HOW LAND USE REGULATIONS INFORM SUSTAINABLE DEVELOPMENT:
A LOOK AT COMMERCIAL DEVELOPMENT IN BAKERSFIELD, CALIFORNIA

A Thesis
presented to
The Faculty of California Polytechnic State University,
San Luis Obispo

In Partial Fulfillment
of the Requirements for the Degree
Master of City and Regional Planning

by
Darcy Marie Reed
June 2013

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COMMITTEE MEMBERSHIP

TITLE: How Land Use Regulations Inform Sustainable Development: A Look at Commercial Development in Bakersfield, California

AUTHOR: Darcy Reed

DATE SUBMITTED: June 2013

COMMITTEE CHAIR: Umut Toker, Ph.D., Associate Professor City and Regional Planning

COMMITTEE MEMBER: Michael Multari, Lecturer City and Regional Planning

COMMITTEE MEMBER: James David, Associate Planner City of San Luis Obispo

COMMITTEE MEMBER: Chris Clark, JD, Lecturer City and Regional Planning

ABSTRACT

How Land Use Regulations Inform Sustainable Development: A Look at Commercial Development in Bakersfield, California

Darcy Marie Reed

This research analyzes the relationship between local land use regulations and commercial development in the City of Bakersfield, California, specifically focusing on how the regulations are used to inform commercial development to be sustainable or not. This research contributes to similar research efforts through its contribution of the Sustainable Development Indicator Checklist, the tool used to measure sustainable development within the regulations as well as the built environment. Analysis of six case study locations falling under the C-B (Central Business), C-C (Commercial Center), and PCD (Planned Commercial Development) zone designations indicated the local land use regulations were not informing development to be particularly sustainable, mostly due to vague language, constraining language, and sometimes a combination of the two. Recommendations are made for how the City of Bakersfield can improve the land use regulations to be more pertinent to the process of informing future commercial development to be more sustainable.

ACKNOWLEDGMENTS

A sincere thank you to my wonderful committee for making themselves available and for offering their expertise and advice. Also, a special thank you to my family for being supportive and offering a shoulder to lean on when I felt overworked.

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CHAPTER 1

INTRODUCTION

1.1 Statement of Problem

The City of Bakersfield is located in the Central Valley and is home to nearly half a million people who reside in the metropolitan area. Over the past twenty years, the city has seen extensive growth. Development, which is mostly nonexistent in some of the older areas of the city, continues to push towards the edge of the city limits. Having a seemingly never-ending supply of farmland that can be sold and repurposed for other uses, development continues to grow horizontally. The end result is a spectacle of miles of residential tracts that are, for the most part, separated from everyday uses including the post office, banks, grocery stores, and schools.

The course of development over the years has created a slew of problems for the city. Air quality, which has historically been a problem in the central valley due to agricultural production and the kicking up of dust in the air, has worsened due to increasing reliance on the personal automobile. As the city completes its most recent freeway extension, the Westside Parkway, it is no question that driving one's personal vehicle will be an increasingly viable option for a large portion of the population if they want to get around the city. Public transportation, which is currently limited to the central portion of the city, is not an option for people living on the outer edge of the city. This reality will continue to get worse as development continues to grow outward. Overall, the course of development is leading to an unsustainable lifestyle that cannot support an ever-growing population. One way to address this problem is to focus on development

practices that appear unsustainable and understand what makes them unsustainable. Once it is understood what is causing development to continue to expand outwards, perhaps future development can be remedied by following more sustainable initiatives. For this study, it has been determined that commercial development poses the potential to be studied for how it contributes to the appearance of non-sustainable development practices.

1.2 Research Question and Scope of Study

Considering the problem the city is facing, this research seeks to understand the relationship between the land use regulations that guide development and the built environment that is currently on an unsustainable path. Specifically, this research aims to understand the relationship between the local general plan and zoning regulations and how they inform commercial types of development. Pertinent to this task, this research seeks to answer the following question: Do land use regulations in the City of Bakersfield inform commercial development to be sustainable?

The regulations this research focuses on include general plan and zoning regulations. The development in question is narrowed to commercial development within three specific zone designations. The zones include C-B (Central Business), C-C (Commercial Center), and PCD (Planned Commercial Development). All three zones were considered for this study because they displayed the greatest opportunity to allow commercial development to be sustainable.

Before a commercial project goes through the process of being built, it undergoes a series of development procedures, which are enforced by the city in which development

takes place. During this process, developers are made aware of the written regulations that accompany each zone. These regulations help developers anticipate what they can or cannot build according to the city's standards. These regulations also influence whether development will be more or less sustainable. Throughout this research, it will be the task to understand how land use regulations in Bakersfield are informing commercial development to be sustainable, if at all.

The following chapters are included to answer the question of whether land use regulations are informing development in each of the commercial zones to be sustainable. In Chapter 2, a literature review uncovers the relevance, purpose, and implications of zoning regulations as they are used in the development process. Also included in Chapter 2 is a discussion of the definition, principles, implementation, and measurement of sustainable development. Combined, the argument is made that zoning and other land use regulations can be used to inform the built environment to be more sustainable. In Chapter 3, a methodology is presented for measuring commercial development in the City of Bakersfield. As part of the methodology, this research required the creation of a tool for measuring sustainable development. As a result, the Sustainable Development Indicator Checklist (SDI Checklist) became the catalyst to this research's success. Chapter 4 discusses findings to this study, and is followed by a set of observations and recommendations, which are discussed in Chapter 5.

CHAPTER 2

LITERATURE REVIEW

2.1 Relevance, Purpose, and Implications of Zoning

2.1.1 Relevance of Zoning

Development in a city does not happen instantly; it is a gradual process that is subject to certain procedural steps. Rather than being a unilateral process imposed by the visions of one person, development is regulated to ensure it is both fair and flexible to meet the needs of the community in which development takes place (Warren, 2009, p.1). During the planning process, in which development and other land use activities are organized within a city, land use regulations are developed in order to determine what can and cannot happen. One of the most widely used land use regulation for guiding development is zoning.

Zoning is a land use regulation used by local governments to control development of an area. It is used to divide “a community into districts or zones in which certain land-use activities are prohibited and others are permitted” (Fischel, 1985, p. 21). Zoning, which was validated as a legal form of regulating development in the landmark case *Euclid v. Ambler* (1926), has gained significant status for its ability to foster controlled growth. Though accepted as a legal regulatory tool, zoning has more recently been criticized for negatively contributing to sprawling development since, historically, zoning contributed to a “rigid separation of homes, shops, and workplaces” (Ewing et al., 2003, p. 1544). Despite the criticisms surrounding zoning, newer efforts are targeted at understanding how zoning, and other land use regulations that determine the course of

development, can be used to create more sustainable outcomes. Some of the areas of focus include energy source and consumption, water source and consumption, availability of transportation, availability of housing type, and location of services (Chandler, 2011, p. 5). Unfortunately, there is still a gap in effectively achieving sustainable development practices within the planning process (Berke and Conroy, 2000; Saha and Paterson, 2008). This places a greater emphasis on the need to overcome the barriers to creating sustainable development and find ways to use land use regulations for the better.

2.1.2 Purpose of Zoning

At its basic level, zoning is used to guide development. In California, local governments use a specific tool called a *zoning ordinance* to lay out parcel-specific details prescribing and restricting what a landowner is allowed to do with his property (Fulton & Shigley, 2005, p. 128). Although zoning ordinances can vary in the level of detail, regulations within a zoning ordinance typically address the uses allowed on the property, the size of a building in relationship to the property lines, and lastly how a building will perform in relationship to its surroundings. Collectively, these regulations allow communities to develop with consistency while avoiding the likelihood of having anomalous development.

Uses Allowed

Use requirements in the zoning ordinance are intended to prevent annoying or noxious uses from being located near places where people live and recreate (Fulton & Shigley, 2005). Using these requirements, the zoning ordinance is applied to each designated land use activity (i.e. residential and commercial) and identifies permitted

uses that are compatible with the surrounding neighborhood while restricting other uses that are less compatible. Although use requirements make it easier for residents to anticipate the future course of development, uses not specifically allowed in a zoning ordinance may be permitted in special circumstances through a conditional use permit.

Size of a Building

Regulating the size of a building, or its bulk, is included in the zoning ordinance to specify the “envelope” in which a building must fit (Fulton & Shigley, 2005, p. 130). Some of the regulations included in the bulk requirements of an ordinance are building-height limitations, building setbacks, and floor area ratio (FAR).

Bulk requirements are used for various reasons and may change depending on the geographic region. Cities that developed on or near a seismic fault line, for instance, may regulate building height differently than cities that experience few earthquakes. Often times, regulating a building’s setbacks (the distance between the building line and the property line) is done to create enough distance between buildings on separate lots. In emergency situations, building setbacks are used to allow large firefighting trucks or rescue personnel to maneuver around the sides of a building.

FAR is also used to regulate a buildings bulk. FAR calculations are factored using the floor area as a ratio to the lot area of the development. For instance, an FAR of 2.0 means that the building can have twice as much floor area as the lot that it sits on. The higher the FAR ratio, the more floor area a building can have. Depending on the height restrictions, a building with an FAR of 1.0 can be single story covering the entire lot (with respect to setbacks) or it can be multistory and break the floor area up into halves (2 stories) or even quarters (4 stories).

Building Performance

Performance requirements in the zoning ordinance are regulated to make sure a development can perform and serve the needs of the users without compromising surrounding uses. Fulton and Shigley (2005) use parking requirements as an example to show how the number of parking spaces required for a development is used to make sure it can accommodate the demand for parking. In this scenario, minimum-parking requirements reduces the likelihood of users having to find alternative places to park. Other performance requirements might be seen in landscaping standards that require a development to dedicate a certain percentage of the lot to landscaping. For this scenario, landscaping is meant to perform a certain way, perhaps for aesthetic purposes or to help reduce the heat island effect; the heat island effect is a phenomenon in which urban development is significantly warmer than surrounding rural areas because developed areas tend to retain heat, especially heat that comes from energy usage (“Urban heat island”, n.d.).

2.1.3 Zoning Implications on Sustainable Development

Even though zoning is intended to control development of an area by separating land uses that are incompatible with one another, it is not uncommon for negative consequences to follow. In particular, zoning for low-density “sprawl-like” residential development, which is usually found on the periphery of a city, addresses the historic demand for single-family homes but fails to recognize changing sentiments among a significant portion of the population. “The fastest growing segment of the real estate market today is for higher-density, mixed-use, and less automobile-dependent

development” (Ziegler, 2009, p. 114). Ziegler (2009) points out there is a growing need for housing stock that can accommodate a changing demographic consisting of singles and empty-nesters, which was expected to represent 70 percent of the population in 2010 alone. This population, he argues, no longer needs large homes, but instead a combination of “mixed-uses and pedestrian-friendly amenities” (p. 114). Furthermore, by not addressing the implications associated with zoning for low-density residential development, the long-term consequences are likely to include increasing reliance on the personal vehicle, increasing consumption of energy, and inadequate transportation systems (Ziegler, 2009; Bertaud, 2004).

Turning to suburbanization as the culprit to sprawl-like development, Mieszkowski and Mills (1993) describe the pull theory of suburbanization. In this theory, they describe how people are attracted to certain aspects of living outside of the central part of the city. Some of these attractions are lower taxes, larger homes and properties, safe neighborhoods, and high quality schools. Other, less quantifiable, attractions directly related to those already mentioned might include quality of life and overall satisfaction.

The downside to this theory is the separation of uses. Zoning for low-density residential neighborhoods and suburbs has the effect of separating residential uses from many of the other land uses. The further the separation, the more likely a person will choose to drive a personal vehicle for even the closest services. Those who commute to work are forced to drive, especially when a transit system is not a viable option because low ridership in a suburban area cannot support the operating costs of public transit in the first place.

On a per-capita basis, gasoline consumption in this country is “four time that of European drivers and nearly ten times the amount of Asian drivers” (Ziegler, 2009, p. 108). The costs associated with gasoline consumption don’t just affect one’s wallet; carbon emissions, which are the result of burning fossil fuels, are largely contributing to greenhouse gases and leading to global warming (Ziegler, 2009, p. 108).

Demonstrating awareness to the implications associated with zoning for low-density residential development isn’t the only piece to the problem. Ziegler goes one step further to argue for metropolitan growth management policies that:

[...] focus on devising and implementing growth strategies that provide people in this country with affordable and sustainable housing and transportation options... at densities that allow many, if not most, residents therein to live, work, shop, and play without having to use an automobile (Ziegler, 2009, p. 123).

If zoning can be used to separate uses from one another, then it can also be used to combine uses. This means not only combining residential and commercial uses in the same development, but also exploring opportunities for combining renewable energy uses with other appropriate uses. “In some areas, wind turbines and their support facilities may be prohibited by local zoning from locating and operating within an entire community” (Zielger, 2009, p. 119). With a growing population in the United States and the constant need for more energy, more homes, more automobiles, and all the components that go with them, it’s time to start looking at zoning as a way to help communities grow efficiently without relying on suburbanization to solve the short-term problems.

Zoning for long-term efficiency can help combat the negative effects of current zoning practices. However, there is still a long journey ahead before zoning can be used for better, more integrated communities. It will take time for municipalities to draft and implement policies focusing on ways to achieve sustainable development into their local

zoning ordinance. In the mean time, municipalities will need to determine what kinds of sustainable development alternatives will fit their needs so they can one day make it a reality.

2.2 Definition, Principles, Implementation, and Measurement of Sustainable Development

2.2.1 Definition of Sustainable Development

Understanding the difference between the terms *sustainability* and *sustainable development* is necessary to support further discussions on how zoning and other land use regulations can play a part in contributing to the practice of sustainable development.

Often times, the terms sustainability and sustainable development may be used synonymously. Maclaren (1996) argues that although these terms are often used interchangeably in the planning profession, they are in fact quite different. Sustainability, she argues, is similar to “describing a desirable *state* or set of conditions that persist over time. In contrast, the word ‘development’ in the term sustainable development implies a *process* by which sustainability can be attained (Maclaren, 1996, p. 185).

Over the past several decades, the term sustainable development has undergone a vast transformation as cities and counties have tried to hone in on its definition so that it may be applied to planning practices. The 1987 report *Our Common Future* from the United Nations World Commission on Environment and Development (WCED) set the precedent for probably the most commonly used definition of the concept of sustainable development: “Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their

own needs” (World Commission on Environment and Development, 1987, p. 43). A more recent transformation of the term occurred at the National Commission on the Environment to include:

[...] a strategy for improving the quality of life while preserving the environmental potential for the future, of living off interest rather than consuming natural capital. Sustainable development mandates that the present generation must not narrow the choices of future generations but must strive to expand them by passing on an environment and an accumulation of resources that will allow its children to live at least as well as, and preferably better than, people today. Sustainable development is premised on living within the Earth’s means (Choosing a Sustainable Future: The Report of the National Commission on the Environment, 1993, p. 2).

Adding to the description of sustainable development, definitions have gone even further to include alternative characteristics of sustainability. Deriving from earlier research of planning intellectuals, Berke and Conroy (2000) utilize concepts of reproduction, balance, linkage between local and global interests, and dynamic process to come up with a more refined definition:

Sustainable development is a dynamic process in which communities anticipate and accommodate the needs of future generations in ways that reproduce and balance social, economic, and ecological systems, and link local actions to global concerns (p. 23).

Despite the evolving definition of sustainable development, there are some who believe the concept still needs fine-tuning and elaboration on what sustainable development means and what it calls for (Beatley & Manning, 1998). Does sustainable development tout a simple logic of living within the means of nature (Berke & Conroy, 2000), or is there more to this concept to be explored? Although the original definition of sustainable development from the 1987 report *Our Common Future* may be sufficient for modest discussions, there may not be a leading definition of sustainable development that can be generalized across jurisdictions. In her reference to urban sustainability reporting,

Maclaren (1996) suggests “different communities are likely to develop slightly, or even significantly different conceptualizations of urban sustainability, depending on their current economic, environmental, and social circumstances and on community value judgments” (p. 186).

2.2.2 Principles of Sustainable Development

Disputes over the best definition for describing sustainable development are minimized by the formation of principles of sustainable development. With various approaches to defining sustainable development, the forming of principles has helped the planning profession determine what future development should push for (Chandler, 2011). In order to get to those principles, the central question Chandler (2011) asks is “What do we want to sustain?” (p. 13). Exploration of the smart growth network online indicates there is no shortage of basic principles to guide sustainable development initiatives and programs. For instance, the Environmental Protection Agency (EPA), a federal agency offering resources to communities to help improve development practices, established ten foundational principles of smart growth to help guide future development (Smart Growth Principles, 2012). Using the principles as a basis for creating better development regulations, local jurisdictions can create their own set of policies to address development-impacts unique to their jurisdiction.

2.2.3 Implementation of Sustainable Development

If sustainable development is the process for attaining sustainability, the question remaining is how can sustainable development can be attained? According to Chandler’s

(2011) research, local policy affects future development, whether that development ends up being sustainable or not. Even though policy decisions don't compel people to live sustainably, policy has a direct influence on "the design of the jurisdiction, the size and location of housing, the level and location of commercial and industrial enterprises, source of energy available, location of energy and water source, and the availability of alternative transportation" (p. 5).

Additional research by Berke and Conroy (2000) point to local plans and the policies they present as a means to "guide day-to-day and long-range decision making about land use and urban form" (p.32). In their study they took a sample of city and county plans and evaluated them for how they integrated principles of sustainable development. Results from this study revealed the publics' growing reliance on local plans to advance sustainable development, while suggesting plans alone are too narrowly focused to provide nontraditional principles of sustainability such as harmony with nature.

Implementing sustainable development through local regulations is obscured by the findings of Dalton and Burby's (1994) study on development-management techniques. In their study, development-management techniques are discussed as tools for controlling the development process in order to anticipate positive or negative site-related impacts before they can occur. In this study, they look at the organizational structure of the local planning system and find poor coordination between the processes of plan-making and development-management. They argue that while both tactics are often executed separately, poor plan-making and development-management can have the result

of negatively affecting the quality of a local plan and the potential for successful strides in sustainable development (Dalton and Burby, 1994).

One of the drawbacks of relying on the local plan to be the means of carrying out sustainable development is the issue of money (Maclaren, 1996). Conflicted by budgets, fiscal constraints and a slow moving economy, many municipalities may struggle with the task of applying sustainable development practices into their local plans for implementation. In addition to fiscal limitations, not all strategies for creating sustainable development are as promising when it comes to longer-term assessment of the strategy. Depending on the goals of a particular municipality, certain sustainable development can have spillover effects that might conflict with other areas of planning. For instance, there might be tradeoffs between having fewer choices for housing or fewer areas to park a vehicle if part of the sustainable development guidelines is to reduce CO₂ emissions by creating initiatives for higher-density housing and fewer on-street parking (Echenique et al., 2012).

Recent research has shown the difficulty in finding a universal standard for sustainable development because there is still debate on the best way to implement sustainable development and then measure it. The next section, which discusses measurement techniques, shows it is just as hard to find ways of measuring sustainable development as it is implementing it.

2.2.4 Measurement of Sustainable Development

Measuring for sustainable development is necessary because it improves our understanding of current development patterns and helps communities adapt planning

techniques to be more in line with sustainability (Chandler, 2011). The method for measuring sustainable development, however, is still in its infancy due to inconsistencies found in implementation of sustainable development and understanding what allows sustainable development to work.

Adopting policies that exhibit principles of sustainable development and later implementing them through the zoning ordinance does not automatically mean a city is sustainable. Even if some initiatives are better than others at accomplishing sustainable objectives, Maclaren (1996) argues the absence of a “clearly articulated methodology for reporting on urban sustainability” is preventing local governments from determining whether a program in the local plan is working or not (p. 184). The question to be asked, then, is how does anyone know good sustainability initiatives from bad— or for that matter good planning from bad? According to Baer (1997), there have been very few guides along the way that the profession has developed in order to establish plan quality.

Plan quality is difficult to define. Planners can often differentiate high quality plans from low quality ones, but they are hard pressed to explicitly define the key characteristics of plan quality. The planning literature is surprisingly narrow when it comes to what constitutes a good plan. The planning profession has generally avoided the normative question and focused instead on the methods and processes of plan making (Berke and French, 1994, pp. 237-238).

Owing to planning theory and the need to develop criteria for distinguishing good planning from bad, Alexander and Faludi (1989) argue that “if planning is to have any credibility as a discipline or a profession, evaluation criteria must enable a real judgment of planning effectiveness” (quoted in Baer, 1997, p. 329).

With the public’s eye on the plan-making process, there is an increasing responsibility that is placed on the planning profession to promote sustainable development (Baer, 1997; Berke & Conroy, 2000). Despite a lack of studies that have

demonstrated successful measurement of sustainable development, one such method for evaluating a local plan for sustainable development principles was developed by Berke and Conroy in 2000. In their study, they evaluated 30 comprehensive plans representing two alternative groups: “those that explicitly used sustainable development as an organizing concept for plan preparation, and those which did not use the concept but have been noted as high-quality plans” (p. 24). Several findings were concluded from this study; first, this study indicates that planners seem to have only a superficial grasp of how to translate sustainable development into practice (Berke & Conroy, 2000). Campbell (1996) adds to this discussion by saying, “The task of the coming years is simply to work out the details and to narrow the gap between its theory and practice” (quoted in Berke & Conroy, 2000, p. 30). Finding a way to do this is only part of the impending task planners must deal with. Through additional findings, Berke and Conroy (2000) contend that local plans are not taking a holistic approach to move towards the creation of sustainable communities. They argue current plans are too narrowly focused, and it is likely sustainable development will be another trend in the profession unless a more active approach is made to operationalize the concept.

2.3 Conclusion

Although the argument can be made that zoning and other land use regulations can be used to inform the built environment to be more sustainable, previous research has shown there is still a gap in understanding how to effectively implement sustainable development and quantify successful results. The following sections contribute to previous studies with the help of a carefully crafted methodology directed at analyzing

the relationship between local land use regulations and sustainable development. This methodology will help determine the weaknesses and strengths of local land use regulations in the City of Bakersfield, specifically in commercial zone designations. Once findings from this study have been generated, it will then inform recommendations for an improved set of regulations for addressing issues of sustainable development.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This research examines the spatial implications of land use regulations in the City of Bakersfield by studying local regulations for how they inform sustainable development, as defined in section 2.2, in commercial zones. In order to do this, this research needed to (1) attain a foundational understanding of the local policies that guide development in commercial land use designations. Additionally, this research needed to (2) conduct an evaluation of current commercial development. Analysis of the local general plan and zoning code as well as an analysis of the buildings making up the built environment helped achieve these two tasks.

Though the focal points of analysis required separate methods for collecting data, a third task required (3) the development of an instrument to combine the information gathered and to measure it. For that reason, indicators of sustainable development were developed as a measure for connecting the two areas of analysis and were the means for creating the Sustainable Development Checklist, the recognized tool in this study for measuring sustainable development in commercial zone designations in the City of Bakersfield. Information collected from researching both local policy and the built environment were measured using this checklist, which is a combination of *yes* and *no* questions. The results from this analysis were used to identify whether the city's current regulations help new commercial developments meet the criteria of sustainable

development and, if necessary, how the regulations can be adapted to further contribute to sustainable development.

3.1.1 Definition of Terms

The following definition of terms were used throughout this study in order to standardize the instrument used for collecting data:

Mixed Use: The combination of housing and commercial uses within the same development, horizontally or vertically, intended to provide greater housing variety and density within an area which reduces distances between places for living and places offering goods and services and also reduces reliance on personal vehicles.

Walkability and Pedestrian Friendliness: The presence of footpaths, sidewalks and other pedestrian pathways within a development which also provides access to goods and services in a manner that is safe and efficient; the presence of a feature intended to give pedestrians the right-of-way and cause vehicles to yield; the presence of a feature intended to address climate protection or exposure to the elements which also provides goods and services in a manner that is pleasant.

Compact Building Design: Compact building design in a development utilizes less land area because it is densely built. Compact building design can be achieved in two ways:

1. Any building within a development that utilizes allowable building height beyond the first floor resulting in increased floor area within a single lot, or
2. If there is more than one building on a lot, the distance between any two buildings does not exceed the length of the smaller of the two buildings (large retail developments with contiguous lots will be counted as one lot).

Efficient Off-Street Parking: Efficient off-street parking within a development seeks to promote the most efficient use of the parking area with potential to reduce the area of land covered by asphalt. Efficient off-street parking can be achieved in two ways:

1. Providing “compact-only” spaces in addition to standard parking spaces in reasonable parking areas for customers, which allows more people to park and requires less asphalt to cover the site.
2. The integration of a private or shared parking garage, which reduces the area of land used specifically for parking.

Alternative Transportation Accommodations: The availability of any of the following features either on-site or directly adjacent to the site within the public right-of-way:

Bicycle racks; bicycle lockers; bicycle lanes; transit stop; pedestrian bridge or pathway to the development other than public right-of-way sidewalks.

Energy Conservation and Efficiency: Integration and use of energy conserving and energy efficient technology to offset energy costs associated with the development’s daily use. Energy conservation and efficiency may include:

1. The use of solar panels
2. Integrating white roofs into the design of the building as a way to reflect the sun’s rays and reduce the “heat island effect”.

Reduced Urban Runoff: The use of stormwater maintenance facilities, such as swales or permeable pavers, for the purposes of detaining stormwater runoff on site and reducing the reliance on the stormwater sewage system.

Policies: Any land use regulation that specifies how development shall occur.

Approach: Moving towards a standard to achieve something.

Use Standards: Any requirement in the local zoning ordinance affecting uses permitted.

Bulk Standards: Any requirement in the local zoning ordinance affecting building height and size restrictions, including but not limited to: building square footage, lot area coverage, minimum lot size, and setback and side-yard requirements.

Performance Standards: Any requirement in the local zoning ordinance affecting the way the site is supposed to perform in relationship to surrounding uses.

Constrain: Any limitations or restrictions preventing something from occurring.

Encourage: To support, promote, or prompt something to occur.

Feature: To have or contain something.

3.1.2 Methodology

This research adapted to a multiple case study methodology with an emphasis on comparative cases. The following definition of a case study is provided by Yin (2009).

1. A case study is an empirical inquiry that
 - investigates a contemporary phenomenon in depth and within its real-life context, especially when
 - the boundaries between phenomenon and context are not clearly evident.
2. The case study inquiry
 - copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
 - relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
 - benefits from the prior development of theoretical propositions to guide data collection and analysis (Yin, 2009, p, 18).

The multi-case comparative study was useful in evaluating current development as it compared to the zoning due to its ability to *explain* causal-links, *describe* something in its real-life context, *illustrate* topics in a descriptive process, and *enlighten* for situations that

are unclear and have complex outcomes (Yin, 2009). Although there is more than one design for conducting a multi-case study, this research utilized a multi-case (embedded) design in which multiple units of analysis within the cases were documented, as seen in Figure 1. From this design, the *context* under which this study operated was the City of Bakersfield while the *cases* were selected sites containing commercial development. The *embedded units of analysis* were physical attributes of the developed site (i.e. building height) that eventually helped draft the indicators of sustainability.

Figure 1: Multi-case (embedded) design as defined by Robert Yin

In the coming sections, the multi-case comparative study was utilized to examine multiple cases and their embedded units of analysis. More than one method was

administered for carrying out the comparisons amongst the cases. The following section describes both methods for how they contributed to the multi-case comparative study.

3.2 Overview of Methods & Data Collection

A multi-method approach was adopted in order to conduct the research for the multi-case comparative study. The two methods used for data collection included archival research and observational research. Both methods were used as a means to compare the existing land use regulations for how they help inform the built environment. Figure 2 displays the process of evaluation that occurred once the methods were put into use. In this process, archival and observational research were used to look at general plan policies and zoning regulations for how they inform the built environment. From there, both the land use regulations and case study locations were evaluated for their level of sustainability using the Sustainable Development Checklist, which includes key indicators of sustainable development. Once it was understood how current regulations help new commercial development meet criteria of sustainable development, based on the past fifteen years of development practices, a set a recommendations were used to make changes to the existing land use regulations.

Figure 2: Process of evaluation using archival and observational research

Due to the exploratory nature of this research, analysis of both commercial land use regulations and the built environment could not occur without simultaneous development of the apparatus for measuring sustainable development. For that reason, this chapter also addresses the instrument used for collecting data for measuring the existence of sustainable development in each respective zone (see section 3.2.3). A complete version of the SDI checklist can be found in the Appendix.

3.2.1 Archival Research

Regulations set forth in the general plan's land use element and the local zoning ordinance were used to establish the basic groundwork under which development can occur in Bakersfield. Both of these documents outline policy regulations that could affect the potential for sustainable development, whether positively or negatively. Specific regulations that could constrain the likelihood of sustainable development were found in the local zoning ordinance based on the use standards, bulk standards, and performance

standards. Although the General Plan does not have specific land use regulations that could constrain sustainable development, this document was used to understand the priority level of sustainable development practices in Bakersfield.

Metropolitan Bakersfield General Plan Land Use Element

The general plan is a document that contains policy statements designed to guide decisions that affect the future character of the Bakersfield planning area. Policy statements within the document affect the physical development of Bakersfield. The Land Use Element, which is required by law to be prepared as part of a general plan, was used to understand the direction the city wants to take in the development of land as it seeks to accommodate future growth.

Archival research of this document was used to analyze the goals, objectives and policies within the plan's land use element that have a direct impact on the likelihood of sustainable development practices. The plan addresses specific policies under the section *Commercial Development* and was used to help develop questions within the SDI checklist. Even though the plan identifies an additional section, *Centers Development*, separately from the section on commercial development, it also includes commercial uses in its description. For that reason, policy statements within the *Centers Development* section were also used for this research.

Zoning Ordinance

The general plan utilizes a variety of regulatory tools to implement goals and policies as they pertain to the city's vision. The tool most commonly used by the general plan's land use element for the means of implementing the policies contained within the plan is amendment of the city's zoning ordinance. Since regulations within the zoning

ordinance have the ability to impact the built environment and dictate whether development has the potential to be sustainable or not, this research also focused on provisions set forth in the local zoning ordinance. The zoning ordinance is located within the Bakersfield Municipal Code, and is defined as follows:

This zoning plan is adopted to implement the goals and policies of the general plan of the city which serve to promote and protect the public health, safety, peace, morals, comfort, convenience and general welfare, and for the accomplishment thereof is adopted, among other purposes for the following more particularly specified purposes: To assist in providing a definite plan of development for the city and to guide, control and regulate the future growth of the city in accordance with said plan; and to protect the established character and the social and economic stability of agricultural, residential, commercial, industrial and other areas within the city, and to assure the orderly and beneficial development of such areas (Bakersfield Municipal Code, 2013).

This research focused on three of the six commercial zones from the zoning ordinance and analyzed their respective zoning regulations for their ability to bring about sustainable development and conversely the ability to constrain it. The zones that were analyzed include: C-B (Central Business Zone), C-C (Commercial Center Zone), and PCD (Planned Commercial Development). The zones that were omitted from the study do not allow for residential uses other than accessory dwelling units for caretakers or night security. Thus, this research is partial to commercial zones that explicitly cater towards a combination of housing and commercial uses. Based in part on previous studies on sustainable development and also on the subjective opinion of the author, the option for mixed-use in a commercial zone acts as a strong indicator of sustainable development and was determined to contribute to the instrument used in measuring sustainable development in the three commercial zones.

Each commercial zone was analyzed based on three sets of requirements: use, bulk, and performance. Use requirements are used to dictate what is allowed on a piece of

property, for example mixed-use commercial uses. Bulk requirements are used to set the size and shape of a building, such as building height and setbacks. The third requirement, performance, is used to establish how a building will perform in the area in relationship to surrounding uses. A common performance requirement is the addition of off-street parking. Fulton and Shigley (2005) note that performance requirements are increasingly driving the development process, sometimes causing a project to become too expensive and forcing the developer to make the project smaller.

Although each commercial zone was analyzed individually, separate chapters within the zoning ordinance were found to have an affect on the use, bulk, and performance requirements being measured. Within the zoning ordinance, parking and loading standards, landscaping standards, outdoor lighting and design standards for large retail developments were all relevant to the analysis for each of the three commercial zones.

3.2.2 Observational Research

In addition to archival research, this study required observation of the built environment for whether or not selected case studies embodied aspects of sustainable development. Data collected during this phase of the research was used for comparing what was learned in the archival research. For instance, archival research was used to find out whether policies and requirements for use, bulk and performance constrained the likelihood for sustainable development. The addition of observational research was used to find out if, despite any existing constraints within the policy statements and zoning regulations, there are aspects of sustainable development in the built environment.

During this research, site visits were conducted to observe commercial developments in each of the three commercial zones. Two cases were chosen to be studied in each zone, totaling six site visits. Specific aspects that were observed at each site were the presence, or lack thereof, of key indicators of sustainable development, as described in section 3.2.3. The presence of indicators of sustainable development were counted and recorded based on the definitional criteria discussed in the beginning of this chapter.

3.2.3 Data Collection Using Sustainable Development Indicators

As previously mentioned in the beginning of the chapter, this research required the creation of an instrument to be used for recording and measuring data collected in both the archival and observational research phases of this study. The development of this instrument, which is referred to as the Sustainable Development Indicator (SDI) checklist, was created using principles of smart growth that have been established in the arena of sustainability. Table 1 summarizes previous research efforts that have identified a number of smart growth principles including mix of land uses, sense of place, walkable neighborhoods, transportation choices, housing choices, compact building design, open space, local focus on development, collaborative process and cost effective growth.

For the purpose of this study, sustainable development indicators were chosen based on the examples of the principles of smart growth. It was determined that not all principles of smart growth were applicable to this study, and that some were less likely to be measurable than others and were thus omitted from being used. Also, some of the indicators were chosen based on the author's bias due to personal areas of interest that

have arisen from growing up in the City of Bakersfield. The indicators of sustainable development that were used for this study include: Mixed use, walkability and pedestrian friendliness, compact building design, efficient off-street parking, alternative transportation accommodations, energy conservation and efficiency, and reduced urban runoff.

The SDI checklist was designed to establish two types of questions that distinguished the archival research from the observational research. The first set was related to archival research and asked yes and no questions based on the provisions within the general plan and the zoning ordinance. These questions specifically asked whether policies encouraged a particular sustainable development indicator and also whether use, bulk, and performance standards constrained it. The second set of questions was related to observational research. From this set, a yes/no question asked about the existence of sustainable development observed on-site. As a supplement to this question, the SDI checklist required keeping track of how prevalent the sustainable development indicator was at the site. For instance, having public transit stops, bicycle racks and pedestrian access areas would count as three ways in which a development has featured alternative transportation accommodations.

Both types of questions were categorized into independent and dependent variables. An independent variable is sometimes referred to as an *explanatory variable* leaving the dependent variable to be the *outcome variable* (“Dependent and Independent Variables”, n.d.). In regards to this study, the policies and regulations within the general plan and zoning ordinance were used to explain the results found in the built environment. This study also required controlling for the type of commercial

development being studied in order to minimize the chances of a third variable affecting the outcome of the results. The C-B, C-C and PCD zones act as the control during this study.

Table 1 : Guiding Principles of Smart Growth (derived from U.S. Environmental Protection Agency, Partnership for Sustainable Communities; and APA Policy Guide)

	SMART GROWTH PRINCIPLES: U.S. ENVIRONMENTAL PROTECTION AGENCY	LIVABILITY PRINCIPLES: PARTNERSHIP FOR SUSTAINABLE COMMUNITIES	CORE PRINCIPLES OF SMART GROWTH: APA POLICY GUIDE
Mix of Land Uses	Mix of land uses	Support existing communities through strategies like transit-oriented, mixed-use development and land recycling to increase revitalization and the efficiency of public works investments and safeguard rural landscapes	A greater mix of uses and housing choices; Neighborhoods and communities focused around human-scale, mixed-use centers
Sense of place	Foster distinctive, attractive communities with a strong sense of place	Value communities and neighborhoods. Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods-- rural or suburban	Preservation or creation of a sense of place
Walkable neighborhoods	Create walkable neighborhoods	Value communities and neighborhoods. Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods-- rural or suburban	_____
Transportation Choices	Provide a variety of transportation choices	Provide more transportation choices. Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health	A balanced, multi-modal transportation system providing increased transportation choice
Housing Choices	Create a range of housing opportunities and choices	Promote equitable, affordable housing. Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation	A greater mix of uses and housing choices
Compact Building Design	Take advantage of compact building design	_____	Local, state, and federal policies and programs that support urban investment, compact development and land conservation
Open Space	Preserve open space, farmland, natural beauty, and critical environmental areas	_____	Well defined community edges, such as agricultural greenbelts, wildlife corridors or greenways permanently preserved as farmland or open space
Local Focus on Development	Strengthen and direct development toward existing communities	Target federal funding toward existing communities	_____
Collaborative Process	Encourage community and stakeholder collaboration	Align federal policies and funding to remove barriers to collaboration	Increased citizen participation in all aspects of the planning process and at every level of government. A multi-disciplinary and inclusionary process to accomplish smart growth. Planning processes and regulations at multiple levels that promote diversity and equity; Recognition that institutions, governments, businesses and individuals require a concept of cooperation to support smart growth
Cost Effective Growth	Make development decisions predictable, fair, and cost effective	Increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy	_____

3.3 Review of Commercial Zones

3.3.1 C-B (Central Business)

The C-B (Central Business) zone is designed to apply to the downtown business district in Bakersfield. Chapter 17.25 of the zoning ordinance states that the zone is intended to accommodate:

[...] a diverse mix of medium/high density residential, commercial, financial and institutional uses serving both city-wide and regional needs. In addition to these uses, cultural, entertainment, specialty retail, convention services and lodging are also principal uses in the area (Bakersfield Municipal Code, 2013).

Regulations within this zone allow for a variety of uses including, but not limited to, transit stations, nightclubs, parking garages, emergency service centers, residential uses and mixed combinations of uses including those uses that are allowed in the C-O, C-1 and C-2 zones. Even though the C-O, C-1 and C-2 zones were omitted from this study, the uses within those zones are relevant to the C-B zone because they can be combined in an assortment of ways. Some of the uses that are described in the omitted zones include apparel shops, bakeries, banks, churches, daycares, department stores, drugstores, governmental services, grocery stores, laundromats, medical services, restaurants and shopping centers. The list of available uses is more extensive than this with additional uses permitted under the issuance of a discretionary permit called a conditional use permit.

The C-B zone is perhaps one of the most lenient when it comes to higher building densities. This is because despite having a floor area ratio (FAR) of 3.0, there is no maximum building height for the C-B zone. Essentially, a developer building in a C-B zone is granted three times as much floor area as the lot area the building will sit on.

Taking into account mandatory setbacks, landscaping standards, parking standards and other applicable measures to meet code, the developer is capable of producing a multistory building that can accommodate a number of uses.

The C-B zone includes regulations for a variety of optional public benefit features, each with their own set of intended purposes. The addition of any of these public benefit features may allow a project to have additional floor area above the base floor area ratio. However, the exact amount of additional floor area is dependent on the discretion of the planning director. Regulations within the zone provide a description of each public benefit feature and detail the requirements to be eligible for bonus floor area.

Front, side and rear yard setbacks are typically designed to meet safety requirements, such as allowing firefighting services to move around the building without being constrained. In the C-B zone, there are no minimum front, side or rear yard setbacks unless the lot abuts certain residential uses then it is twenty feet. Minimum lot area coverage is intended to specify the smallest lot in which a building can be built on. The C-B zone specifies that there is no minimum lot area requirement. Also, there is no regulation within the zone that discusses minimum distance between buildings on the same lot. Additional requirements that the C-B zone is subject to include landscaping requirements, off-street parking and loading standards, signage requirements, and rooftop areas needing to be screened. Additional requirements not mentioned in this list are fully detailed in section 17.26.050 of the municipal code.

3.3.2 C-C (*Commercial Center*)

The C-C (Commercial Center) zone is described by the zoning ordinance as being applicable to “areas in the city that are planned for large-scale mixed use development centers consisting of commercial and high density residential uses” (Bakersfield Municipal Code, 2013). Like the C-B zone, the C-C zone permits any uses in the C-O, C-1 and C-2 zones. Even though the C-C zone permits many of the same uses that are described in the C-B zone, the C-C zone does not permit all of the same uses. In fact, the C-C zone requires a conditional use permit for bars, nightclubs, cabarets, cocktail lounges or other establishments selling alcoholic beverages for on-site consumption. Additional uses such as kennels, scientific research centers and swap meets also require conditional use permits.

Building height requirements in the C-C zone are limited to one hundred eighty feet or approximately 12 stories. Additional factors affecting the building envelope include a floor area ratio of 3.0 with the possibility of additional floor area under the approval of public benefit features that were also permitted in the C-B zone. Also, there are no minimum front, side or rear yard setbacks within this zone unless the lot abuts certain residential uses then it is twenty feet.

Just as the C-B zone does not require a minimum lot area for development to occur on a parcel, the C-C zone follows the same requirements. The exception that applies to this regulation, however, is buildings that are used exclusively for dwelling purposes must comply with provisions in the R-4 zone (high density multiple family dwelling). In the case there are multiple buildings on the same lot, minimum distance between buildings also only applies if there are buildings used exclusively for dwelling

purposes and are subject to provisions in the R-4 zone. Otherwise, there is no minimum distance requirement for commercial uses.

3.3.3 PCD (Planned Commercial Development)

The purpose behind the PCD (Planned Commercial Development) zone is for integrated development that provides developers with an opportunity for flexibility within the regulatory framework. The zoning ordinance describes this zone as one that allows for:

[...] innovative design and diversification in the relationship of various uses, buildings, structures, lot sizes and open spaces while ensuring compliance with the general plan and the intent of the municipal code. In addition, the development would provide adequate improvements and standards necessary to satisfy the requirements of the public health, safety and general welfare (Bakersfield Municipal Code).

Additionally, the zone is not intended to restrict commercial development, but rather enable unique projects that take advantage of both modern and innovative planning techniques. The PCD zone can also be assigned exclusively as a base zone or be used as a combining zone with the C-O, C-1, C-2, and C-C zones. When used as a combining zone, use regulations within the PCD zone follow the regulations for the base zone. When the PCD zone is used exclusively, any uses permitted in the C-O, C-1 and C-2 zones are allowed and any conditional use may be requested as part of the initial zone change to PCD.

The PCD zone has a minimum site area of one acre in order for any development to occur. Additional regulations affecting height limitations, setbacks, percent coverage of land by buildings and structures, parking ratios, architectural design, and so on are all under the discretionary approval of the planning commission or city council. Final

development plans may be subject to more or less restrictive regulations than those specified elsewhere in the municipal code.

Within the zoning ordinance detailed regulations also cover the application process, rezoning procedure, final development plan, expiration of zone or plans, modifications to approved preliminary and final development plans, and maintenance of common areas and non-dedicated improvements and facilities. Although these details are important, they are extensive in length and not especially relevant to understanding use, bulk and performance requirements.

3.4 Case Studies

Using the City of Bakersfield's GIS database, it was determined that there are 1,591 sites in which commercial development has been established in the metropolitan area of Bakersfield. Taking into consideration time limitations and the inability to conduct multiple analyses for each commercial zone, two cases studies were selected for each commercial zone, totaling six cases that were analyzed. According to Yin's (2009) description of case study analyses, the in-depth analysis required for each case study fulfills the intent behind using the multi-case comparative study methodology.

3.4.1 Selection Criteria

Selection criteria for the case studies were developed based on three factors. The first two factors were commercial land use designation and the year built. The third factor was firsthand knowledge of non-sustainable commercial development in the City of Bakersfield.

The first criterion required two case studies come from the C-B zone, two from the C-C zone, and two from the PCD zone. Using the city's zoning map, each commercial zone was identified for being a part of the selection process.

The second criterion required each case study to be a recent development, within the last fifteen years, and built within the time frame since the adoption of the general plan. Only those sites that had been built since the local plan was adopted had the option of being selected. Also, because projects sometimes phase their development out over a number of years, a development could be partially finished in order to be eligible for selection.

The final selection criterion was based on the author's personal experiences with commercial development. Firsthand knowledge of two of the cases selected led the author to believe they were non-sustainable. The degree of non-sustainability, however, was unknown and instigated the purpose of this study.

3.4.2 Introduction to Selected Cases

UC Merced – Bakersfield Center

The UC Merced – Bakersfield Center is located in the downtown district of Bakersfield within the C-B zone designation. The site was previously vacant before construction, with completion of the facility in 2001.

City Lofts

The City Lofts is located in the downtown district of Bakersfield within the C-B zone designation. The City Lofts building was formerly known as the Hay Building back when it was built in the late 1800s. According to the City Lofts website, it is the oldest

building in downtown Bakersfield and has recently been renovated to be used as a mixed-use building (1612 City Lofts Apartments, n.d.).

Maya Cinemas

The Maya Cinemas is located in the C-C zone, which surrounds the central business district of the downtown area. The development was done under the authority of the former Bakersfield Redevelopment Agency and was completed in 2001.

Bakersfield Federal Courthouse

The Bakersfield Federal Courthouse is located in the C-C zone. It was developed alongside redevelopment projects as part of the revitalization of the downtown area. The facility was completed in the year 2012.

Gosford Village

The Gosford Village shopping center is located in the southwest portion of Bakersfield. The shopping center falls under the PCD zone designation and was built in the early part of the century.

Northwest Promenade

The Northwest Promenade is located in the northwest portion of Bakersfield. The shopping center falls under the PCD zone designation and was master planned in the late 1990s, with earlier phases completed in 1998 and later phases completed in the early 2000. This site falls under the regulations set forth in the Western Rosedale Specific Plan.

3.4.3 Cases Exempt from Local Zoning Regulations

The structure of the U.S. Constitution is based on a system of government in which federal laws take precedence over any state or local laws. The system, called

“federalism”, allows federal laws to take highest priority, making the federal government exempt from abiding by any local laws.

Under this system of federalism, it is recognized that one of the case studies in this research was subject to a different set of development standards. The Federal Courthouse, which was built on land owned by the federal government, was not held accountable to local land use regulations. Instead, the Federal Courthouse was developed according to the codes and standards set forth by the U.S. General Services Administration (GSA). Additionally, the Federal Courthouse was developed using stricter standards than what the city mandates (M. Ortiz, personal communication, May 17, 2013). The UC Merced building, on the other hand, was subject to the local regulations since it was privately developed and leased out to UC Merced as a satellite campus (M. Ortiz, personal communication, May 17, 2013). Had the site been owned by the State of California, the UC Merced building would also be subject to a different set of regulations.

3.5 Conclusion

A multi-method approach incorporating archival and observational research, as well as the development of the sustainable development indicator checklist, was utilized to conduct the research for the multi-case comparative study. Archival research looked at both the local general plan as well as the zoning ordinance. Observational research was used to analyze the built environment. The simultaneous development of the SDI checklist was used to combine the information gathered using archival and observational research so that it could be recorded and measured for this study.

The following chapter, which summarizes the findings made during this study based on the methodology that was used, identifies whether the city's current land use regulations help meet the criteria of sustainable development.

CHAPTER 4

FINDINGS

4.1 Introduction

Findings from this study are presented in three sections. First, the results from the general plan's land use element are discussed for how they support each of the indicators of sustainable development. Next, the results from the zoning ordinance are discussed for how it informs the built environment in the C-B, C-C and PCD zones, specifically focusing on areas of constraint that might prevent sustainable development from being implemented. Lastly, the results from each case study are discussed for whether sustainable development is occurring in the built environment or not, based on the regulations in the general plan and zoning ordinance.

4.2 General Plan Findings

Policies addressing commercial development within the general plan's land use element were supportive of the majority of the indicators of sustainable development. As seen in Table 2, indicators most frequently addressed through policy include mixed use and walkability/pedestrian friendliness. Indicators that were least addressed include compact building design, alternative transportation accommodations, and energy conservation and efficiency. The remaining indicators that were not addressed in the land use element include efficient off-street parking and reduced urban runoff.

Despite the two indicators that were not addressed in the land use element, this research found relevant discussions and policy statements supporting sustainability

through efficient parking and reduced urban runoff in alternative chapters of the general plan. The following subsections provide relevant background information pertaining to each indicator not found in the Land Use Element as it relates to the metropolitan area.

Table 2: SDIs Supported by General Plan Land Use Element

SDI	Supportive Policies in LU Element	Number of Policies/Programs	Policy Number
Mixed Use	Yes	5	1; 45(b); 47(d); 76; 87
Walkability/Pedestrian Friendliness	Yes	6	45(c); 46(b); 47(e); 48; 49; 89
Compact Building Design	Yes	1	24
Efficient Parking	No	0	(See Ch. III - Circulation Element)
Alternative Transportation Accommodations	Yes	2	30; 39
Energy Conservation	Yes	2	99; 100
Reduced Urban Runoff	No	0	(See Ch. V - Conservation Element)

4.2.1 Efficient Off-Street Parking

In the City of Bakersfield, parking standards, which are discussed in the Circulation Element of the general plan, are typically designed to ensure a sufficient supply of parking as opposed to an efficient supply of parking. Strategies focusing on sufficient parking tend to look towards increasing available parking depending on demand. Efficient parking strategies, on the other hand, have a tendency to look towards alternative ways to supply parking by incorporating innovative techniques to achieve higher parking capacity with less use of the land. For example, efficient parking strategies might include a compact-only parking area which allows a high capacity of

compact cars and requires less surface parking because the dimensions for compact spaces are smaller than standard parking stalls.

Findings indicate policies within the circulation element are just as unlikely to provide incentives for efficient off-street parking as was discovered in the land use element. There are no policies that directly encourage efficient off-street parking with one exception. One of the policy statements refers to review of adopted parking stall and aisle widths with potential revision to make them more “efficient” (Metropolitan Bakersfield General Plan, 2002, p. III-28). However, verbiage supports convenience on top of efficiency, which can have the effect of undermining any sense of efficiency if convenience is given priority. Generally, public opinion will contend larger and wider parking stalls are more convenient and favorable than smaller compact spaces, even if compact spaces are more efficient.

4.2.2 Reduced Urban Runoff

Urban runoff is the result of stormwater originating from precipitation events that does not soak into the ground and instead runs on the surface until it is channeled into a storm sewer or other surface waterway. Reducing urban runoff is important for two reasons. First, runoff that is channeled back into the groundwater basin helps avoid floods and prevents storm sewers from getting backed up. Second, it helps by naturally filtering the water of pollutants and contaminants as it percolates into the ground, meaning less reliance on water treatment facilities to treat stormwater runoff (“Stormwater runoff”, n.d.).

The absence of any policies within the general plan's land use element for reducing urban runoff is, to a degree, supplemented by policies within the conservation element. In the conservation element, the city addresses goals for water resource management, pointing to runoff as one of several sources for recharging groundwater supplies.

Annually, runoff in the City of Bakersfield contributes to about 12% of the city's total water supply (Metropolitan Bakersfield General Plan, 2002, p. V-17). The importance of having a stable water supply lies with the city's quick growing population, which had 347,483 people living within city's limits in 2010, not counting the large portions of county land that have yet to be annexed where nearly a hundred-thousand more people reside (U.S. Census Bureau, 2010). Along with the city's heavy reliance on groundwater pumping, problems with groundwater quality have been identified and are addressed in the city's conservation element. Reports on groundwater contamination on file with the Kern County Water Agency indicate the northwest portion of Bakersfield, also known as the Rosedale area, exhibits the presence of contaminants comprised of nitrates and dissolved solids. The presence of these contaminants may also indicate additional water contaminants such as boron, chloride, Dibromochloropropane (DBCP) and arsenic (Metropolitan Bakersfield General Plan, 2002, p. V-18).

With these and other water problems in the region, the city has directed various policies towards supporting groundwater recharge facilities and increasing water quality. Some of these policies, which are on a regional level, rely heavily on the city's 2800-acre recharge facility for groundwater recharge. Although use of this facility can provide up to 11% of the City's total water supply on an annual basis, there is still an absence of

policies aimed at exploring additional opportunities for reclamation and conservation in large-scale commercial development.

4.3 Zoning Ordinance Findings

Analysis of the local zoning ordinance for the C-B, C-C and PCD zones indicate no differences in how they are used to inform the built environment. When compared for whether the land use regulations within each zone supported any of the indicators of sustainable development, all three zones showed identical results. As shown in Table 3, the C-B, C-C and PCD zones consistently supported the following indicators of sustainable development: Mixed use, walkability and pedestrian friendliness, alternative transportation accommodations, and energy conservation and efficiency. The indicators that were not supported include: Compact building design, efficient off-street parking, and reduced urban runoff. The following subsections provide an in depth discussion explaining why each of the unsupported indicators of sustainable development were found to be discouraged or constrained by the existing zoning ordinance.

Table 3: SDIs Supported by the Zoning Ordinance

	Regulations Supportive of SDI		
SDI	C-B	C-C	PCD
Mixed Use	Yes	Yes	Yes
Walkability/Pedestrian Friendliness	Yes	Yes	Yes
Compact Building Design	No	No	No
Efficient Off-Street Parking	No	No	No
Alternative Transportation Accommodations	Yes	Yes	Yes
Energy Conservation and Efficiency	Yes	Yes	Yes
Reduced Urban Runoff	No	No	No

4.3.1 Compact Building Design

The single constraint against compact building design in the C-B, C-C and PCD zones is the lack of an approach towards encouraging that type of design. For this study, the term *approach* has been defined as ‘moving towards a standard to achieve something’ (section 3.1.1). Since the zoning ordinance was found to be vague in its wording of regulations, approach was determined to best describe the overall objective of the ordinance.

Overall, the zoning ordinance had no other constraints when measuring the use, bulk and performance standards for how they inform the built environment (Table 4). In fact, existing regulations appear to make it feasible for the C-B, C-C and PCD zones to implement compact building design into a development based on the lenient building height limits. Having no maximum distance between buildings on the same lot established, however, reinforces the overall approach of the ordinance as not encouraging compact design in the first place since it allows buildings on the same lot to be placed far apart.

Table 4: Zoning Regulations Constraining Compact Building Design

	Compact Building Design		
Zoning Regulations	C-B	C-C	PCD
Approach	Yes	Yes	Yes
Use Standards	No	No	No
Bulk Standards	No	No	No
Performance Standards	No	No	No

4.3.2 Efficient Off-Street Parking

Regulations for off-street parking in a commercial development are found in the zoning ordinance in a separate chapter titled Parking and Loading Standards. Within this chapter, regulations for off-street parking support efficient development standards within the C-B, C-C and other mixed-use project areas, which are eligible to receive up to a fifty percent reduction in the minimum required parking. Due to the convoluted nature of the document, it is unclear whether the PCD zone, in which mixed use is allowed, is automatically guaranteed this reduction or if it is at the discretion of the planning director. If, however, the PCD zone is not eligible for a fifty percent reduction, a transit credit allows a ten percent reduction in required off-street parking with the presence of a transit facility within one thousand feet of the front or main customer entrance to the building that is linked by a paved pedestrian pathway (Bakersfield, California, Municipal Code § 17.58.055;17.58.120).

In spite of the outward appearance of off-street parking standards, this study recognized constraints for all three zones in the minimum dimension requirements for parking stalls located in off-street parking lots/facilities. According to the city's parking and loading standards, off-street parking stalls are set to be nine feet wide by eighteen feet deep. Parking stalls of this size are inefficient because they warrant more use of the land in order to meet minimum parking requirements. Aside from the performance constraints of parking stalls, no other constraints were found relating to use or bulk standards within a development (Table 5).

Table 5: Zoning Regulations Constraining Efficient Off-Street Parking

	Efficient Off-Street Parking		
Zoning Regulations	C-B	C-C	PCD
Approach	No	No	No
Use Standards	No	No	No
Bulk Standards	No	No	No
Performance Standards	Yes	Yes	Yes

4.3.3 Reduced Urban Runoff

Out of all of the indicators of sustainable development constrained by the zoning ordinance, reduced urban runoff comes out having the most constraints against its implementation. Using a separate chapter of the ordinance titled Landscape Standards to analyze how the regulations affect reduced urban runoff, it was found that urban runoff is not mentioned in the entirety of the chapter. Instead, the purpose of the chapter is to inform developments on how to prevent irrigation runoff while providing an aesthetically appealing array of trees and shrubbery. The difference between irrigation runoff and urban runoff is the former is from water used to help plants grow and is usually concentrated to planters throughout a development; the latter is water that results from rain and other forms of precipitation. Other factors driving the performance of landscaping standards include reducing the heat island effect in parking lots and other areas of the development. Use and bulk standards did not have any affect on the likelihood of the implementation of reduced urban runoff (Table 6).

Table 6: Zoning Regulations Constraining Reduced Urban Runoff

	Reduced Urban Runoff		
Zoning Regulations	C-B	C-C	PCD
Approach	Yes	Yes	Yes
Use Standards	No	No	No
Bulk Standards	No	No	No
Performance Standards	Yes	Yes	Yes

4.4 Case Study Findings

The purpose of this research was to understand how the policies and other standards that exist in both the general plan and zoning ordinance are used to inform the built environment and determine the likelihood of sustainable development being implemented in the C-B, C-C and PCD zones. Referring back to the SDI checklist, each of the questions listed under the indicators of sustainable development were intended to infer what *should* be occurring in the built environment at each of the case study locations. For example, the general plan has policies that encourage mixed-use development in commercial zones (see section 4.2). Also, the zoning ordinance for the C-C zone has an approach for encouraging mixed-use development, with zero constraints preventing it from being implemented (see section 4.3). Thus, with all of the land use regulations pointing in the direction of allowable mixed-use development in the C-C zone, one would logically conclude there would be some instance of mixed-use development.

In this section, the indicators of sustainable development that should be occurring, based on the written land use regulations, are discussed along with what is actually occurring in the built environment for the select case study locations. Each subsection is broken down by zone designation with findings from each case study detailed within the

zones. Included for reference, Figure 3 shows each case study location in relationship to one another. Also, a summary of frequencies for each of the indicators of sustainable development is seen in Table 7.

Figure 3: Case Study Locations

Source: Google Earth. (2013). [Bakersfield, California] [Street map with modifications].

Table 7: Frequency of SDI at Case Study Location

SDI	C-B		C-C		PCD	
	Merced Campus	City Lofts	Maya Cinemas	Federal Courthouse	Northwest Promenade	Gosford Vilage
Mixed Use	0	1 to 2	0	0	0	0
Walkability/Pedestrian Friendliness	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2
Compact Building Design	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2	0
Efficient Off-Street Parking	1 to 2	0	0	1 to 2	0	0
Alternative Transportation Accommodations	1 to 2	1 to 2	1 to 2	3 to 4	3 to 4	3 to 4
Energy Conservation and Efficiency	0	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2
Reduced Urban Runoff	0	0	0	1 to 2	1 to 2	0

4.4.1 Central Business (C-B)

The two case studies analyzed for the C-B zone include the UC Merced Campus and the City Lofts apartments. Both sites are located in the downtown area and occupy considerably less land area than the rest of the case studies (Figure 3).

UC Merced Campus

The UC Merced Campus implemented four out of the seven indicators of sustainable development (Table 8). At this location, both mixed use and energy conservation and efficiency are unaccounted for, despite regulations in both the general plan and zoning ordinance that are supportive of both. This case study location is most efficient at incorporating features of walkability and pedestrian friendliness, compact building design, and alternative transportation accommodations. Also, even though regulations for the C-B zone do not support efficient off-street parking, the Merced building managed to implement this indicator as well, which is seen in Figure 4 below.

City Lofts Apartments

The City Lofts apartments building implemented five out of the seven indicators of sustainable development (Table 8). When compared to the UC Merced building, the City Lofts apartment building was more successful in implementing all of the indicators of sustainable development that are supported by the land use regulations in both the general plan and zoning ordinance. Figure 5 shows detailed results of what was found at this location.

Considering efficient off-street parking and reduced urban runoff are not supported by this land use designation, it should be noted that the overall context in the downtown places both indicators at lower priority levels. The downtown tends to rely on on-street parking and occasionally shared parking garages, making it a lower priority to implement efficient off-street parking. Also, reduced urban runoff, which is not supported by this land use designation, is unlikely to be seen in the context of the downtown region since most developments are built to the lot line and leave little room to retain stormwater on site, resulting in reliance on the stormwater sewage system.

Table 8: General Plan and Zoning Regulations as they Inform the Built Environment (C-B)

SDI	Merced Campus		City Lofts	
	Land Use Regulations Supportive?	Elements of SDI in the Built Environment?	Land Use Regulations Supportive?	Elements of SDI in the Built Environment?
Mixed Use	Yes	No	Yes	Yes
Walkability/Pedestrian Friendliness	Yes	Yes	Yes	Yes
Compact Building Design	Yes	Yes	Yes	Yes
Efficient Off-Street Parking	No	Yes	No	No
Alternative Transportation Accommodations	Yes	Yes	Yes	Yes
Energy Conservation and Efficiency	Yes	No	Yes	Yes
Reduced Urban Runoff	No	No	No	No

Figure 4: SDIs Viewable at the UC Merced Building
Source: Google Earth. (2013). [Bakersfield, California].

Figure 5: SDIs Viewable at the City Lofts Apartments
Source: Google Earth. (2013). [Bakersfield, California].

4.4.2 Commercial Center (C-C)

The two case studies analyzed for the C-C zone include the Maya Cinemas and the Federal Courthouse. Both sites are located near the downtown and are situated on the periphery of the central business (C-B) district. Both sites are comparatively larger than the case studies for the C-B zone, yet smaller than those for the PCD zone (Figure 3)

Maya Cinemas

The Maya Cinemas implemented four out of the seven indicators of sustainable development into its site design (Table 9). Although the site does not feature mixed use, Figure 6 shows vacant lots to the east of the Maya Cinemas building, which offers promising prospects for achieving additional features of sustainable development. The

McMurtrey Aquatic Center, which is located in the upper right corner of Figure 6, was not used for this study other than for quantifying the Maya Cinemas' frequency of having walkability and pedestrian friendliness on site; in particular the case study location was found to have good connectivity to other businesses.

Federal Courthouse

The Federal Courthouse implemented the most elements of sustainable development out of all case studies included in this study. In total, this location implemented six out of the seven indicators of sustainable development (Table 9). Despite having regulations unsupportive of two of the indicators of sustainable development, the Federal Courthouse managed to implement both efficient off-street parking and reduced urban runoff, which are viewable in Figure 7.

Table 9: General Plan and Zoning Regulations as they Inform the Built Environment (C-C)

SDI	Maya Cinemas		Federal Courthouse	
	Land Use Regulations Supportive?	Elements of SDI in the Built Environment?	Land Use Regulations Supportive?	Elements of SDI in the Built Environment?
Mixed Use	Yes	No	Yes	No
Walkability/Pedestrian Friendliness	Yes	Yes	Yes	Yes
Compact Building Design	Yes	Yes	Yes	Yes
Efficient Off-Street Parking	No	No	No	Yes
Alternative Transportation Accommodations	Yes	Yes	Yes	Yes
Energy Conservation and Efficiency	Yes	Yes	Yes	Yes
Reduced Urban Runoff	No	No	No	Yes

Figure 6: SDIs Viewable at the Maya Cinemas
Source: Google Earth. (2013). [Bakersfield, California].

Figure 7: SDIs Viewable at the Federal Courthouse
Source: Google Earth. (2013). [Bakersfield, California].

4.4.3 Planned Commercial Development (PCD)

The two case studies analyzed for the PCD zone include the Northwest Promenade and Gosford Village. As seen in Figure 3, both the Northwest Promenade and Gosford Village occupy more land area than the rest of the case studies. Aside from their differences in size, they are also geographically different since both locations are intended to serve a regional market in the northwest and southwest respectively.

Northwest Promenade

The Northwest Promenade implemented five out of seven indicators of sustainable development (Table 10). At this site, both compact building design and reduced urban runoff were accounted for in the built environment despite being unsupported by land use regulations. As for the reduced urban runoff, Figure 8 shows an extensive grass area where large power line transmission poles are situated, possibly causing a portion of the site to be unfit for building upon and thus more suitable for low impact development.

Gosford Village

Gosford Village implemented three out the seven indicators of sustainable development (Table 10). With the exception of mixed use, Gosford Village integrated each of the indicators of sustainable development into their site according to what is supported or not supported by the existing land use regulations. In addition to what is featured in the built environment, Figure 9 shows several undeveloped portions of the development that could further contribute to sustainable development in the future.

Table 10: General Plan and Zoning Regulations as they Inform the Built Environment (PCD)

SDI	Northwest Promenade		Gosford Village	
	Land Use Regulations Supportive?	Elements of SDI in the Built Environment?	Land Use Regulations Supportive?	Elements of SDI in the Built Environment?
Mixed Use	Yes	No	Yes	No
Walkability/Pedestrian Friendliness	Yes	Yes	Yes	Yes
Compact Building Design	No	Yes	No	No
Efficient Off-Street Parking	No	No	No	No
Alternative Transportation Accommodations	Yes	Yes	Yes	Yes
Energy Conservation and Efficiency	Yes	Yes	Yes	Yes
Reduced Urban Runoff	No	Yes	No	No

Figure 8: SDIs Viewable at Northwest Promenade
Source: Google Earth. (2013). [Bakersfield, California].

Figure 9: SDIs Viewable at Gosford Village
Source: Google Earth. (2013). [Bakersfield, California].

4.5 Conclusion

Findings from this study indicate the general plan is supportive of the majority of the indicators of sustainable development included in this study. The indicators that received the most support from policies within the general plan's land use element include mixed use and walkability and pedestrian friendliness. Indicators that were least addressed include compact building design, alternative transportation accommodations, and energy conservation and efficiency. The remaining indicators that were not addressed in the land use element, but elsewhere in the general plan, include efficient off-street parking and reduced urban runoff.

The zoning ordinance for the C-B, C-C and PCD zones indicated no difference in how they are used to inform the built environment. Overall, all three commercial zone designations support mixed use, walkability and pedestrian friendliness, alternative transportation accommodations, and energy conservation and efficiency. The indicators that were not supported include compact building design, efficient off-street parking, and reduced urban runoff. Reasons for being unsupported by the regulations within the zoning ordinance are due to a lack of an approach for encouraging sustainable development or constraining language, or both.

The last set of findings came from the case studies that were selected for each of the zone designations. Since the zoning regulations were found to inform the built environment the same way for each of the zones, it was inferred that each case study location would implement the same indicators of sustainable development at all locations. However, this inference was incorrect. Instead, there were no patterns of development that would conclude a systematic implementation of sustainable development within any of the zones. None of the case studies showed similar instances or frequencies of implementing sustainable development. This suggests there are other factors contributing to the likelihood of sustainable development occurring in the built environment aside from the existing land use regulations.

CHAPTER 5

OBSERVATIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter is divided into two parts: observations made throughout this study and recommendations for attaining future sustainable development in the C-B, C-C and PCD zones. In the first part, observations address the data collection process, the integrity of the tool for measuring sustainable development, and the current update to the general plan for the city. In the second part, recommendations are made for how the city can improve the general plan and zoning ordinance to inform development to be more sustainable. Final recommendations are for planning staff to be more involved in the process of pushing for sustainable development.

5.2 Observations About the Study

5.2.1 Data Collection

The process of collecting data throughout this study relied heavily on interpretation of both land use regulations within the general plan's land use element and the local zoning ordinance. Interpretation of these regulations can vary amongst individuals due to personal bias or other factors, presenting a semi-standardized method for analyzing data. Despite the presence of a definition of terms in Chapter 3, which provides consistency in analyzing data within the general plan and zoning ordinance, interpretations may still vary due to the convoluted nature of these documents.

Data collected during the fieldwork phases of this study were limited in a number of ways. First, the indicators of sustainable development that were chosen for this study represent the outdoor environment as it is perceived by a bystander and does not include additional features of sustainable development that are found indoors or within any other private space not accessible to the bystander. The exceptions to this are private spaces viewable through semi-screened enclosures and through bird's eye view using Google Earth. Also, some of the indicators of sustainable development were more difficult to quantify using personal observation alone. The use of Google Earth for this study relies on the most up to date imaging currently available.

Another factor affecting data collection in the field is time. Due to time constraints, a minimal number of cases were chosen to be studied for each zone. Limited to two case studies per zone, the results from this study may be small when compared to the large size of Bakersfield and the scope of commercial activity taking place. However, due to the nature of a case study analysis, the focused sample size provides an in-depth analysis of three commercial zone designations in the City of Bakersfield and can inform future development falling under the C-B, C-C and PCD zones.

5.2.2 Creation of SDI Checklist

This study relied on the creation of the SDI checklist, which was used to understand how land use regulations inform sustainable development; it was also used to understand the degree in which sustainable development is actually supported based on its frequency of being implemented. Standardization of the SDI checklist was intended to make it equally comparable across each of the three zones being studied (C-B, C-C and

PCD). However, findings indicate that there are tremendous regional differences in the implementation of the PCD zone when compared to both C-B and C-C zones. These differences are shown in the City's zoning map (Figure 10), which indicates the C-B and C-C zones to be centrally located in the downtown region while the PCD zone is found throughout the metropolitan area of Bakersfield. Most development in a downtown will be significantly different than development on the outskirts of a city. In regards to land development patterns in Bakersfield, this observation holds true.

It is important to note the subdivision of land in the downtown resulted in smaller lots and as a result little room for expansive commercial centers. This occurred long before the subdivision of land in the outer edge of the city, where lots tend to be larger and offer more potential for integrating elements of sustainable development, as they are defined in section 3.1. For instance, the frequency of alternative transportation accommodations for case studies were found to be more prevalent in the PCD zone than the C-B zone (Table 7). This might be the result of the early patterns of development that made the C-B zone (downtown area) more walkable. The distance it takes to walk from one case study in the C-B zone is far less than the distance between the case studies in the PCD zone. Thus, the PCD zone might rely on a more extensive system of alternative modes of transportation than the C-B zone.

Figure 10: Zoning Map Showing Regional Context of C-B, C-C and PCD Zones
Source: City of Bakersfield Zoning Map. (n.d.). [Modified PDF Document]. Retrieved October 2012, from http://www.bakersfieldcity.us/gis/downloads/gis_spatial_data.htm

5.2.3 SDI Level of Importance

The findings from this study have led to the observation that some SDIs might carry more weight than others when it comes to implementation of sustainable development. For instance, SDIs that were not supported by the general plan or zoning ordinance were still found at various locations, while SDIs that were supported by the same land use regulations were rarely implemented. A specific instance in which an SDI was rarely implemented, despite being supported by the general plan and zoning ordinance, is shown in the frequency of mixed use being integrated into commercial development. Being implemented at only one case study location, mixed use seems to be a low priority level for the city.

Execution of planning decisions, which is done by the planning commission and city council, the two entities that make decisions based on planners' input, is often met with intense political clout from members of the community. In cases where community members oppose a plan, it is possible that a commissioner or councilmember will side with the community member, forcing developers to abide by whatever decision was made. When it comes to mixed use, it is highly likely for community members to rally against having mixed use, making any number of suggestions such as the number of residences in a mixed use project will negatively affect the nearby neighborhood in one way or another. Planners often refer to this attitude as *nimby*-ism, which stands for 'not in my back yard'.

Ultimately, the planning process comes down to getting enough votes to get a project through. Having community members oppose sustainable development proposals, and having decision-makers side with the community input, will continue to prevent sustainable development from happening. If future commercial development is to be proposed with mixed use in mind, or any other type of sustainable development, the public will need to be educated.

5.3 Observations About the General Plan Update Process

Since May of 2007, the City of Bakersfield has been working towards a general plan update. Anticipating close to half a million people living in the metropolitan area by 2020, and nearly one million by 2042, the city has joined efforts with the County of Kern to come up with a joint general plan to be used by both jurisdictions (Metropolitan Bakersfield General Plan Update: Kickoff Meeting, 2007). Although the expected date of

adoption of a new general plan was set to be within 24 months of initial phases of this project, the update remains incomplete and has only generated a few documents that are available to the public for review.

As part of the update process, a draft report of existing conditions, constraints, and opportunities was compiled in April of 2009. This document is useful because it demonstrates the city's effort at addressing problems, as they exist in the current general plan, as well as looking towards ways in which the plan can be changed to accommodate more sustainable outcomes. One such concept identified in the Metropolitan Bakersfield General Plan Update: Draft Existing Conditions, Constraints, and Opportunities Report (2009) is the Building Blocks Concept, which is intended to:

“[...] support Metropolitan Bakersfield's overall goals of creating walkable, livable and sustainable development in both existing and new areas of the community by:

- Creating distinct, human-scaled activity centers;
- Encouraging walking and bicycling; and,
- Being more sustainable by providing more housing options, more travel choices, and more ways for residents to reduce their use of expensive energy supplies (such as gasoline)” (p. 2.1-6).

Other goals aligned with sustainable development identified in the draft report include higher density housing at regional shopping centers, more mixed use and better connectivity, among others. The draft report follows up with a set of recommendations for changes that should be made to the general plan.

5.4 Recommendations for Future Sustainable Development

5.4.1 General Plan Update

The recommendations provided by the Metropolitan Bakersfield General Plan Update: Draft Existing Conditions, Constraints, and Opportunities Report (2009) indicate the city is taking the necessary steps to push for more sustainable development practices for commercial development. By showing a conscientious effort to identify the shortfalls of the 2002 general plan, the report suggests updates to various goals and policies in the land use element, including overhaul of some policies altogether. Overall, these recommendations are appropriate for pushing commercial development to be more sustainable. Additionally, it would be beneficial for the city to consider all indicators of sustainable development that were included in this study to be addressed in the general plan update, not just those that are addressed in the current plan.

While the report successfully identifies ways to improve the general plan's land use element and address concerns over unsustainable commercial development practices, the update has yet to be completed. Thus, it is recommended that the city push for completion of the general plan update to help usher higher standards for future commercial development.

5.4.2 Zoning Ordinance

Findings in Chapter 4 indicated the zoning regulations for the C-B, C-C and PCD zones were not particularly helpful in pushing for sustainable development. Some of the reasons for the ordinance not informing the built environment to be more sustainable was the vague language, constraining language, and in some cases lenient development

standards. What appears to be happening is developers are meeting the bare minimum standards, which is mostly visible in instances of large-scale commercial development. Since it is not the developers' responsibility to go above and beyond in terms of practicing sustainable development, the city needs to find ways to push developers to be more sustainable. The zoning ordinance for the three zones in this study should be revisited by the city to address opportunities for informing future commercial development to be more sustainable.

Although there are seven indicators of sustainable development in which the zoning ordinance could channel, some of the indicators might be better addressed in the ordinance while others might be better addressed elsewhere, such as during pre-application meetings in which developers speak with planning staff to discuss the overall plans for the development in mind; the latter is discussed in the following subsection. For the former, it is recommended that the following indicators be addressed with potential for revision: compact building design, efficient off-street parking, and reduced urban runoff.

Compact Building Design

Currently, the standards for building height and distance between buildings on the same lot are designed to inform both small-scale commercial and large-scale commercial development, irrespective of the implications that can occur when both scales are designed with the same standards. These implications are more readily apparent when one commercial development builds a one story building on a lot no larger than a couple of acres whereas a second development, being guided by the same regulations as the first, builds ten free-standing single-story buildings on a lot the size of 100 acres; it is obvious

the second development is going to take up more land, use more resources, require more parking, and overall be less sustainable than the first development, unless changes can be made to the regulations.

Despite some guidelines in the zoning ordinance that do address large commercial development, there is still nothing pushing developers to be more friendly on the environment by developing with sustainability in mind. Considering the fact that land is relatively cheap in Bakersfield, it is easier for developers to buy large tracts of land and spread out their development than it is to build up, which can cost more through the addition of stairs, elevators, and stricter building codes (M. Ortiz, personal communication, August 2013). In order to push for compact design in situations where development is large-scale, it is recommended that the zoning ordinance set minimum development standards for commercial development in the C-B, C-C and PCD zones. Specifically, building height and distance between buildings on the same lot can be revised to produce more sustainable outcomes.

As part of this recommendation, it is suggested that the city first determine what constitutes a large-scale commercial development. Once determined, the city should consider enforcing minimum building heights greater than one story high to a percentage of future development proposals, so as to discourage sprawling commercial development that generally requires more use of the land. This task can be done by expanding on the sections for building height standards and distance between buildings on the same lot in each of the three zones, or it can be addressed in a separate chapter devoted to large-scale commercial development.

It is always possible developers will be uncooperative with changes to the development standards. Taking this into consideration, it is more likely that a push for changes in large-scale commercial development standards would be more effective than for small-scale due to the ability of the former having a bigger budget and sometimes a major corporation behind the development; a loss of monetary funds is less of a risk for large corporations, especially if they've already been successful in Bakersfield. Major corporations will most likely want their business to be located within the city and be willing to work with city planners to come up with a development design that is good for everyone. Considering the population projections for Bakersfield in the next 30 years, it would be wise for large corporations who wish to locate in Bakersfield to be cooperative and respect whatever sustainable vision the city has for itself.

Efficient Off-Street Parking

Performance standards for off-street parking were found to constrain the likelihood of commercial development implementing efficient off-street parking into development design. Considering the minimum required dimensions of parking stalls, it would be more efficient for the city to change the dimensions and allow them to be more compact. Making changes to the minimum required dimensions of the parking stalls within off-street facilities could help achieve a higher parking demand when land availability is minimal. Another possibility is for the city to require a percentage of off-street parking to be compact-only, which would be most effective in situations where there is large-scale commercial development as opposed to small-scale. Again, this would help achieve a higher parking demand, yet it would also allow developments to take

advantage of more of the lot area to be devoted to buildings and their uses instead of being used to meet parking requirements.

Reduced Urban Runoff

Reducing urban runoff is currently not a priority for the city. With the possibility of increasing groundwater quality, it is recommended that the city explore opportunities for reducing urban runoff in large-scale commercial development projects; small-scale projects are not excluded from this recommendation, however, it is the opinion that large-scale developments would reap the greatest benefit from integrating elements of low impact development, which helps reduce urban runoff, into development design. It is further recommended that the city revise the landscaping standards in the zoning ordinance to give proper attention to the concept of reducing urban runoff. Current standards, which address reducing irrigation runoff, should be modified to include methods for keeping water on site without relying on the stormwater sewage system.

5.4.3 Planning Staff Support

Once changes that reflect a push for sustainable development are made to the general plan and zoning ordinance, it is recommended that staff devise ways to push for more sustainable development practices during the application process for projects falling under the commercial category. One way this can be done is to schedule pre-application meetings with project applicants and discuss the proposed project. Throughout the discussion, planning staff can make suggestions to the applicant for integrating sustainable development into the project. These suggestions should be consistent with the land use regulations. Since the zoning ordinance allows developers to integrate optional

public benefit features into their design in exchange for more FAR, it is recommended that staff work with the applicant and suggest some of the public benefit feature options. Ultimately, the tradeoffs should ensure that development is meeting the needs of the community while also being more sustainable in the process.

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APPENDIX A: SDI CHECKLISTS

SUSTAINABLE DEVELOPMENT INDICATOR CHECKLIST

Location: UC Merced Bakersfield Center, 2000 K St. Street Bakersfield, CA 93301

Zone: C-B (Central Business)

Mixed Use (Housing & Commercial)

Are there policies within the general plan that encourage mixed-use development within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging mixed-use development?

Yes ☒ No ☐

Do *use standards* constrain mixed-use development?

Yes ☐ No ☒

Do *bulk standards* constrain mixed-use development?

Yes ☐ No ☒

Do *performance standards* constrain mixed-use development?

Yes ☐ No ☒

On site:

Does this development feature elements of mixed-use?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This is an educational building only.

Walkability and Pedestrian Friendliness

Are there policies within the general plan that encourage walkability and pedestrian friendliness within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging walkability and pedestrian friendliness?

Yes ☒ No ☐

Do *use standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *bulk standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *performance standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

On site:

Does this development feature elements of walkability and pedestrian friendliness?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of walkability and pedestrian friendliness featured: presence of stamped concrete near a pedestrian crossing at 20th and K Street; presence of sidewalk connectivity to nearby uses (the nature of the downtown area is highly walkable since sidewalks and alleyways are on a grid system and allow for efficiency when getting around).

Compact Building Design

Are there policies within the general plan that encourage compact building within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging compact building?

Yes ☐ No ☒

Do *use standards* constrain compact building?

Yes ☐ No ☒

Do *bulk standards* constrain compact building?

Yes ☐ No ☒

Do *performance standards* constrain compact building?

Yes ☐ No ☒

On site:

Does this development feature elements of compact building design?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The main building exceeds one story.

Efficient Off-Street Parking

Are there policies within the general plan that encourage efficient off-street parking within this type of land use?

Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging efficient off-street parking?

Yes ☒ No ☐

Do *use standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *bulk standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *performance standards* constrain efficient off-street parking?

Yes ☒ No ☐

On site:

Does this development feature elements of efficient off-street parking?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This site incorporates a parking garage into the development.

Alternative Transportation Accommodations

Are there policies within the general plan that encourage alternative transportation accommodations within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging alternative transportation accommodations?

Yes ☒ No ☐

Do *use standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *bulk standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *performance standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

On site:

Does this development feature elements of alternative transportation accommodations?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: There is a bus stop directly adjacent to the building on its north side. Also, there is a bicycle rack visible on the property, even though a private fence separates the rack from the public's access. Users of this building would be able to use this feature.

Energy Conservation and Efficiency

Are there policies within the general plan that encourage energy conservation and efficiency within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging energy conservation and efficiency? Yes ☒ No ☐

Do *use standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *bulk standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *performance standards* constrain energy conservation and efficiency? Yes ☐ No ☒

On site:

Does this development feature elements of energy conservation and efficiency?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: Using site observation and Google Earth, there is no indication that this site integrates solar panels into the design as a way to offset energy costs. The roof of this building is grey, as well as the top deck of the parking garage, which might help offset energy costs. After doing some internet searching about the building, it is possible they are incorporating "cool roof" design into their building but it is unknown based on the method of gathering data.

Reduced Urban Runoff

Are there policies within the general plan that encourage reduced urban runoff within this type of land use? Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging reduced urban runoff? Yes ☐ No ☒

Do *use standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *bulk standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *performance standards* constrain reduced urban runoff? Yes ☒ No ☐

On site:

Does this development feature elements of reduced urban runoff? Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: None apparent (note the nature of the downtown, though).

SUSTAINABLE DEVELOPMENT INDICATOR CHECKLIST

Location: City Lofts, 1612 19th Street Bakersfield, CA 93301

Zone: C-B (Central Business)

Mixed Use (Housing & Commercial)

Are there policies within the general plan that encourage mixed-use development within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging mixed-use development?

Yes ☒ No ☐

Do *use standards* constrain mixed-use development?

Yes ☐ No ☒

Do *bulk standards* constrain mixed-use development?

Yes ☐ No ☒

Do *performance standards* constrain mixed-use development?

Yes ☐ No ☒

On site:

Does this development feature elements of mixed-use?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This development is one building that features commercial retail on the first floor and residential units on the second floor.

Walkability and Pedestrian Friendliness

Are there policies within the general plan that encourage walkability and pedestrian friendliness within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging walkability and pedestrian friendliness?

Yes ☒ No ☐

Do *use standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *bulk standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *performance standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

On site:

Does this development feature elements of walkability and pedestrian friendliness?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of walkability and pedestrian friendliness featured: presence of stamped concrete at a pedestrian crossing at 19th and Eye Street; presence of sidewalk connectivity to nearby uses (the nature of the downtown area is highly walkable since sidewalks and alleyways are on a grid system and allow for efficiency when getting around).

Compact Building Design

Are there policies within the general plan that encourage compact building within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging compact building?

Yes ☐ No ☒

Do *use standards* constrain compact building?

Yes ☐ No ☒

Do *bulk standards* constrain compact building?

Yes ☐ No ☒

Do *performance standards* constrain compact building?

Yes ☐ No ☒

On site:

Does this development feature elements of compact building design?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The main building exceeds one story.

Efficient Off-Street Parking

Are there policies within the general plan that encourage efficient off-street parking within this type of land use?

Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging efficient off-street parking?

Yes ☒ No ☐

Do *use standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *bulk standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *performance standards* constrain efficient off-street parking?

Yes ☒ No ☐

On site:

Does this development feature elements of efficient off-street parking?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This site has private parking for residents of the City Lofts, while patrons must use the parking spaces in the public right-of-way. Thus, there is no shared parking. It should be noted

that this site does not have excessive off-street parking, especially for being in the downtown area.

Alternative Transportation Accommodations

Are there policies within the general plan that encourage alternative transportation accommodations within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging alternative transportation accommodations?

Yes ☒ No ☐

Do *use standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *bulk standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *performance standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

On site:

Does this development feature elements of alternative transportation accommodations?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: There is a bicycle rack directly adjacent to the building. Though there is nothing else directly adjacent, let it be noted that there is a bus stop 2 blocks away and that the downtown is entirely walkable, even if the features are public right-of-way sidewalks (since the building is built to the lot line, there is no room for the meandering pathways which can sometimes be found in large-scale retail development).

Energy Conservation and Efficiency

Are there policies within the general plan that encourage energy conservation and efficiency within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging energy conservation and efficiency? Yes ☒ No ☐

Do *use standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *bulk standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *performance standards* constrain energy conservation and efficiency? Yes ☐ No ☒

On site:

Does this development feature elements of energy conservation and efficiency?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: Using site observation and Google Earth, there is no indication that this site integrates solar panels into the design as a way to offset energy costs. The roof of this building is,

however, white (has recently been updated since Google Map aerial showed a dark brown, whereas Google Earth showed a white roof).

Reduced Urban Runoff

Are there policies within the general plan that encourage reduced urban runoff within this type of land use? Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging reduced urban runoff? Yes ☐ No ☒

Do *use standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *bulk standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *performance standards* constrain reduced urban runoff? Yes ☒ No ☐

On site:

Does this development feature elements of reduced urban runoff? Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: None apparent (note the nature of the downtown, though).

SUSTAINABLE DEVELOPMENT INDICATOR CHECKLIST

Location: Maya Cinemas, 1000 California Avenue, Bakersfield, CA 93304

Zone: C-C (Commercial Center)

Mixed Use (Housing & Commercial)

Are there policies within the general plan that encourage mixed-use development within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging mixed-use development?

Yes ☒ No ☐

Do *use standards* constrain mixed-use development?

Yes ☐ No ☒

Do *bulk standards* constrain mixed-use development?

Yes ☐ No ☒

Do *performance standards* constrain mixed-use development?

Yes ☐ No ☒

On site:

Does this development feature elements of mixed-use?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: Although this site does not feature any elements of mixed use, the Maya Cinemas is directly adjacent to a phased mixed-use project with existing medium-high density residential units with space available for commercial services over time.

Walkability and Pedestrian Friendliness

Are there policies within the general plan that encourage walkability and pedestrian friendliness within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging walkability and pedestrian friendliness?

Yes ☒ No ☐

Do *use standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *bulk standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *performance standards* promoting walkability and pedestrian friendliness?

Yes ☐ No ☒

On site:

Does this development feature elements of walkability and pedestrian friendliness?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of walkability and pedestrian friendliness featured: presence of stamped concrete near areas of high activity serving as a traffic calming device to let drivers know pedestrians are frequent (this happens to be directly in front of the main entrance); presence of sidewalk connectivity to nearby businesses.

Compact Building Design

Are there policies within the general plan that encourage compact building within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging compact building?

Yes ☐ No ☒

Do *use standards* constrain compact building?

Yes ☐ No ☒

Do *bulk standards* constrain compact building?

Yes ☐ No ☒

Do *performance standards* constrain compact building?

Yes ☐ No ☒

On site:

Does this development feature elements of compact building design?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: Two story building.

Efficient Off-Street Parking

Are there policies within the general plan that encourage efficient off-street parking within this type of land use?

Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging efficient off-street parking?

Yes ☒ No ☐

Do *use standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *bulk standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *performance standards* constrain efficient off-street parking?

Yes ☒ No ☐

On site:

Does this development feature elements of efficient off-street parking?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This site has areas of unmarked compact parking. The locations of the compact parking are not near the entrance of the building, and could be the result of having leftover space that wouldn't fit a set number of regular parking spaces. However, in the future, as the

undeveloped satellite pads attract developers, this site will be more efficient because it will have to utilize shared parking.

Alternative Transportation Accommodations

Are there policies within the general plan that encourage alternative transportation accommodations within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging alternative transportation accommodations? Yes ☒ No ☐

Do *use standards* constrain alternative transportation accommodations? Yes ☐ No ☒

Do *bulk standards* constrain alternative transportation accommodations? Yes ☐ No ☒

Do *performance standards* constrain alternative transportation accommodations? Yes ☐ No ☒

On site:

Does this development feature elements of alternative transportation accommodations? Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This site has both a bus stop directly adjacent to it in the public right-of-way. This site also has bicycle racks. A third component that did not meet the criteria defined in the methodology is availability of bicycle lanes. The surrounding area does not have marked lanes and instead it would be considered a share-the-road type bicycle lane, which this study does not recognize.

Energy Conservation and Efficiency

Are there policies within the general plan that encourage energy conservation and efficiency within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging energy conservation and efficiency? Yes ☒ No ☐

Do *use standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *bulk standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *performance standards* constrain energy conservation and efficiency? Yes ☐ No ☒

On site:

Does this development feature elements of energy conservation and efficiency? Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: Using site observation and Google Earth, there is no indication that this site integrates solar panels into the design as a way to offset energy costs. However, it does integrate a white roof, which can help reflect the sun and keep the building cooler than if the roof were a darker color.

Reduced Urban Runoff

Are there policies within the general plan that encourage reduced urban runoff within this type of land use? Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging reduced urban runoff? Yes ☐ No ☒

Do *use standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *bulk standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *performance standards* constrain reduced urban runoff? Yes ☒ No ☐

On site:

Does this development feature elements of reduced urban runoff?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: There are no visible methods for retaining water on site. This development appears to rely on the stormwater sewage system.

SUSTAINABLE DEVELOPMENT INDICATOR CHECKLIST

Location: Federal Courthouse, 510 19th Street Bakersfield, CA 93301

Zone: C-C (Commercial Center)

Mixed Use (Housing & Commercial)

Are there policies within the general plan that encourage mixed-use development within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging mixed-use development?

Yes ☒ No ☐

Do *use standards* constrain mixed-use development?

Yes ☐ No ☒

Do *bulk standards* constrain mixed-use development?

Yes ☐ No ☒

Do *performance standards* constrain mixed-use development?

Yes ☐ No ☒

On site:

Does this development feature elements of mixed-use?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This site does not contain any uses other than for the federal government.

Walkability and Pedestrian Friendliness

Are there policies within the general plan that encourage walkability and pedestrian friendliness within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging walkability and pedestrian friendliness?

Yes ☒ No ☐

Do *use standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *bulk standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *performance standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

On site:

Does this development feature elements of walkability and pedestrian friendliness?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of walkability and pedestrian friendliness featured: presence of stamped concrete at a pedestrian crossing at 19th Street; presence of sidewalk connectivity to nearby uses such as Central Park and also connectivity to nearby businesses with one instance of a pedestrian bridge from Central Park (since the path is one meandering path along with a bridge, it is counted as one element).

Compact Building Design

Are there policies within the general plan that encourage compact building within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging compact building?

Yes ☐ No ☒

Do *use standards* constrain compact building?

Yes ☐ No ☒

Do *bulk standards* constrain compact building?

Yes ☐ No ☒

Do *performance standards* constrain compact building?

Yes ☐ No ☒

On site:

Does this development feature elements of compact building design?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The main building (not including accessory uses) exceeds one story.

Efficient Off-Street Parking

Are there policies within the general plan that encourage efficient off-street parking within this type of land use?

Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging efficient off-street parking?

Yes ☒ No ☐

Do *use standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *bulk standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *performance standards* constrain efficient off-street parking?

Yes ☒ No ☐

On site:

Does this development feature elements of efficient off-street parking?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: This site has a private parking garage with access on the east side of the property.

Alternative Transportation Accommodations

Are there policies within the general plan that encourage alternative transportation accommodations within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging alternative transportation accommodations?

Yes ☒ No ☐

Do *use standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *bulk standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *performance standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

On site:

Does this development feature elements of alternative transportation accommodations?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☐ 3-4 ☒ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 3-4 elements of alternative transportation accommodations featured: presence of bicycle racks near entrance of building; presence of designated bicycle lanes in the public right-of-way; presence of pedestrian access including alternative pathways with pedestrian bridge connecting to the site.

Energy Conservation and Efficiency

Are there policies within the general plan that encourage energy conservation and efficiency within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging energy conservation and efficiency? Yes ☒ No ☐

Do *use standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *bulk standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *performance standards* constrain energy conservation and efficiency? Yes ☐ No ☒

On site:

Does this development feature elements of energy conservation and efficiency?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: Using site observation and Google Earth, there are both solar panels on the roof as well as reflective white roofing color.

Reduced Urban Runoff

Are there policies within the general plan that encourage reduced urban runoff within this type of land use? Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging reduced urban runoff? Yes ☐ No ☒

Do *use standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *bulk standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *performance standards* constrain reduced urban runoff? Yes ☒ No ☐

On site:

Does this development feature elements of reduced urban runoff?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of reduced urban runoff featured: presence of extensive raised garden area with unknown species of plants and a portion of the site has other grass and shrubbery to fit in with the ambience of Central Park. However, it is unknown whether the raised garden area is permeating into the groundwater supply, or if runoff is irrigated to a nearby stormwater sewage system. Because of this uncertainty, it will be noted in the findings.

SUSTAINABLE DEVELOPMENT INDICATOR CHECKLIST

Location: Northwest Promenade at Riverlakes Ranch, Intersection of Coffee and Rosedale Highway Bakersfield, CA 93313

Zone: PCD (Planned Commercial Development)

Mixed Use (Housing & Commercial)

Are there policies within the general plan that encourage mixed-use development within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging mixed-use development?

Yes ☒ No ☐

Do *use standards* constrain mixed-use development?

Yes ☐ No ☒

Do *bulk standards* constrain mixed-use development?

Yes ☐ No ☒

Do *performance standards* constrain mixed-use development?

Yes ☐ No ☒

On site:

Does this development feature elements of mixed-use?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: None on site.

Walkability and Pedestrian Friendliness

Are there policies within the general plan that encourage walkability and pedestrian friendliness within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging walkability and pedestrian friendliness?

Yes ☒ No ☐

Do *use standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *bulk standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *performance standards* constrain features promoting walkability and pedestrian friendliness?

Yes ☐ No ☒

On site:

Does this development feature elements of walkability and pedestrian friendliness?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of walkability and pedestrian friendliness featured: presence of sidewalks connecting major access points to the development to anchor businesses (larger buildings), presence of meandering pathways on the northwest side of the development.

Compact Building Design

Are there policies within the general plan that encourage compact building within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging compact building?

Yes ☐ No ☒

Do *use standards* constrain compact building?

Yes ☐ No ☒

Do *bulk standards* constrain compact building?

Yes ☐ No ☒

Do *performance standards* constrain compact building?

Yes ☐ No ☒

On site:

Does this development feature elements of compact building design?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: All buildings on site are single story, however, there are some buildings that have been placed closely together.

Efficient Off-Street Parking

Are there policies within the general plan that encourage efficient off-street parking within this type of land use?

Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging efficient off-street parking?

Yes ☒ No ☐

Do *use standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *bulk standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *performance standards* constrain efficient off-street parking?

Yes ☒ No ☐

On site:

Does this development feature elements of efficient off-street parking?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: None on site. No apparent compact parking.

Alternative Transportation Accommodations

Are there policies within the general plan that encourage alternative transportation accommodations within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging alternative transportation accommodations?

Yes ☒ No ☐

Do *use standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *bulk standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

Do *performance standards* constrain alternative transportation accommodations?

Yes ☐ No ☒

On site:

Does this development feature elements of alternative transportation accommodations?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☐ 3-4 ☒ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 3-4 elements of alternative transportation accommodations featured: presence of bicycle lanes heading north south along the east and west sides of the development, presence five bus stops surrounding the development, and presence of bicycle racks near entrances of businesses throughout the development.

Energy Conservation and Efficiency

Are there policies within the general plan that encourage energy conservation and efficiency within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging energy conservation and efficiency? Yes ☒ No ☐

Do *use standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *bulk standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *performance standards* constrain energy conservation and efficiency? Yes ☐ No ☒

On site:

Does this development feature elements of energy conservation and efficiency?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of energy conservation featured: presence of white roofing on at least one building (using Google Earth).

Reduced Urban Runoff

Are there policies within the general plan that encourage reduced urban runoff within this type of land use? Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging reduced urban runoff? Yes ☐ No ☒

Do *use standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *bulk standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *performance standards* constrain reduced urban runoff? Yes ☒ No ☐

On site:

Does this development feature elements of reduced urban runoff?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: There is an extensive lawn/grass area on the north side of the development. Also, there are 2 sumps on the site. More information would need to be collected on the development's sewage collection system to verify if it is more efficient in retaining water on site than others.

SUSTAINABLE DEVELOPMENT INDICATOR CHECKLIST

Location: Gosford Village, Intersection of Gosford and Harris Road Bakersfield, CA 93313

Zone: PCD (Planned Commercial Development)

Mixed Use (Housing & Commercial)

Are there policies within the general plan that encourage mixed-use development within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging mixed-use development?

Yes ☒ No ☐

Do *use standards* constrain mixed-use development?

Yes ☐ No ☒

Do *bulk standards* constrain mixed-use development?

Yes ☐ No ☒

Do *performance standards* constrain mixed-use development?

Yes ☐ No ☒

On site:

Does this development feature elements of mixed-use?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: None on site.

Walkability and Pedestrian Friendliness

Are there policies within the general plan that encourage walkability and pedestrian friendliness within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging walkability and pedestrian friendliness?

Yes ☒ No ☐

Do *use standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *bulk standards* constrain walkability and pedestrian friendliness?

Yes ☐ No ☒

Do *performance standards* constrain features promoting walkability and pedestrian friendliness?

Yes ☐ No ☒

On site:

Does this development feature elements of walkability and pedestrian friendliness?

Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of walkability and pedestrian friendliness featured: presence of sidewalks connecting major access points to the development to anchor businesses (larger buildings), presence of stamped concrete at various intersections and pedestrian crossings.

Compact Building Design

Are there policies within the general plan that encourage compact building within this type of land use?

Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging compact building?

Yes ☐ No ☒

Do *use standards* constrain compact building?

Yes ☐ No ☒

Do *bulk standards* constrain compact building?

Yes ☐ No ☒

Do *performance standards* constrain compact building?

Yes ☐ No ☒

On site:

Does this development feature elements of compact building design?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: All buildings on site are single story and are clustered far apart.

Efficient Off-Street Parking

Are there policies within the general plan that encourage efficient off-street parking within this type of land use?

Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging efficient off-street parking?

Yes ☒ No ☐

Do *use standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *bulk standards* constrain efficient off-street parking?

Yes ☐ No ☒

Do *performance standards* constrain efficient off-street parking?

Yes ☒ No ☐

On site:

Does this development feature elements of efficient off-street parking?

Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The back portion of the development has parking stalls that appear smaller than the 9 ft. and may be considered compact parking stalls (as measured using Google Earth). However, they are predominantly used for commercial trucks and trailers making deliveries to the various developments and are not recognized for contributing to off-street parking standards since they cater to the parking for delivery and other loading purposes.

Alternative Transportation Accommodations

Are there policies within the general plan that encourage alternative transportation accommodations within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging alternative transportation accommodations? Yes ☒ No ☐

Do *use standards* constrain alternative transportation accommodations? Yes ☐ No ☒

Do *bulk standards* constrain alternative transportation accommodations? Yes ☐ No ☒

Do *performance standards* constrain alternative transportation accommodations? Yes ☐ No ☒

On site:

Does this development feature elements of alternative transportation accommodations? Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☐ 3-4 ☒ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 3-4 elements of alternative transportation accommodations featured: presence of a bicycle lane heading north south along the front of the development, presence of a bus stop also along the front of the development, and presence of bicycle racks near entrances of businesses throughout the development.

Energy Conservation and Efficiency

Are there policies within the general plan that encourage energy conservation and efficiency within this type of land use? Yes ☒ No ☐

In the zoning ordinance:

Is there an approach for encouraging energy conservation and efficiency? Yes ☒ No ☐

Do *use standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *bulk standards* constrain energy conservation and efficiency? Yes ☐ No ☒

Do *performance standards* constrain energy conservation and efficiency? Yes ☐ No ☒

On site:

Does this development feature elements of energy conservation and efficiency? Yes ☒ No ☐

How many elements are featured?

0 ☐ 1-2 ☒ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: The following observations were used to rate this development as having 1-2 elements of energy conservation featured: presence of an array of solar paneling on one of the buildings, presence of white roofing (on buildings visible using Google Earth).

Reduced Urban Runoff

Are there policies within the general plan that encourage reduced urban runoff within this type of land use? Yes ☐ No ☒

In the zoning ordinance:

Is there an approach for encouraging reduced urban runoff? Yes ☐ No ☒

Do *use standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *bulk standards* constrain reduced urban runoff? Yes ☐ No ☒

Do *performance standards* constrain reduced urban runoff? Yes ☒ No ☐

On site:

Does this development feature elements of reduced urban runoff? Yes ☐ No ☒

How many elements are featured?

0 ☒ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+ ☐

Comments: No method for reducing urban runoff. The site has been graded to rely on the storm water sewer system.