulation matrix	6000	
			Minimum lot size in PUD	0			
			Minimum lot size in townhome subdivision	0			
<hr/>							
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family				
<p><i>* Maximum lot size not listed for other types of lots</i></p>							
<hr/>							
(3)	LOT WIDTH	Single Family Residential no minimum	Minimum lot width dimension	0			
			Minimum lot width in subdivision with open drainage	0			

Minimum lot width for estate subdivision	1	AxC.7 regulation matrix	150
Minimum lot width in manufactured home subdivision	1	50.215.d	40
Minimum lot width at corner in mod. home subdivision	0		
Minimum lot width at thoroughfare in mod home subdivision	0		
Minimum lot width for patio homes, straight lot	1	AxC.7 regulation matrix	60
Minimum lot width for patio homes, radial lot	0		

Townhouses/
Duplexes

Minimum lot width in townhome subdivision	0		
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Apartments/
Condominiums no minimum

Minimum lot width for multi-family	1	AxC.7 regulation matrix	45
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Commercial no minimum

Minimum commercial lot width	0	
Minimum heavy commercial lot width	0	

(4) DENSITY:
d.u./Ac

per lot allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)
downtown areas NO maximum; 20-30 units/Ac minimum
residential areas 8-10 units/Ac for single family residential; 20 units/Ac for multi-family

Density in units per acre, minimum residential	1	AxC.2	0.5	acre
Density in units per acre, maximum residential	1	AxC.2	2.7	acre
Density in units per acre, townhomes	1	AxC.2	6	
Density in units per acre, minimum multi-family	1	AxC.2	6	acre
Density in units per acre, max multi-family	1	AxC.2	12	acre
Density in units per acre, mobile home	1	AxC.2	10	acre

(5) HEIGHT RESTRICTIONS

downtown areas 3-5 stories; 2-3 min.
residential areas 3 1/2 stories or 40 ft

Height, maximum per modular home	
Height, maximum per townhome	
Height, maximum per building in townhome subdivision	
Height, maximum per bldg in patio home subdivision	
Height, maximum per multi-family	
Height, maximum per residential	
Height, maximum per patio home	
Height, maximum commercial	
Height, maximum heavy commercial	
Height, maximum in manufactured housing subdivision	
Height, maximum in PUD/TND	

(6) SETBACKS

front no minimum; add maximum permit zero-lot line construction with appropriate design
side from creeks/ waterways min of 30 ft from centerline of creek

Setback-commercial front minimum	
Setback-commercial rear minimum	
Setback-commercial side minimum	
Setback-corner minimum for multi-family	
Setback-corner minimum in mod home subdivision	
Setback-corner residential minimum	
Setback-from 60' ROW of future thoroughfare	
Setback-from adjoining property	

to manufactured home	
Setback-from street to manufactured home	
Setback-front compact/cluster development commercial	
Setback-front compact/cluster development residential	
Setback-front estate subdivision	
Setback-front minimum for multi-family	
Setback-front minimum in mod home subdivision	
Setback-front residential minimum	
Setback-frontage in subdivision with open drainage	
Setback-fronting 60' street	
Setback-fronting less than 60' street	
Setback-heavy commercial front minimum	
Setback-heavy commercial rear minimum	
Setback-heavy commercial side minimum	
Setback-minimum corner in PUD/TND	
Setback-minimum from adjacent manufactured home front to back	
Setback-minimum from adjacent manufactured home side to side	
Setback-minimum from rear utility easement to patio home	
Setback-minimum front commercial in PUD/TND	
Setback-minimum front in patio home subdivision	
Setback-minimum front in townhome subdivision per bldg	
Setback-minimum front in townhome subdivision per unit	
Setback-minimum front residential in PUD/TND	
Setback-minimum rear in PUD/TND	
Setback-minimum rear in	

townhome subdivision per bldg	
Setback-minimum rear in townhome subdivision per unit	
Setback-minimum side in patio home subdivision	
Setback-minimum side in PUD/TND	
Setback-minimum side in townhome subdivision per bldg	
Setback-minimum side in townhome subdivision per unit	
Setback-minimum side to adjacent bldg in patio home subdivision	
Setback-rear estate subdivision	
Setback-rear minimum for multi-family	
Setback-rear minimum in mod home subdivision	
Setback-rear residential minimum	
Setback-side estate subdivision	
Setback-side minimum for multi-family	
Setback-side minimum in mod home subdivision	
Setback-side of less than 60' street	
Setback-side residential minimum	
Setback-zero lot lines	

(7) PARKING

downtown areas 1 space per unit max
1 off street; 1 additional on-street for larger units;
residential areas consider maximums

transit-oriented areas 1 space per unit max; car-free housing; encourage car sharing in large projects
1 space per 1000 sq. ft. min for businesses located in
retail downtown, transit-oriented,

Parking	
Parking, residential	
Parking, modular home	
Parking, mobile home	
Parking, townhome	
Parking, multi-family	

office
 charges

or neighborhood center;
 businesses allowed to
 contribute in-lieu free
 instead of providing on-site;
 2-3 spaces per 1000 sq. ft.
 for other locations
 no minimum for businesses
 located in downtown,
 transit-oriented, or
 neighborhood center; 1-2
 spaces per 1000 sq ft in
 other locations
 monthly fee per space for
 rental and condominiums;
 employers required to
 charge for parking and
 provide incentives for
 alternative travel modes;
 local hiring policies
 encouraged

(8) FLOOR-AREA
 RATIO

at least 1.0-2.0 maximum,
 0.5 minimum in downtown
 (or height limits instead)

(9) LOT
 COVERAGE %

no maximum if parks and
 other public open spaces are
 nearby; encourage use of
 roof tops as open space

Maximum lot coverage	
Minimum lot size in cluster subdivision with 20%-30% open	
Maximum lot coverage for cluster/compact development	
Maximum lot coverage	
Maximum residential lot coverage	

Maximum lot coverage for estate subdivision	
Maximum lot coverage in manufactured home subdivision	
Maximum lot coverage for multi-family	
Maximum lot coverage for patio home subdivision	
Maximum lot coverage in townhome subdivision	



(10) MIXED USES

allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts

Mixed use

The City of La Marque Comparison to Wheeler's Benchmarks

		WHEELER- SMART GROWTH ALT.	LA MARQUE	Present? (1 = yes, 0 = no)	Section	Description listed	Notes
(1)	MIN LOT SIZE	1500-4000 sq. ft, if any	Minimum lot size served by sewer	1	32.IV.41.107.e	6000	
			Minimum lot size	1	71.20	6000	
			Minimum lot size in cluster subdivision with 20%-30% open	0			
			Minimum commercial lot size	0			
			Minimum heavy commercial lot size	0			
			Minimum residential lot size	0			
			Minimum lot size for estate subdivision	1	32.IV.41.115.b	17424	.4 acre
			Minimum lot size in manufactured home subdivision	1	32.II.41.23.b	3400	double access based on minimum width and depth (also found in 71.5.h.2), single is 2720
			Minimum lot size in mobile home subdivision	0			
			Minimum lot size for multi-family	1	71.20	7500	
			Minimum lot size for patio homes	1	VIII.14.337.c.a	4500	square feet, if average lot size in subdivision is 5400 sq ft through the addition of open space, lot size can be reduced
			Minimum lot size in PUD	0			
			Minimum lot size in townhome subdivision	1	71.5.j.1.a	3000	
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family	0			
			<i>* Maximum lot size not listed for other types of lots</i>				
(3)	LOT WIDTH	Single Family Residential no minimum	Minimum lot width dimension	1	71.20	60	
			Minimum lot width in subdivision with open drainage	0			
			Minimum lot width for estate subdivision	1	32.IV.41.115.b	100	Encouraging estate development because "it results in less drainage and traffic demands"
			Minimum lot width in	1	32.II.41.23.b	40	for double access also in table 71.20, single is 32 feet

manufactured home subdivision				
Minimum lot width at corner in mod. home subdivision	0			
Minimum lot width at thoroughfare in mod home subdivision	1	32.V.41.146.b	25	minimum for traditional neighborhood development is 25 acres developable land
Minimum lot width for patio homes, straight lot	1	VIII.14.341.a	45	feet
Minimum lot width for patio homes, radial lot	1	VIII.14.341.b	23	

Townhouses/ Duplexes	Minimum lot width in townhome subdivision	1	71.5.j.1.c	26	
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Apartments/ Condominiums	no minimum	Minimum lot width for multi-family	1	71.20	60	
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Commercial	no minimum	Minimum commercial lot width	0		
		Minimum heavy commercial lot width	0		

(4)	DENSITY: d.u./Ac						
	per lot	allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)	Density in units per acre, minimum residential	0			
	downtown areas	NO maximum; 20-30 units/Ac minimum	Density in units per acre, maximum residential	0			
	residential areas	8-10 units/Ac for single family residential; 20 units/ Ac for multi-family	Density in units per acre, townhomes	1	71.5.j.4	8	8 per acre
			Density in units per acre, minimum multi-family	0			
			Density in units per acre, max multi-family	0			
			Density in units per acre, mobile home	0			

(5) HEIGHT RESTRICTIONS

downtown areas 3-5 stories; 2-3 min.
 residential areas 3 1/2 stories or 40 ft

Height, maximum per modular home				
Height, maximum per townhome	1	71.20	45	
Height, maximum per building in townhome subdivision				
Height, maximum per bldg in patio home subdivision	1	VIII.14.342.a	35	two stories or 35 feet
Height, maximum per multi-family	1	71.20	45	
Height, maximum per residential	1	71.20	35	
Height, maximum per patio home				
Height, maximum commercial	1	71.20	50	
Height, maximum heavy commercial				
Height, maximum in manufactured housing subdivision				
Height, maximum in PUD/TND				

(6) SETBACKS

front no minimum; add maximum permit zero-lot line construction with appropriate design
 side from creeks/ waterways min of 30 ft from centerline of creek

Setback-commercial front minimum	1	71.20	30	
Setback-commercial rear minimum	1	71.20	25	
Setback-commercial side minimum	1	71.20	5	
Setback-corner minimum for multi-family				
Setback-corner minimum in				

mod home subdivision				
Setback-corner residential minimum		71.20		
Setback-from 60' ROW of future thoroughfare				
Setback-from adjoining property to manufactured home				
Setback-from street to manufactured home				
Setback-front compact/cluster development commercial				
Setback-front compact/cluster development residential				
Setback-front estate subdivision				
Setback-front minimum for multi-family	1	71.20	30	
Setback-front minimum in mod home subdivision	1	71.20	30	
Setback-front residential minimum	1	71.20	30	Note there are exceptions for PUD/TND
Setback-frontage in subdivision with open drainage				
Setback-fronting 60' street				
Setback-fronting less than 60' street				
Setback-heavy commercial front minimum				
Setback-heavy commercial rear minimum				
Setback-heavy commercial side minimum				
Setback-minimum corner in PUD/TND				
Setback-minimum from adjacent manufactured home front to back				
Setback-minimum from adjacent manufactured home side to side				
Setback-minimum from rear utility easement to patio home	1	32.VIII.14.343.4	5	
Setback-minimum front	1	32.VIII.41.148.3.b	0	12' sidewalk required

commercial in PUD/TND				
Setback-minimum front in patio home subdivision	1	32.VIII.14.343.1	20	
Setback-minimum front in townhome subdivision per bldg				
Setback-minimum front in townhome subdivision per unit	1	71.5.j.1.d	20	
Setback-minimum front residential in PUD/TND	1	32.VIII.41.149	5	There are 3 categories, two specify a five foot front setback, the other (detached) a 10'
Setback-minimum rear in PUD/TND	1	32.VIII.41.149	10	
Setback-minimum rear in townhome subdivision per bldg				
Setback-minimum rear in townhome subdivision per unit				
Setback-minimum side in patio home subdivision	1	32.VIII.14.343.2	10	
Setback-minimum side in PUD/TND	1	32.VIII.41.149	0	
Setback-minimum side in townhome subdivision per bldg				
Setback-minimum side in townhome subdivision per unit	1	71.5.j.1.e	15	
Setback-minimum side to adjacent bldg in patio home subdivision	1	32.VIII.14.343.3	10	
Setback-rear estate subdivision				
Setback-rear minimum for multi-family	1	71.20	25	
Setback-rear minimum in mod home subdivision	1	71.20	25	
Setback-rear residential minimum	1	71.20	25	
Setback-side estate subdivision				
Setback-side minimum for multi-family	1	71.20	10	
Setback-side minimum in mod home subdivision	1	71.5.h.2	10	also in table 71.2
Setback-side of less than 60' street				

Setback-side residential minimum	1	71.20	5	
Setback-zero lot lines				

(7) PARKING

downtown areas 1 space per unit max
1 off street; 1 additional
on-street for larger
units; consider
residential areas maximums

Parking	1	71.22		all requirements are laid out in table 71.22
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Parking, residential	1	71.20	2	
Parking, modular home	1	32.VIII.14.39.2	2	to be determined by building official, in section 41-23 it states two per space in 41.23.c and 71.5.h.2
Parking mobile home				
Parking, multi-family	1	71.22	2.5	
Parking, townhome	1	71.5.j.9	2.5	

transit-oriented areas 1 space per unit max;
car-free housing;
encourage car sharing in
large projects
1 space per 1000 sq. ft.
min for businesses
located in downtown,
transit-oriented, or
neighborhood center;
businesses allowed to
contribute in-lieu free
instead of providing on-
site; 2-3 spaces per 1000
sq. ft. for other locations
no minimum for
businesses located in
downtown, transit-
oriented, or
neighborhood center; 1-
2 spaces per 1000 sq ft
in other locations
office monthly fee per space
for rental and
condominiums;
employers required to
charge for parking and
provide incentives for
alternative travel
modes; local hiring
charges policies encouraged

(8) FLOOR-AREA RATIO

at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)

(9) LOT COVERAGE %

no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space

Maximum lot coverage	
Minimum lot size in cluster subdivision with 20%-30% open	
Maximum lot coverage for cluster/compact development	
Maximum lot coverage	
Maximum residential lot coverage	
Maximum lot coverage for estate subdivision	
Maximum lot coverage in manufactured home subdivision	
Maximum lot coverage for multi-family	
Maximum lot coverage for patio home subdivision	
Maximum lot coverage in townhome subdivision	

(10) MIXED USES

allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts

Mixed use

The City of League City Comparison to Wheeler's Benchmarks

				Present? (1 = yes, 0 = no)	Section	Description listed	Notes	
(1)	MIN LOT SIZE	WHEELER- SMART GROWTH ALT. 1500-4000 sq. ft, if any	LEAUGE CITY	Minimum lot size served by sewer	0			
			Minimum lot size	1	102.9.b.1.a	7000	residential	
			Minimum lot size in cluster subdivision with 20%-30% open	0				
			Minimum commercial lot size	0				
			Minimum heavy commercial lot size	0				
			Minimum residential lot size	0				
			Minimum lot size for estate subdivision	1	102.9.b.1.b	20000		
			Minimum lot size in manufactured home subdivision	1	66.8.2.a	5000		
			Minimum lot size in mobile home subdivision	0				
			Minimum lot size for multi-family	0				
			Minimum lot size for patio homes	1	102.10.a	5000		
			Minimum lot size in PUD	1	102.12		not specified, dependent on design	
			Minimum lot size in townhome subdivision	1	102.11.a	2000		
<hr/>								
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family	0				
<i>* Maximum lot size not listed for other types of lots</i>								
<hr/>								
(3)	LOT WIDTH	Single Family Residential no minimum	Minimum lot width dimension	0				
			Minimum lot width in subdivision with open drainage	0				
			Minimum lot width for estate subdivision	1	102.9.b.1.b	100		
			Minimum lot width in manufactured home subdivision	1	66.8.2.a	50		
			Minimum lot width at corner in mod. home subdivision	0				

		Minimum lot width at thoroughfare in mod home subdivision	0		
		Minimum lot width for patio homes, straight lot	1	102.10.a	50
		Minimum lot width for patio homes, radial lot	0		
Townhouses/ Duplexes		Minimum lot width in townhome subdivision	1	102.11.a	25
Apartments/ Condominiums	no minimum	Minimum lot width for multi-family	0		
Commercial	no minimum	Minimum commercial lot width	0		
		Minimum heavy commercial lot width	0		

(4)	DENSITY:				
	d.u./Ac				
		allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)			
	per lot	NO maximum; 20-30 units/Ac minimum	Density in units per acre, minimum residential	0	
	downtown areas	8-10 units/Ac for single family residential; 20 units/Ac for multi-family	Density in units per acre, maximum residential	0	
	residential areas		Density in units per acre, townhomes	0	
			Density in units per acre, minimum multi-family	0	
			Density in units per acre, max multi-family	0	
		Density in units per acre, mobile home	0		

(5)	HEIGHT RESTRICTIONS	
	downtown areas	3-5 stories; 2-3 min.
	residential areas	3 1/2 stories or 40 ft

Height, maximum per modular home	0
Height, maximum per townhome	0
Height, maximum per building in townhome subdivision	0
Height, maximum per bldg in patio home subdivision	0
Height, maximum per multi-family	0
Height, maximum per residential	0
Height, maximum per patio home	0
Height, maximum commercial	0
Height, maximum heavy commercial	0
Height, maximum in manufactured housing subdivision	0
Height, maximum in PUD/TND	0

(6) SETBACKS

front no minimum; add maximum permit zero-lot line construction with appropriate design

side from creeks/ waterways min of 30 ft from centerline of creek

Setback-commercial front minimum				
Setback-commercial rear minimum				
Setback-commercial side minimum				
Setback-corner minimum for multi-family				
Setback-corner minimum in mod home subdivision	1	66.8.3.a		10
Setback-corner residential minimum	1	102.9.b.2		10
Setback-from 60' ROW of future thoroughfare				
Setback-from adjoining property to manufactured home				
Setback-from street to manufactured home				
Setback-front compact/cluster development commercial				
Setback-front compact/cluster				

development residential				
Setback-front estate subdivision	1	102.9.b.2.b	50	
Setback-front minimum for multi-family				
Setback-front minimum in mod home subdivision	1	66.8.3.a	25	
Setback-front residential minimum	1	22.1.a	25	Also found in section 102.9.b.2
Setback-frontage in subdivision with open drainage				
Setback-fronting 60' street				
Setback-fronting less than 60' street				
Setback-heavy commercial front minimum				
Setback-heavy commercial rear minimum				
Setback-heavy commercial side minimum				
Setback-minimum corner in PUD/TND	1	102.9.b.2.c		to be established on an individual basis by planning and zoning commission
Setback-minimum from adjacent manufactured home front to back				
Setback-minimum from adjacent manufactured home side to side	1	66.8.3.b	10	
Setback-minimum from rear utility easement to patio home				
Setback-minimum front commercial in PUD/TND				
Setback-minimum front in patio home subdivision	1	102.10.b	20	
Setback-minimum front in townhome subdivision per bldg				
Setback-minimum front in townhome subdivision per unit				
Setback-minimum front residential in PUD/TND	1	102.12		not specified, to be determined by design and planning and zoning
Setback-minimum rear in PUD/TND	1	102.9.b.2.c		to be established on an individual basis by planning and zoning commission
Setback-minimum rear in townhome subdivision per bldg				
Setback-minimum rear in townhome subdivision per unit				
Setback-minimum side in patio home subdivision	1	102.10.b	10	0-2' on opposite side
Setback-minimum side in PUD/TND	1	102.9.b.2.c		to be established on an individual basis by planning and zoning commission

Setback-minimum side in townhome subdivision per bldg				
Setback-minimum side in townhome subdivision per unit				
Setback-minimum side to adjacent bldg in patio home subdivision	1	102.10.b		10
Setback-rear estate subdivision	1	102.9.b.2.b		25
Setback-rear minimum for multi-family				
Setback-rear minimum in mod home subdivision	1	66.8.3.a		10
Setback-rear residential minimum	1	22.1.a		10
Setback-side estate subdivision	1	102.9.b.2.b		25
Setback-side minimum for multi-family				
Setback-side minimum in mod home subdivision	1	66.8.3.a		5
Setback-side of less than 60' street				
Setback-side residential minimum	1	22.1.a		5
Setback-zero lot lines				

(7) PARKING

Parking	1	125.170		table with 133 categories
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downtown areas
1 space per unit max
1 off street; 1 additional on-street for larger units; consider maximums

residential areas

Parking, residential	1	125.171		2
Parking, modular home	1	66.9.4.a		2
Parking mobile home	0			
Parking, multi-family	1	125.170		1 one per bedroom
Parking, townhome	1	125.170		2 per unit

transit-oriented areas
1 space per unit max; car-free housing; encourage car sharing in large projects
1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center; businesses allowed to contribute in-lieu free instead of providing on-

retail

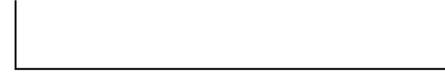
office	site; 2-3 spaces per 1000 sq. ft. for other locations no minimum for businesses located in downtown, transit-oriented, or neighborhood center; 1-2 spaces per 1000 sq ft in other locations monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged		
charges			

(8) FLOOR-AREA RATIO	at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)		0
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(9) LOT COVERAGE %	no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space		
		Maximum lot coverage	0
		Minimum lot size in cluster subdivision with 20%-30% open	0
		Maximum lot coverage for cluster/compact development	0
		Maximum lot coverage	0
		Maximum residential lot coverage	0
		Maximum lot coverage for estate subdivision	0
		Maximum lot coverage in manufactured home subdivision	0
		Maximum lot coverage for multi-family	0
		Maximum lot coverage for patio home subdivision	0
		Maximum lot coverage in townhome subdivision	0

(10) MIXED USES	allow mixed uses such as housing and shops to be added to office parks,	Mixed use	0
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offices and shops to
housing districts



The City of Manvel Comparison to Wheeler's Benchmarks

		WHEELER- SMART GROWTH ALT.	MANVEL	Present? (1 = yes, 0 = no)	Section	Description listed	Notes
(1)	MIN LOT SIZE	1500-4000 sq. ft, if any	Minimum lot size served by sewer	0		---	
			Minimum lot size	0		---	
			Minimum lot size in cluster subdivision with 20%-30% open	0		---	
			Minimum commercial lot size	0		---	
			Minimum heavy commercial lot size	1	77.32.b	1	one acre
			Minimum residential lot size	1	62.108.b.2	6300	
			Minimum lot size for estate subdivision	1	77.27.b.1	43560	one acre
			Minimum lot size in manufactured home subdivision	1	38.25.a	4000	
			Minimum lot size in mobile home subdivision	0		---	
			Minimum lot size for multi-family	0		---	
			Minimum lot size for patio homes	0		---	
			Minimum lot size in PUD	1	77.29.g	0	no minimum lot size in a PUD/TND
			Minimum lot size in	0		---	

townhome subdivision				
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(2) MAX LOT SIZE 5000 sq. ft. or less

Maximum lot size for multi-family	0
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** Maximum lot size not listed for other types of lots*

(3) LOT WIDTH Single Family Residential no minimum

Minimum lot width dimension	0			---
Minimum lot width in subdivision with open drainage	1	62.146		120
Minimum lot width for estate subdivision	1	77.27.b.2		120
Minimum lot width in manufactured home subdivision	1	38.25.a		35 In 77.34.11, the minimum width at setback is 60' for manufactured home
Minimum lot width at corner in mod. home subdivision	0			---
Minimum lot width at thoroughfare in mod home subdivision	0			---
Minimum lot width for patio homes, straight lot	0			---
Minimum lot width for patio homes, radial lot	0			---

Townhouses/

Minimum lot	0			---
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Duplexes		width in townhome subdivision				
Apartments/ Condominiums	no minimum	Minimum lot width for multi-family	0		---	
Commercial	no minimum	Minimum commercial lot width	1	77.31.b.2		100
		Minimum heavy commercial lot width	1	77.32.b		120

(4) DENSITY:
d.u./Ac

per lot	allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)	Density in units per acre, minimum residential	0			---
downtown areas	NO maximum; 20-30 units/Ac minimum	Density in units per acre, maximum residential	0			---
residential areas	8-10 units/Ac for single family residential; 20 units/ Ac for multi-family	Density in units per acre, townhomes	1	77.30.c.2	7	7 per acre
		Density in units per acre, minimum multi-family	0			---
		Density in units per acre, max multi-family	1	77.30.c.1	15	15 per acre
		Density in units per acre, mobile home	0			---

(5) HEIGHT
RESTRICTIONS

downtown areas	3-5 stories; 2-3 min.
residential areas	3 1/2 stories or 40 ft

Height, maximum per modular home	0		---	
Height, maximum per townhome	0		---	
Height, maximum per building in townhome subdivision	1	77.30.d	40	
Height, maximum per bldg in patio home subdivision	0		---	
Height, maximum per multi-family	1	77.30.d	40	
Height, maximum per residential	1	77.27.e	40	
Height, maximum per patio home	0		---	
Height, maximum commercial	1	77.32.d	60	
Height, maximum heavy commercial	1	77.31.d	70	
Height, maximum in manufactured housing subdivision	1	77.34 .9	40	
Height, maximum in PUD/TND	1	77.29.i	90	

(6) SETBACKS

front no minimum; add maximum
side permit zero-lot line construction with
from creeks/ appropriate design
waterways min of 30 ft from centerline of creek

Setback-front	0			
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compact/cluster development commercial				
Setback-front compact/cluster development residential	0			
Setback-front estate subdivision	1	77.27.c.1	40	
Setback-rear estate subdivision	1	77.27.c.1	40	
Setback-side estate subdivision	1	77.27.c.1	40	
Setback-front residential minimum	1	62.108.b.1	25	on a lot smaller than one acre, a lot greater than one acre 50' (62.108)
Setback-side residential minimum	1	62.108.a	10	interior lots, otherwise 5'
Setback-rear residential minimum	0			
Setback-corner residential minimum	0			
Setback-commercial front minimum	1	62.108.a	25	Also found in 77.31.c.1
Setback-commercial side minimum	1	62.108.a	5	77.31.c.2
Setback-commercial rear minimum	1	77.31.c.2	10	
Setback-heavy commercial front minimum	1	77.32.c	40	
Setback-heavy commercial side minimum	1	77.32.c	40	
Setback-heavy commercial rear minimum	1	77.32.c	40	

Setback-fronting 60' street	1	62.108.b.1	35	a lot smaller than one acre
Setback-fronting less than 60' street	0			
Setback-side of less than 60' street	1	62.108.b.1	5	
Setback-frontage in subdivision with open drainage	0			In 77.34.11, the minimum width at setback is 60'
Setback-front minimum in mod home subdivision	1	38.3.b	15	unless fronting a public street, then 25'
Setback-rear minimum in mod home subdivision	1	38.3.b	15	
Setback-side minimum in mod home subdivision	1	38.3.b	15	
Setback-corner minimum in mod home subdivision	0			
Setback-minimum from adjacent manufactured home front to back	0			
Setback-minimum from adjacent manufactured home side to side				Also found in 77.34.12
Setback-from adjoining property to manufactured home	1			15 feet for a principal structure
Setback-from street to manufactured	1	77.34.12	25	

home				
Setback-front minimum for multi-family	1	77.30.b.1	25	
Setback-rear minimum for multi-family	1	77.30.b.2	15	
Setback-corner minimum for multi-family	0			
Setback-side minimum for multi-family	1	77.30.b.2	15	
Setback-minimum front in patio home subdivision	0			
Setback-minimum side in patio home subdivision	0			
Setback-minimum side to adjacent bldg in patio home subdivision	0			
Setback-minimum from rear utility easement to patio home	0			
Setback-minimum front residential in PUD/TND	1	77.29.g	0	no minimum setback
Setback-minimum front commercial in PUD/TND	1	77.29.g	0	no minimum setback
Setback-minimum corner in PUD/TND	1	77.29.g	0	no minimum setback
Setback-minimum side in PUD/TND	1	77.29.g	0	no minimum setback
Setback-minimum rear	1	77.29.g	0	no minimum setback

in PUD/TND				
Setback-minimum front in townhome subdivision per unit	1	77.30.b.1	25	
Setback-minimum side in townhome subdivision per unit	1	77.30.b.2	15	
Setback-minimum rear in townhome subdivision per unit	1	77.30.b.2	15	
Setback-minimum front in townhome subdivision per bldg	0			
Setback-minimum side in townhome subdivision per bldg	0			
Setback-minimum rear in townhome subdivision per bldg	0			
Setback-from 60' ROW of future thoroughfare	0			
Setback-zero lot lines	0			

(7) PARKING

downtown areas
1 space per unit max

residential areas
1 off street; 1 additional on-street for larger units; consider maximums

Parking	1	77.45		15 categories
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Parking, residential	1	77.45.a.	1	1 enclosed space per unit. Also found in 77.27.d
Parking, modular home	1	77.45.a.	1	1 enclosed space per

				unit. Also found in 77.34.10
Parking mobile home	1	38.29.g	2.25	per space, this allows for visitors
Parking, multi-family	1	77.45.a.	1	1 per bedroom up to two bedroom, then two per unit
Parking, townhome				
Streetscaping along right of ways and parking lots				

transit-oriented areas 1 space per unit max; car-free housing; encourage car sharing in large projects
 retail 1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center; businesses allowed to contribute in-lieu free instead of providing on-site; 2-3 spaces per 1000 sq. ft. for other locations
 office no minimum for businesses located in downtown, transit-oriented, or neighborhood center; 1-2 spaces per 1000 sq ft in other locations
 charges monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged

(8)	FLOOR-AREA RATIO	at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)	0
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(9) LOT COVERAGE % no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space

Maximum lot coverage	0
Minimum lot size in cluster subdivision with	0

20%-30% open					
Maximum lot coverage for cluster/compact development		0			
Maximum lot coverage		0			
Maximum residential lot coverage		0			
Maximum lot coverage for estate subdivision		0			
Maximum lot coverage in manufactured home subdivision		0			
Maximum lot coverage for multi-family		0			
Maximum lot coverage for patio home subdivision		0			
Maximum lot coverage in townhome subdivision		0			
(10) MIXED USES	allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts	Mixed use	1	77.29.a	Encouraged in PUD ordinance

The City of Santa Fe Comparison to Wheeler's Benchmarks

		WHEELER- SMART GROWTH ALT.	SANTA FE	Present? (1 = yes, 0 = no)	Section	Description listed	Notes
(1)	MIN LOT SIZE	1500-4000 sq. ft, if any	Minimum lot size served by sewer	0			
			Minimum lot size	0			
			Minimum lot size in cluster subdivision with 20%-30% open	0			
			Minimum commercial lot size	0			
			Minimum heavy commercial lot size	0			
			Minimum residential lot size	1	Ax. 4.E	7500	
			Minimum lot size for estate subdivision	1	Ax.4.E	15000	
			Minimum lot size in manufactured home subdivision	0			
			Minimum lot size in mobile home subdivision	0			
			Minimum lot size for multi-family	1	4.04.04.A	10000	
			Minimum lot size for patio homes	1	Ax. 4.E	5000	
			Minimum lot size in PUD	0			
			Minimum lot size in townhome subdivision	1	Ax. 4.E	5000	
<hr/>							
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family	0			
<i>* Maximum lot size not listed for other types of lots</i>							
<hr/>							
(3)	LOT WIDTH	Single Family Residential no minimum	Minimum lot width dimension	1	Ax. 4.E	60	
			Minimum lot width in subdivision with open drainage	0			
			Minimum lot width for estate subdivision	1	Ax.4.E	60	
			Minimum lot width in manufactured home subdivision	0			
			Minimum lot width at corner in mod. home subdivision	0			
			Minimum lot width at thoroughfare in mod home subdivision	0			categorized as residential medium density
			Minimum lot width for patio homes, straight lot	1	4.03.08.A.2	40	
			Minimum lot width for patio homes, radial lot	0			

Townhouses/ Duplexes		Minimum lot width in townhome subdivision	1	4.03.08.A.2	40
Apartments/ Condominiums	no minimum	Minimum lot width for multi-family	1	4.04.04.B	100
Commercial	no minimum	Minimum commercial lot width	0		
		Minimum heavy commercial lot width	0		

(4) DENSITY:
d.u./Ac

per lot	allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)	Density in units per acre, minimum residential	1	Ax. 4.E	1
downtown areas	NO maximum; 20-30 units/Ac minimum	Density in units per acre, maximum residential	0		
residential areas	8-10 units/Ac for single family residential; 20 units/Ac for multi-family	Density in units per acre, townhomes	0		
		Density in units per acre, minimum multi-family	0		
		Density in units per acre, max multi-family	0		
		Density in units per acre, mobile home	0		

(5) HEIGHT
RESTRICTIONS

downtown areas 3-5 stories; 2-3 min.
residential areas 3 1/2 stories or 40 ft

Height, maximum per modular home	0		
Height, maximum per townhome	0		
Height, maximum per building in townhome subdivision	0		
Height, maximum per bldg in patio home subdivision	0		
Height, maximum per multi-family	1	4.04.04.H	2 Can be increased to 3 stories if connected to public water supply
Height, maximum per residential	1	Ax. 4.E	35 2 stories
Height, maximum per patio home	0		
Height, maximum commercial	0		

Height, maximum heavy commercial	0		
Height, maximum in manufactured housing subdivision	0		
Height, maximum in PUD/TND	0		

(6) SETBACKS

front no minimum; add maximum permit zero-lot line construction with appropriate design

side from creeks/ waterways min of 30 ft from centerline of creek

Setback-commercial front minimum				
Setback-commercial rear minimum				
Setback-commercial side minimum				
Setback-corner minimum for multi-family				
Setback-corner minimum in mod home subdivision				
Setback-corner residential minimum				
Setback-from 60' ROW of future thoroughfare				
Setback-from adjoining property to manufactured home				
Setback-from street to manufactured home				
Setback-front compact/cluster development commercial	1	4.03.08.C.2	25	
Setback-front compact/cluster development residential	1	4.03.08.C.3	25	
Setback-front estate subdivision	1	Ax.4.E	25	
Setback-front minimum for multi-family	1	4.04.04.E	25	
Setback-front minimum in mod home subdivision				
Setback-front residential minimum	1	Ax.4.E	25	
Setback-frontage in subdivision with open drainage				
Setback-fronting 60' street				
Setback-fronting less than 60' street				
Setback-heavy commercial front minimum				
Setback-heavy commercial rear minimum				
Setback-heavy commercial side minimum				
Setback-minimum corner in PUD/TND				
Setback-minimum from adjacent manufactured home front to back				

Setback-minimum from adjacent manufactured home side to side				
Setback-minimum from rear utility easement to patio home	1	4.03.05.C	25	
Setback-minimum front commercial in PUD/TND				
Setback-minimum front in patio home subdivision	1	4.03.05.B	25	
Setback-minimum front in townhome subdivision per bldg				
Setback-minimum front in townhome subdivision per unit				
Setback-minimum front residential in PUD/TND				
Setback-minimum rear in PUD/TND				
Setback-minimum rear in townhome subdivision per bldg				
Setback-minimum rear in townhome subdivision per unit				
Setback-minimum side in patio home subdivision	1	4.03.08.A.4	6	
Setback-minimum side in PUD/TND				
Setback-minimum side in townhome subdivision per bldg				
Setback-minimum side in townhome subdivision per unit				
Setback-minimum side to adjacent bldg in patio home subdivision				
Setback-rear estate subdivision	1	Ax.4.E	15	
Setback-rear minimum for multi-family	1	4.04.04.F	25	
Setback-rear minimum in mod home subdivision				
Setback-rear residential minimum	1	Ax.4.E	15	
Setback-side estate subdivision	1	Ax.4.E	6	
Setback-side minimum for multi-family	1	4.04.04.G	25	
Setback-side minimum in mod home subdivision				
Setback-side of less than 60' street				
Setback-side residential minimum	1	Ax.4.E	6	
Setback-zero lot lines	1	4.03.08.B	0	allowed on side but opposing side must have 12'

(7) PARKING

downtown areas 1 space per unit max
1 off street; 1 additional
residential areas on-street for larger units;

Parking	0
Parking, residential	0

consider maximums

Parking, modular home	0
Parking, mobile home	0
Parking, townhome	0
Parking, multi-family	0
	0

transit-oriented areas

1 space per unit max; car-free housing; encourage car sharing in large projects
 1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center; businesses allowed to contribute in-lieu free instead of providing on-site; 2-3 spaces per 1000 sq. ft. for other locations
 no minimum for businesses located in downtown, transit-oriented, or neighborhood center; 1-2 spaces per 1000 sq ft in other locations
 monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged

retail

office

charges

(8) FLOOR-AREA RATIO

at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)

0

(9) LOT COVERAGE %

no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space

Maximum lot coverage	
Minimum lot size in cluster subdivision with 20%-30% open	
Maximum lot coverage for cluster/compact	

development	
Maximum lot coverage	
Maximum residential lot coverage	
Maximum lot coverage for estate subdivision	
Maximum lot coverage in manufactured home subdivision	
Maximum lot coverage for multi-family	
Maximum lot coverage for patio home subdivision	
Maximum lot coverage in townhome subdivision	



(10) MIXED USES

allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts

Mixed use

The City of Texas City Comparison to Wheeler’s Benchmarks

		WHEELER- SMART GROWTH ALT.	Texas City	Present? (1 = yes, 0 = no)	Section	Description listed	Notes
(1)	MIN LOT SIZE	1500-4000 sq. ft, if any	Minimum lot size served by sewer	1	110.42.l.1	6000	
			Minimum lot size	0			
			Minimum lot size in cluster subdivision with 20%-30% open	0			
			Minimum commercial lot size	1	40.28.d.1	6000	
			Minimum heavy commercial lot size	1	40.46.d.1	20000	
			Minimum residential lot size	0			
			Minimum lot size for estate subdivision	1	40.13	8200	
			Minimum lot size in manufactured home subdivision	0			
			Minimum lot size in mobile home subdivision	1	40.24.d.3	4840	
			Minimum lot size for multi-family	0			
			Minimum lot size for patio homes	1	110.42.m.3	4000	
			Minimum lot size in PUD	1	40.48		to be determined
			Minimum lot size in townhome subdivision	1	40.19.d.1	2904	
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family	0			
			<i>* Maximum lot size not listed for other types of lots</i>				
(3)	LOT WIDTH	Single Family Residential no minimum	Minimum lot width dimension	0			
			Minimum lot width in subdivision with open drainage	0			
			Minimum lot width for estate subdivision	1	40.13	70	
			Minimum lot width in manufactured home subdivision	1	40.24.d.4	40	
			Minimum lot width at corner in mod. home subdivision	0			
			Minimum lot width at thoroughfare in mod home subdivision	0			
			Minimum lot width for patio homes, straight lot	1	110.42.m.3	40	
			Minimum lot width for patio homes, radial lot	0			

Townhouses/ Duplexes		Minimum lot width in townhome subdivision	1	40.19.d.2	30	
Apartments/ Condominiums	no minimum	Minimum lot width for multi-family	1	40.22.d.2	80	
Commercial	no minimum	Minimum commercial lot width	1	40.28.d.3	0	
		Minimum heavy commercial lot width	1	40.46.d.2	100	

(4)	DENSITY: d.u./Ac					
	per lot	allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)	Density in units per acre, minimum residential	0		
	downtown areas	NO maximum; 20-30 units/Ac minimum	Density in units per acre, maximum residential	0		
	residential areas	8-10 units/Ac for single family residential; 20 units/ Ac for multi- family	Density in units per acre, townhomes	1	40.19	15 15 per acre maximum
			Density in units per acre, minimum multi- family	1	40.23.d.1	18 18 units per acre
			Density in units per acre, max multi-family	1	40.22.d.1	25 25 units per acre
			Density in units per acre, mobile home	0		

(5)	HEIGHT RESTRICTIONS					
	downtown areas	3-5 stories; 2-3 min.	Height, maximum per modular home	1	40.24.d.10	15
	residential areas	3 1/2 stories or 40 ft	Height, maximum per townhome	1	40.19.d.10	30
			Height, maximum per building in townhome subdivision	1	40.19.d.10	30
			Height, maximum per bldg in patio home subdivision	1	40.16.d.14	30 30 feet or 2.5 stories
			Height, maximum per multi-family	1	40.13	36 3 stories or 36 feet, additional category 2 stories 25 feet
			Height, maximum per residential	1	40.13	35 2.5 stories or 35 feet
			Height, maximum per patio home	1	40.13	30 2.5 or 30 feet
			Height, maximum commercial	1	40.13	75
			Height, maximum heavy commercial	1	40.13	75

Height, maximum in manufactured housing subdivision	1	40.13	15
Height, maximum in PUD/TND	1	40.13	

(6) SETBACKS

front no minimum; add maximum
side permit zero-lot line construction
from creeks/ with appropriate design
waterways min of 30 ft from centerline of
creek

Setback-commercial front minimum	1	40.29.d.4	25	
Setback-commercial rear minimum	1	40.29.d.5	10	if adjacent to residential, 15 feet
Setback-commercial side minimum	1	40.29.d.6	10	if adjacent to residential, 15 feet
Setback-corner minimum for multi-family	0			
Setback-corner minimum in mod home subdivision	0			
Setback-corner residential minimum	0			
Setback-from 60' ROW of future thoroughfare	0			
Setback-from adjoining property to manufactured home	0			
Setback-from street to manufactured home	0			
Setback-front compact/cluster development commercial	0			
Setback-front compact/cluster development residential	0			
Setback-front estate subdivision	1	40.13	40	
Setback-front minimum for multi-family	1	40.22.d.4	25	75 feet if 3 story
Setback-front minimum in mod home subdivision	1	40.24.d.6	25	25 feet on public street, 15 on private street
Setback-front residential minimum	1	110.42.I.6	25	
Setback-frontage in subdivision with open drainage	0			
Setback-fronting 60' street	0			
Setback-fronting less than 60' street	0			
Setback-heavy commercial front minimum	1	40.46.d.4	40	
Setback-heavy commercial rear minimum	1	40.46.d.5	0	
Setback-heavy commercial side minimum	1	40.46.d.6	0	
Setback-minimum corner in PUD/TND	0			
Setback-minimum from adjacent manufactured home front to back	1	40.24.d.9	20	
Setback-minimum from adjacent manufactured home side to side	1	40.24.d.9	20	
Setback-minimum from rear utility easement to patio home	0			

Setback-minimum front commercial in PUD/TND	0			
Setback-minimum front in patio home subdivision	1	110.42.m.5	15	15 feet unless garage faces street, then 20 feet
Setback-minimum front in townhome subdivision per bldg	0			
Setback-minimum front in townhome subdivision per unit	1	40.19.d.4	25	
Setback-minimum front residential in PUD/TND	0			
Setback-minimum rear in PUD/TND	0			
Setback-minimum rear in townhome subdivision per bldg	0			
Setback-minimum rear in townhome subdivision per unit	1	40.19.d.5	20	
Setback-minimum side in patio home subdivision	1	110.42.m.8	5	unless zero lot line, then 10 on one side
Setback-minimum side in PUD/TND	0			
Setback-minimum side in townhome subdivision per bldg	1	40.19.d.6	6	6 feet between each complex
Setback-minimum side in townhome subdivision per unit	1	40.19.d.6	0	0' between units
Setback-minimum side to adjacent bldg in patio home subdivision	1	110.42.m.7	10	an existing building
Setback-rear estate subdivision	1	40.13	20	
Setback-rear minimum for multi-family	1	40.22.d.5	20	30 if 3 story
Setback-rear minimum in mod home subdivision	1	40.24.d.7	10	
Setback-rear residential minimum	1	110.42.l.7	25	minimum of 30% or 25 feet
Setback-side estate subdivision	1	40.13	5	
Setback-side minimum for multi-family	1	40.22.d.6	20	30 if 3 story
Setback-side minimum in mod home subdivision	1	40.24.d.8	5	
Setback-side of less than 60' street	0			
Setback-side residential minimum	1	110.42.l.8		5 feet or 10% whichever is greater
Setback-zero lot lines	1	40.16.d		

(7) PARKING

downtown areas 1 space per unit max
1 off street; 1 additional on-street
for larger units; consider
residential areas maximums

Parking	1	40.56		over 50 categories
Parking, residential	1	40.56.3.a	2	
Parking, modular home	0			
Parking mobile home	1	40.24.e	2	
Parking, multi-family	1	40.22.e	2	1.75 per one bedroom, 2.5 per 3 bedroom,

Parking, townhome	1	40.19.e.1	2
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transit-oriented areas
 1 space per unit max; car-free housing; encourage car sharing in large projects
 retail
 1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center; businesses allowed to contribute in-lieu free instead of providing on-site; 2-3 spaces per 1000 sq. ft. for other locations
 office
 no minimum for businesses located in downtown, transit-oriented, or neighborhood center; 1-2 spaces per 1000 sq ft in other locations
 charges
 monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged

(8) FLOOR-AREA RATIO
 at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)

0

(9) LOT COVERAGE %

no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space

Maximum lot coverage				
Maximum lot coverage for cluster/compact development				
Maximum lot coverage				
Maximum residential lot coverage	1	40.13	40	
Maximum lot coverage for estate subdivision	1	40.13	40	
Maximum lot coverage in manufactured home subdivision				
Maximum lot coverage for multi-family	1	40.22.d.9	70	
Maximum lot coverage for patio home subdivision	1	40.13	50	
Maximum lot coverage in PUD/TND	1	40.48		to be determined
Maximum lot coverage in townhome	1	40.19.d.4	70	70%

		subdivision				
(10) MIXED USES	allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts	Mixed use	1	40.48		

Brazoria County in Comparison to Wheeler's Benchmarks

		WHEELER- SMART GROWTH ALT.	VRAZORIA COUNTY	Present?
(1)	MIN LOT SIZE	1500-4000 sq. ft, if any	Minimum lot size served by sewer	0
			Minimum lot size	0
			Minimum lot size in cluster subdivision with 20%-30% open	0
			Minimum commercial lot size	0
			Minimum heavy commercial lot size	0
			Minimum residential lot size	0
			Minimum lot size for estate subdivision	0
			Minimum lot size in manufactured home subdivision	0
			Minimum lot size in mobile home subdivision	0
			Minimum lot size for multi-family	0
			Minimum lot size for patio homes	0
			Minimum lot size in PUD	0
			Minimum lot size in townhome subdivision	0
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family	0
			<i>* Maximum lot size not listed for other types of lots</i>	
(3)	LOT WIDTH	Single Family Residential	no minimum	
			Minimum lot width dimension	0
			Minimum lot width in subdivision with open drainage	0
			Minimum lot width for estate subdivision	0
			Minimum lot width in manufactured home subdivision	0
			Minimum lot width at corner in mod. home subdivision	0
			Minimum lot width at thoroughfare in mod home subdivision	0
			Minimum lot width for patio homes, straight lot	0
			Minimum lot width for patio homes, radial lot	0
			Townhouses/ Duplexes	
			Minimum lot width in townhome subdivision	0
			Apartments/ Condominiums	no minimum
			Minimum lot width for multi-family	0
	Commercial	no minimum		
	Minimum commercial lot width	0		

Minimum heavy commercial lot width	0
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(4) DENSITY: d.u./Ac

per lot	allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context)		
downtown areas	NO maximum; 20-30 units/Ac minimum	Density in units per acre, minimum residential	0
residential areas	8-10 units/Ac for single family residential; 20 units/ Ac for multi-family	Density in units per acre, maximum residential	0
		Density in units per acre, townhomes	0
		Density in units per acre, minimum multi-family	0
		Density in units per acre, max multi-family	0
		Density in units per acre, mobile home	0

(5) HEIGHT RESTRICTIONS

downtown areas	3-5 stories; 2-3 min.		
residential areas	3 1/2 stories or 40 ft		
		Height, maximum per modular home	0
		Height, maximum per townhome	0
		Height, maximum per building in townhome subdivision	0
		Height, maximum per bldg in patio home subdivision	0
		Height, maximum per multi-family	0
		Height, maximum per residential	0
		Height, maximum per patio home	0
		Height, maximum commercial	0
		Height, maximum heavy commercial	0
		Height, maximum in manufactured housing subdivision	0
		Height, maximum in PUD/TND	0

(6) SETBACKS

front	no minimum; add maximum
side	permit zero-lot line construction with appropriate design
from creeks/	min of 30 ft from centerline of creek

waterways

Setback-commercial front minimum	0
Setback-commercial rear minimum	0
Setback-commercial side minimum	0
Setback-corner minimum for multi-family	0
Setback-corner minimum in mod home subdivision	0
Setback-corner residential minimum	0
Setback-from 60' ROW of future thoroughfare	0
Setback-from adjoining property to manufactured home	0
Setback-from street to manufactured home	0
Setback-front compact/cluster development commercial	0
Setback-front compact/cluster development residential	0
Setback-front estate subdivision	0
Setback-front minimum for multi-family	0
Setback-front minimum in mod home subdivision	0
Setback-front residential minimum	0
Setback-frontage in subdivision with open drainage	0
Setback-fronting 60' street	0
Setback-fronting less than 60' street	0
Setback-heavy commercial front minimum	0
Setback-heavy commercial rear minimum	0
Setback-heavy commercial side minimum	0
Setback-minimum corner in PUD/TND	0
Setback-minimum from adjacent manufactured home front to back	0
Setback-minimum from adjacent manufactured home side to side	0
Setback-minimum from rear utility easement to patio home	0
Setback-minimum front commercial in PUD/TND	0
Setback-minimum front in patio home subdivision	0
Setback-minimum front in townhome subdivision per bldg	0
Setback-minimum front in townhome subdivision per unit	0
Setback-minimum front residential in PUD/TND	0
Setback-minimum rear in PUD/TND	0
Setback-minimum rear in townhome subdivision per bldg	0
Setback-minimum rear in townhome subdivision per unit	0
Setback-minimum side in patio home subdivision	0
Setback-minimum side in PUD/TND	0
Setback-minimum side in townhome subdivision per bldg	0
Setback-minimum side in townhome subdivision per unit	0
Setback-minimum side to adjacent bldg in patio home subdivision	0
Setback-rear estate subdivision	0

Setback-rear minimum for multi-family	0
Setback-rear minimum in mod home subdivision	0
Setback-rear residential minimum	0
Setback-side estate subdivision	0
Setback-side minimum for multi-family	0
Setback-side minimum in mod home subdivision	0
Setback-side of less than 60' street	0
Setback-side residential minimum	0
Setback-zero lot lines	0

(7) PARKING

downtown areas 1 space per unit max 1 off street; 1 additional on-street for larger units; consider maximums

residential areas

transit-oriented areas 1 space per unit max; car-free housing; encourage car sharing in large projects

retail 1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center; businesses allowed to contribute in-lieu free instead of providing on-site; 2-3 spaces per 1000 sq. ft. for other locations

office no minimum for businesses located in downtown, transit-oriented, or neighborhood center; 1-2 spaces per 1000 sq ft in other locations

charges monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged

Parking	0
	0
Parking, residential	0
Parking, modular home	0
Parking, mobile home	0
Parking, townhome	0
Parking, multi-family	0
	0
	0
	0
	0
	0
	0
	0

FLOOR-AREA

(8) RATIO at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)

0



LOT COVERAGE no maximum if parks and other public open spaces are nearby; encourage use of
 (9) % roof tops as open space

0
0
0
0
0
0
0
0
0
0
0

Maximum lot coverage
Minimum lot size in cluster subdivision with 20%-30% open
Maximum lot coverage for cluster/compact development
Maximum lot coverage
Maximum residential lot coverage
Maximum lot coverage for estate subdivision
Maximum lot coverage in manufactured home subdivision
Maximum lot coverage for multi-family
Maximum lot coverage for patio home subdivision
Maximum lot coverage in townhome subdivision



(1
0) MIXED USES allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts

Mixed use

0

Galveston County in Comparison to Wheeler's Benchmarks

		WHEELER- SMART GROWTH ALT.	GALVESTON COUNTY						
		1500-4000 sq. ft, if any		Present?					
(1)	MIN LOT SIZE		GALVESTON COUNTY						
			Minimum lot size served by sewer	0					
			Minimum lot size	0					
			Minimum lot size in cluster subdivision with 20%-30% open	0					
			Minimum commercial lot size	0					
			Minimum heavy commercial lot size	0					
			Minimum residential lot size	0					
			Minimum lot size for estate subdivision	0					
			Minimum lot size in manufactured home subdivision	0					
			Minimum lot size in mobile home subdivision	0					
			Minimum lot size for multi-family	0					
			Minimum lot size for patio homes	0					
			Minimum lot size in PUD	0					
Minimum lot size in townhome subdivision	0								
<hr/>									
(2)	MAX LOT SIZE	5000 sq. ft. or less	Maximum lot size for multi-family	0					
<i>* Maximum lot size not listed for other types of lots</i>									
(3)	LOT WIDTH	Single Family Residential	no minimum	GALVESTON COUNTY					
				Minimum lot width dimension	0				
				Minimum lot width in subdivision with open drainage	0				
				Minimum lot width for estate subdivision	0				
				Minimum lot width in manufactured home subdivision	0				
				Minimum lot width at corner in mod. home subdivision	0				
				Minimum lot width at thoroughfare in mod home subdivision	0				
				Minimum lot width for patio homes, straight lot	0				
				Minimum lot width for patio homes, radial lot	0				
				<hr/>					
						Townhouses/ Duplexes		Minimum lot width in townhome subdivision	0
						Apartments/ Condominiums	no minimum	Minimum lot width for multi-family	0
						Commercial	no minimum	Minimum commercial lot width	0
				Minimum heavy commercial lot width	0				
<hr/>									
(4)	DENSITY: d.u./Ac	per lot downtown areas	allow second units on existing lots; allow multiple units of vacant lots in singles family districts (if conforming to neighborhood context) NO maximum; 20-30 units/Ac minimum	GALVESTON COUNTY					
				Density in units per acre, minimum residential	0				
				Density in units per acre, maximum residential	0				

residential areas

8-10 units/Ac for single family residential;
20 units/ Ac for multi-family

Density in units per acre, townhomes	0
Density in units per acre, minimum multi-family	0
Density in units per acre, max multi-family	0
Density in units per acre, mobile home	0

(5) HEIGHT RESTRICTIONS

downtown areas
residential areas

3-5 stories; 2-3 min.
3 1/2 stories or 40 ft

Height, maximum per modular home	0
Height, maximum per townhome	0
Height, maximum per building in townhome subdivision	0
Height, maximum per bldg in patio home subdivision	0
Height, maximum per multi-family	0
Height, maximum per residential	0
Height, maximum per patio home	0
Height, maximum commercial	0
Height, maximum heavy commercial	0
Height, maximum in manufactured housing subdivision	0
Height, maximum in PUD/TND	0

(6) SETBACKS

front
side
from creeks/ waterways

no minimum; add maximum
permit zero-lot line construction with appropriate design
min of 30 ft from centerline of creek

Setback-commercial front minimum	0
Setback-commercial rear minimum	0
Setback-commercial side minimum	0
Setback-corner minimum for multi-family	0
Setback-corner minimum in mod home subdivision	0
Setback-corner residential minimum	0
Setback-from 60' ROW of future thoroughfare	0
Setback-from adjoining property to manufactured home	0
Setback-from street to manufactured home	0
Setback-front compact/cluster development commercial	0
Setback-front compact/cluster development residential	0
Setback-front estate subdivision	0
Setback-front minimum for multi-family	0
Setback-front minimum in mod home subdivision	0
Setback-front residential minimum	0
Setback-frontage in subdivision with open drainage	0

Setback-fronting 60' street	0
Setback-fronting less than 60' street	0
Setback-heavy commercial front minimum	0
Setback-heavy commercial rear minimum	0
Setback-heavy commercial side minimum	0
Setback-minimum corner in PUD/TND	0
Setback-minimum from adjacent manufactured home front to back	0
Setback-minimum from adjacent manufactured home side to side	0
Setback-minimum from rear utility easement to patio home	0
Setback-minimum front commercial in PUD/TND	0
Setback-minimum front in patio home subdivision	0
Setback-minimum front in townhome subdivision per bldg	0
Setback-minimum front in townhome subdivision per unit	0
Setback-minimum front residential in PUD/TND	0
Setback-minimum rear in PUD/TND	0
Setback-minimum rear in townhome subdivision per bldg	0
Setback-minimum rear in townhome subdivision per unit	0
Setback-minimum side in patio home subdivision	0
Setback-minimum side in PUD/TND	0
Setback-minimum side in townhome subdivision per bldg	0
Setback-minimum side in townhome subdivision per unit	0
Setback-minimum side to adjacent bldg in patio home subdivision	0
Setback-rear estate subdivision	0
Setback-rear minimum for multi-family	0
Setback-rear minimum in mod home subdivision	0
Setback-rear residential minimum	0
Setback-side estate subdivision	0
Setback-side minimum for multi-family	0
Setback-side minimum in mod home subdivision	0
Setback-side of less than 60' street	0
Setback-side residential minimum	0
Setback-zero lot lines	0

(7)	PARKING			Parking	0
		downtown areas	1 space per unit max		
		residential areas	1 off street; 1 additional on-street for larger units; consider maximums	Parking, residential	0
				Parking, modular home	0
				Parking, mobile home	0
				Parking, townhome	0
				Parking, multi-family	0
					0
		transit-oriented areas	1 space per unit max; car-free housing; encourage car sharing in large projects		

		retail	1 space per 1000 sq. ft. min for businesses located in downtown, transit-oriented, or neighborhood center; businesses allowed to contribute in-lieu free instead of providing on-site; 2-3 spaces per 1000 sq. ft. for other locations	
		office	no minimum for businesses located in downtown, transit-oriented, or neighborhood center; 1-2 spaces per 1000 sq ft in other locations	
		charges	monthly fee per space for rental and condominiums; employers required to charge for parking and provide incentives for alternative travel modes; local hiring policies encouraged	
(8)	FLOOR-AREA RATIO		at least 1.0-2.0 maximum, 0.5 minimum in downtown (or height limits instead)	0
(9)	LOT COVERAGE %		no maximum if parks and other public open spaces are nearby; encourage use of roof tops as open space	
			Maximum lot coverage	0
			Minimum lot size in cluster subdivision with 20%-30% open	0
			Maximum lot coverage for cluster/compact development	0
			Maximum lot coverage	0
			Maximum residential lot coverage	0
			Maximum lot coverage for estate subdivision	0
			Maximum lot coverage in manufactured home subdivision	0
			Maximum lot coverage for multi-family	0
			Maximum lot coverage for patio home subdivision	0
			Maximum lot coverage in townhome subdivision	0
(10)	MIXED USES		allow mixed uses such as housing and shops to be added to office parks, offices and shops to housing districts	
			Mixed use	0

Appendix iii – *San Francisco Bay Area ‘Smart Growth Checklist’*

<http://www.abag.ca.gov/jointpolicy/Smart%20Growth%20Checklist.pdf>

Appendix iv – Example Watershed Protection Plan: Corsicana, Texas

(<http://www.ci.corsicana.tx.us/economic/docs/Part%20Three%20-%20The%20Watershed%20Protection%20Plan%20-%20pages%2084-90.pdf>)

Appendix v – Example Conservation Subdivisions Ordinance: City of Georgetown, Texas

(<http://www.georgetown.org/pdfs/Ord200812ConservationSubdivisions.18Mar08.pdf>)