GREEN NEIGHBORHOOD STANDARDS FROM A PLANNING PERSPECTIVE: A LEED FOR NEIGHBORHOOD DEVELOPMENT (LEED-ND) CASE STUDY

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ABSTRACT

GREEN NEIGHBORHOOD STANDARDS FROM A PLANNING PERSPECTIVE: A LEED FOR NEIGHBORHOOD DEVELOPMENT (LEED-ND) CASE STUDY

This study examines the LEED-ND pilot rating program created by the United States Green Building Council (USGBC), the Congress for New Urbanism, and the Natural Resources Defense Council (NRDC) in 2007. The rating system is evaluated based on its application as a broad set of national standards meant to encourage green neighborhood development. The main case study is a master planned community in semi-rural Paso Robles, California. Among other things, the study discovers problems related to the application of the rating system in semi-rural and rural regions of the Western United States. Both the standards used by the rating system and the certification process itself were considered through a case study methodology.

Elissa Black
ACKNOWLEDGEMENTS

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CHAPTER 1. INTRODUCTION

The built environment impacts the natural systems that sustain life. In 2002 buildings accounted for 39% of energy consumption and 68% of electricity consumption in the United States (Retzlaff, 2008). On average, buildings annually account for 38% of carbon dioxide emissions and 12% of water consumed in the United States (U.S. Department of Energy, 2008). In order to continue to grow, development, both residential and commercial, must respond to the challenges posed by limited natural resources, climate change, and population growth. The Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) national rating system, introduced in 2007 by the United States Green Building Council (USGBC), the Congress for New Urbanism and the Natural Resources Defense Council (NRDC), could have far reaching potential as a planning tool for implementing “green development” (Retzlaff, 2008), but can a national set of standards address all the various planning circumstances across different regions with different densities and issues related to growth?

The LEED-ND rating system is a broad set of national standards that are meant to be applied across various regions. Urban planning tools that are applied in dense urban cities, such as in the Eastern U.S. and along the Western U.S. Coast, in many cases are not effective tools in small but growing semi-rural and rural towns throughout the West and inner regions of the Country. For example, a common planning tool used in densely populated cities, with very little
undeveloped land, is infill. Infill strategies direct new development to areas within the existing urban core, whether it be redevelopment of run down properties or development on vacant parcels surrounded by existing development. In a rural setting, where an abundance of large contiguous vacant land still exists, infill may not be the most appropriate way to address new development. Instead, implementing policies that encourage clustering or conservation subdivisions would be more appropriate. The issues related to development in an urban setting are different in a rural setting. While these differences are significant, LEED-ND addresses them in the same way, with its national set of development standards.

The LEED-ND pilot program was launched in June of 2007. Shortly thereafter the state of Illinois adopted legislature that would reward development projects for being LEED-ND certified. The rating system is even being applied in the development of an entire city in North Korea, New Songdo City (Clements, 2007). The extent of application of the rating system to date demonstrates that LEED-ND has already become an accepted set of development standards by many, even while it is still in the pilot phase. It is conceivable that LEED-ND, being so new, is not ready to be widely implemented without first discovering whether or not it works properly. Identifying the strengths and weaknesses of the program is a necessary step before adopting it as our own set of standards.
This study reports the findings from a case study of the LEED-ND certification process and criteria. A master planned community, River Oaks, The Next Chapter (TNC) was used in the case study to evaluate the LEED-ND rating system. The 270 acre development project is located in Paso Robles a semi-rural town in Central California (2007 population 29,500\(^1\)). The project was in the design and approval stage at the time of this study. The developer of the project had an interest in pursuing LEED-ND certification for the project, as he intended the project to be on the cutting edge of sustainable design. In an effort to determine the feasibility of certification, the developer needed an in-depth analysis of the rating system criteria as they would apply to River Oaks, TNC. This need provided the perfect opportunity for a case study of LEED-ND certification feasibility in a semi-rural context.

In addition to the case study, several LEED-ND registered pilot projects were identified for use in a comparative analysis. Project managers, LEED-ND accredited professionals, and developers of the selected projects were interviewed to supplement the findings of the case study.

\(^1\)Source: U.S. Census and the State Department of Finance
CHAPTER 2. OBJECTIVE

Through a case study strategy, this research evaluates the LEED-ND rating system on two levels: 1. The certification process; and 2. The criteria used to certify projects. The basis for this evaluation is to discover if the LEED-ND rating system is a meaningful, fair and effective way to encourage green development at the multi-building or neighborhood scale. More specifically, the study seeks to identify areas of the LEED-ND pilot program that are problematic for green projects in semi-rural or rural contexts, and to provide feedback for how the system could improve.

The LEED-ND rating system is divided into four categories: Smart Location and Linkage (SLL), Neighborhood Pattern and Design (NPD), Green Construction and Technology (GCT) and Innovation and Design Process. Each category addresses a different aspect of neighborhood scale development. To better understand how LEED-ND might be an effective tool for developers to build, and municipalities to encourage green neighborhood developments, it is crucial to understand how the rating system defines green neighborhood development. Each of the first three major components of LEED-ND articulate different objectives related to green development.

The Smart Location and Linkage (SLL) criteria tend to define green neighborhood development based on the project’s level of being ‘urban’. Infill projects, or projects located in redevelopment areas, or largely urban oriented
tend to have an advantage over projects that are located in less urban settings, such as River Oaks TNC. A logical and valid effort to combat unsustainable sprawl and greenfield development, the SLL pre-requisite could be problematic for some projects that may not be truly urban but may not be contributing to sprawl either. Neighborhood development projects in semi-rural areas that may strive to be “green” through pursuing LEED-ND criteria may find the SLL pre-requisite difficult to obtain. A challenge for developers and the USGBC is how to define green neighborhood development in terms of urban versus rural contexts.

*The Neighborhood Pattern and Design* criteria mainly address site design for connectivity, accessibility to public spaces, affordability, housing diversity and low impact development. For example, the Neighborhood Pattern and Design (NPD) criteria promotes the idea of creating community by implementing specific Traditional Neighborhood Design (TND) standards (no gated communities), the outcome of which has been a topic of recent debate among New Urbanism critics (Brain, 2005; Nasar, 2003). Can you really create community by design?

*The Green Construction and Technology* component is intended to reduce the environmental impact of buildings and of the project as a whole; most of its criteria are based on the original LEED for New Construction building standards. Therefore, criticism and praise of LEED-NC standards, such as those offered above, are applicable to evaluation of LEED-ND’s Green Construction and Technology component. As for the other two components of LEED-ND, Smart
Location and Linkage (SLL) and Neighborhood Pattern and Design (NPD) are comprised of standards that relate specifically to the neighborhood scale of development and therefore constitute the gist of how LEED-ND defines green neighborhood development, especially from a planning perspective. Thus, the SLL and NPD categories are the main focus of this study.
CHAPTER 3. METHODOLOGY

The case study methodology was used in this research. The primary case was a neighborhood development project located in Paso Robles, California, a semi-rural community in the Central Coast region. The project, “River Oaks, the Next Chapter” (River Oaks TNC), is 270 acres of mixed uses, including residential, recreational, and commercial. The case study was conducted in three phases: 1. a document was prepared that analyzed LEED-ND credits as they applied to the River Oaks TNC project; 2. the document was reviewed by a third party to provide feedback for accuracy and completeness; 3. interviews with representatives of seven LEED-ND pilot projects were conducted to provide comparative analysis.

3.1 Methods

3.1.1 Creating the Credit Analysis Document for River Oaks, TNC

The document produced as part of phase one will be referred to hence forth as the “Credit Document”, which is attached to this report as Appendix A. In this document LEED-ND credits were analyzed for their applicability to the River Oaks project and in general for encouraging green neighborhood development. In addition to addressing how River Oaks TNC may achieve points for each credit, a brief analysis of the credit was offered. The completed Credit Analysis Document also acts as a blueprint for achieving LEED-ND certification for River Oaks TNC, should the developer choose to pursue certification in the future.
Being that River Oaks TNC was still in the pre-approval\textsuperscript{2} stage at the time of this study, only LEED-ND Stage 1 submittal requirements were addressed in the Credit Document. At this stage of development there were many unknowns as to specificities of the project, such as exact square feet of buildings, a detailed street network, or project energy load. Stage one submittal requirements often ask for specific, quantifiable data pertaining to the project. In order to proceed with the study, estimations were made. Based on the estimations, recommendations were offered on how the project could potentially achieve points in a particular credit. In addition, some credits were not evaluated all together – mainly the Green Construction and Technology credits were not fully addressed in this study -- due to the fact that the project was still only in the design stage.

The first step in preparing the Credit Analysis Document was to walk through the LEED-ND ‘checklist’ (Table 3.1) to determine which credits would be feasible and which ones would not. The checklist is a spreadsheet that lists each credit and possible points, as well as pre-requisites. Initial data for River Oaks TNC relative to the project location, site design, land uses, and building intensity was collected and used to determine which credits would be feasible. The second step in the creation of the Credit Document was to determine what River Oaks TNC would need to do to achieve points in each credit.

\textsuperscript{2} The project had been granted pre-entitlement for the zoning required to do the project, but the development plan had not yet been approved.
The LEED-ND rating system specifies the type of documentation required to verify that criteria are met for each respective credit. The type of documentation can range from a map showing how the project satisfies a set of criteria, to a table that lists specific project information relative to a set of criteria. The document is arranged in three sections based on the LEED-ND system. Of those sections only the first two, Smart Location and Linkage and Neighborhood Pattern and Design, were evaluated extensively, the last section on Green Construction and Technology was not elaborated upon in this study. Most of the criteria in the Smart Location and Linkage and Neighborhood Pattern and Design sections are illustrated using maps created by an extensive Geographic Information System (GIS), which was designed in the process of evaluating River Oaks TNC and LEED-ND.

3.1.2 Credit Analysis Document Review

A review committee of three members was formed and was asked to review the material in the Credit Analysis Document and provide feedback. Review committee members were selected from a pool of local LEED APs, academics, developers, and designers. The review committee provided the study with a valuable third party perspective and helped in checking the validity and accuracy of the statements made in the Document.

3.1.3 Comparable Projects Interviews
To provide additional perspective on the issues addressed in this study, several LEED-ND pilot projects provided valuable insight through an interview process. Information regarding pilot projects was obtained through open-ended interview questions posed to developers and consultants of selected projects. There were 238 projects registered as LEED-ND pilot program projects. Of those, thirty representatives of LEED-ND pilot projects were pursued for interviews with a 20% response rate. The comparable project interviews revealed additional findings that were useful in comparison to the findings of the Credit Analysis of River Oaks TNC.

**Table 3.1: LEED-ND checklist**

<table>
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<tr>
<th>Smart Location &amp; Linkage</th>
<th>30 Possible Points</th>
<th></th>
</tr>
</thead>
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<td>Prereq 1</td>
<td>Smart Location</td>
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<tr>
<td>Prereq 2</td>
<td>Proximity to Water and Wastewater Infrastructure</td>
<td>Required</td>
</tr>
<tr>
<td>Prereq 3</td>
<td>Imperiled Species and Ecological Communities</td>
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<tr>
<td>Prereq 4</td>
<td>Wetland and Water Body Conservation</td>
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<td>Prereq 5</td>
<td>Agricultural Land Conservation</td>
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<td>Prereq 6</td>
<td>Floodplain Avoidance</td>
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<td>Credit 7</td>
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<tr>
<td>Credit 9</td>
<td>Site Design for Habitat or Wetlands Conservation</td>
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<td>Credit 10</td>
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<td>Compact Development</td>
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<td>Credit 2</td>
<td>Diversity of Uses</td>
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<td>Credit 3</td>
<td>Diversity of Housing Types</td>
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<td>Description</td>
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<td>Affordable For-Sale Housing</td>
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<td>Reduced Parking Footprint</td>
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CHAPTER 4. PROBLEM SETTING: A LITERATURE REVIEW

Published academic research on LEED rating systems is limited; therefore the nature of this study does not build on an accepted body of theory or best practices. The following literature review draws on the limited academic research that has been published, as well as current news and media articles found in various publications that focus on building, design and planning. The literature review discusses the background of the LEED rating systems and current debates relative to LEED certification issues including the certification process itself and LEED standards. Since many of the criticism and praise offered for the original LEED system (LEED for New Construction) applies to LEED-ND as well, and more has been written about the original LEED rating system the review refers to LEED in general rather than specifically LEED-ND.

4.1 Background: The evolution of LEED rating systems

A look into the evolution of the LEED rating systems provides a better understanding of how LEED-ND came to be and what it is intended to do. The LEED rating system has grown to be the most recognized green building assessment tool in the United States (Muse, 2006). Across the country various architecture, landscape architecture and planning firms boast that they have the most LEED Accredited Professionals (AP) employed within their city limits, state, or even country. In an online report by Building Design and Construction, 50 of the nation’s top design firms were ranked according to the number of LEED APs employed within their firm (Barista, 2007). The list totaled 40,000 LEED APs as
of July, 2007, working in private firms across the nation. The firms at the top of
the list who employed the most LEED APs (not as a percentage of total
employed, but in raw numbers) were Perkins+Will, Gensler, HOK, Stantec and
the Turner Corp (Barista, 2007). LEED is praised as the driving force behind
major changes in the real estate and building markets to make green building
materials and resources more competitive (Kirk, 2006).

The USGBC was formed as a coalition of building-related organizations who
sought a forum to consider the “many economic, environmental, and social costs
and benefits generated by various design and construction options” (Soloman,
2005). The USGBC piloted the first green-building rating system, LEED for New
Construction and Major Renovations (LEED-NC), in 1999, which certified
individual buildings based on specific green building standards. By March of
2000 version 2.0 of LEED-NC was publicly launched.

One of the original missions of the USGBC in implementing this new tool was to
help transform the building and real estate markets (Soloman, 2005). Since the
inception of LEED, renewable green building resources and materials have
become more widely available and more competitive than they ever were (Kirk,
2006). The real estate market has responded as green building features, valued
by consumers for their economic efficiency and environmental friendliness, are
used as marketing tools. LEED has greatly impacted the building and real estate
markets: “...to ensure that users and buyers receive the environmental benefits
they pay for, giving green building practices credibility in corporate America” (Kirk, 2006).

The success with LEED-NC led the USGBC to create additional rating systems for various aspects of buildings, such as commercial interiors (LEED-CI), core and shell (LEED-CS), and existing building operations and maintenance (LEED-EB). The latest additions at the time of this research proposal were LEED for Homes, and LEED-ND. The LEED-ND pilot program was released in early 2007 and derives many of its standards from the most recently updated version of LEED-NC. Unlike the other rating systems, LEED-ND is the first rating system from the USGBC that certifies development projects that consist of anywhere from a series of buildings to entire neighborhoods (Javid, 2007). It became apparent to many in the green building industry that a green building was not really ‘green’ if it wasn’t located with respect to its regional context, in its relation to other buildings, housing, transportation, and services.

To create a LEED rating system that would consider multiple buildings or whole neighborhoods within their greater context, the LEED-ND team formulated a rating system that would be made up of four major categories, Smart Location and Linkage (SLL), Neighborhood Pattern and Design (NPD), Green Construction and Technology (GCT), and Innovation and Design Process. The scope of LEED-ND is much larger than previous rating systems to include not only environmental concerns, but social issues as well. For example, as an
incentive to developers to provide a diversity of housing types and affordability in their project, 10% of the total NPD points available are offered for diverse and affordable housing. Providing housing for different levels of income may also benefit the environment by allowing more people who work in the community to also afford housing in the same community, thereby cutting back on work commutes and reducing greenhouse gas emissions.

4.2 Praise for LEED is not without Criticism

A highly debated topic related to LEED rating systems is the topic of the cost of building green. On one side, the argument is made that the cost of building green is much more than conventional building (Schendler 2005a), while others claim that there is no significant difference in the average cost of green buildings versus non-green buildings (Langdon, 2007). It is conceivable that there are different levels of green building strategies that can be utilized, which bear different levels of cost. Really basic and inexpensive green building strategies, such as siting a building with appropriate solar orientation, can be accomplished with little strain on the budget, but the real additional costs come when implementing technologies such as photovoltaic panels and ground source heat pumps. This study will not address the cost of building green at these different levels, but it should be said that in terms of the USGBC, they do have an important role to play in driving the green building market while balancing the cost feasibility of certain green building strategies.
Added to the perceived or actual high cost of building green, a developer must pay the USGBC to certify his/her project, another issue with LEED identified in the literature. Depending on the size of a project the cost to register with the USGBC to acquire LEED certification can be very expensive. In July of 2007 more than 370 LEED-ND pilot program applications were received by the USGBC. Of those, 238 applicants paid anywhere from $8,000 to $20,000 to the USGBC to officially register their project for the certification process. What happened to the other 138 that didn’t register for the pilot program? Could a high registration fee deter developers from pursuing certification for their ‘green’ project?

The danger is that LEED certification will cannibalize funds that otherwise could be used to improve a building. Developers face a choice: pursue LEED – or purchase a photovoltaic system, daylighting, or efficiency upgrades (Schendler, 2005a, p. 2).

Another common criticism of the LEED process in general is that it is too complex, time consuming, and bureaucratic (Soloman, 2005; Muse, 2006; Schendler, 2005b). A recent article that discusses an analysis by the National Association of Home Builders (NAHB) states that “most [LEED-ND] applicants in most instances would have to go through more than 200 steps to complete the application process” (NAHB, 2007).

Another concern identified in the literature is that LEED, in its current form, does not take into account life cycle analysis (LCA), or “the scientific discipline of measuring resources and energy consumed, and the environmental impact
created, by a particular product throughout its life" (Soloman, 2005, p. 138).

Given that LEED is set up to award one point per credit, it does not incentivize building strategies that utilize the least environmentally damaging materials; the same amount of points are awarded among different strategies that vary in environmental impact. A more sophisticated system would allow for a range of points within each credit, based on life cycle analysis of the different materials (Soloman, 2005).

Perhaps the most relevant concern to this study is the issue of regional and contextual appropriateness of LEED standards. LEED has been frequently criticized as a set of broad national standards that are not sensitive to varying regional and site circumstances. As Stein and Reiss note, "... water conservation is more of a priority in hot, dry climates, yet the USGBC awards the same number of credits for water conservation in Seattle as in Phoenix ...." (Soloman, 2005, p.3)

If, in some cases, LEED can be regionally insensitive, how does it fair in its sensitivity to other site-specific circumstances? Though not yet supported by substantial research, the supposition has been made that some LEED credits, if pursued in an inappropriate context, could have a negative environmental impact. The USGBC certifies a project based on verification that it is achieving the intended objectives set forth by the LEED rating system and it is assumed that the LEED credits pursued are beneficial to the environment. But, there has
been some evidence suggesting that in limited cases unintended consequences have resulted in LEED certified projects that “inadvertently fail to benefit the environment” (Bray, McCurry, 2006). In two cases, Bray and McCurry found that because projects were so intent on acquiring LEED certification they actually pursued credits that didn’t produce a sustainable outcome in the specific context of their project.

In one case involving a ‘sustainable sites’ credit, the applicant built bicycle storage and change/shower facilities in order to achieve the ‘alternative transportation’ credit. The credit is intended to encourage building occupants and users to bicycle as a means of transportation to and from the site, but because this specific site was in a rural area within a state park and located on a mountain top it was not conducive to bicycle access. Thus, the credit’s intent was not achieved; employees still used gas powered vehicles as their mode of transportation to and from the building, not bicycles. The construction of shower/change facilities and installation of bike racks was a wasteful use of building resources since they are not used, thus creating a negative environmental impact, instead of a positive one (Bray, 2006). This is one example of how developers may pursue LEED credits as a means to getting their project certified even if it requires implementing building criteria that isn’t appropriate for their project site and could result in not benefiting the environment.
[the] USGBC developed a simple, universal system in which one goal, or credit, receives one point… USGBC volunteers "knew that it was clumsy and limited, and many wanted to wait until it could be put on more scientific footing, but more wanted to get something out quickly." Berkebile continues, "What was shocking was that many agencies and cities so quickly embraced it as their tool, not realizing that it was not regional, did not do life-cycle analysis, and was focused on corporate buildings. (Soloman, p. 138, 2005)
CHAPTER 5. FINDINGS

Through the River Oaks TNC case study and comparable LEED-ND pilot project interviews, this study seeks to discover areas where LEED-ND can improve. The findings are divided into three sections. The first two sections draw on findings from the main case study, River Oaks TNC and some related findings of a project that was also a subject in the interviews. The first section describes issues with the LEED-ND Certification Process; the second section deals with LEED-ND Standards; and the final section is dedicated to a summary of the results of the LEED-ND pilot project interviews.

5.1 LEED-ND Certification Process

As process can be just as important to the success of an ‘implementation tool’ as the tool itself, this section provides an analysis of the LEED certification process. The two main issues identified in the literature review are relevant and consistent with the results of the case study and the interviews. Those issues were mainly the high certification fee and the complex time consuming nature of certifying development projects with multiple buildings and often multiple phases carried out over several years.

5.1.1 Trade-offs: $20,000 for a solar panel array or LEED certification?

For River Oaks TNC, a major factor in the decision not to participate in the LEED-ND case study was the high cost of the certification fee. The fee structure
for the pilot program was such that any project over 100 acres pays $20,000; projects that are between 20 to 100 acres pay $14,000 and 20 acres or fewer pay $8,000.

**Figure 5.1.1: Percent of LEED-ND Pilot Projects within each fee category**

<table>
<thead>
<tr>
<th>Acreage Range</th>
<th>Corresponding Certification Fee</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-20</td>
<td>$8,000</td>
<td>42%</td>
</tr>
<tr>
<td>20-100</td>
<td>$14,000</td>
<td>33%</td>
</tr>
<tr>
<td>100 and over</td>
<td>$20,000</td>
<td>25%</td>
</tr>
</tbody>
</table>

*Source: USGBC, 2008*

Government financial incentives for LEED-ND projects may help to offset the inherent costs of certifying a project; Illinois’ Green Neighborhood Grant Act is an example of this. Passed in August 2007, the act (SB-0135) provides financial incentives for development projects that are LEED-ND certified. At the local level, municipalities can reduce fees and permitting times for LEED-ND certified projects, to incentivize development of green neighborhoods.
In addition, because River Oaks TNC is based in a semi-rural context and LEED-ND rewards projects that are primarily in an urban context, River Oaks TNC would have had a difficult time achieving LEED-ND certification based on points gained through location and neighborhood pattern. Through the Credit Analysis (Appendix C) for River Oaks TNC, it was estimated that the project could achieve 46 points out of 106 points (Figure 5.1.1), only enough to barely earn basic certification.

**Figure 5.1.1: Points River Oaks TNC achieved as a percentage of each categories’ possible points relative to points that could be bought**

![Percentage Based on Possible Points in Each Category](image)

Source: USGBC 2008 and River Oaks TNC Credit Analysis

It is conceivable that even to reach the basic certification level, some “point buying” would be necessary, and for achieving any higher level of certification “point buying” would surely be necessary – some credits can be achieved simply
by spending more money, other credits are achieved simply by projects being in the right place (ie. SLL credit 1 and 2: Brownfields).

Ultimately, for River Oaks TNC it was decided that the pursuit of LEED-ND certification was far too expensive and not worth the costs and risks involved – if a project pursues certification and does not succeed, the USGBC does not offer refunds.

5.1.2 Certification timing, complexities and bureaucratic process

Relative to the complexity of the process is the specific issue of how the USGBC intends to certify a neighborhood development project that has a much longer and complex build out schedule than an individual building would. In addition to the longer build out, most multi-building projects are built in phases which would add to the complexity of certification; does each phase stand alone or does the project become certified at the final phase when the project in its entirety is completed? To address these issues the USGBC has set up the ND rating system such that projects can be certified during different stages of development and if chosen, individual phases can be certified as they are built.

The LEED-ND document submittal process operates in three stages. Stage 1 is optional and is essentially a pre-review approval by the USGBC; the plan nor the project would actually be certified at this point. The USGBC would “issue a letter stating that if the project is built as proposed, it will be able to achieve LEED for
Neighborhood Development certification (USGBC, 2007). Development applications that have the LEED-ND pre-review approval stamp assure the permitting agency of the developer’s commitment to a quality project. Stage 2 is pursued after the project plan has been granted the necessary approvals and entitlements. If any changes have been made to the plan since stage 1, those changes must be submitted to the USGBC for re-evaluation. If certification is achieved in stage 2, the USGBC issues a certificate indicating that the plan is a LEED-ND Certified Plan. Stage 3 is for certification of a completed neighborhood development; additional documentation would then be required after construction of the project is complete.

A potential problem with the complex nature of certifying neighborhood developments is that if developers market their project as LEED-ND certified based on the project plan being certified in stage 2, it is likely that the average person would not know the difference if the project turns out to not be built to plan and it is ultimately not a bona fide LEED-ND certified project.

5.2 Evaluation of LEED-ND Standards

Linking the major findings of this study, is a common thread related to the fact that the LEED-ND rating system certifies projects with a broad set of national standards, meant to be applied across various regions, site contexts, and environmental circumstances. The following findings all stem from the fact that
LEED-ND rates projects not based on the merits of the project’s own unique site circumstances and regional context, but based on broad ideas of what “green development” is. From a planning perspective, and from an ecological perspective, according to renowned author and architect Sim Van Der Ryn, “ecological design begins with the particularities of place – the climate, topography, soils, water, plants and animals, flows of energy and materials and other factors” (Van Der Ryn, 1996, p.72).

There are many examples of very simple design choices that are made depending on a sites' context. For example, when designing a building in a city with a hot climate, versus a cool, mountainous climate in a rural context, roofing material can have major implications. In the hot climate in an urban context, a reflective roofing material should be used to reduce the “heat island effect” and to keep the inside of the building cooler. For a building located in a rural mountainous region where the temperature is cooler year round, roofing material that absorbs heat would be more appropriate. In LEED for New Construction, a project can earn a point for installing a reflective roof, no matter where it is located; LEED does not recognize the unique “particularities of place” in this instance.

While LEED-ND isn’t perfect, there are aspects of the rating system that are very good. To give the USGBC praise where it is due, there are many credits in the rating system that do encourage “place responsive design”.

The following
findings focus on those credits that were found to be problematic for reasons related to connectivity and density.

5.2.1 Location of LEED-ND Pilot Projects

Overall, LEED-ND pilot projects were primarily located in dense, urban areas on the East and West coasts of the contiguous United States (Figure 5.2.1).

Figure 5.2: Number of LEED-ND pilot projects in U.S. region and internationally

![LEED-ND Projects by Region](chart)

Source: USGBC (2008)

Of the projects that were located in the Western U.S., most of them were in densely populated urban areas on the coast. Semi-rural and rural regions of the Western U.S. were not in the majority of locations for LEED-ND pilot projects. The main subject of this case study, River Oaks TNC, was located in the semi-rural region of Central California, inland from the coast.
5.2.2 Location, Location, Location

The first LEED-ND pre-requisite, “Smart Location”, requires projects to be either located on an infill site, located near community amenities, located near existing or planned public transit, or located within a region served by a Metropolitan Planning Organization that reports that average annual VMT per capita is lower than the region as a whole. The intent of the prerequisite is to encourage walkability and to reduce vehicle trips.

River Oaks TNC would meet Smart Location pre-requisite one through options two and three which require the project to be located near planned adequate transit and near existing community amenities, respectively. Other ‘green’ projects, such as Mountain View in rural Victor, Idaho (see Appendix A), would not meet the SLL pre-requisite. Mountain View is an exemplary project in Traditional Neighborhood Design (TND), leading the way for green development in the rural Idaho region. But, at the time of the LEED-ND pilot program, it was not connected to existing community amenities and did not have a population density to support significant public transit. Mountain View’s program includes the building of a village center which would include such community amenities as retail, food services, grocer, entertainment, health and beauty, dry cleaning, shipping services, medical office, health and wellness services, community meeting places, and professional office space. Even with all of these amenities being offered as part of the project, Mountain View would not meet the Smart
Location pre-requisite because the community amenities are required to be existing at the time of construction.

Mountain View is within Victor City boundaries and is not considered a leap-frog development by the standards of the City in which it exists. The project is paving the way for compact design in an area that traditionally sees only large lot, mansion style development. The location of the development is such that it serves as an affordable option for Jackson (WY) area workers.

Another Smart Location and Linkage standard poses similar problems. SLL Credit 3: Preferred Locations’ intent is to “encourage development within existing communities and developed places to reduce multiple environmental harms associated with sprawl” (USGBC, 2007). In order to fulfill this credit the project may either be on an infill site, an adjacent site or a previously developed site, or combination thereof, and the street grid density must be at least ten centerline miles per square mile. This number is calculated by measuring the centerline miles within a one mile radius of the perimeter of the project site boundary, summing the centerline miles, and dividing it by the total square miles within that radius (calculation was performed in GIS).

River Oaks TNC is an adjacent site but the one mile radius from the perimeter of the site boundary does not contain the minimum of ten centerline miles per square mile; in other words, the street network surrounding the project site is not
dense enough (street grid density is a metric that uses street network density to measure how urban the project site is). Although River Oaks TNC is not contributing to sprawl, and therefore is fulfilling the intention of this credit, it would not earn points in this regard. River Oaks TNC completes the City’s northern buildout to the City limits and provides the community with additional housing capacity and community amenities without requiring the City to extend utilities and infrastructure beyond what its capital facilities plan has already accounted for. In this instance LEED-ND criteria disregards a municipalities own plans for future accommodation of development. Sprawl may be defined in many ways, but according to the LEED-ND intention for this credit, “expending financial resources for construction and maintenance of infrastructure” is the negative effect of sprawl, which should be avoided. If River Oaks TNC is not requiring the City to expend any additional resources for infrastructure than it has already budgeted for, then by this definition the project is not contributing to sprawl and therefore should be able to pursue points in this credit.

5.2.3 The Density Question

Other LEED-ND standards that are problematic for semi-rural contexts include NPD prerequisite 1 and Credit 1 for Compact Development. River Oaks TNC would meet the criteria for residential densities depending on how the USGBC defines “buildable land” in the density calculation (which is unclear). Without counting open space as buildable land, River Oaks TNC average residential
density was calculated to be ten dwelling units per acre; the minimum density for the prerequisite is seven dwelling units per acre. To achieve this prerequisite the project must also have a non-residential average density of 0.5 FAR or greater, which would be difficult for River Oaks TNC. Though River Oaks TNC would fare well with the residential density component of this credit its, commercial or non-residential density would be prohibitive in terms of earning points. One of the obstacles to achieving a higher non-residential FAR is the project’s adjacency to agricultural land and the relative inappropriateness of dense commercial development along this edge. LEED-ND does not consider the relative location of projects in semi-rural towns that may be defining the urban edge, where it would be less appropriate and environmentally sound to develop high density residential and non-residential uses.

Additionally, the prerequisite is insensitive to projects that are located in very rural towns that are rapidly growing. In the case of Mountain View (Appendix A), the project is achieving an average density of 5.32 dwelling units per acre, which is over 13 times the average density of the town in which it is located, Victor (ID); yet the project would not qualify for the NPD Compact Development Prerequisite. The Mountain View project is leading the way in its region in terms of setting an example of denser development, where the status quo is one to five acre, large lot developments.
5.3 Summary of Interview Results

A total of seven LEED-ND pilot projects were the subjects of informal interviews with project managers, developers or LEED Accredited Professionals who worked on the LEED aspects of the projects. Two of the seven projects were located in an urban context, two in a semi-urban context and three were in rural areas. The majority of interviewee projects were located in western states, mostly on the West coast (Figure 5.3.1).

**Figure 5.3.1: Interview projects location and acreage**

![Bar chart showing interview projects location and acreage](chart)

Source: USGBC 2008

Five out of the seven projects were over 100 acres, while the remaining two were over 20 acres (Figure 5.3.1). Of the five projects that were over 100 acres, the certification fee was within manageable and within the project budget, but a
majority of those respondents commented on the exorbitant amount of dollars they ended up spending on consultant fees for documentation and going through the LEED process. One developer even stated that had they known that cost, they would not have pursued LEED certification. The majority of interviewed projects were pursuing a level of certification beyond the basic level (i.e., silver, gold, platinum); only two respondents stated that they were confident their project would achieve the level of certification they set out to achieve.

When asked how the project came to be a LEED-ND pilot project the majority of respondents answered that it was based on the developer’s own interest in sustainable principles or that there was a corporate commitment to sustainability.

Each project experienced challenges in pursuing credits of the different categories of LEED-ND for various reasons that were purely circumstantial to each respective project, but one credit in particular was commented on in four of the interviews: the NPD Affordable for sale housing credit. This is a credit that can be challenging due to financial circumstances; if a project is able to take advantage of governmental or non-profit assistance in providing affordable housing or if the project is large enough to pay for affordable housing then it is feasible. Otherwise, the credit is usually very challenging because it is difficult to for developers to budget affordable housing in their projects. This would be an example of a credit that could be “bought”; the more money that is available, the more feasible the points for this credit would be.
When asked whether or not it is problematic that LEED standards are a national set of standards being applied across various regions, only two respondents felt that it was not an issue. Three respondents felt that the standards are acceptable, being as broad as they are, but that they would like to see more flexibility. The two remaining respondents felt strongly that improvements to LEED-ND would need to include making the standards more appropriate for different regions and contexts. Additionally, in relation to this question, two of the seven respondents commented that they were aware that the final LEED-ND program in 2009 would allow for more flexibility.
CHAPTER 6. CONCLUSION

6.1 LEED-ND and River Oaks TNC

Although it was estimated that River Oaks TNC could only achieve 46 points of 106 available for LEED-ND certification, the project may have a better chance of achieving a higher level of certification based on two variables. First, if the final LEED-ND rating system were modified in ways that River Oaks TNC would not be penalized for such aspects of its design that are not “urban”. For example, in NPD credit 1, Compact Development, commercial aspects of a project are rewarded for having a high floor to area ratio. In a semi-rural setting, three-story commercial development may not be appropriate to the Town's rural character. It may be more appropriate in a semi-rural town to reward a project more heavily for including some mix of commercial and residential; many small towns reject commercial development all together because they want to remain a bedroom community. Encouraging some small scale commercial amenities would provide residents with more opportunities to walk or ride bikes for simple errands, while not spoiling the small town charm.

Secondly, River Oaks TNC could earn more points if certain credits become more financially feasible, either because the costs of green infrastructure goes down, or certain tax credits and financial incentives make it more affordable to implement the more costly aspects of LEED-ND standards.
6.2 Research Conclusions

There are many challenges to what the USGBC is trying to do. The intention of the USGBC’s LEED system is commendable and their efforts of developing green development standards are incredibly valuable to a sustainable future. This study sought to find ways that the LEED-ND rating system and its certification process could improve. As the study commenced, it became more and more clear that one of the biggest challenges the USGBC faces in improving LEED is the issue of “place responsive design”, the ability of LEED rating systems to respond to site-specific circumstances, so that the LEED system can benefit not only urbanized areas, but growing rural areas in the U.S.

The rural west is a unique place with unique circumstances in terms of land use patterns and growth issues. With the intention of reducing sprawl the USGBC has built into the LEED-ND rating system a strong bias towards infill projects and projects that are located within or near dense urban areas. The problem with this is that the system does not consider the merits of projects that are located in rural and semi-rural areas, projects that are vital in these growing parts of the Country, for challenging the status quo of large lot, homogenized, mansion style development so dominant in many parts of the rural and semi-rural west. In disqualifying exemplary green projects in rural areas from LEED certification, the USGBC only rewards green development that takes place in cities. This reward system would be logical if the reality was that a rating system such as LEED had the power to displace development in rural areas all together and move it into
urbanized areas, but the reality is that development is going to occur in rural municipalities where private property exists; it is inevitable that land outside of major urban areas will be developed. The question should be not if development occurs in rural or urban settings, but how do the metrics change or adjust to encourage green development in rural settings versus urban settings?

6.3 Suggestions for the USGBC

In order to address the special development circumstances to encourage green development in rural areas, LEED-ND could provide different development criteria related to rural areas, as opposed to urban areas. A metric would need to be identified or developed to classify a project as being rural or urban, then a different set of criteria could be used for each. As explained earlier, the three main categories of LEED-ND standards address different aspects of neighborhood scale development: 1. Smart Location and Linkage - measures how sustainable a project's location is, in terms of reducing vehicle miles traveled and reducing disturbance of sensitive lands; 2. Neighborhood Pattern and Design - measures how well a project meets certain community needs, such as affordable housing, accessibility, and connectivity; 3. Green Construction and Technology - specifically measures the sustainability of the project's relationship to the site, construction activity and energy efficiency of buildings. The following paragraphs contain suggestions for the USGBC for improving the SLL and NPD categories when applied to rural or semi-rural regions.
SLL pre-requisite-1 could improve by changing the criteria to accept projects that are located within City boundaries and are within areas designated by the City’s general plan as suitable for residential development, as long as those areas did not encourage sprawl. In this way, LEED-ND would be encouraging inward growth, but also taking into consideration the general growth strategy consistent with a City’s general plan.

“Promoting standards that effectively exclude projects in rural communities like Victor from achieving LEED-ND certification significantly weakens the potential for the LEED-ND program to meet its overall goals.”
~ Dahvi Wilson, Director of Sustainability, Mountainside Village (April 2008)

Smart Location and Linkage credit 3: Preferred Locations could improve by recognizing a City’s build out capacity and future land use plan as part of determining if a project’s site would contribute to sprawl or not. A project could earn points by being located within the City’s boundary or future annexation boundary, thereby penalizing projects located in outlying County areas. By linking LEED-ND standards to the local regulatory framework within which a project exists, the rating system could encourage local municipalities to develop their own sustainable development plans which could dovetail neatly with project certification.

The NPD prerequisite and credit 1 for Compact Development could improve for rural areas by considering the project’s average density relative to the existing
average density within that rural context; allowing projects to qualify based on the measure to which they are breaking away from the relative status quo density.

LEED-ND has great potential to influence the future pattern of growth in rural and semi-rural areas, but in order to do so, the rating system must be modified to reward projects that are truly leading the way in those regions. One way the USGBC could begin to develop the LEED-ND rating system so that it is more site specific, is through the USGBC local chapters that have been established and continue to establish themselves throughout the U.S. The chapters could administer various rating systems that are adapted to their own unique regional circumstances.

Ultimately the USGBC recognizes the evolutionary nature of developing LEED standards. From this research it is apparent that there are two main challenges to pursuing LEED-ND certification: the cost of certification and implementation of certain green technologies, and the regional insensitivity of LEED-ND standards. For LEED-ND development standards to be effective in different regions, future rating systems should be regionally focused, certifying projects based on the merits of the region in which each respective project is located. Certifying projects in this way may also help to account for the costs of building green, as local market circumstances or materials and service availability can taken into consideration. The more the LEED rating systems are put to the test, the more constructive criticism can be offered to improve them for the future.
BIBLIOGRAPHY:


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APPENDIX A: MOUNTAIN VIEW CIR
April 22, 2008

Dear LEED-ND Committee:

Please accept our submission of the following Credit Interpretation Request for LEED-ND registered pilot project, Mountainside Village. Mountainside Village is a leader in sustainable neighborhood design in our region, as attested to by the letters of local planning authorities and government officials attached here,¹ as well as our distinction as an Idaho Smart Growth Award winner in 2006. Located in rural Victor, Idaho, Mountainside Village is paving the way for the approval and adoption of several new, Traditional Neighborhood Design neighborhoods in our area, important alternatives to the large-lot, mansion-style developments that have become so common here. We are perceived as being on the cutting-edge of this type of work, and we are regularly being cited as a model development as city managers seek to encourage smart-growth in our town.

At the same time, we are struggling to sell the concept of our TND-based neighborhood, as the typical market in our region has traditionally favored unsustainable, large-acreage lots in disconnected subdivisions. The magnitude of our challenge in becoming a truly successful, economically viable development must not be underestimated; for it is dependent not only on clever marketing, but a critical need to educate potential buyers, local officials, citizens, real estate agents, developers, and builders about the benefits of this type of construction.

We are ambitiously undertaking this effort, and 1% of all of our lot sales² continue to be donated to our non-profit, 501(c)3 Institute³ for education around TND and green building. We continue to engage closely with the larger community in Teton Valley to promote TND and green building principles, and we are currently developing a suite of programs to support those in our area who are working on integrating these concepts into the growth management plans for the City of Victor.

The LEED-ND Pilot Rating System describes the goal of LEED-ND as follows:

LEED for Neighborhood Development’s principle aim is to improve land-use patterns, neighborhood design, and technology in the United States… The objective of the pilot program is to ensure that the rating system is practical for application and is an effective tool for recognizing projects that incorporate smart growth, new urbanist, and green building practices.⁴

According to these parameters, Mountainside Village is a highly qualified candidate for LEED-ND certification. LEED seeks to reward leaders in sustainable building and design, and Mountainside Village is exemplifying leadership in every way.

This said, there are two prerequisites in the LEED-ND Pilot Rating System that are not currently “practical for application,” in the context of our community. As described in the objectives referenced above, the current pilot period offers our neighborhood an opportunity to bring these issues to the table, and the LEED-ND Committee an opportunity to consider appropriate alternatives. What follows is a set

¹ Please see attached letters from William Knight, Victor City Planning Director (March 2008), and Scott Fitzgerald, Victor City Councilor (April 2008).
² This policy will continue beyond the point that all lots are sold, as .3% of all home sales is also required to be donated to the Institute.
³ Mountainside Institute is committed to increasing awareness and appreciation of the principles of traditional neighborhood design and green building in Idaho’s Teton Valley region, while promoting a vibrant community life in Mountainside Village. In addition to offering core educational and social programming around these themes, MI proudly seeks to partner with and support other organizations, municipalities, and corporations, which focus specifically on sustainable living and holistic wellness.
of comprehensive arguments describing exactly why these prerequisites are impractical for our application, how Mountainside Village is nonetheless meeting the overall intent of these requirements, and moreover, why the preservation of these requirements as written will actually detrimentally conflict with the overall intentions of the LEED-ND Pilot Rating System. In seeking to demonstrate our compliance with the intents of the program, we consider Mountainside Village’s performance under suggested alternative compliance metrics, some of which have already been submitted to the Committee for review. The following facts are central to our arguments and will be outlined and referenced in more detail in the following pages:

- Mountainside Village is located in a municipality, the City of Victor, Idaho.
- Mountainside Village is planned to deliver 13 times the average residential density of the City of Victor.
- Mountainside Village is a proven regional leader in sustainable design and new urbanist planning.
- Victor, Idaho is a rural community without sufficient population to support extensive transit service. The total population of the city in 2004, when the Mountainside Village Master Plan was submitted, was approximately 1,000 (exact population numbers are not available because a census was not taken in that year. However, numbers changed from 840 to 1,255 between 2000 and 2006.)
- Victor City was once served by rail. Passenger service ended in 1965, and all rail service ceased in 1981. Unfortunately, these rail lines were removed in 1990. The population of the city was in decline until the mid 1980’s but has recently experienced a major upsurge.
- Promoting standards that effectively exclude projects in rural communities like Victor from achieving LEED-ND certification significantly weakens the potential for the LEED-ND program to meet its overall goals.

We hope that this work both strengthens the LEED-ND program and allows exemplary neighborhoods like ours to receive the acknowledgment they should, as we all seek to continuously raise the bar for sustainable development into the future.

Thank you very much for your consideration and your tireless work to encourage the application of green building practices throughout the world. We look forward to receiving your prompt response to these concerns, as it will determine the degree to which we dedicate further time and energy to our LEED-ND submittal application. Please contact me with any questions or concerns.

Sincerely,

Dahvi Wilson
Director of Sustainability
Mountainside Village

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CIR: NPD Prerequisite 2: Compact Development

The intent of NPD Prerequisite 2 is to: “Conserve land. Promote livability, transportation efficiency, and walkability.”6 It requires that pilot projects “build any residential components of the project at an average density of seven or more dwelling units per acre of buildable land available for residential uses.”

I. NPD Prerequisite 2 is impractical for applications in our area

Mountainside Village is located in a rural community that is just beginning to see incredibly rapid growth. According to a 2007 study conducted by the US EPA, the City of Victor experienced a 237% increase in population in the last 16 years7. This growth has been accompanied by an explosion of new development. According to the same study, between 2004 and 2005 alone, over 300 new parcels were platted in Victor. More recent years have seen even greater numbers of development proposals. This growth trend is expected to continue, with population in Teton County, Idaho expected to rise another 15% -44% by 20258.

Along with this growth, the City of Victor is experiencing unsustainable development patterns. Subdivisions tend to be comprised of large lots, disconnected street patterns, and only single-use zones. According to US Census data for the year 2000, Victor’s average housing density in that year was equal to .4 units/acre9. Victor’s downtown area also demonstrates extremely low-densities, possessing only .66 structures per acre as of March 4, 200810.

Mountainside Village is conservatively estimating that, upon build-out, it will achieve an average residential density of 5.32 domestic units/ acre. Needless to say, this is over 13 times the average density of Victor City, as is already evident to anyone driving past our development. This does not count the potential for up to 73 additional accessory units, which would put the village at 6.63 DU/acre, if counted.

II. Mountainside Village is nonetheless meeting the overall intent of these requirements

- Mountainside Village is located in a municipality – the City of Victor, Idaho. We are located less than one mile from City Hall and the geographic center of town
- Mountainside Village is planned to deliver 13 times the current average residential density of the City of Victor.
- Mountainside Village is a proven leader in sustainable design and new urbanist planning.

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8 Ibid.
The density we have achieved is relatively remarkable for our area. When Mountainside Village sought its approval from the City of Victor in 2004, it was pushing the limits of what the City was willing to accept. At that time, the city offered two residential housing zones – “planned residential”, to be used only with multifamily buildings (16 units per acre), and “village residential”, the only single family residential zone on the books (2 units per acre net); there was nothing in between. Village residential, the default zoning that was likely to be assigned to the Mountainside Village site upon annexation, would have set a lower limit on lot sizes at 16,000 square feet. No distinction was made based on lot location, and no consideration was given to overall plan or open space. There was also no PUD ordinance and no mechanism to use net density in zoning calculations. Zoned in this way, the Mountainside Village site would have been required to develop a uniform blanket of homes, with no opportunity to create a village core, to apply new urbanist transect principles, or to provide any more than about 144 domestic units on the site’s 123 acres.

In order to avoid this situation, Mountainside’s developer, Lawrence Thal, underwent an exhausting and rigorous process to create special conditional zoning for the project. For the first time in the history of Victor City, Mr. Thal used the annexation process to propose that the zoning be tied directly to the preliminary master plan for the site. In other words, much denser zoning was applied to the site than would typically be allowed on the condition that the development conform directly with the plan as submitted in the preliminary plat. This in itself was a major feat, convincing the city to allow an average density over two times greater than the default zoning would have allowed. It also prevented Mountainside Village from significantly increasing its density once the annexation agreement was signed.

In battling for this kind of density, Mountainside Village paved the way for several new developments that are now proposing to build traditional neighborhoods throughout Teton County. In fact, Mountainside Village’s unique design helped inspire a new effort by Victor’s City Planner to institute a TND zoning overlay surrounding the downtown area. In these ways and others, Mountainside Village has met the intent of the LEEDND program to promote leadership in environmental design and thoughtful neighborhood development, and we are doing so in the only way that actually works – by meeting people where they are. When Mountainside’s planning process began, the proposal of a 200+ unit development with average densities above 7 units per acre in this area would likely have been impossible to get approved. Furthermore, such a proposal would have probably turned people away from TND principles. At that time, the Smart Growth Movement and the CNU advocated building to the perceived acceptable densities for an area, while arranging site plans to encourage community-building and preserve open space. This is exactly what we did. Today, it is already evident that the battles Mountainside Village has fought are allowing new, smart developments, with higher densities than our own, to be conceivable to local officials and citizens.

Though Mountainside Village is not meeting the current density requirements of LEED-ND, we are developing at a density exactly in keeping with our spatial relationship to

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downtown Victor, as described by the EPA Assistance Program Report. According to that document, Mountainside Village lies within Victor’s “Rural to Urban Transition” zone, in which uses are of a lower intensity, and densities should allow for single-family homes on ¼ acre lots. Specifically, that report suggests that,

To get the downtown to function [well], the city could consider a public policy and investment strategy that would support the higher intensity development in and around the Depot area and along Main and Center Streets, moderate intensity development in the adjacent blocks, and lower intensity development outside of the downtown core … The highest intensity uses could be buildings up to three or four stories with ground floor retail and offices or residents above … The moderate intensity areas would still be compact with more residential uses at say 6 to 12 units of residential per acre. The low intensity area would have a lower density where single family homes may exist on ¼ acre lots.

As the Smart Growth planners at the EPA have assessed, Mountainside Village is supporting the larger community of Victor by developing at its current density.

III. The preservation of these requirements as written will actually detrimentally conflict with the overall intentions of the LEED-ND Pilot Rating System

Given the number of developments now underway, seeking approval, or in the planning stages, it has never been more important that there be models of sustainable design and construction that are financially viable and economically profitable. In order to demonstrate that TND and sustainable design are good models for development, Mountainside Village has to sell. Developers around the county are watching us. They are watching to see whether our profits are higher, whether our home values are more robust, and whether potential homebuyers are more attracted to our lots than others in the area. They are watching to see whether we make money. Their decision to either mimic Mountainside Village’s thoughtful design or to continue to develop in the typical suburban, business as usual fashion will be based in large part on our financial success.

In this type of environment, our marketing is critical. We are doing our best to inform the public about what we have to offer, why our development looks different, and how we believe this can lead to a higher quality of life. We do not have the luxury of developing in a place where these ideas are already commonplace and well accepted. We are not Seattle, Boston, New York City, or Portland. Accordingly, we do not have the luxury of being entirely idealistic in our development’s design. While we recognize the validity of the research cited by the Committee in support of the densities described in Prerequisite 2, it is not feasible from a marketing perspective for us to achieve these types of densities for our entire site. Given the amount of difficulty we have already faced in explaining our current density to potential customers, it is evident that even greater densities would make us even less marketable.

13 Ibid.
The point seems obvious: A LEED-ND neighborhood that does not sell will not be successful in inspiring other neighborhoods to adopt LEED-ND principles.

Furthermore, it is crucial that the exact location of a site along its municipality’s rural-tourban transect be considered to help determine appropriate densities for that site. It is also important to consider how a community’s density will change over time as it matures and moves farther along the transect. It is clear that a “one size fits all” density number is not an appropriately refined criterion for LEED-ND. While the 7 units per acre requirement is high for our area, it is obviously too low for many urban locations. If LEED-ND wishes to be relevant to projects in both of these settings, it must provide reasonable pathways for achieving success in each.

By remaining unmovable in your definition of appropriate densities for neighborhood design, you are effectively excluding developments that are built in rural areas like ours. If LEED-ND truly hopes to encourage developers to “build more livable, sustainable, communities for people of all income levels,” it must be willing to create reasonable, escalating pathways to achieving this goal – gateways allowing design leaders to meet people where they are and lead them on to better things.

CIR: SLL Prerequisite 1: Smart Location

The intent of SLL Prerequisite 1 is to: “Encourage development within and near existing communities or public transportation infrastructure. Reduce vehicle trips and miles traveled and support walking as a transportation choice.” It requires that pilot projects either “locate the project on an infill site,” “locate the project near existing or planned adequate transit service,” “locate the project near existing neighborhood shops, services, and facilities,” or “locate within a region served by a Metropolitan Planning Organization” that reports that average annual VMT per capita is lower than rate of region as a whole.

As described above, Mountainside Village is located in a rural community. For this reason alone, we are automatically excluded from Requirement Options 4 and 5. We are not infill, and thus, we are excluded from Option 1. Our only remaining Options are 2 (Transit) and 3 (Proximity to Existing Services). We will, therefore, address only these Options below.

Option 2 - Transit

I. SLL Prerequisite 1 is impractical for applications in our area

• Victor, Idaho is a rural community without sufficient population to support extensive transit service. In fact, there is no transit service offered anywhere in the county. The only transit service available anywhere in the area is based in another state – in Teton County, Wyoming.

As has been mentioned, Mountainside Village is located in a rural area. As such, the lack of employment opportunities in our area drives many residents to the Jackson Hole area of Teton County, Wyoming for work every day. According to the EPA Smart Growth Assistance Report,

… more than half (54.1 percent) of workers in Victor and more than a third (34.5 percent) of workers in Driggs work out of state (they most likely work in Jackson…). In Teton County as a whole, 36.1 percent of workers are employed out of state.  

Despite the significant daily exodus of Victor residents to Jackson, there are still not enough commuters in our area to support the types of transit options described in SLLp1.

We do, however, have transit. The START Bus, operated by Southern Teton Area Rapid Transit, provides two morning trips from Victor to Jackson, and two trips returning to Victor from Jackson every evening. This service was started in 2007 and is now


16 It is critical to note here that “adequate transit service” according to the LEED-ND requirement consists of at least four buses per hour during weekday peak periods. (USGBC. LEED for Neighborhood Development Rating System: Pilot Version. 2007. Pp. 337.


estimated to capture about 80 to 90 rides per day. Though this service is convenient for some daily commuters, it is not currently sufficient to meet the needs of many individuals in our area.

START Bus claims, however, that ridership in Teton Valley is growing much faster than their other, distance commuter routes (namely, their Star Valley route). The Teton Valley route is already supplying more riders in its first year of operation than the Star Valley route is supplying in its third year. Given this fact, and the future growth anticipated for Teton Valley, START Bus is planning on providing several additional routes between Victor and Jackson (including a noon-time route), within the next five to ten years. This added convenience will undoubtedly further increase ridership among Victor residents. Nonetheless, due to our rural setting, service levels will probably never come close to the four-buses-per-peak-hour requirement set forward in SLP1, and if they do, this will not occur for many years to come. Option 2 thus places unreasonable demands upon developments set in rural areas like ours.

II. Mountainside Village is nonetheless meeting the overall intent of these requirements

In spite of the limited presence of transit services in the City of Victor, Mountainside Village is doing its best to encourage its residents to use mass transit where it is possible, and we are also looking to ways we can further enhance this service in the future.

Mountainside Village is encouraging the use of our area’s limited transit options by offering to pay half of all fares for all of its residents on the existing transit. In anticipation of the enhanced bus service described above, and in light of the current START Bus offerings, Mountainside Village has committed to pay half of all residents’ bus fares, be they purchased in the form of single tickets, 10-ticket books, or monthly passes, for the next three years.

Looking farther down the road, Mountainside Village has already constructed a Village Center Depot building, which we hope will someday serve as a bus stop for the Village on a larger transit line. The Depot is located beside the Village Green, provides a covered, comfortable waiting area, and is home to the mailboxes for the neighborhood. It is less than ¼ mile from the large majority of residential lots in the Village, and it has immediately become our community’s school bus stop. We have already begun communications with START Bus management to consider adding the Mountainside Village Depot into their plans for expansion of their Teton County service over the next 10-20 years. While we (nor Teton County for that matter) currently offer the resident base to support this kind of expansion, the START Bus management team recognizes that it is possible that we will in the future.

In the event that the Mountainside Village Depot is not selected to be a future START Bus stop, we are looking into ways to provide a feeder service from Mountainside Village to other START Bus commuter stops in Victor. We recognize that a major off-highway route-shift is not currently in START Bus’ plans, and we are working with them to identify a good way to support their vision.

III. The preservation of these requirements as written will actually \textit{detrimentally conflict} with the overall intentions of the LEED-ND Pilot Rating System.

See point three, as related to Option 3, below. We suggest a locally calibrated transect based adjustment of this criterion.

\textit{Option 3 – Proximity to Existing Services}

I. \textit{SLL Prerequisite 1} is impractical for applications in our area.

Victor, Idaho is a city that is just beginning to see incredibly rapid growth. As referenced previously, a 2007 study conducted by the US EPA reports that the City of Victor has experienced a 237\% increase in population in the last 16 years\footnote{Ibid.}, and the population of Teton County, Idaho is expected to rise another 15\%-44\% by 2025\footnote{Ibid.}.

While this growth has come with an associated increase in demand for services, retail development in Victor has not yet caught up (due, in large part, to the personal interests of a few landowners in Victor’s downtown core). Several recent statistics indicate that this is true. As described in Teton County’s 2007 EPA Smart Growth Implementation Assistance Report,

\ldots demand for retail opportunities in Victor and Driggs outpaces supply. That is, people in Victor and Driggs will travel to other places to buy things because these things are not available locally. An assessment of current incomes, population, and existing square footage of retail indicates Teton County could currently absorb an additional 72,000 square feet of retail, Driggs could accommodate 29,000 more square feet and Victor 24,000 more square feet.\footnote{Ibid. (Citing: Idaho Department of Labor and Commerce; Claritas. Claritas is a provider of demographic data based on U.S. Census and other data. See www.claritas.com)}

In other words, the demand for services in Victor is growing, and if the precepts of supply and demand economics apply, the number of services supplied in the region is sure to increase in the coming years.

For this reason, requiring that Mountainside Village be proximal to \textit{existing} uses prevents us from anticipating the way in which this area is going to change in the near future. Mountainside Village will likely not be built out for nearly 10 years, and good planning on our part requires long-sightedness. According to Victor’s City Planner, William Knight, downtown Victor’s current state can be technically referred to as “blighted.”\footnote{Knight, William. \textit{Personal conversations}. 2008.} Major efforts are underway to redevelop the downtown area, and it seems appropriate to assume that both the expansion of the downtown area and the enhancement of the services it offers are inevitable. We anticipate that with the growth of downtown,
accompanied by the services we will provide on-site, we will be located within ½ mile walk distance of at least 6 diverse uses by the time build-out is complete.

Another factor making this prerequisite impractical for application in our area is the fact that small businesses here, seeking to provide services like those mentioned in SLLp1, have traditionally demonstrated very rapid turnover. The proximal uses that existed when Mountainside was proposed are different than the uses that exist now, and will undoubtedly be different from those that are present when build-out is complete. This moving target has made it difficult for us to assess how “connected” we are to our existing community.

We recognize that high retail turnover can affect urban areas as commonly as rural ones; however, unlike businesses in urban areas, it is not just the specific owner or commercial application that is shifting here, but the entire type of use. For example, at the time that Mountainside Village was proposed, the Teton Valley Community School was in operation in a converted home within ½ mile walk distance from our project boundary. Since that time, the School has moved to another location in town, and the building has reverted to use as a private residence. Similar conditions apply to a home that was once a veterinary clinic, and another that was formerly a childcare facility. In our rural community, uses have been very flexible, making the calculations described for this requirement rather obsolete. Please see Appendix 1 -“Smart Location Calculation Chart” for a listing diverse uses (past and present) and their proximity to the Mountainside Village site. Keep in mind that Mountainside Village’s planning process began in 1992 and construction is not expected to be completed for almost 10 more years.

II. Mountainside Village is nonetheless meeting the overall intent of these requirements

While Mountainside Village is not located in present-day downtown Victor, we are attempting to support the redevelopment of that area through our project. Located about one mile from downtown Victor, we actually exceed the design guidelines proposed by the EPA Smart Growth Assistance Program for larger developments near the periphery of downtown. As described in that report,

Large developments outside the downtown, towards the periphery of the city boundaries, and into the Area of City Impact are part of Victor’s future … It is possible for new, peripheral developments to help Victor achieve its overall strategy of getting multiple community benefits out of growth. Communities across the country have adopted design guidelines or standards for large scale developments, often called “Planned Development Districts.” Guidelines and standards for Planned Development Districts may include:

- **Community structure/connectivity** – These guidelines often specify that a development will create a network of streets and pedestrian and bike paths that allows multiple connections, generally every 300 feet to maximize access, and connections within the development and between developments…
• **Open space** – Natural open space systems may provide multiple benefits to residents in the neighborhood and the broader community. This can be achieved when the open space not only helps to define the edge of the neighborhood, but is designed to be accessible to residents both physically and visually. Public access can be assured when the open space is on one side of the neighborhood’s peripheral street, across from the front of the community’s homes…

• **Neighborhood parks** – In addition to a larger network of open space around the community, it is important to integrate small parks into neighborhoods to allow community members to use. These parks should allow for more passive use – strolling through on foot paths – and more active recreation on ball fields and playgrounds.

• **Built form and street design** – Guidelines related to built form and street design typically help maintain community character, promote walkability, maintain and increase connectivity within the neighborhood as well as with other neighborhoods, and enhance safety and convenience for residents. These guidelines will include street widths, lot sizes, build-to lines, lot coverage, and street and block patterns.  

As will be demonstrated in the rest of Mountainside Village’s LEED-ND application, our development is not only meeting, but exceeding, the qualifications mentioned in the EPA Report. In creating a new resource for the larger community and promoting connectivity, open space, walkability, and open access, we are supporting the development of Victor’s overall planning vision.

Furthering this notion, we have ensured the provision of safe, convenient bicycle access to the neighborhood and its resources by extending the city’s bike path to service Mountainside Village. Our location, only one mile from the center of downtown Victor, is considered “close” to this area, by rural Western standards, and it is quite common for people to ride their bikes or walk that distance, especially during the warmer months. The pathway corridor between Mountainside Village and the edges of downtown Victor is bordered by city-owned land that will eventually be used for public applications such as a school, a fire station, or a large park. These types of services will effectively extend the downtown district even farther, further enhancing our connectivity with that space.

In addition, the Mountainside Village Center will seek to provide a suite of the common, convenience-based services that residents are expected to use on a daily basis. These services are likely to include a small general store, a restaurant, and a café, and they may also include a medical office, other retail shops, guide services, etc. In order to ensure that the Village Center fills these types of needs, we have carefully specified the allowed uses for our Village Center, as described in Appendix 2. We hope that this design and planning effort will reduce those vehicle trips that our greater-than-¼-mile distance from downtown might otherwise fail to prevent.

Our intention with this plan is three-fold. First, we hope that the presence of these types of services in our own community (and within ¼ mile of the large majority of our lots)
will reduce the need for several automobile trips per day. Second, we believe that these types of services play an important role in enlivening a neighborhood and creating spaces that sustain vibrant community life. Finally, we hope that providing opportunities for small businesses to flourish on our site will allow more people to live where they work, yielding the benefits of enhanced community membership, reduced daily vehicle trips, and improved quality of life through decreases in commuting time. In all of these ways, Mountainside Village’s mixed-use Village Center will help us meet the intentions of SLL Prerequisite 1.

Finally, Mountainside Village is currently engaging the community in a conversation about locating a new public, charter school on the Mountainside Village property. While this conversation is in its earliest phases, Mountainside is committed to the idea of providing the proposed school with a long-term, negligibly-priced lease on a piece of Mountainside property. Furthermore, the demand for this type of service in the community does appear to be significant, and in offering this opportunity, we are hopeful that we may be able to provide a very valuable resource to both the residents of Mountainside Village and the larger community of Victor. Needless to say, if our attempts to get a school cited in the Village are successful, this will further enhance connectivity with the rest of the community, reduce vehicle trips, and encourage walking and biking. Finally, the presence of a new, alternative school in this area may have the added benefit of preventing several additional pre-existing trips, high-mileage trips by removing the need for local parents to send their students over Teton Pass to Jackson, daily, for the quality education they seek.

III. The preservation of these requirements as written will actually *detrimentally conflict* with the overall intentions of the LEED-ND Pilot Rating System

- *Promoting standards that effectively exclude projects in rural communities like Victor from achieving LEED-ND certification significantly weakens the potential for the LEED-ND program to meet its overall goals.*

SLL Prerequisite 1 does not provide an appropriate pathway for rural projects like ours to meet its intentions. This standard is clearly designed to apply to more urban developments, and it fails to provide options for neighborhoods in rapidly growing communities to be rewarded for their sustainable design leadership.

Victor is a town in flux. It is a moving target. With the demographic shifts currently being experienced, it is safe to assume that the Victor that exists in 10 years will be drastically different than the Victor that exists today. Neighborhood developments often take several years, if not decades, to complete, and thus, they must be visionary in their planning. It does not serve the community of Victor or Mountainside Village to use the current state of the City as a metric for how our development should be constructed. We are looking at the development of our neighborhood holistically, attempting to determine how our project can be most effectively woven into the changing fabric of our growing town. In the meantime, we are attempting to model a more pleasant and sustainable type of development in our region. We are confident that our location within the limits of the existing city of Victor makes us far more connected to services than much of our
competition in our area, large developments that are not within city limits and are destined to be heavily auto dependent indefinitely.

We do not think we are the only LEED-ND registered pilot development in this situation. We suggest a locally calibrated transect based adjustment of this criterion. If the LEEDND committee does not provide a means for leading edge, rural developments to achieve certification, it will potentially lose its ability to influence an incredibly important sector of the country. The rural west is growing at remarkable rates, and, in many cases, it is early enough in this process to prevent traditional, highly-consumptive, suburban-style development from turning these special places into Anytown, USA. *It will be detrimental to the goals of LEED-ND to effectively exclude rapidly expanding, rural communities from achieving LEED-ND certification.* Methodologies for developing these types of areas in positive, sustainable ways must be offered if LEED-ND is to have its desired impact on this important swath of the population.
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<thead>
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<tbody>
<tr>
<td>1</td>
<td>Farm Market</td>
<td>on site (w/in 1/4mi)</td>
<td>Open summers since 2003.</td>
</tr>
<tr>
<td>2</td>
<td>Medical Office</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>3</td>
<td>Arts/Entertainment/Wellness Center</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>4</td>
<td>Community Center</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>5</td>
<td>Fitness Center/ Gym</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>6</td>
<td>Restaurant</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>7</td>
<td>Café</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>8</td>
<td>Other neighborhood retail</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>9</td>
<td>Convenience Store</td>
<td>on site (w/in 1/4mi)</td>
<td>Scheduled to open between 2008 and 2010.</td>
</tr>
<tr>
<td>10</td>
<td>Victor Cemetary (religious)</td>
<td>0.01</td>
<td>Currently existing (predating 1992).</td>
</tr>
<tr>
<td>11</td>
<td>Grand Teton Brewery Restaurant</td>
<td>0.06</td>
<td>Existing prior to 1992. Closed &quot;temporarily&quot; in 2000. Owner argues it is still looking to reopen in the future.</td>
</tr>
<tr>
<td>13</td>
<td>Victor Gateway Convenience Store</td>
<td>0.41</td>
<td>Currently existing (opened 2005).</td>
</tr>
<tr>
<td>14</td>
<td>Pioneer Park (Outdoor Recreation Facility)</td>
<td>0.43</td>
<td>Currently existing (baseball fields completed 1991).</td>
</tr>
<tr>
<td>15</td>
<td>Licensed Child Care Facility</td>
<td>0.5</td>
<td>Opened 1999. Closed 2003.</td>
</tr>
<tr>
<td>16</td>
<td>Veterinary Clinic</td>
<td>0.5</td>
<td>Existing prior to 1992. Closed in 1998.</td>
</tr>
<tr>
<td>17</td>
<td>Fire Station</td>
<td>0.69</td>
<td>Currently existing (opened 2004).</td>
</tr>
<tr>
<td>18</td>
<td>Civic Center (City Hall)</td>
<td>0.73</td>
<td>Currently existing (predating 1992).</td>
</tr>
<tr>
<td>19</td>
<td>Hair Care</td>
<td>0.79</td>
<td>Currently existing (opened 2001).</td>
</tr>
<tr>
<td>20</td>
<td>Seven Springs Coin Laundry</td>
<td>0.8</td>
<td>Currently existing (opened within the last 10 years).</td>
</tr>
<tr>
<td>21</td>
<td>Victor Medical Clinic</td>
<td>0.81</td>
<td>Currently existing</td>
</tr>
<tr>
<td></td>
<td>Location</td>
<td>Score</td>
<td>Details</td>
</tr>
<tr>
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<td>----------------------------------------------</td>
</tr>
<tr>
<td>22</td>
<td>Victor Post Office</td>
<td>0.84</td>
<td>Currently existing (predating 1992)</td>
</tr>
<tr>
<td>23</td>
<td>Place of Worship (Mormon Church)</td>
<td>0.91</td>
<td>Currently existing (predating 1992)</td>
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<tr>
<td>24</td>
<td>First Bank of the Tetons</td>
<td>0.94</td>
<td>Currently existing (opened 2004)</td>
</tr>
<tr>
<td>25</td>
<td>Victor Elementary School</td>
<td>0.96</td>
<td>Currently existing (predating 1992)</td>
</tr>
<tr>
<td>26</td>
<td>Victor Valley Market</td>
<td>1.01</td>
<td>Currently existing (ownership changed in recent years, but space has housed a market since before 1992).</td>
</tr>
<tr>
<td>27</td>
<td>Pierre's Playhouse Theater</td>
<td>1.06</td>
<td>Currently existing (predating 1992)</td>
</tr>
<tr>
<td>28</td>
<td>Child Care Facility Licensed</td>
<td>1.07</td>
<td>Currently existing (opened 2001)</td>
</tr>
<tr>
<td>29</td>
<td>Valley of the Tetons Public Library</td>
<td>1.07</td>
<td>Currently existing (predating 1992)</td>
</tr>
</tbody>
</table>
APPENDIX 2 – Approved Uses in the Village Center

The Mountainside Village Center will be the heart of the community. Envisioned to be a vibrant and magnetic area, the design of the Center supports specific uses on its ground and second floors.

GROUND FLOOR

~ Retail
~ Guide Services
~ Food Services (i.e. Cafe or Restaurant)
~ Grocer
~ Entertainment
~ Health and Beauty
~ Dry Cleaning Drop-Off
~ Shipping Services Shop
~ Medical Office

SECOND FLOOR

~ Residential (Full-Time or Short-Term)
~ Health and Wellness Services (Doctors, Massage, Yoga, etc.)
~ Community Spaces (Meeting, Rentable Gathering Space, etc.)
~ Professional Office Space

Mountainside Village

Proportional limits for different uses may be instituted to preserve quality of Village Center.
APPENDIX B: REGISTERED LEED-ND PROJECT INTERVIEWS -- RESEARCH TOOL
INFORMED CONSENT TO PARTICIPATE IN LEED-ND Case Study

A research project on the LEED-ND process and standards is being conducted by Elissa Black in the Department of City and Regional Planning at Cal Poly, San Luis Obispo. The purpose of the study is to critically analyze the LEED-ND certification process and green neighborhood development standards from a planning perspective.

You are being asked to take part in this study by participating in an interview. Your participation will take approximately 30 minutes. Please be aware that you are not required to participate in this research and you may discontinue your participation at any time without penalty. You may also decline to answer specific interview questions if you would prefer not to.

Please be informed that the name and/or location of the development project may be referred to in a Cal Poly Graduate Studies project report on LEED-ND process and standards. If you would like the project name and location to remain confidential, you may request that a pseudonym be used in place of the actual name and location of your project.

Your personal name and identity will be held confidential throughout the study and will not be used in any way. The information collected in the interviews will only be analyzed by Elissa Black, researcher, and all data will be stored on her personal computer, which is password protected.

If you have questions regarding this study or would like to be informed of the results when the study is completed, please feel free to contact Umut Toker, faculty advisor for this Master's thesis project, at 805-756-1592, or utoker@calpoly.edu. If you have questions or concerns regarding the manner in which the study is conducted, you may contact Steve Davis, Chair of the Cal Poly Human Subjects Committee, at 805-756-2754, sdavis@calpoly.edu, or Susan Opava, Dean of Research and Graduate Programs, at 805-756-1508, sopava@calpoly.edu.

If you agree to voluntarily participate in this research project as described, please indicate your agreement by signing below. Please keep one copy of this form for your reference, and thank you for your participation in this research.

______________________________   ____________________________
Signature of Volunteer                                                  Date

______________________________   ____________________________
Signature of Researcher                                               Date
GENERAL INTERVIEW QUESTIONS

1. What led to this project being a ‘green project’?

2. What level of certification is the project pursuing? And how confident are you that the project will achieve that level? On a scale of 1-5 (1 being not very confident and 5 being highly confident)

3. What do you think about LEED-ND being a set of national standards that are meant to be applied across different regions, bioregions and contexts?

4. Are there any LEED-ND credits that stick out as being very difficult to achieve for your particular project? What are they and why are they difficult or not feasible at all?

5. How do you define green neighborhood development?

6. What is your take on the fact that LEED stands for Energy and Environmental Design yet the ND system includes credits that deal with social issues such as affordable housing, or which some say don’t relate to helping the environment?

7. Is the LEED-ND certification fee structure fair in your view? Was it manageable?

8. If your project was only one or two points away from achieving LEED certification and there was one credit that didn’t actually make sense for your project, but you needed the points in that credit, would you go ahead and pursue it even if it would be a waste of energy and materials, so that your project could achieve LEED certification?

9. So far are you content with the certification process?

10. How far along is your project, or what stage is it within the development process?

11. Is your project or did your project develop in phases? How is this problematic for the certification process?

12. What motivated the developer of the project to pursue LEED-ND certification?

13. Have you encountered any obstacles during local permitting for the project that are due to the green aspects of the project?
APPENDIX C: RIVER OAKS TNC LEED-ND EVALUATION MATRIX
## APPENDIX D: RIVER OAKS TNC LEED-ND EVALUATION MATRIX

### Smart Location & Linkage

<table>
<thead>
<tr>
<th>Prereq</th>
<th>Required</th>
<th>Smart Location &amp; Linkage</th>
<th>31 Points Possible</th>
<th>Region Specific/urban bias</th>
<th>ROII</th>
<th>possibility of point buying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prereq 1</td>
<td>yes</td>
<td>Smart Location</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Prereq 2</td>
<td>yes</td>
<td>Proximity to Water and Wastewater Infrastructure</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Prereq 3</td>
<td>yes</td>
<td>Imperiled Species and Ecological Communities</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Prereq 4</td>
<td>yes</td>
<td>Wetland and Water Body Conservation</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Prereq 5</td>
<td>yes</td>
<td>Agricultural Land Conservation</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Prereq 6</td>
<td>yes</td>
<td>Floodplain Avoidance</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td></td>
</tr>
</tbody>
</table>

### Credit 1: Brownfield Redevelopment

| Required | 2 0 | yes | no |

### Credit 2: High Priority Brownfields Redevelopment

| Required | 0 | yes | no |

### Credit 3: Preferred Locations

| 2-10 | 0 | yes | no |

### Credit 4: Reduced Automobile Dependence

| 1-8 | 2 | yes | no |

### Credit 5: Bicycle Network

| 1 | 1 | yes | yes |

### Credit 6: Housing and Jobs Proximity

| 3 | yes | no |

### Credit 7: School Proximity

| 7 | yes | no |

### Credit 8: Wetland and Water Body Conservation

| yes | yes |

### Credit 9: Agricultural Land Conservation

| yes | no |

### Credit 10: Floodplain Avoidance

| yes | no |

### Credit 11: Conservation Management of Habitat or Wetlands

| yes | yes |

### Credit 12: Open Community

| maybe | no | no |

### Credit 13: Compact Development

| yes | yes |

### Credit 14: Diversity of Uses

| yes | no |

### Credit 15: Diversity of Housing Types

| yes | no |

### Credit 16: Affordable Rental Housing

| no | yes |

### Credit 17: Affordable For-Sale Housing

| no | yes |

### Credit 18: Reduced Parking Footprint

| no | yes |

### Credit 19: Walkable Streets

| yes | no |

### Credit 20: Street Network

| yes | no |

### Credit 21: Transit Facilities

| yes | yes |

### Credit 22: Transportation Demand Management

| yes | yes |

### Credit 23: Access to Surrounding Vicinity

| no | yes |

### Credit 24: Access to Public Spaces

| no | no |

### Credit 25: Access to Active Public Spaces

| no | no |

### Credit 26: Universal Accessibility

| yes | yes |

### Credit 27: Community Outreach and Involvement

| no | no |

### Credit 28: Local Food Production

| yes | yes |

### Credit 29: Construction Activity Pollution Prevention

| no | no |

### Credit 30: Certified Green Buildings

| yes | yes |

### Credit 31: Energy Efficiency in Buildings

| no | yes |

### Credit 32: Reduced Water Use

| yes | no |

### Credit 33: Building Reuse and Adaptive Reuse

| yes | no |

### Credit 34: Minimize Site Disturbance through Site Design

| no | yes |

### Credit 35: Minimize Site Disturbance during Construction

| yes | yes |

### Credit 36: Contaminant Reduction in Brownfields Remediation

| yes | yes |

### Credit 37: Stormwater Management

| no | no |

### Credit 38: Heat Island Reduction

| no | no |

### Credit 39: Solar Orientation

| yes | no |

### Credit 40: On-Site Energy Generation

| no | yes |

### Credit 41: On-Site Renewable Energy Sources

| no | yes |

### Credit 42: District Heating and Cooling

| no | yes |

### Credit 43: Infrastructure Energy Efficiency

| yes | no |

### Credit 44: Wastewater Management

| no | yes |

### Credit 45: Recycled Content in Infrastructure

| no | yes |

### Credit 46: Construction Waste Management

| no | yes |

### Credit 47: Comprehensive Waste Management

| no | yes |

### Credit 48: Light Pollution Reduction

| no | no |

### Credit 49: Innovation in Design

| 1-5 | 2 | no | no |

### Credit 50: LEED Accredited Professional

| 1 | 1 | 106 total | 16 | 5 | 12 | 46 total | 63 | LEED-ND FROM A PLANNING PERSPECTIVE | Certification Levels: | Certified 40-49 points | Silver 50-59 points | Gold 60-79 points | Platinum 80-106 points |
APPENDIX D: RIVER OAKS TNC LEED-ND CREDIT ANALYSIS DOCUMENT
River Oaks, the Next Chapter

Key

- Estate
- 4 D.U.
- Active Adult - 6 D.U.
- 8 D.U.
- 10 D.U.
- 12 D.U.
- 16 D.U.
- 30 DU
- Open Space
- Recreation
- Neighborhood Recreation
- Hospitality
- Community Facility
- School
- Detention Basin

Source: Wallace Group
The purpose of this document is to examine LEED-ND standards by applying them to a master planned community in Paso Robles, California: River Oaks, the Next Chapter (TNC). River Oaks TNC is a 270 acre primarily residential development with community amenities including a community conference center, health and fitness spa, recreational facilities, a golf course, and a hotel/restaurant. The site is located just northeast of Paso Robles downtown, completing the City’s northern buildout. The Paso Robles downtown commercial district is approximately 1.7 miles from River Oaks TNC. The site is also just east of Paso Robles’ “Uptown” specific plan boundary which contains a variety of community amenities. Though the project site is close to the downtown and uptown areas of Paso Robles, it is physically disconnected to these areas by Hwy 101 and the Salinas River which run north-south. A number of residential developments exist east of the Salinas River. River Oaks TNC is an extension of the adjacent development River Oaks I, a residential development that contains an elementary school and golf course. In addition to the amenities within River Oaks I, the project is within walking distance to a community college and a new retail center that is being built to LEED Silver certification standards. River Oaks TNC will provide additional housing capacity, recreational facilities and hospitality services without requiring the extension of City utilities or infrastructure. 

The document is organized into the three main sections of the LEED-ND rating system, Smart Location and Linkage, Neighborhood Pattern and Design, and Green Construction and Technology. The fourth LEED-ND section, Innovation and Design Process, was not evaluated as part of this study. Each LEED-ND credit is discussed in terms of its applicability and feasibility for River Oaks TNC. Each spread is dedicated to at least one credit, organized into three headings. The LEED-ND credit requirements are listed under the heading “Standard”; the second section under the heading, “Meeting the Criteria”, discusses how River Oaks TNC could meet the credit requirements; under the third heading, “Credit Analysis”, a brief evaluation of the credit is provided in terms of its effectiveness as a green development standard.
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SMART LOCATION AND LINKAGE
**Smart Location and Linkage**

**SLL Prerequisite 1: Smart Location**

**Intent:** Encourage development within and near existing communities or public transportation infrastructure. Reduce vehicle trips and miles traveled and support walking as a transportation choice.

**Standard:**

Option 2: Locate the project near existing or planned adequate transit service so that at least 50% of dwelling units and business entrances within the project are within 1/4 mile walk distance of bus or streetcar stops or within 1/2 mile walk distance of bus rapid transit stops. In case of planned service, show that the relevant transit agency has committed in a legally binding warrant that adequate transit service will be provided at or before the beginning of the transit agency’s first service year after 50% of the dwelling units and/or businesses within the project are occupied and has identified all funding necessary to do so;

OR

Option 3: Locate the project near existing neighborhood shops, services, and facilities so that the project boundary is within 1/4 mile walk distance of at least four, or within 1/2 mile walk distance of at least six, of the diverse uses defined in Appendix A.

**Meeting the Criteria:**

Both the provision of public transit service and close proximity of the site to community amenities makes River Oaks TNC a sustainable site. One existing transit stop exists just beyond the project site and at least 2-3 additional transit stops are planned within the project site. All proposed stops are within at least a 1/4 mile walk distance of at least 50% of residences and non-residential facilities. Option 2 alone would qualify River Oaks TNC for the SLL pre-requisite.

In addition to Option 2, Option 3 criteria may also be feasible to meet, though at the time of this study only two existing amenities are within 1/4 mile walking distance of the project boundary, the elementary school and the community college. The River Oaks retail center, located in the adjacent development will provide at least four commercial amenities, including a grocery, laundry/dry cleaning, medical/dental office and restaurant. The retail center is within 1/2 mile walking distance of the project boundary. Additionally, within River Oaks II itself, several community amenities would be built as part of the project, including a community/civic center, a fitness center, a spa, hotel and restaurant, though they would not count towards this credit as they would not be pre-project amenities. To achieve option three, a 1/2 mile walking distance to six amenities would be more feasible for River Oaks II than a 1/4 mile to four amenities.

To increase walkability to the commercial uses in downtown and uptown Paso Robles, the city of Paso Robles is working with Caltrans and Paso Robles citizens on the Hwy 46E improvement project to devise a plan that would increase pedestrian/bicycle connectivity along Hwy 46E between downtown Paso Robles (West of Salinas River) and the residential neighborhoods to the east of the Salinas River (Figure SP-1.2). In addition, The Salinas River Vision plan, currently underway, and the Downtown and Uptown specific plan being devised by renowned urbanists, Moules and Polyzoides, are highly focused on increasing walkability throughout the City’s core and residential areas. These three initiatives together will be a strong force to increase pedestrian connectivity between the City’s core and the residential neighborhoods which are divided by the Salinas River and Hwy 101.

Figure SP-1.1 illustrates the project site in relationship to nearby transit stops and community services and amenities. The pink shaded area is a 1/2 mile radius of the project boundary. Within the radius are schools, the new River Oaks retail shopping center, and additional amenities in Uptown Paso Robles, west of the Salinas River. Table SP-1.1 shows walking/biking miles between residential nodes within River Oaks TNC and nearby amenities.

<table>
<thead>
<tr>
<th>NODES</th>
<th>PEDESTRIAN / BIKE ROUTE TO DIVERSE USES</th>
<th>Distance in miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4</td>
<td>Western residential node to Kermit Elementary</td>
<td>0.52</td>
</tr>
<tr>
<td>2 - 3</td>
<td>Eastern residential node to Kermit Elementary</td>
<td>0.33</td>
</tr>
<tr>
<td>1 - 5</td>
<td>Western residential node to the River Oaks retail center</td>
<td>0.89</td>
</tr>
<tr>
<td>2 - 5</td>
<td>Eastern residential to River Oaks retail center</td>
<td>0.54</td>
</tr>
<tr>
<td>1 - 6</td>
<td>Western residential node to Cuesta College</td>
<td>0.89</td>
</tr>
<tr>
<td>2 - 6</td>
<td>Eastern residential node to Cuesta College</td>
<td>0.54</td>
</tr>
<tr>
<td>1 - 7</td>
<td>Western Node to Uptown Paso via Buena Vista Drive and Hwy 46</td>
<td>2.04</td>
</tr>
<tr>
<td>2 - 7</td>
<td>Eastern Node to Uptown Paso via River Road and Hwy 46</td>
<td>1.69</td>
</tr>
</tbody>
</table>

**Prerequisite Analysis:**

The Smart Location prerequisite would be easily attainable for projects that are in a more urban setting, such as urban infill or redevelopment projects. Fortunately, River Oaks is located within an area that is just at the tipping point of transitioning from a rural town to a more densely populated city; therefore, the population density is high enough to support a growing public transit system. While the city is experiencing urbanization, preserving its rural character is of high importance to local residents and policymakers, which places tension on developing in a compact manner. In setting this smart location criteria helps to define River Oaks II as being a connected project, providing needed housing and commercial services, not contributing to sprawl or leap-frog development. On the other hand, projects that are located in growing rural towns, that don't have the population density to support public transit or commercial amenities, but are leading the way for their region in green development, would not be able to qualify for LEED-ND certification (see Appendix D, Mountain Side Village CIR)

River Oaks, TNC is located adjacent to “uptown” Paso Robles, and the Salinas River Corridor, both of which are special projects of the City for future enhancement. Therefore, residents of River Oaks, over time, will be at an advantage as nearby amenities and walkability is enhanced. This pre-requisite could improve by allowing projects to count planned future commercial amenities towards qualifying for Option Three.

Figure SP-1.2: Proposed bridge over the Salinas River and Hwy 101

Source: Salinas River Corridor Vision, City of Paso Robles
Smart Location and Linkage

SLL Prerequisite 1: Smart Location

Figure SP-1.1: River Oaks TNC smart location and linkage map, shows diverse uses and connectivity from within the project site.

Source: City of Paso Robles Planning Department and Wallace Group
**Intent:** Encourage new development within and near existing communities in order to reduce multiple environmental impacts caused by sprawl. Conserve natural and financial resources required for construction and maintenance infrastructure.

**Standard:**

Option 2: Locate the project within a legally adopted planned water and wastewater service area and provide new water and wastewater infrastructure.

**Meeting the Criteria:**

The project boundary is adjacent to Paso Robles existing water and wastewater connections. The wastewater treatment facility is also adjacent to the project boundary, west of the Salinas River. Due to the close proximity of the project to the wastewater treatment plant, it will be an early candidate for reclaimed water, should it become available. Both water and wastewater infrastructure within the site will be constructed as part of the project, financed by the developer. Through Option Two, River Oaks II would meet this prerequisite.

Figure 2.1 and 2.2 illustrate the project boundary in relationship to nearby existing water and wastewater infrastructure as well as proposed infrastructure within the site.

**Figure SP-2.1: River Oaks TNC Water Infrastructure**

*Source: Wallace Group*
Credit Analysis:

Implicit in this credit is the effort to prevent sprawling suburban development that is not connected to existing utilities and infrastructure, creating a financial burden on cities to extend utilities and services. This credit helps to define River Oaks as a project that is not contributing to sprawl, as the City of Paso Robles’ existing sewer and water connections are adjacent to the project site; no water or sewer infrastructure will need to be financed by the City as a result of this project.
Intent: Protect imperiled species and ecological communities

Standard:
Check with the state Natural Heritage Program, and any local wildlife agencies to determine if species listed under the federal Endangered Species Act, the state's endangered species act, or species or ecological communities classified by NatureServe as G1 (critically imperiled) or G2 (imperiled), have been found on the site or have a high likelihood of occurring on the site due to the presence of suitable habitat and nearby occurrences. If no such species have been found or have a high likelihood of being present, the prerequisite is achieved. If any such species have been found or have a high likelihood of being present, meet the requirements of Option 1 or Option 2 set forth below.

OPTION 1
Comply with an approved Habitat Conservation Plan (HCP) under the Endangered Species Act for each identified species or ecological community; OR

OPTION 2 If no approved HCP exists for an identified species or ecological community, then coordinate with the state's Natural Heritage Program or fish and wildlife agency to perform adequate surveys of imperiled species and ecological communities. If a survey finds that an imperiled species or ecological community is present, the project applicant shall do the following:

a. Work with a qualified biologist, a non-governmental conservation organization or the appropriate state, regional or local agency to identify and map the geographic extent of the habitat and identify an appropriate buffer of no less than 100 feet around the habitat that ensures the protection of the imperiled species or ecological community.
b. Protect the habitat and buffer or setback area from development in perpetuity by donating or selling the land or a conservation easement on the land to an accredited land trust or relevant public agency.
c. Work with ecologists to analyze the threats from development of the proposed project and develop a management plan that eliminates or significantly mitigates the identified threats.

Meeting the Criteria:
Information on endangered species, or imperiled/ special status species and habitat for the project site and vicinity was found in a 2007 biological report by Althouse and Meade. It is based on biological studies and surveys conducted on the site during 1999, revised in 2001 and updated with current information of existing conditions in 2007. Floristic and wildlife surveys of the property were conducted in 1999, 2000, 2001 and 2007.

Potential habitat for three Federally Endangered animals and one Federally Threatened animal exists within the site and surrounding vicinity; though one of the three endangered species would be unlikely to occur. Potential habitat exists within the project boundary for one G1 species and three G2 species. Altogether, potential habitat may exist on the site for eight special status plant and animal species (defined in this credit as listed under the federal Endangered Species Act, the state's endangered species act, or species classified by NatureServe as G1 or G2) (See Appendix B for list of species). Of these eight species, only four are likely to occur, while the other four are unlikely to occur according to the Althouse and Meade Biological Study. Of the four that are likely to occur, three of the species would find habitat in the Salinas River Riparian Corridor. The remaining one species, the San Joaquin Kit Fox would find habitat in the annual grasslands.

Figure SP-1.1 shows the areas where conditions for these habitats exist in relation to the proposed development. Because potential habitat may exist for several special status species within the project boundary, option one or two would need to be achieved to qualify for this pre-requisite. At the time of this study no known HCP for identified special status species listed above existed for the project vicinity. In 2008 funding was provided by the US Fish and Wildlife Service for the San Luis Obispo North East County Regional HCP / NCCP. It is unknown at the time of this study whether or not the project site would be included in the HCP. If, at a future time, an HCP does include the project area, option one may be pursued. Otherwise option two could be achieved as follows:

Since the majority of the special status species’ potential habitat (of those that are likely to occur) is within the Salinas River Riparian Corridor that habitat would need to be protected in perpetuity. The land that contains the habitat is being deeded to the City of Paso Robles. The Salinas River riparian habitat will not be impacted by development under the current site plan. Project development is at least 200 feet from riparian vegetation and is separated by a steep drop in elevation (the project sits at least 200 feet in elevation above the Salinas River, which is in a revine). A proposed sports field adjacent to the Salinas River would not remove riparian vegetation or occupy areas below the top of the existing bank. The majority of the sports field site is agrestal, where the native habitat has already been altered. In order not to disturb existing nearby riparian habitat and wildlife the following Low Impact Development standards should be in place:

- The fields will not have night lighting.
- The use of nitrogen fertilizer should be minimized so as not to impact water quality of the Salinas River.
- Maintenance of turf shall limit the use of herbicides or eliminate them completely, using alternative methods of pest control.

48 acres of grassland habitat may be suitable habitat for the federally endangered Kit Fox. This area in the project is sited for medium density residential development. The Althouse and Meade Biological Study determined that no significant impact to the Kit Fox habitat would result from the development activity as long as mitigation measures are carried out. Mitigation measures to offset the impact to Kit Fox habitat will be identified through the CEQA process. See Appendix C for recommended mitigation measures from the Althouse and Meade biological study.

Credit Analysis:
Through the CEQA process, environmental impacts of the project will be identified and mitigation measures will be provided. At the time of this report the project was undergoing the “initial study” period of CEQA. The Imperiled Species and Ecological Communities prerequisite is the first of a series of credits to follow which do not consider existing environmental regulations that would already be in place where a project is being proposed. The criteria in this prerequisite could better serve a project in California if it took into account the CEQA process. Still, the criteria set forth in this credit is beneficial in that it encourages specific actions to take place in order to address the impacts of development on imperiled and special status species and habitat. As CEQA is only a “disclosure tool” that identifies impacts and mitigation measures, but does not require cities to reject projects based on the findings, the LEED-ND criteria could provide participants with the incentive to follow through with mitigation.
SLL PREREQUISITE 3: IMPERILED SPECIES AND ECOCLOGICAL COMMUNITIES

RIVER OAKS, THE NEXT CHAPTER

Figure SP-3.1: ROII land uses in black outline layered over habitat map produced by Althouse and Meade's Biological Study

Source: Wallace Group

LEGEND

- AGRESTAL (DRYLAND GRAIN)
- RIPARIAN (SALINAS RIVER)
- OAK WOODLAND/OAK TREE
- WETLAND
- ANNUAL GRASSLAND
- ANTHROPOGENIC
- RUDERAL

Source: Wallace Group
Smart location and linkage

SLL Prerequisite 4: Wetland and Water Body Conservation

Intent: Conserve water quality, natural hydrology and habitat and preserve biodiversity through conservation of water bodies or wetlands.

Standard:

Option 3: If the project is located on a site that includes wetlands, water bodies, or land within 100 feet of these areas, and if local, state and federal regulations permit impacts to any on-site wetlands, water bodies, or buffer land that is within 100 feet of these areas, limit any impacts to no less than the percentage of these areas reflected in either one of the two following tables, and compensate by on-site or off-site wetland restoration. The portion of the site that is impacted must incorporate stormwater best management practices within the impacted area to infiltrate, re-use, or evapotranspire at least 90% of the average annual rainfall or 1" of rainfall from 75% of the development footprint within the impacted area.

<table>
<thead>
<tr>
<th>Street grid density within a 1 mile radius from the perimeter of the site boundary</th>
<th>Percentage of on-site impacts allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;20</td>
<td>15</td>
</tr>
<tr>
<td>10-20</td>
<td>10</td>
</tr>
<tr>
<td>&lt;10</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Residential density (DU/acre)</th>
<th>Non-residential density (FAR)</th>
<th>Percentage of on-site impacts allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;20</td>
<td>&gt;1.0</td>
<td>15</td>
</tr>
<tr>
<td>10-20</td>
<td>.75 - 1.0</td>
<td>10</td>
</tr>
<tr>
<td>&lt; 10</td>
<td>&lt; .75</td>
<td>5</td>
</tr>
</tbody>
</table>

Meeting the Criteria:

The Althouse and Meade Biological Report identifies two wetlands within the project boundary. The largest wetland area exists at the western edge of the boundary, within the low flow channel of the Salinas River. As stated previously, development is limited to areas that are at least 200 feet from the Salinas River and significantly higher in elevation. A sports field will be the only use of the land adjacent to the Salinas River. The sports field will not disturb Salinas River wetland areas as it is planned to be mainly on the agrenal land adjacent to the river’s higher flow channel.

The small man-made pond in the southern part of the project is identified as a wetland. It was originally constructed in the 1960s as a drainage project and continues to serve as an ephemeral drainage that connects to the Salinas River. It is surrounded by manicured lawns which are periodically used to stage events. The area surrounding the pond will be used as a golf course in the new River Oaks II neighborhood, expanding on the existing golf course in River Oaks I. The pond currently supports wetland vegetation. Golf course maintenance should be low impact, using alternative methods of fertilization and pest control so as not to harm the existing wetland habitat in the pond and protect water quality. The existing conceptual plan shows two small areas of possible site disturbance which are within the 100 foot buffer zone of the pond. The impact to the wetland will be addressed through the CEQA process. In addition, the Regional Water Quality Control Board may require permits for work that would affect drainages and wetlands, under their “Salinas River Watershed Management Action Plan”.

Within a one mile radius of the project perimeter the street grid density is 8.3. Thus, according to the matrix in this standard, no more than 5% of the wetland area could be impacted by development, to achieve this pre-requisite (see appendix D for street grid density map and calculation). There are no planned impacts to wetlands and drainages due to development. Stormwater best management practices, adopted by the City of Paso Robles, will be adhered to in the construction of the River Oaks II drainage system.

The project will increase the overall water quality through LID drainage concept, along the roadways, in open space areas and in the proposed drainage basins. River Oaks II should be able to meet this prerequisite.

Credit Analysis:

The Wetland and Water Body Conservation prerequisite does not describe the nexus between a higher street grid density and percentage of impacts allowed to wetlands and water bodies. It is presumable that the nexus is that denser developed areas would have less natural hydrology, thus impacts in dense urban areas would be harder to address than in more rural areas. But the point system in this credit incentivizes impacts to wetlands in denser urban areas. Further clarification of the point system u.
Figure SP-4.1: Map of Wetlands with 100 foot buffer and proposed land uses of River Oaks II

Source: City of Paso Robles Planning Department and Wallace Group
Intent: Preserve irreplaceable agricultural resources by protecting prime and unique farmland and forest lands from development.

Standard:

OPTION 1
Locate the project such that the site contains no more than 25% prime soils, unique soils, or soils of state significance as identified in a state Natural Resources Conservation Service soil survey;

OR

OPTION 2: Locate the project such that it meets the requirements specified in Options 1, 2, or 3 of SLL Prerequisite 1.

OR

OPTION 4 – FOR REGIONS WITH AN ABUNDANCE OF PRIME AGRICULTURAL LAND
If the project is located within a metropolitan or micropolitan statistical area for which 75% or more of the total vacant land, including infill sites, is covered by prime soils, unique soils, or soils of state significance, and is on an adjacent site, then the prerequisite is not applicable. If the project does not lie in an established metropolitan or micropolitan statistical area, then the county boundary may serve for the purposes of the calculation.

Meeting the Criteria:

The project site contains land that was previously cultivated for dry grain crops. Approximately 138 acres were cultivated in 2007. The cultivated land did not contain prime soil. Approximately 38.75 acres of land on site are identified as containing prime soil by the USDA soil science survey for the Paso Robles Region (Figure SP-5.1). This said, land is only considered prime farm land if it is irrigated, which in this case it has not been irrigated. Total site area is approximately 250 acres, thus on site prime soil only accounts for 16% of the total acreage, which would satisfy option 1 of this prerequisite.

In addition to the site not containing a significant amount of prime soil, the project adds 26 acres of irrigated agriculture in the areas sited as “sustainable vineyard”. This use is consistent with the City’s new “Purple Belt” program which is intended to promote and enhance the viticulture heritage of the Paso Robles region. A portion of the land sited for viticulture is along the northern boundary; its location would serve as a buffer between development and ag land that extends north of the project into County areas. A 300 foot buffer between agricultural land and residential development is required by the City of Paso Robles.

Credit Analysis:

In San Luis Obispo County between 1984 and 2004, there was a decrease of 115,674 acres of “Important Farmland” acreage (FMMP, 2008). Loss of agricultural land to development has become a growing issue in our County as for the entire state of California. Between 1992 and 2004, 6,321 acres of land used for agricultural purposes was converted to urban use. Thus, preserving farmland is an important and timely issue and is appropriately addressed through this LEED-ND prerequisite.
Figure SPS-1: River Oaks TNC land uses and soil types

Source: City of Paso Robles Planning Department and Wallace Group
**Smart Location and Linkage**

**SLL Prerequisite 6: Floodplain Avoidance**

**Intent:** Protect life and property, promote open space and habitat conservation, and enhance water quality and natural hydrologic systems.

**Standard:**

Option 3: For projects where part) of the site is located within the 100-year floodplain as defined and mapped by FEMA or state or local floodplain management entity, whichever has been done most recently, develop only on portions of the site that are not in the 100-year floodplain or on portions that have been previously developed.

**Meeting the Criteria:**

Figure SP-6.1 shows the 100 year floodplain mapped by FEMA in relation to the project site. As part of the project, a sports field is proposed in the floodplain, though no structures will be built there. The property boundary extends into the floodplain, but the floodplain is at least 200 feet in elevation below the area that is being planned for development, thus there is a natural buffer created by the elevation difference. The only activity that would be in the floodplain is a proposed sportsfield. Prerequisite 6 would be satisfied so long as a 'sportsfield' would not be considered 'development'.

**Credit Analysis:**

This prerequisite is straightforward. Most cities have land use regulations that regulate and/or limit building in the 100 year floodplain.
Intent: Encourage the reuse of land by developing sites where development is complicated by environmental contamination, reducing pressure on undeveloped land (SLL 1). Encourage the cleanup of contaminated brownfields sites in areas targeted for development (SLL2).

Standard:

SLL Credit 1 Brownfields Redevelopment:
Locate project on a site, part of which is documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program) OR on a site defined as a brownfield by a local, state or federal government agency

AND

Remediate site contamination such that the controlling public authority approves the protective measures and/or clean-up as effective, safe, and appropriate for the future use of the site.

SLL Credit 2 High Priority Brownfields Redevelopment:
Earn SLL Credit 1: Brownfields Redevelopment, using a site that is in one of the following areas:
• Federal Empowerment Zone
• Federal Enterprise Community
• Federal Renewal Community
• Communities with Official Recognition (OR) from the Department of Justice for their Weed and Seed Strategy
• Qualified Low-Income Communities (LICs) as defined by the New Markets Tax Credit (NMTC) Program of the U.S. Department of the Treasury - Community Development Financial Institutions Fund (CDFI). Brownfield sites in areas identified by state level equivalent programs to those listed above will also qualify.

Meeting the Criteria:

Neither of these SLL credits are applicable to River Oaks TNC as the project site is not located on a brownfield site. The project site is not located on a brownfield. There are no known brownfield sites in Paso Robles. No points would be earned for either credits.

Credit Analysis:

The Brownfields Redevelopment Credits could be problematic because they reward projects that happen to be in regions where brownfield sites exist. Local developers in areas where there are no brownfields would never have the opportunity to do brownfield redevelopment, yet their “green” project may be highly exemplary, worthy of gold or platinum certification, utilizing local opportunities for green development.

In order to reward projects that redevelop brownfields where they exist and at the same time not penalize projects that do not develop on brownfields where they do not exist, LEED should make the credits applicable to projects that are within City boundaries or within a determined radius that contain brownfields, and exempt projects that are within this boundary which do not contain brownfield sites.
Smart location and linkage

SLL Credit 3: Preferred Locations

2-10 points

Intent: Encourage development within existing communities and developed places to reduce multiple environmental harms associated with sprawl. Reduce development pressure beyond the limits of existing development. Conserve natural and financial resources required for construction and maintenance of infrastructure.

Standard:

Locate the project in one of the following locations that also earns at least one point for street grid density according to the calculation below:

- An infill site that is also a previously developed site (6 pts)
- An infill site that is not a previously developed site (4 pts)
- An adjacent site that is also a previously developed site (3 pts)
- A previously developed site that is not an adjacent or infill site (2 pts)
- An adjacent site that is not a previously developed site (1 pt)

AND

Calculate the street grid density (in street centerline miles per square mile) within a 1 mile radius from the perimeter of the site boundary. Points are added to the above points according to the following street grid density:

- 40 centerline miles per square mile or greater (4 points)
- 30-39 centerline miles per square mile (3 points)
- 20-29 centerline miles per square mile (2 points)
- 10-19 centerline miles per square mile (1 point)

Meeting the Criteria:

River Oaks TNC is an adjacent site that has minimal existing development. The street grid density within a one mile radius from the perimeter of the site was calculated at 8.3 centerline miles per one square mile, this is not including the street network proposed in River Oaks II. Unless the street grid density calculation could result in a higher number by including River Oaks II street network, this credit would not be attainable.

River Oaks II completes the City’s northern buildout to the City limits and provides additional housing capacity, recreational facilities and hospitality services without requiring the extension of City utilities or infrastructure beyond its existing extent. Though River Oaks II is in a preferred location, within city boundaries and within close proximity to community amenities and services, and adjacent to existing developed areas, it is not defined as such in this credit.

Credit Analysis:

The intention of this credit is good, but it does not recognize the special circumstances of projects like River Oaks II which are located in semi-rural, growing towns and are not contributing to sprawl.

It is important to note that the River Oaks site is not a virgin piece of land, untouched by human impacts. Of the project’s 250 acres, 138 acres were previously cultivated with dry grain crops, altering the natural state of the land immensely. The site also contains a hot springs, spa facility and a house site. The project site boundary is coterminous with the City’s northern boundary. Beyond the northern boundary and East of the project is mostly agricultural land. A 300 foot buffer between residential development and agricultural land is required by the City to relieve development pressure on those lands as well as to provide protection to residents from harm caused by agriculture practices. The River Oaks II site is one of the most suitable sites for this kind of development, considering the need to preserve outlying areas for agricultural production and open space.

This credit fails to address green projects in semi-rural settings, in towns that are rapidly growing but aren’t yet densely urban.
Figure S3-1: Street Grid Density within one mile radius of project boundary

Source: City of Paso Robles Planning Department and River Oaks the Next Chapter Visoning Document
SMART LOCATION AND LINKAGE

SLL CREDIT 4: REDUCED AUTOMOBILE DEPENDENCE

Intent: Encourage development in locations that exhibit superior performance in providing transportation choices or otherwise reducing motor vehicle use.

Standard:

OPTION 1
Locate the project on a site with transit service of 20 or more easily accessible transit rides per week day. The number of points available for increasing transit service is indicated in the table below (insert). The total number of rides available during weekdays is defined as the number of buses or streetcars stopping within a 1/4 mile walk distance of at least 50% of the project’s dwelling units and business entrances.

<table>
<thead>
<tr>
<th>Total rides available per weekday</th>
<th>Points earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 59</td>
<td>2</td>
</tr>
<tr>
<td>60 – 99</td>
<td>3</td>
</tr>
<tr>
<td>100 – 224</td>
<td>4</td>
</tr>
<tr>
<td>225 – 349</td>
<td>5</td>
</tr>
<tr>
<td>350 – 499</td>
<td>6</td>
</tr>
<tr>
<td>500 or more</td>
<td>7</td>
</tr>
</tbody>
</table>

OPTION 2
Locate project within a region served by a Metropolitan Planning Organization AND within a transportation analysis zone where annual Vehicle Miles Traveled (VMT) per capita or single occupancy vehicle (SOV) driving mode share has been demonstrated by MPO research derived from a household transportation survey to be no more than 80% of the average of the metropolitan region as a whole. The research must be derived from transportation surveys conducted within ten years of the date of submission for LEED for Neighborhood Development certification. Additional credit may be awarded for increasing levels of performance, as indicated;

OPTION 3
Locate the project such that 50% of the dwelling units and business entrances are within a ¼ mile walk distance of at least one vehicle that is available through a vehicle-sharing program, and publicize the availability and benefits of the vehicle-sharing program to project occupants. If the project will add more than 100 dwelling units and/or employees to the neighborhood, at least one additional vehicle for every 100 dwelling units and/or employees must be available and the parking space must be dedicated as part of the project. Where new vehicle locations are created, a vehicle share program must commit to providing a vehicle to the location for at least three years. (1 point)

Points earned under Options 1 and 2 may not be combined. A point from Option 3 may be earned independently, or be added to those earned under Options 1 and 2 for a maximum of 8 points.

Meeting the Criteria:

Existing transit service to the River Oaks project area will be increased, adding at least 2-3 new transit stops within the River Oaks II project. The proposed stops are located near residential neighborhoods and the commercial and recreational centers. (see Figure S-4)

Existing transit service is provided by the North County Shuttle, which travels between the Cuesta College campus, adjacent to River Oaks II, and Atascadero. The North County Shuttle provides 12 trips per weekday, beginning at 8:05am and every hour thereafter until 7:05pm. The number of rides that will be available with the increased service and additional stops has not been determined. To earn a minimum of two points for option 1 the new stops should provide at least 20-59 rides per weekday.

Meet additional alternative transportation and infrastructure that residents would utilize as part of life in River Oaks II include, designated walking and biking trails, and Neighborhood Electric Vehicles (NEVs). Walking and biking trails will be provided throughout the project, connecting residents to the retail center, Kermit King Elementary school and Cuesta Community College. The NEVs provide residents with a non-carbon emitting transportation choice for local trips. There is also potential for a park and ride lot, which would provide yet another option, encouraging folks to use public transit.

Credit Analysis:

The strength of this credit is in having three different ways to achieve points. Option 1 would be feasible to achieve for River Oaks II, but unlike option 3, which links the amount of dwelling units to the number of shared vehicles that must be provided, option 1 does not link added dwelling units to number of transit rides available. There is no nexus created between the amount of people that will be added to an area because of the new development and the proportionate amount of transit rides available. It may be more beneficial to base the number of transit rides on the number of increased potential ridership due to the size of the project.

Option 1, as stated, serves to reward larger projects that can provide the amount of ridership that would be necessary to increase service. Small projects, for example one that would add ten new households, would not be able to increase rides available to 500 or more because there wouldn’t be enough demand for that kind of service if it weren’t surrounded by highly dense development. In this way the credit rewards larger projects or projects in dense urban areas over smaller projects, especially smaller projects in semi-rural areas.

Thus, option 1 should be geared towards rewarding projects based on the provision of a number of transit rides per weekday proportionate to the number of people that will be added as the result of a project. For example, River Oaks II will add 924 units, which would be approximately 338 new households, or 2500 new people to the area. Added transit service should be determined based on the created demand from the additional people being added to the area.
Figure S-4: Public transit, existing and proposed for River Oaks II, in relation to land uses and schools.

Source: City of Paso Robles Planning Department and Wallace Group
LEED-ND CASE STUDY

SMART LOCATION AND LINKAGE

SLL CREDIT 5: BICYCLE NETWORK

1 POINT

Intent: To promote bicycling and transportation efficiency.

Standard:

Design or locate the project such that 50% of the dwelling units and business entrances are within 3 miles of at least four or more of the diverse uses listed in Appendix A using an existing biking network and/or a biking network that will be completed as part of the project (3 mile distance is measured along the biking network, not as a straight radius);

AND

For any non-residential buildings and multifamily residential buildings that are part of the project, provide bicycle parking spaces or storage for a capacity of no less than 15% of the off-street parking space capacity provided for cars for those buildings.

Meeting the Criteria:

This credit would be feasible for River Oaks II, as the circulation plan incorporates a bicycle network within the project, and at least 50% of the dwelling units are within three miles of at least four of the diverse uses listed in Appendix A (See table S5-1 for Bicycle Miles). The new River Oaks retail center in River Oaks I will provide residents with shopping and other amenities. Within the project will be a restaurant, fitness center, spa, community conference center and recreational facilities.

Bike parking would be provided at all non-residential facilities within the project. Approximately 85 bike parking spaces would be needed according to the LEED criteria. The nearby retail center in River Oaks I will be LEED certified, thus will also accommodate bike parking within its facilities. (See Table S5-2 for non-residential parking calculation). Multifamily bicycle parking will be based on the final number of multifamily units. The City requires two bike parking spaces per multifamily unit. If a third of the 10-12-16 du/acre units were 16 units/acre, along with the other 16 du/unit product, there would be a total of approximately 152 high density multi-family units in the project. According to the LEED calculation, the proportionate bicycle parking that should be provided for 152 multifamily units would be 55 spaces. That would bring the total to 140 spaces.

The major obstacle to bicycle connectivity to the rest of the town is access over the Salinas River and Highway 101. Three separate City initiatives in process while this study was being completed would increase pedestrian and bicycle access to downtown Paso Robles from the neighborhoods to the east of the river. (Initiatives include, the Salinas River Vision Plan, the Uptown Specific Plan, and the Highway 46E Improvements.

Credit Analysis:

Bicycle networks are essential for providing sustainable mobility in today's world. This is a very beneficial credit that can be attained by many projects with little extra effort. Bicycle amenities in residential projects are a great marketing device.

Another effective way to encourage residents to ride bicycles is to provide "community bikes" that can be checked out by residents at a local rec center or community center. They could be either free or cost just enough to cover bike maintenance costs. The City of Paso Robles or the San Luis Obispo Council of Governments would be two agencies that could help in funding or finding funds for a "community bike program".

Table S5-1: Bike distance between 50% of dwelling units and diverse uses

<table>
<thead>
<tr>
<th>NODES</th>
<th>Bike Routes</th>
<th>Distance in miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4</td>
<td>Western roundabout to Kermit Elementary</td>
<td>0.52</td>
</tr>
<tr>
<td>2 - 3</td>
<td>Eastern roundabout to Kermit Elementary</td>
<td>0.33</td>
</tr>
<tr>
<td>1 - 5</td>
<td>Western roundabout to Marketplace</td>
<td>0.89</td>
</tr>
<tr>
<td>2 - 5</td>
<td>Eastern roundabout to Marketplace</td>
<td>0.54</td>
</tr>
<tr>
<td>1 - 6</td>
<td>Western roundabout to Cuesta College</td>
<td>0.89</td>
</tr>
<tr>
<td>2 - 6</td>
<td>Eastern roundabout to Cuesta College</td>
<td>0.54</td>
</tr>
<tr>
<td>1 - 7</td>
<td>Western roundabout to commercial zone in Uptown</td>
<td>2.04</td>
</tr>
<tr>
<td>2 - 7</td>
<td>Eastern roundabout to commercial zone in Uptown</td>
<td>1.69</td>
</tr>
</tbody>
</table>

Table S5-2: Non-residential parking requirements and respective bike parking to be provided

<table>
<thead>
<tr>
<th>Non-Residential Use</th>
<th>Multiplication Factor</th>
<th>Required spaces per factor</th>
<th>addt'l spaces</th>
<th>Total required</th>
<th>15% of total (bike spaces)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitality</td>
<td>130 rooms</td>
<td>1.5</td>
<td>5</td>
<td>200</td>
<td>30</td>
</tr>
<tr>
<td>Conference center</td>
<td>10,000 sq. ft.</td>
<td>0.01</td>
<td>100</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Health and Fitness Center</td>
<td>15000 sq. ft.</td>
<td>0.01</td>
<td>150</td>
<td>22.5</td>
<td></td>
</tr>
<tr>
<td>Spa</td>
<td>8000 sq. ft.</td>
<td>0.01</td>
<td>80</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Restaurant</td>
<td>4000 sq. ft.</td>
<td>0.01</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td>85.5</td>
<td></td>
</tr>
</tbody>
</table>

Source: City of Paso Robles Planning Department and Wallace Group

Source: http://www.bloggingcopenhagen.net/images/maria/may06/bicycle.jpg
Figure S-5: Diverse uses and bike network of River Oaks II

Legend:
1. Residential Node
2. Residential Node
3. North Kermit Elementary
4. East Kermit Elementary
5. Cuesta Community College
6. River Oaks Commercial Retail
7. Paso Commercial Zone

- Bicycle network
- Possible Future access

River Oaks II

Legend:
1. Residential Node
2. Residential Node
3. North Kermit Elementary
4. East Kermit Elementary
5. Cuesta Community College
6. River Oaks Commercial Retail
7. Paso Commercial Zone

Source: City of Paso Robles Planning Department and Wallace Group
Intent: Encourage balanced communities with a diversity of uses and employment opportunities. Reduce energy consumption and pollution from motor vehicles by providing opportunities for shorter vehicle trips and/or use of alternative modes of transportation.

Standard:

OPTION 1
Include a residential component equaling at least 25% of the project’s total building square footage, and locate and/or design the project such that the center is within a 1/2 mile walking distance of a number of pre-project jobs equal to or greater than 50% of the number of dwelling units in the project;

Meeting the Criteria:

The residential component of River Oaks II is 97% of the total building square footage, which by far exceeds the minimum percentage needed to earn this credit, being 25%. According to the LEED housing-jobs calculation, 461 pre-project jobs would need to be within a 1/2 mi walking distance from the center of the project. At the time of this study, the River Oaks retail center, just .54 walking miles from the most dense residential node had not been completed. This project would provide a sizeable number of jobs within just over a 1/2 mi walking distance of the center of the project. The elementary school, which is within a 1/2 mi walking distance, provides a number of jobs. Additionally, Cuesta College, just over 1/2 mi walking distance, employs 170 people. Thus, River Oaks II would be very close to achieving this credit, under option one, if the jobs in the new retail center were counted as well.

Credit Analysis:

There are a number of considerations and variables to consider when determining how well a project connects housing to jobs and vice versa. Although the intention of the credit is very good and important, the criteria for achieving the intention are potentially inadequate. The jobs housing balance is an important objective for the SLO region as a whole and cities are beginning to recognize the need to create this balance. But, it is also recognized by the area MPO (SLOCOG) and its member jurisdictions that the jobs-housing balance has been difficult to achieve on a local level because employment and industry sectors are spread throughout the region, making it a regional job market, not necessarily several separate job markets based on local jurisdictional boundaries. It may never be the case that the majority of people who live in Paso Robles also work in Paso Robles simply because of the nature of the regional job market. Furthermore, the Jobs-housing balance becomes a question of “the chicken” (housing) or “the egg” (jobs) conundrum. Businesses can’t survive without a sufficient population to support them, thus the provision of more housing is important to increase the population base. On the other hand, people need businesses to be established to attract residents that want to live near jobs. Further study on the jobs-housing balance could be beneficial in refining this credit.

This credit sufficiently recognizes the importance of creating housing, by requiring at least 25% of the project to have a residential component. Option one requires a number of pre-existing jobs equal to or greater than 50% of the number of dwelling units in the project. This would be a jobs to housing ratio of .5. According to SLOCOG, using 2000 Census data, Paso Robles has a job-housing ratio of 1.26 (10,803 jobs/8,551 units), indicating that there are 1.26 jobs for every housing unit. A jobs-housing ratio over 1.5 is considered high and may indicate an increasing imbalance between jobs and housing, i.e. new residential construction has not kept up with job creation. Ravel time to work for Paso Robles residents as compared to the County as whole is less, indicating that the jobs to housing ratio for Paso is higher than that of the County’s.

In determining the jobs-housing ratio required for this credit, it may have been recognized that more and more people are telecommuting, working out of their home, therefore the decision to require only 5% jobs-housing ratio. River Oaks II would be “wired” for telecommuting, therefore providing another means of “getting to work”. Other methods of commuting to work that are viable options for River Oaks residents that do have a lengthy commute include vanpool, carpool, public transit, biking, and car sharing. For places like SLO, being a regional job market, a major focus should be on increasing the use of alternative modes of transportation to work, to reduce traffic on major thoroughfares. Transportation alternative incentives could be rewarded in this credit instead of the focus being on “walking distance” as the only measure.

Credit Analysis:

There are a number of considerations and variables to consider when determining how well a project connects housing to jobs and vice versa. Although the intention of the credit is very good and important, the criteria for achieving the intention are potentially inadequate. The jobs housing balance is an important objective for the SLO region as a whole and cities are beginning to recognize the need to create this balance. But, it is also recognized by the area MPO (SLOCOG) and its member jurisdictions that the jobs-housing balance has been difficult to achieve on a local level because employment and industry sectors are spread throughout the region, making it a regional job market, not necessarily several separate job markets based on local jurisdictional boundaries. It may never be the case that the majority of people who live in Paso Robles also work in Paso Robles simply because of the nature of the regional job market. Furthermore, the Jobs-housing balance becomes a question of “the chicken” (housing) or “the egg” (jobs) conundrum. Businesses can’t survive without a sufficient population to support them, thus the provision of more housing is important to increase the population base. On the other hand, people need businesses to be established to attract residents that want to live near jobs. Further study on the jobs-housing balance could be beneficial in refining this credit.

This credit sufficiently recognizes the importance of creating housing, by requiring at least 25% of the project to have a residential component. Option one requires a number of pre-existing jobs equal to or greater than 50% of the number of dwelling units in the project. This would be a jobs to housing ratio of .5. According to SLOCOG, using 2000 Census data, Paso Robles has a job-housing ratio of 1.26 (10,803 jobs/8,551 units), indicating that there are 1.26 jobs for every housing unit. A jobs-housing ratio over 1.5 is considered high and may indicate an increasing imbalance between jobs and housing, i.e. new residential construction has not kept up with job creation. Ravel time to work for Paso Robles residents as compared to the County as whole is less, indicating that the jobs to housing ratio for Paso is higher than that of the County’s.

In determining the jobs-housing ratio required for this credit, it may have been recognized that more and more people are telecommuting, working out of their home, therefore the decision to require only 5% jobs-housing ratio. River Oaks II would be “wired” for telecommuting, therefore providing another means of “getting to work”. Other methods of commuting to work that are viable options for River Oaks residents that do have a lengthy commute include vanpool, carpool, public transit, biking, and car sharing. For places like SLO, being a regional job market, a major focus should be on increasing the use of alternative modes of transportation to work, to reduce traffic on major thoroughfares. Transportation alternative incentives could be rewarded in this credit instead of the focus being on “walking distance” as the only measure.
Figure S-6.1: Map showing Paso Robles employers in 2000 and transportation options to jobs for River Oaks residents.

Source: City of Paso Robles Planning Department and Wallace Group
SMART LOCATION AND LINKAGE

SLL CREDIT 7: SCHOOL PROXIMITY

Intent: Promote public health through physical activity by facilitating walking to school. Promote community interaction and engagement.

Standard:

Include a residential component in the project that constitutes at least 25% of the project’s total building square footage; locate or design the project so that at least 50% of the project’s dwelling units are within 1/2 mile walk distance of an existing or planned school.

Meeting the Criteria:

The residential component of River Oaks TNC constitutes 97% of the total building square footage (Table S-7.1) of the project, which is much more than the required minimum of 25%.

River Oaks TNC is adjacent to a previously developed site (River Oaks I), which contains an elementary school. The school facility has the capacity to serve residents from both neighborhoods. Within walking distance of the project’s residential neighborhoods is also Cuesta College, a community college that offers an array of community classes and functions as well as professional degrees.

Both school facilities are within walking distance of at least 50% of the residential dwelling units in the project. This is evident in Map S-7.1 and Table S-7.2. The walking distance to the elementary school is between .33 and .52 miles (depending on the starting point) of at least 50% of the residential dwelling units. Cuesta college is a bit further depending on the starting point, between .54 and .96 miles.

River Oaks, TNC sufficiently meets the school proximity criteria, earning 1 point for this credit.

Credit Analysis:

The school proximity standard is a beneficial standard for the majority of site contexts. The only case when this credit would work against a LEED-ND candidate is if the project consisted solely of a senior living neighborhood, which would not serve households with school-aged children.

This credit could better address the intention of facilitating walking to school by incentivizing projects to verify the routes to schools are safe. If the schools are close enough to walk to, but children or parents do not feel that the route to school is safe, the close proximity alone will be ineffective. A safe-routes-to-school program would be a good way to mitigate this and should be included as a supplementary point for this credit.

<table>
<thead>
<tr>
<th>NODES</th>
<th>PEDESTRIAN / BIKE ROUTE</th>
<th>Distance in miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4</td>
<td>Western roundabout to Kermit Elementary</td>
<td>0.52</td>
</tr>
<tr>
<td>2 - 3</td>
<td>Eastern roundabout to Kermit Elementary</td>
<td>0.33</td>
</tr>
<tr>
<td>1 - 5</td>
<td>Western roundabout to Cuesta College</td>
<td>0.96</td>
</tr>
<tr>
<td>2 - 5</td>
<td>Eastern roundabout to Cuesta College</td>
<td>0.54</td>
</tr>
</tbody>
</table>

| Table S-7.1 Residential component of project by percentage of building square footage |
|--------------------------------|---------------------------------|
| Residential approx. SqFt | 1,564,700 |
| Non-Residential          | 47,000    |
| Total                    | 1,611,700 |
| % Residential            | 97%       |

Source: River Oaks II Visioning Document, Wallace Group
Map S-7.1: School Proximity and Residential component of project.

Legend:
1. Western roundabout
2. Eastern roundabout
3. Northeast Elementary
4. West Elementary
5. Cuesta College

- Kermitt Elementary .5 mi Radius
- Kermitt Elementary
- Cuesta College
- Pedestrian/Bike Route
- River Oaks TNC
- River Oaks I

River Oaks II Land Uses:
- Low Density Residential
- Medium Density Residential
- Medium-High Density
- High Density Residential
- Hospitality
- Health and Fitness
- Community Facility
- Open Space
- Open Space
- Golf Course
- Parking

Source: City of Paso Robles Planning Department and Wallace Group
Smart Location and Linkage

SLL Credit 8: Steep Slope Protection

**Intent:** Minimize erosion to protect habitat and reduce stress on natural water systems by preserving steep slopes in a natural, vegetated state.

**Standard:**

**OPTION 1**
Avoid disturbs portions of project sites that have pre-project slopes greater than 15%;

**OPTION 3:** On portions of project sites with pre-project slopes greater than 15% that are not previously developed sites:

- do not disturb slopes greater than 40% and do not disturb portions of the project site within 50 feet of the top of the slope, and 75 feet from the toe of the slope
- limit development to no more than 40% of slopes between 25%-40%, and to no more than 60% of slopes between 15%-25%
- locate development such that the percentage of the development footprint that is on pre-project slopes less than 15% is greater than the percentage of buildable land that has pre-project slopes less than 15%.

**Meeting the Criteria:**

Option one may be achieved if development is limited to pre-project slopes equal to or less than 15% slope. As indicated in Table S-8.1 there are approximately 214 acres that have a slope less than 15%. 27 of those acres are located along the western boundary of the property, in and adjacent to the 100 year floodplain and Salinas River Corridor. Those acres would not be developed, nor would 13 acres of Oak Woodland. Thus, the remaining number of acres for development on less than 15% slope is 174 acres. The total acreage devoted to residential and non-residential uses in River Oaks II equals 110 acres. Based on these numbers, it is conceivable that development can be limited to areas that have equal to or less than 15% slope. In addition, a portion of homesites may be developed on areas greater than 15% slope according to the stipulations in the bulleted points in Option 3.

River Oaks II is characterized by rolling hills, none of which have extreme percent slopes; this credit should be feasible, especially with the implementation of Low Impact Development (LID) practices.

**Credit Analysis:**

The steep slope protection credit is straightforward and can be applied to all types of regions; it is not region-specific. Protecting steep slopes is important in every circumstance for maintaining soil quality and natural hydrologic systems.

---

**Table S-8.1 Percent Slope by acreage of ROII site**

<table>
<thead>
<tr>
<th>Percent Slope Range</th>
<th>Acres</th>
<th>% of total acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-30%</td>
<td>51.51</td>
<td>18.6%</td>
</tr>
<tr>
<td>30-100%</td>
<td>10.9</td>
<td>3.9%</td>
</tr>
<tr>
<td>0-4%</td>
<td>83.84</td>
<td>30.3%</td>
</tr>
<tr>
<td>4-8%</td>
<td>61.19</td>
<td>22.1%</td>
</tr>
<tr>
<td>8-15%</td>
<td>69.17</td>
<td>25.0%</td>
</tr>
</tbody>
</table>

Source: River Oaks the Next Chapter Visioning Document, Wallace Group
Map S-8.1: Topographic Map shows percent slope and proposed areas for ROI development.

Source: City of Paso Robles Planning Department and Wallace Group
**Smart Location and Linkage**

**SLL Credit 9: Site Design for Habitat or Wetland Conservation**

**Intent:** Conserve native wildlife habitat, wetlands, and water bodies.

**Credit Criteria:**

**OPTION 1**

Work with the state's Natural Heritage Program, a local fish or wildlife agency, or the state fish and wildlife agency to determine if significant habitat occurs on the site. If significant habitat is found, do not disturb that significant habitat or portions of the site within an appropriate buffer around the habitat. The geographic extent of the habitat and the appropriate buffer shall be identified by a qualified biologist, a non-governmental conservation organization or the appropriate state, regional or local agency. Protect significant habitat and its identified buffers from development in perpetuity by donating or selling the land or a conservation easement on the land to an accredited land trust or relevant public agency. Significant habitat for this credit includes:

- Habitat for species that are listed or are candidates for listing under state or federal endangered species acts, or for those classified as G1, G2, G3 and/or S1 and S2 species by NatureServe (see note below about G and S classification); and
- Locally or regionally significant habitat, or patches of natural vegetation at least 150 acres in size (irrespective of whether some of the 150 acres lies outside the project boundary); and
- Habitat flagged for conservation under a regional or state conservation classification; and
- Locally or regionally significant habitat, or patches of natural vegetation at least 150 acres in size (irrespective of whether some of the 150 acres lies outside the project boundary); and
- Habitat flagged for conservation under a regional or state conservation classification; and

If the project is located on a previously developed site, use native plants for 90% of vegetation, and use no invasive plants on any part of the site; OR

**OPTION 2**

Either option one or three may be feasible for River Oaks II if conservation easements could be put in place for the wetlands, waterbodies, their 100 ft buffers, and/or the Oak Woodlands habitat and San Joaquin Kit Fox habitat corridors.

**OPTION 3:** Design the project to conserve 100% of all water bodies and wetlands on the site; and conduct an assessment or compile existing assessments, showing the extent to which water bodies and/or wetlands on the site perform the following functions: 1) water quality maintenance, 2) wildlife habitat protection, and 3) hydrologic function maintenance, including flood protection. Assign appropriate buffers (not less than 100 feet) around the development footprint throughout the site based upon the functions provided, contiguous soils and slopes, and contiguous land uses; and protect wetlands, water bodies, and their buffers from development in perpetuity by donating or selling the land or a conservation easement on the land to an accredited land trust or relevant public agency.

**Meeting the Criteria:**

Both Option one and three of this credit could apply to River Oaks II, as the biological study found potential special status species habitat on the site and wetlands also exist within the project boundary. In regards to option one, potential habitat exists for 11 special status animal species (defined in this credit as species listed under state or fed ESA or G1, G2, G3, G4 or S1, S2), yet only one of those species has been observed on the site, according to the Althouse and Meade Biological Study. Of the 11 special status animal species, two are unlikely to occur on the site and the Salinas River Riparian Habitat is appropriate habitat for seven of the special status animal species. The annual grassland habitat on site is potential habitat for the San Joaquin Kit Fox. The remaining three species' potential habitats did not correspond to the specific categories of the River Oaks Habitat Map. Development activity of River Oaks II was determined not to have a significant effect for six special status species as well as for four special status species with mitigation, according to the biological study.

To satisfy option one, the portion of the property that is Riparian Habitat (Salinas River) will be deeded to the City of Paso Robles, which would protect significant habitat for the majority of the special status animal species. Conservation of the Oak Woodlands and individual Oak trees and the ephemeral ponds would protect significant habitat for several species. The challenge to fully satisfying option one would be addressing the San Joaquin Kit Fox annual grassland habitat. The annual grassland habitat is sited for residential development. It is highly debated whether or not the Kit Fox inhabits the areas identified as Kit Fox habitat in Paso Robles. It is possible that the site can be designed to incorporate green belts that would provide habitat corridors through the project site.

Potential habitat for four special status plant species was also identified, though none of the plants were observed on the property and the study determined that they were unlikely to occur on the site. A blue oak woodland and some valley oaks were identified on the site; these trees are of local and regional significance, though not listed as special status. Being that the Oak Trees provide habitat for many animal species, and they are regionally significant, they should be preserved.

In regards to Option three, the project is designed to conserve water bodies and wetlands found on site. In addition to enhancing existing water basins, new basins will be constructed to provided hydrologic efficiency. SLL prerequisite 3 and 4 and SLL credit 10 outline the wetland and water bodies found on the site. Protecting the wetlands and water bodies on site as well as their 100 ft buffers through a conservation easement would be required to satisfy option three, which may not be feasible for River Oaks II.

The Althouse and Meade study provides an initial assessment of the extent to which water bodies and/or wetlands serve water quality maintenance and wildlife habitat protection. Further assessment of this would be made possible through California's Environmental Quality Act (CEQA) process.

**Credit Analysis:**

The challenge with this credit is the cost and/or liability issues to the developer that may be involved in protecting land in perpetuity.
Map 5-9.1: Wetland and water bodies on the site.

**LEGEND**

- AGRESTAL (DRYLAND GRAIN)
- RIPARIAN (SALINAS RIVER)
- OAK WOODLAND/OAK TREE
- WETLAND
- ANNUAL GRASSLAND
- ANTHROPOGENIC
- RUDERAL

River Oaks II - Habitat Map

Source: Althouse and Meade Biological Report for River Oaks II and Wallace Group
Smart location and linkage

SLL CREDIT 10: Restoration of Habitat or Wetlands

**Intent:** Restore wildlife habitat and wetlands that have been harmed by previous human activities

**Standard:**
Using only native plants, restore native habitat or pre-development water bodies or wetlands on the project site in an area equal to or greater than 10% of the development footprint and remove any invasive species on the site. Protect such areas from development in perpetuity by donating or selling the land or a conservation easement on the land to an accredited land trust or relevant public agency.

**Meeting the Criteria:**
The total development footprint for River Oaks II is 110.16 acres. If the Salinas River Habitat within the project boundary and the Oak Woodland was protected in perpetuity, this would amount to 25 acres in total, which is 23% of the total development footprint.

Due to previous uses of the property being farming and some construction, more than half of the number of plant species are non-native (Althouse and Meade, 2007). This presents an opportunity for native plant restoration within open spaces and landscaped areas throughout the site.

An effective and inexpensive way to do native plant restoration would be to organize community volunteers within River Oaks to eradicate invasive, non-native species and plant native plant species during a series of ten weekend “invasive species clean up days”. The activity could persist into the future to maintain the native plant habitat. This can also function as a community building activity where residents can meet each other, build connections and develop ownership of the community’s well-being by actively working to improve it.

This effort would need to be led by and sponsored by a local environmental organization or natural resources agency that would work with the residents and ensure against any liability issues within areas of restoration. The Salinas River Corridor may be a focus area depending on objectives that the City puts forth in their Salinas River Corridor Plan. Other areas in the project that could benefit from native plant restoration are the open spaces that weave in and around development. If only the Oak Woodland (13 acres) was the focus of restoration, that alone would account for 11% of the total development footprint, which would satisfy the criteria for this credit. The minimum amount of land that would have to be restored with native vegetation to earn this point, would be 13 acres.

Once initial restoration is complete, a follow up floristic survey should be conducted to determine the relative success of the

**Credit Analysis:**
The Restoration of Habitat or Wetlands credit my be difficult for some urban sites to attain. In the case of this credit, the semi-rural location of River Oaks II works in its favor, but it is conceivable that it would be an unfair situation for projects in densely urbanized regions.
**Smart Location and Linkage**

**SLL Credit 11: Conservation of Habitat or Wetlands**

**Intent:** Conserve native wildlife habitat, wetlands and water bodies.

**Standard:**
Create a long-term (at least 10-year) management plan for on-site native habitats and their buffers and create a guaranteed funding source for management. Involve at least one person from a natural resources agency, a natural resources consulting firm, or an academic ecologist in writing the management plan and conducting or evaluating the ongoing management. The plan should include biological objectives consistent with habitat conservation, and it should identify:
1. Procedures, including personnel to carry them out, for maintaining the conservation areas;
2. Estimated implementation costs and funding sources;
3. Threats that the project poses for habitat within conservation areas (e.g., introduction of exotic species, intrusion of residents in habitat areas) and measures to substantially reduce those threats;

**Meeting the Criteria:**
River Oaks has both potential wildlife habitat and wetlands and water bodies. These areas have been addressed in previous credits.

This credit will most likely not be pursued.

**Credit Analysis:**
A cost-benefit analysis of arranging and paying for a 10-year management plan for onsite native habitats and their buffers would be helpful in determining the feasibility of this credit.
List of Diverse Uses

Bank
Child care facility (licensed)
Community/civic center
Convenience store
Hair care
Hardware store
Health club or outdoor recreation facility
Laundry/dry cleaner
Library
Medical/dental office
Pharmacy (stand-alone)
Place of worship
Police/fire station
Post office
Restaurant
School
Senior care facility
Supermarket
Theater

Source: LEED-ND Rating System (Pilot Version), June 2007
## SLL-Attachment B
Special Status Plant and Animal Species

### ANIMALS

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Potential Habitat</th>
<th>Observed on Site?</th>
<th>Effect of Proposed Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southwestern Pond Turtle</td>
<td>G3G4T2T3Q/S2 CSC</td>
<td>Yes. Expected to occur in the Salinas River within the property boundaries. Permanent pond on site is appropriate habitat.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Pallid Bat*</td>
<td>G5/S3 CSC</td>
<td>Yes. Appropriate roosting areas are found in oak trees on the property.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>Golden Eagle</td>
<td>G5/S3 CSC</td>
<td>Yes. Appropriate foraging and nesting habitat is present on site.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Burrowing Owl*</td>
<td>G4/S2 CSC</td>
<td>Yes. Appropriate habitat is present on site. Farming has reduced the amount of appropriate habitat on site.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>Yellow Warbler*</td>
<td>GST3/S2/CSC</td>
<td>Yes. Appropriate nesting habitat is present in the Salinas River riparian corridor.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>White-tailed Kite*</td>
<td>G5/S3</td>
<td>Yes. Potential nesting and foraging habitat is present on site.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>Southwestern Willow Flycatcher</td>
<td>Endangered/ Endangered GST1T2/ S1</td>
<td>Unlikely. Appropriate nesting habitat is present in Salinas River, but no known occurrences in SLO County.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Horned Lark*</td>
<td>GST3/S3 CSC</td>
<td>Unlikely. Adults could occur on property but are unlikely to nest on site due to current land use activities.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Loggerhead Shrike*</td>
<td>G4/S4 CSC</td>
<td>Yes. Appropriate foraging and nesting habitat is found on site.</td>
<td>Yes</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>Monterey Dusky-footed Woodrat</td>
<td>GST3/S3 CSC</td>
<td>Yes. This species was identified in the riparian habitat along the Salinas River</td>
<td>Yes</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Steelhead -South/Central California Coast ESU</td>
<td>Threatened/ GST2Q/S2</td>
<td>Yes. Steelhead are known to occur in the Salinas River to the vicinity of Santa Margarita.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>California Red-legged Frog</td>
<td>Threatened/ G4T2T3/S2S3 CSC</td>
<td>Yes. Appropriate habitat is present in the Salinas River. The permanent pond on site is suitable for use by this species.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>Western Spadefoot Toad</td>
<td>G3/S3 CSC</td>
<td>Yes. Appropriate breeding habitat may present in ephemeral pools on site.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>American Badger-Taxidea taxus</td>
<td>G5/S4 CSC</td>
<td>Yes. Appropriate habitat is present in annual grasslands and farmland on site.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
<tr>
<td>Two-striped Garter Snake Thamnophis hammondii</td>
<td>G2G3/S2 CSC</td>
<td>Yes. Appropriate habitat is present in the Salinas River for this species. No records in the vicinity.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Lompoc Grasshopper Trimerotropis occulens</td>
<td>G1G2/S1S2</td>
<td>Unlikely. Thought to be extirpated from the area. Only source of info is a 1909 collection.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Least Bell's Vireo</td>
<td>Endangered/ Endangered GST2/S2</td>
<td>Yes. Moderately appropriate nesting habitat is present in the Salinas River riparian habitat.</td>
<td>No</td>
<td>Not Significant</td>
</tr>
<tr>
<td>San Joaquin Kit Fox</td>
<td>Endangered/ Threatened G4T2T3/ S2S3</td>
<td>Yes. Appropriate denning and foraging habitat is present on site.</td>
<td>No</td>
<td>Not Significant With Mitigation</td>
</tr>
</tbody>
</table>

### PLANTS

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Potential Habitat</th>
<th>Observed on Site?</th>
<th>Effect of Proposed Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwarf Calycadenia</td>
<td>&quot;G2/S2.1 CNPS List 1B.1&quot;</td>
<td>Unlikely. Barren areas of the steep bluff on the east side of River Road are moderately appropriate for this species.</td>
<td>No.</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Obispo Indian Paintbrush</td>
<td>&quot;GST2/S2.2 CNPS List 1B.2&quot;</td>
<td>Unlikely. Farming has eliminated most of the potential habitat from the site.</td>
<td>No.</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Douglas' Spiniflower</td>
<td>&quot;G3/S3.3 CNPS List 4.3&quot;</td>
<td>Unlikely. Barren areas of the steep bluff on the east side of River Road are moderately appropriate for this species.</td>
<td>No.</td>
<td>Not Significant</td>
</tr>
<tr>
<td>&quot;Yellow-flowered Eriastrum&quot;</td>
<td>&quot;G2/S2.2 CNPS List 1B.2&quot;</td>
<td>Unlikely. Barren areas of the steep bluff on the east side of River Road are moderately appropriate for this species.</td>
<td>No.</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>

Source: Althouse and Meade Biological Report for River Oaks II, June 2007
BR-18. Prior to issuance of grading and/or construction permits, the applicant shall submit evidence to the City of Paso Robles, Planning Division that states that one or a combination of the following three San Joaquin kit fox mitigation measures has been implemented:

a. Provide for the protection in perpetuity, through acquisition of fee or a conservation easement of [Total number of mitigation acres required] acres of suitable habitat in the kit fox corridor area (e.g. within the San Luis Obispo County kit fox habitat area, northwest of Highway 58), either on-site or off-site, and provide for a non-wasting endowment for management and monitoring of the property in perpetuity. Mitigation alternative (b.) above, can be completed by purchasing credits from the Palo Prieto Conservation Bank (contact information available from the City of Paso Robles). The Palo Prieto Conservation Bank was established to preserve San Joaquin kit fox habitat, and to provide a voluntary mitigation alternative to project proponents who must mitigate the impacts of projects in accordance with the California Environmental Quality Act (CEQA). The fee, payable to ‘The Nature Conservancy’, would total $[Amount of fee based on $2500 per acre]. This fee is calculated based on the current cost-per-unit of $2500 per acre of mitigation, which is scheduled to be adjusted to address the increasing cost of property in San Luis Obispo County; your actual cost may increase depending on the timing of payment. This fee must be paid after the Department provides written notification about your mitigation options but prior to City permit issuance and initiation of any ground disturbing activities.

b. Deposit funds into an approved in-lieu fee program, which would provide for the protection in perpetuity of suitable habitat in the kit fox corridor area within San Luis Obispo County, and provide for a non-wasting endowment for management and monitoring of the property in perpetuity. Mitigation alternative (b.) above, can be completed by purchasing credits from the Palo Prieto Conservation Bank, and would total $[Amount of mitigation acres required (i.e. credits), currently priced at $2500 per credit]. This fee is calculated based on the current cost-per-credit of $2500 per acre of mitigation. The fee is established by the conservation bank owner and may change at any time. Your actual cost may increase depending on the timing of payment. Purchase of credits must be completed prior to City permit issuance and initiation of any ground disturbing activities.

c. Purchase [Total number of mitigation acres required] credits in a Department-approved conservation bank, which would provide for the protection in perpetuity of suitable habitat within the kit fox corridor area and provide for a non-wasting endowment for management and monitoring of the property in perpetuity. Mitigation alternative (c.) above, can be completed by purchasing credits from the Palo Prieto Conservation Bank. The Palo Prieto Conservation Bank was established to preserve San Joaquin kit fox habitat, and to provide a voluntary mitigation alternative to project proponents. The Department of Fish and Game (Department) and the City shall be removed.

2. All foot and vehicle traffic, as well as all construction activities, including storage of supplies and equipment, shall remain outside of exclusion zones. Exclusion zones shall be maintained until all project-related disturbances have been terminated, and then shall be removed.

iii. The qualified biologist shall conduct weekly site visits during site disturbance activities (i.e. grading, disking, excavation, stock piling of dirt or gravel, etc.) that proceed longer than 14 days, for the purpose of monitoring compliance with required Mitigation Measures BR-20 through BR-29. Site disturbance activities lasting up to 14 days do not require weekly monitoring by the biologist unless observations of kit fox or their dens are made on-site or the qualified biologist recommends monitoring for some other reason (see BR-20ii). When weekly monitoring is required, the biologist shall submit weekly monitoring reports to the City.

iii. Prior to or during project activities, if any observations are made of San Joaquin Kit fox, or any known or potential San Joaquin kit fox dens are discovered within the project limits, the qualified biologist shall re-assess the probability of incidental take (e.g. harm or death) to kit fox. At the time a den is discovered, the qualified biologist shall contact USFWS and the CDFG for guidance on possible additional kit fox protection measures to implement and whether or not a Federal and/or State incidental take permit is needed. If a potential den is encountered during construction, work shall stop until such time the USFWS determines it is appropriate to resume work. If incidental take of kit fox during project activities is possible, before project activities commence, the applicant must consult with the USFWS. The results of this consultation may require the applicant to obtain a Federal and/or State permit for incidental take during project activities. The applicant should be aware that the presence of kit foxes or known or potential kit fox dens at the project site could result in further delays of project activities.

iv. In addition, the qualified biologist shall implement the following measures:

1. Within 30 days prior to initiation of site disturbance and/or construction, fenced exclusion zones shall be established around all known and potential kit fox dens. Exclusion zone fencing shall consist of either large flagged stakes connected by rope or cord, or survey laths or wooden stakes prominently flagged with survey ribbon. Each exclusion zone shall be roughly circular in configuration with a radius of the following distance measured outward from the den or burrow entrance:
   - Potential kit fox den: 50 feet
   - Known or active kit fox den: 100 feet
   - Kit fox pupping den: 150 feet

2. All foot and vehicle traffic, as well as all construction activities, including storage of supplies and equipment, shall remain outside of exclusion zones. Exclusion zones shall be maintained until all project-related disturbances have been terminated, and then shall be removed.
3. If kit foxes or known or potential kit fox dens are found on site, daily monitoring by a qualified biologist shall be required during ground disturbing activities.

BR-20. Prior to issuance of grading and/or construction permits, the applicant shall clearly delineate the following as a note on the project plans: “Speed signs of 25 mph (or lower) shall be posted for all construction traffic to minimize the probability of road mortality of the San Joaquin kit fox.” Speed limit signs shall be installed on the project site within 30 days prior to initiation of site disturbance and/or construction.

BR-21. During the site disturbance and/or construction phase, grading and construction activities after dusk shall be prohibited unless coordinated through the City, during which additional kit fox mitigation measures may be required.

BR-22. Prior to issuance of grading and/or construction permit and within 30 days prior to initiation of site disturbance and/or construction, all personnel associated with the project shall attend a worker education training program, conducted by a qualified biologist, to avoid or reduce impacts on sensitive biological resources (i.e. San Joaquin kit fox). At a minimum, as the program relates to the kit fox, the training shall include the kit fox’s life history, all mitigation measures specified by the City, as well as any related biological report(s) prepared for the project. The applicant shall notify the City shortly prior to this meeting. A kit fox fact sheet shall also be developed prior to the training program, and distributed at the training program to all contractors, employers and other personnel involved with the construction of the project.

BR-23. During the site-disturbance and/or construction phase, to prevent entrapment of the San Joaquin kit fox, all excavations, steep-walled holes and trenches in excess of two feet in depth shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Trenches shall also be inspected for entrapped kit fox each morning prior to onset of field activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they shall be thoroughly inspected for entrapped kit fox. Any kit fox so discovered shall be allowed to escape before field activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.

BR-24. During the site-disturbance and/or construction phase, any pipes, culverts, or similar structures with a diameter of four inches or greater, stored overnight at the project site shall be thoroughly inspected for trapped San Joaquin kit foxes before the subject pipe is subsequently buried, capped, or otherwise used or moved in any way. If during the construction phase a kit fox is discovered inside a pipe, that section of pipe will not be moved. If necessary, the pipe may be moved only once to remove it from the path of activity, until the kit fox has escaped.

BR-25. During the site-disturbance and/or construction phase, all food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of only in closed containers. These containers shall be regularly removed from the site. Food items may attract San Joaquin kit foxes onto the project site, consequently exposing such animals to increased risk of injury or mortality. No deliberate feeding of wildlife shall be allowed.

BR-26. Prior to, during and after the site-disturbance and/or construction phase, use of pesticides or herbicides shall be in compliance with all local, State and Federal regulations. This is necessary to minimize the probability of primary or secondary poisoning of endangered species utilizing adjacent habitats, and the depletion of prey upon which San Joaquin kit foxes depend.

R-27. During the site-disturbance and/or construction phase, any contractor or employee that inadvertently kills or injures a San Joaquin kit fox or who finds any such animal either dead, injured, or entrapped shall be required to report the incident immediately to the applicant and City. In the event that any observations are made of injured or dead kit fox, the applicant shall immediately notify the USFWS and CDFG by telephone. In addition, formal notification shall be provided in writing within three working days of the finding of any such animal(s). Notification shall include the date, time, location and circumstances of the incident. Any threatened or endangered species found dead or injured shall be turned over immediately to CDFG for care, analysis, or disposition. BR-28. Prior to final inspection, or occupancy, whichever comes first, should any long internal or perimeter fencing be proposed or installed, the applicant shall do the following to provide for kit fox passage:

i. If a wire strand/pole design is used, the lowest strand shall be no closer to the ground than 12 inches.

ii. If a more solid wire mesh fence is used, 8” x 12” openings near the ground shall be provided every 100 yards.

iii. Upon fence installation, the applicant shall notify the City to verify proper installation. Any fencing constructed after issuance of a final permit shall follow the above guidelines

6.2 Oak Tree Mitigations

If project construction requires impacts or removal of native oak trees, the following mitigation recommendations shall be implemented.

BR-2. Tree canopies and trunks within 50 feet of proposed disturbance zones should be mapped and numbered by a certified arborist of qualified biologist and a licensed land surveyor. Data for each tree should include date, species, number of stems, diameter at breast height (dbh) of each stem, critical root zone (CRZ) diameter, canopy diameter, tree height, health, habitat notes, and nests observed.

BR-3. An oak tree protection plan shall be prepared and approved by the City of Paso Robles.

BR-4. Impacts to the oak canopy or critical root zone (CAZ) should be avoided where practicable. Impacts include pruning, any ground disturbance within the drip line or CRZ of the tree (whichever distance is greater), and trunk damage.

BR-5. Impacts to oak trees shall be assessed by a licensed arborist. Mitigations for impacted trees shall comply with the City of Paso Robles tree ordinance.

BR-6. Replacement oaks for removed trees must be equivalent to 25% of the diameter of the removed tree(s). For example, the replacement requirement for removal of two trees of 15 inches dbh (30 total diameter inches), would be 7.5 inches (30’ removed x 0.25 replacement factor). This requirement could be satisfied by planting five 1.5 inch trees, or three 2.5 inch trees, or any other combination totaling 7.5 inches. A minimum of two 24 inch box, 1.5 inch trees shall be required for each oak tree removed.

BR-7. Replacement trees should be seasonally maintained (browse protection, weed reduction and irrigation, as needed) and monitored annually for at least 7 years. Replacement trees shall be of local origin, and of the same species as was impacted or removed.

Source: Althouse and Meade Biological Report for River Oaks II, June 2007
Table S-6.2: Stats for the residential component of River Oaks, the Next Chapter

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>ResLandUse</th>
<th>Units</th>
<th>devp_acres</th>
<th>DU /acre</th>
<th>lowSQFT</th>
<th>highSQFT</th>
<th>avg sqft</th>
<th>total sqft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estate Lots</td>
<td>Low Density</td>
<td>12</td>
<td>6.20</td>
<td>2</td>
<td>2900.00</td>
<td>3600.00</td>
<td>3250</td>
<td>39,000</td>
</tr>
<tr>
<td>Large Lot Neighborhood</td>
<td>Low Density</td>
<td>25</td>
<td>6.30</td>
<td>4</td>
<td>2300.00</td>
<td>3300.00</td>
<td>2800</td>
<td>70,000</td>
</tr>
<tr>
<td>Active Adult Low Density</td>
<td>Low Density</td>
<td>165</td>
<td>27.50</td>
<td>6</td>
<td>1500.00</td>
<td>2700.00</td>
<td>2100</td>
<td>346,500</td>
</tr>
<tr>
<td>Medium Lot (?)</td>
<td>Medium Density</td>
<td>24</td>
<td>3.00</td>
<td>8</td>
<td>1150.00</td>
<td>1950.00</td>
<td>1550</td>
<td>37,200</td>
</tr>
<tr>
<td>High End Flats</td>
<td>Medium Density</td>
<td>66</td>
<td>6.63</td>
<td>10</td>
<td>1900.00</td>
<td>2900.00</td>
<td>2400</td>
<td>158,400</td>
</tr>
<tr>
<td>High End Flats</td>
<td>Medium Density</td>
<td>32</td>
<td>3.15</td>
<td>10</td>
<td>1900.00</td>
<td>2900.00</td>
<td>2400</td>
<td>76,800</td>
</tr>
<tr>
<td>Manor House Courts</td>
<td>Medium Density</td>
<td>39</td>
<td>3.25</td>
<td>12</td>
<td>1000.00</td>
<td>1250.00</td>
<td>1125</td>
<td>43,875</td>
</tr>
<tr>
<td>Hospitality Zone Dwellings</td>
<td>Medium Density</td>
<td>28</td>
<td>2.31</td>
<td>12</td>
<td>950.00</td>
<td>1350.00</td>
<td>1150</td>
<td>32200</td>
</tr>
<tr>
<td>Detached Cluster</td>
<td>Medium Density</td>
<td>19</td>
<td>1.60</td>
<td>12</td>
<td>1100.00</td>
<td>1700.00</td>
<td>1400</td>
<td>26,600</td>
</tr>
<tr>
<td>Detached Cluster</td>
<td>Medium Density</td>
<td>26</td>
<td>2.22</td>
<td>12</td>
<td>1100.00</td>
<td>1700.00</td>
<td>1400</td>
<td>36,400</td>
</tr>
<tr>
<td>townhome condo</td>
<td>Medium-High Density</td>
<td>457</td>
<td>28.60</td>
<td>10/12/16</td>
<td>900.00</td>
<td>1950.00</td>
<td>1425</td>
<td>6,51,225</td>
</tr>
<tr>
<td>townhome condo</td>
<td>High Density</td>
<td>31</td>
<td>2.00</td>
<td>16</td>
<td>1200.00</td>
<td>1800.00</td>
<td>1500</td>
<td>46,500</td>
</tr>
</tbody>
</table>

TOTAL 1,562,400

Source: River Oaks the Next Chapter Visoning Document, Wallace Group

Table S-6.3: Stats for the non-residential component of River Oaks, the Next Chapter

<table>
<thead>
<tr>
<th></th>
<th>non-residential</th>
<th>Total acres</th>
<th>devp_acres</th>
<th>Bldg Sq.Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellness Center and Fitness</td>
<td>5.9</td>
<td>3</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>Spa</td>
<td></td>
<td></td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>Community Bldg</td>
<td>3.5</td>
<td>3</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>AAC Center</td>
<td>1.3</td>
<td>1.1</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>Community HOA Bldg</td>
<td>2.1</td>
<td>1.8</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>Hospitality</td>
<td>6.6</td>
<td>6.5</td>
<td>10,000 (approx)</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL 1,562,400

Source: River Oaks the Next Chapter Visoning Document, Wallace Group
Neighborhood Pattern and Design
Neighborhood Pattern & Design

NPD Prerequisite 1: Open Community

**Intent:** Promote communities that are physically connected to each other. Foster community connectedness beyond the development.

**Standard:**

Designate all streets and sidewalks that are built as part of the project or serving the project directly as available for general public use and not gated. Gated areas and enclaves are not considered available for public use, with the exception of education and health care campuses where gates are used for security.

**Meeting the Criteria:**

While River Oaks II is designed to be an open community, there is a portion of the project, which serves senior citizens, that is a gated residential neighborhood. 18 percent of the 922 dwelling units on 27 acres are dedicated to a housing product called “active living.” This concept is based on a highly marketable product, which has proven to be dependent on neighborhood design that offers a sense of security and exclusivity. This may not be the ideal “open community” concept that LEED is promoting in this credit, but it does not mean that this portion of the development will be completely disconnected or isolated from surrounding neighborhoods. It is likely that residents within the active living neighborhood will form a tight community among themselves, being part of a “gated community.” It is also not unlikely that the “gate” will not keep them from interacting with the other neighborhood residents at large, through the use of trails that extend beyond their own gated area, and other amenities outside of the gated area that are meant for the entire community, such as the “community center,” the “health, wellness and fitness center,” “spa,” and the “golf course” are not gated.

Figure NP-1 shows the “Active Living” neighborhood in relation to other uses in the project. If the open community prerequisite remains in place in the final version of LEED-ND, and if certification is pursued by River Oaks II, one option would be to exclude the Active Living neighborhood from the project that would be applying for certification. This would affect the calculations used to verify that River Oaks II qualifies for certain other credits and prerequisites, such as those that use the development footprint or total acres of the project in calculations. In most instances this would actually put River Oaks II at a better advantage to achieving those credits. This prerequisite would potentially disqualify River Oaks II from certification.

**Prerequisite Analysis:**

This prerequisite is based on the idea that design can influence people’s behavior, that it could even help to create “community” or as LEED has put it, “fostering community connectedness.” The language does not initially sound as if the intent here is to foster community, but rather to connect the communities physically to preserve public open spaces. But, implicit in that intention is the idea that a contiguous “public space” is important because it provides the venue for “community.” It is a highly debatable idea, that community design influence people’s behavior enough to be a significant force in fostering community. There are numerous studies that show how design does determine behavior, and there are numerous other studies that show that it may not ultimately determine behavior, or at least not beyond a certain level of significance.

Also, this prerequisite is intended for the benefit of the “community”, not necessarily the natural environment though discouraging gated neighborhoods would be a way to encourage open and connected street networks within the project, for efficient traffic flow through the community.

Another aspect of gated communities that is not addressed in the intent of this credit is the “exclusivity” of gated neighborhoods contributing to an unaffordable housing stock. The intent of this credit could be to encourage green neighborhoods that are not “exclusive” and unaffordable. Most gated communities are more expensive to live in than an average “open community.” A recurring theme in other credits within this rating system is promoting affordability, which is “green” because of the idea that people should be able to afford housing where they work so that they are not forced to commute long distances in vehicles, adding to the greenhouse gas problem we already have.

It might be more beneficial to distinguish between projects that are gated entirely and projects that have a gated neighborhoods within them. It seems that the majority of the project’s residential areas are not gated, and only a lesser percentage of the total residential component is gated then it should be able to qualify for LEED certification. An extra several points could be awarded to projects that are completely open, no gated neighborhoods whatsoever, but projects that are completely gated or the majority of the residences are gated would not qualify.
Figure NP1.1: shows various residential and non-residential uses, unit count, and their relative location to the Active Living neighborhood.
**LEED-ND Case Study**

**Spring 2008**

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**NEIGHBORHOOD PATTERN & DESIGN**

**NPD Prerequisite 2: Compact Development**

**Intent:** Conserve land. Promote livability, transportation efficiency, and walkability.

**Standard:**

- Build any residential components of the project at an average density of seven or more dwelling units per acre of buildable land available for residential uses;

- AND

- Build any non-residential components of the project at an average density of 0.50 FAR or greater per acre of buildable land available for non-residential uses.

If the project location is serviced by a transit agency which has specified minimum service densities that are greater than the densities required by this pre-requisite, then the project must meet the transit agency’s minimum service densities instead.

The specified average density must be achieved by the point in the project’s construction at which 50% of dwelling units are built, or within five years of the date that the first building is occupied, whichever is longer.

**Meeting the Criteria:**

River Oaks II provides for a diversity of housing densities. There are seven different densities within the residential component. The average density is 10 du/acre, three more than the minimum seven for this prerequisite. Table NP-2.2 shows residential densities and their relative phasing. At 50% build out, the average density would be greater than 7 du/acre. Non-residential building lot lines were not demarcated at the time of this study, therefore the FAR could not be determined for non-residential buildings. Based on the fact that River Oaks II is located in a semi-rural context and non-residential buildings will more or less be surrounded by open space corridors and vineyards, achieving a 0.5 FAR would be a challenge. In addition, non-residential building parking will be surface parking lots, which would require a significant portion of the lot area. If LEED-ND was pursued, recommended lot areas to achieve a minimum 0.5 FAR are listed in table N-P2.2. To achieve an “average density of 0.5 FAR per acre of buildable land” the lot areas could vary; for example, they could be less or more than what is listed as long as their average remains at least 0.5 FAR. This prerequisite would be very challenging for River Oaks II due to the parking requirements for non-residential buildings and the buildings having backs and sides that interface with open space rather than other buildings and streets, which makes their lot boundaries vague in the physical sense.

**Prerequisite Analysis:**

From a planning perspective, very compact, dense development throughout this site would contrast sharply to the surrounding agricultural uses to the north and east. The City of Paso Robles is actively shaping the design of their community through the newly adopted “Uptown/Town Center Specific Plan”, which they have contracted with Moule & Polyzoides of Pasadena, California to develop. Traditional neighborhood design and compact development principles are part of the vision for the future of Paso Robles, but the City’s general plan encourages medium to low density development along the City’s boundary where agricultural uses are adjacent. When Cities share borders with large expanses of agricultural land or natural open space, it is logical to require low to medium density development along that edge to provide for a transition/buffer zone between urban and semi-urban land uses and agricultural uses. LEED-ND standards do not address development that will complete a city’s buildout, is contiguous with the city’s boundary and is adjacent to agricultural or open space land. A development may be leading the way in its own region for green development, yet would not qualify to participate in LEED-ND because of the compact development prerequisite.

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**Table NP-2.2 Non-Residential Densities by FAR**

<table>
<thead>
<tr>
<th>Non-Residential</th>
<th>Concept Area (sq. ft.)</th>
<th>Lot Area (sq. ft.)</th>
<th>Bldg Sq. Ft.</th>
<th>FAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellness Center and Fitness</td>
<td>257,004</td>
<td>30,000</td>
<td>15,000</td>
<td>0.5</td>
</tr>
<tr>
<td>Spa</td>
<td>16,000</td>
<td>8,000</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Community Bldg</td>
<td>152,460</td>
<td>20,000</td>
<td>10,000</td>
<td>0.5</td>
</tr>
<tr>
<td>AAC Center</td>
<td>56,628</td>
<td>8,000</td>
<td>4,000</td>
<td>0.5</td>
</tr>
<tr>
<td>Hospitality</td>
<td>287,496</td>
<td>20,000</td>
<td>10,000</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Table NP-2.1 Residential densities by dwelling units/acre**

<table>
<thead>
<tr>
<th>Residential</th>
<th>Units</th>
<th>devp_acres</th>
<th>DU /acre</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Density</td>
<td>12</td>
<td>6.20</td>
<td>2</td>
<td>Phase II</td>
</tr>
<tr>
<td>Low Density</td>
<td>25</td>
<td>6.30</td>
<td>4</td>
<td>Phase II</td>
</tr>
<tr>
<td>Low Density</td>
<td>165</td>
<td>27.50</td>
<td>6</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium Density</td>
<td>24</td>
<td>3.00</td>
<td>8</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium Density</td>
<td>66</td>
<td>6.63</td>
<td>10</td>
<td>Phase III</td>
</tr>
<tr>
<td>Medium Density</td>
<td>32</td>
<td>3.15</td>
<td>10</td>
<td>Phase V</td>
</tr>
<tr>
<td>Medium Density</td>
<td>39</td>
<td>3.25</td>
<td>12</td>
<td>Phase III</td>
</tr>
<tr>
<td>Medium Density</td>
<td>28</td>
<td>3.23</td>
<td>12</td>
<td>Phase IV</td>
</tr>
<tr>
<td>Medium Density</td>
<td>19</td>
<td>1.60</td>
<td>12</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium Density</td>
<td>26</td>
<td>2.22</td>
<td>12</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium-Density High-Density</td>
<td>457</td>
<td>28.60</td>
<td>16</td>
<td>Phase III &amp; IV</td>
</tr>
<tr>
<td>High Density</td>
<td>31</td>
<td>2.00</td>
<td>16</td>
<td>Phase IV</td>
</tr>
<tr>
<td>TOTALS</td>
<td>924</td>
<td>93</td>
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<td></td>
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<tr>
<td>AVG</td>
<td>9.96</td>
<td>10</td>
<td></td>
<td></td>
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</tbody>
</table>

---

Source: City of Paso Robles Planning Department and Wallace Group

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Table SS-2: Non-residential parking requirements and respective bike parking to be provided

<table>
<thead>
<tr>
<th>Non-Residential Use</th>
<th>Multiplication Factor</th>
<th>Required spaces per factor</th>
<th>add/1F spaces</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitality</td>
<td>130 rooms</td>
<td>1.5</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>Conference center</td>
<td>10,000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Health and Fitness Center</td>
<td>15,000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Spa</td>
<td>8000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>80</td>
</tr>
<tr>
<td>Restaurant</td>
<td>4000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>TOTAL</td>
<td>490</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Even if lot areas were determined on a site plan that would achieve the 0.5 FAR, the intention on the ground would most likely still not be achieved, unless each lot had visible boundaries that distinguished the building space from surrounding open space areas. The Compact Development prerequisite may be the most unattainable standard to achieve for River Oaks II, and could even be the one prerequisite that would disqualify River Oaks II from LEED-ND certification.
Figure NP-2.1
Concept map shows the various residential and non-residential products in ROII and their respective densities.
Neighborhood Pattern & Design

NPD Credit 1: Compact Development

Intent: Conserve land. Promote livability, transportation efficiency, and walkability.

Standard:
Design and build the project to achieve the densities shown in the table below.

<table>
<thead>
<tr>
<th>Residential Density (DU/acre)</th>
<th>Non-residential Density (FAR)</th>
<th>Points Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 to 20</td>
<td>0.75 to 1.0</td>
<td>1</td>
</tr>
<tr>
<td>&gt; 20 and ≤ 30</td>
<td>&gt; 1.0 and ≤ 1.5</td>
<td>2</td>
</tr>
<tr>
<td>&gt; 30 and ≤ 40</td>
<td>&gt; 1.5 and ≤ 2.0</td>
<td>3</td>
</tr>
<tr>
<td>&gt; 40 and ≤ 50</td>
<td>&gt; 2.0 and ≤ 2.5</td>
<td>4</td>
</tr>
<tr>
<td>&gt; 50 and ≤ 60</td>
<td>&gt; 2.5 and ≤ 3.0</td>
<td>5</td>
</tr>
<tr>
<td>&gt; 60 and ≤ 70</td>
<td>&gt; 3.0 and ≤ 3.5</td>
<td>6</td>
</tr>
<tr>
<td>&gt; 70</td>
<td>&gt; 3.5</td>
<td>7</td>
</tr>
</tbody>
</table>

The specified density must be achieved by the point in the project’s construction at which 50% of dwelling units are built, or within five years of the date that the first building is occupied, whichever is longer.

Meeting the Criteria:
This credit is similar to the Compact Development prerequisite in that an average density per buildable land is required for residential and non-residential components. Points can be gained for having increased densities. This credit would be possible if the lot areas for non-residential buildings could be small enough to equal 0.75 FAR (table N-1.2). The 0.75 non-residential FAR is based on the project’s residential density (because residential density is 10-20 DU/acre, the corresponding non-residential density would need to be a minimum 0.75 FAR). The specified densities would need to be achieved at least by the time in construction that 50% of the dwelling units are complete.

Credit Analysis:
The same analysis given in NPD prerequisite 2, Compact Development, applies here. An FAR higher than 0.5 for non-residential buildings would be a great challenge for River Oaks II given its semi-rural context and surface parking requirements.

Table N-1.1: Residential densities by dwelling units/acre

<table>
<thead>
<tr>
<th>Residential</th>
<th>Units</th>
<th>devp_acres</th>
<th>DU /acre</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Density</td>
<td>12</td>
<td>6.20</td>
<td>2</td>
<td>Phase II</td>
</tr>
<tr>
<td>Low Density</td>
<td>25</td>
<td>6.30</td>
<td>4</td>
<td>Phase II</td>
</tr>
<tr>
<td>Low Density</td>
<td>165</td>
<td>27.50</td>
<td>6</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium Density</td>
<td>24</td>
<td>3.00</td>
<td>8</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium Density</td>
<td>66</td>
<td>6.63</td>
<td>10</td>
<td>Phase III</td>
</tr>
<tr>
<td>Medium Density</td>
<td>32</td>
<td>3.15</td>
<td>10</td>
<td>Phase V</td>
</tr>
<tr>
<td>Medium Density</td>
<td>39</td>
<td>3.25</td>
<td>12</td>
<td>Phase III</td>
</tr>
<tr>
<td>Medium Density</td>
<td>28</td>
<td>2.31</td>
<td>12</td>
<td>Phase IV</td>
</tr>
<tr>
<td>Medium Density</td>
<td>19</td>
<td>1.60</td>
<td>12</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium Density</td>
<td>26</td>
<td>2.22</td>
<td>12</td>
<td>Phase I</td>
</tr>
<tr>
<td>Medium-High Density</td>
<td>457</td>
<td>28.60</td>
<td>16</td>
<td>Phase III &amp; IV</td>
</tr>
<tr>
<td>High Density</td>
<td>31</td>
<td>2.00</td>
<td>16</td>
<td>Phase IV</td>
</tr>
<tr>
<td>TOTALS</td>
<td>924</td>
<td>93</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

Table N-1.2: Non-Residential Densities by FAR

<table>
<thead>
<tr>
<th>Non-Residential</th>
<th>Concept Area (sq. Ft.)</th>
<th>Lot Area (sq. Ft.)</th>
<th>Bldg Sq.Ft</th>
<th>FAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellness Center and Fitness</td>
<td>257,004</td>
<td>20,000</td>
<td>15,000</td>
<td>0.75</td>
</tr>
<tr>
<td>Spa</td>
<td>10,667</td>
<td>8,000</td>
<td></td>
<td>0.75</td>
</tr>
<tr>
<td>Community Bldg</td>
<td>152,460</td>
<td>13,333</td>
<td>10,000</td>
<td>0.75</td>
</tr>
<tr>
<td>AMC Center</td>
<td>56,628</td>
<td>5,333</td>
<td>4,000</td>
<td>0.75</td>
</tr>
<tr>
<td>Hospitality</td>
<td>287,496</td>
<td>13,333</td>
<td>10,000</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Table N-1.3: Non-residential parking requirements

<table>
<thead>
<tr>
<th>Non-Residential Use</th>
<th>Multiplication Factor</th>
<th>Required spaces per factor</th>
<th>addItl spaces</th>
<th>Total required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitality</td>
<td>1.30 rooms</td>
<td>1.5</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>Conference center</td>
<td>10,000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Health and Fitness Center</td>
<td>15,000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Spa</td>
<td>8,000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>80</td>
</tr>
<tr>
<td>Restaurant</td>
<td>4000 sq. ft.</td>
<td>0.01</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td>350</td>
</tr>
</tbody>
</table>

Source: City of Paso Robles Planning Department and Wallace Group
Figure N-1.1: Concept map shows the various residential and non-residential components in ROII and their respective densities or square feet.

Table N-1.3: Non-residential parking requirements

<table>
<thead>
<tr>
<th>Non-Residential Use Multiplication Factor</th>
<th>Required Spaces per Factor</th>
<th>Additional Spaces</th>
<th>Total Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitality 130 rooms 1.5</td>
<td>5</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Conference center 10,000 sq. ft. 0.01</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health and Fitness 15,000 sq. ft. 0.01</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spa 8,000 sq. ft. 0.01</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant 4,000 sq. ft. 0.01</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: City of Paso Robles Planning Department and Wallace Group
Neighborhood Pattern & Design

NPD Credit 2: Diversity of Uses

Intent: Promote community livability, transportation efficiency, and walkability.

Standard:

Include a residential component in the project that constitutes at least 25% of the project’s total building square footage; and design or locate the project such that at least 50% of the dwelling units are within ½ mile walk distance of at least two (1 point), four (2 points), seven (3 points) or ten (4 points) of the diverse uses defined in Appendix A. Uses may either be in nearby areas or be built within the development.

Verify that a pedestrian can reach the uses via routes that do not necessitate crossing any streets that have speed limits of greater than 25 miles per hour, unless those crossings have vehicle traffic controls such as signals and stop signs with crosswalks. The specified number of uses must be in place by the time certain percentages of occupancy are in place, as indicated in the following table:

<table>
<thead>
<tr>
<th>Number of Uses</th>
<th>Percentage of project occupancy at which uses need to be in place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two uses (1 point)</td>
<td>20%</td>
</tr>
<tr>
<td>Four uses (2 points)</td>
<td>30%</td>
</tr>
<tr>
<td>Seven uses (3 points)</td>
<td>40%</td>
</tr>
<tr>
<td>Ten uses (4 points)</td>
<td>50%</td>
</tr>
</tbody>
</table>

Meeting the Criteria:

The residential component of River Oaks II accounts for 97% of the total building square footage of all buildings in the project (see Appendix E for square footage estimates). Thus the first criteria in this credit would be met.

At least four uses will be in place by the time 20% of the project is occupied. Kermit Elementary and Cuesta College are existing and the River Oaks retail center will have been completed by the time construction begins on River Oaks II. By 50% occupation, seven or more diverse uses should be in place, that are within 1/2 mile walking distance from 50% of the dwelling units.

Diverse Uses:
- Kermit Elementary (existing)
- Cuesta College (existing)
- River Oaks retail center (multiple diverse uses) (20% occup.)
- River Oaks II fitness center (50% occup)
- River Oaks II restaurant (50% occup)

It would be highly feasible for River Oaks to achieve at least 3 out of the 4 points available for this credit, but it is likely that more points may be earned if it is verified that the River Oaks retail center is within 1/2 mile walking distance from 50% of the dwelling units.

Credit Analysis:

This Diversity of Uses credit is a useful standard that should be considered for residential development projects regardless of their context. Locating projects within walking distance of community amenities is important for reducing unnecessary vehicular trips. It also creates the option for residents to incorporate exercise into their daily errands and trips around town. The criteria is reasonable.

Table N-2.1: Walk distance between 50% of dwelling units and diverse uses

<table>
<thead>
<tr>
<th>NODES</th>
<th>Ped Routes</th>
<th>Distance in miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4</td>
<td>Western roundabout to Kermit Elementary</td>
<td>0.5</td>
</tr>
<tr>
<td>2 - 3</td>
<td>Eastern roundabout to Kermit Elementary</td>
<td>0.3</td>
</tr>
<tr>
<td>1 - 5</td>
<td>Western roundabout to Marketplace</td>
<td>0.9</td>
</tr>
<tr>
<td>2 - 5</td>
<td>Eastern roundabout to Marketplace</td>
<td>0.5</td>
</tr>
<tr>
<td>1 - 6</td>
<td>Western roundabout to Cuesta College</td>
<td>0.9</td>
</tr>
<tr>
<td>2 - 6</td>
<td>Eastern roundabout to Cuesta College</td>
<td>0.5</td>
</tr>
<tr>
<td>1 - 7</td>
<td>Western roundabout to commercial zone in Uptown</td>
<td>2.0</td>
</tr>
<tr>
<td>2 - 7</td>
<td>Eastern roundabout to commercial zone in Uptown</td>
<td>1.7</td>
</tr>
</tbody>
</table>
Figure N-2.1: River Oaks II in relation to diverse uses and pedestrian route

Diversity of Uses Map
River Oaks II LEED-ND Case Study

Legend
- Paso Robles City Limit
- River Oaks II
- River Oaks I
- Uptown Specific Plan
- .5 mile Radius of Project Boundary
- Kermit Elementary
- Cuesta College
- Paso Robles Commercial Zone
- 1 - Residential Node
- 2 - Residential Node
- 3 - North Kermit Elementary
- 4 - East Kermit Elementary
- 5 - Cuesta Community College
- 6 - River Oaks Commercial Retail
- 7 - Paso Commercial Zone
- Pedestrian Route
- Possible Future ped access
- Low Density Residential
- Medium Density
- Medium-High Density
- Hospitality
- AAC Center
- Health and Fitness
- Community Facility
- Open Space
- Open space
- Golf Course
- Sportsfield
- Parking

Source: City of Paso Robles Planning Department and Wallace Group

Table N-2.1: Walk distance between 50% of dwelling units and diverse uses

<table>
<thead>
<tr>
<th>Node</th>
<th>Distance (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2</td>
<td>0.3</td>
</tr>
<tr>
<td>1 - 4</td>
<td>0.5</td>
</tr>
<tr>
<td>1 - 5</td>
<td>0.9</td>
</tr>
<tr>
<td>1 - 6</td>
<td>0.9</td>
</tr>
<tr>
<td>1 - 7</td>
<td>2.0</td>
</tr>
<tr>
<td>2 - 3</td>
<td>0.3</td>
</tr>
<tr>
<td>2 - 5</td>
<td>0.5</td>
</tr>
<tr>
<td>2 - 6</td>
<td>0.5</td>
</tr>
<tr>
<td>2 - 7</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Source: City of Paso Robles Planning Department and Wallace Group
Neighborhood Pattern & Design

NPD Credit 3: Diversity of Housing Types

**Intent:** To enable citizens from a wide range of economic levels and age groups to live within a community.

**Standard:**

Include a sufficient variety of housing sizes and types in the project such that the total variety of housing within the project, or within a ¼ mile of the center of the project, achieves at least 0.5 according to the following calculation, which is based on the Simpson Diversity Index using the housing categories below. The Simpson Diversity Index score is calculated with the following equation:

\[
\text{Score} = 1 - \sum \frac{n}{N^2}
\]

where \(n\) = the total number of dwellings in a single category, and \(N\) = the total number of dwellings in all categories.

<table>
<thead>
<tr>
<th>Type</th>
<th>Total Units</th>
<th># units/total units</th>
<th>result squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>2DU</td>
<td>12</td>
<td>0.012987013</td>
<td>0.000168663</td>
</tr>
<tr>
<td>4DU</td>
<td>25</td>
<td>0.027056277</td>
<td>0.000732042</td>
</tr>
<tr>
<td>6DU</td>
<td>165</td>
<td>0.178571429</td>
<td>0.031887755</td>
</tr>
<tr>
<td>8DU</td>
<td>24</td>
<td>0.025974026</td>
<td>0.00067465</td>
</tr>
<tr>
<td>10DU</td>
<td>*230</td>
<td>0.248917749</td>
<td>0.222943723</td>
</tr>
<tr>
<td>12DU</td>
<td>*262</td>
<td>0.283549784</td>
<td>0.08040048</td>
</tr>
<tr>
<td>16DU</td>
<td>*206</td>
<td>0.222943723</td>
<td>0.049703904</td>
</tr>
<tr>
<td>Total</td>
<td>924</td>
<td>SUM</td>
<td>0.22552739</td>
</tr>
</tbody>
</table>

**Meeting the Criteria:**

River Oaks II has a Simpson Diversity Index score of 0.8 which would earn the project 3 points for this credit. Within the project are seven different housing types, providing a range of prices and options for a variety of household types. The diverse mix of housing densities provided by the project is one of the strengths of River Oaks II.

**Credit Analysis:**

Encouraging a diversity of housing types will provide a range of housing prices. This is a beneficial and reasonable credit that can be applied in most any region or circumstance. Though, the credit is rewarded in a way that would be difficult for very small projects. For projects that consist of only two to ten housing units, a point may be earned for providing a different type of housing than what already exists in its surrounding vicinity. For example, if five housing units are being proposed in a predominantly single family dwelling unit neighborhood, the new project could provided mixed use or multifamily units to make the neighborhood that already exists more diverse. This could also be beneficial for neighborhoods that have predominantly multifamily dwellings; adding single family units would create diversity in a neighborhood that previously was not diverse.

*457 units that are a mix of 10/12/16 DU/acre were divided into three (132 - ten du/acre; 150 - twelve du/acre; 175 - 16 du/acre) and added to each 10, 12 and 16 totals.
Neighborhood Pattern & Design
NPD Credit 3: Diversity of Housing Types

Figure N-3.1: River Oaks II diversity of housing types based on varying densities

Source: City of Paso Robles Planning Department and Wallace Group
Neighborhood Pattern & Design

NPD Credit 4: Affordable Rental Housing

Intent: To enable citizens from a wide range of economic levels and age groups to live within a community.

Standard:
Include a proportion of rental units priced for households earning below area median income such that:

OPTION 1
At least 15% of total rental units are priced for households up to 50% of area median income and units are maintained at affordable levels for a minimum of fifteen years (1 point);

OR

OPTION 2
At least 30% of total rental units are priced for households up to 80% of area median income and units are maintained at affordable levels for a minimum of fifteen years (1 point);

OR

OPTION 3
At least 15% of total rental units are priced for households up to 50% of area median income and an additional 15% of total rental units are priced for households at up to 80% of area median income and units are maintained at affordable levels for a minimum of fifteen years (2 points).

Meeting the Criteria:
The many housing products that are being built as part of River Oaks II will provide opportunities for rental units. In order to maintain the affordable rental price for 15 years, public subsidies would most likely be required.

The City of Paso Robles did not have an inclusionary housing ordinance in place at the time of this study, but the City’s general plan does encourage the provision of affordable housing through various incentives, such as density bonuses, reduction in impact fees, or re-zoning. In addition to incentives, the City has the following affordable housing funding sources that could provide assistance in maintaining the affordable rental units’ price for the specified time period of 15 years: The federal Community Development Block Grant (CDBG) and Home Investment Partnership (HOME) grants, and local Redevelopment Low and Moderate Income Housing (LMIH) funds are available.

Renters make up a 42% of households in Paso Robles. At the time of this study, nine rental developments in Paso Robles provided subsidized affordable rental units.

Credit Analysis:
(See page 49, NPD Credit Five for affordable housing analysis).

Table N-4.3  Housing Tenure in Paso Robles, 2000

<table>
<thead>
<tr>
<th>Housing Tenure</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupied housing units</td>
<td>8,556</td>
<td>100.0</td>
</tr>
<tr>
<td>Owner-occupied housing units</td>
<td>5,008</td>
<td>58.5</td>
</tr>
<tr>
<td>Renter-occupied housing units</td>
<td>3,548</td>
<td>41.5</td>
</tr>
<tr>
<td>Average household size of owner-occupied units</td>
<td>2.69 (X)</td>
<td></td>
</tr>
<tr>
<td>Average household size of renter-occupied units</td>
<td>2.79 (X)</td>
<td></td>
</tr>
</tbody>
</table>

Source: US Census, 2000

Table N-4.2  2008 Paso Robles Household Size and Income

<table>
<thead>
<tr>
<th>Income Group*</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Low (30%)</td>
<td>14,050</td>
<td>16,100</td>
<td>18,100</td>
<td>20,100</td>
<td>21,700</td>
<td>23,300</td>
<td>24,900</td>
<td>26,550</td>
</tr>
<tr>
<td>Very Low (50%)</td>
<td>23,450</td>
<td>26,800</td>
<td>30,150</td>
<td>33,500</td>
<td>36,200</td>
<td>38,850</td>
<td>41,550</td>
<td>44,200</td>
</tr>
<tr>
<td>Low (80%)</td>
<td>37,500</td>
<td>42,900</td>
<td>78,250</td>
<td>53,600</td>
<td>57,900</td>
<td>62,200</td>
<td>66,450</td>
<td>70,750</td>
</tr>
<tr>
<td>Median (100%)</td>
<td>46,900</td>
<td>53,600</td>
<td>60,300</td>
<td>67,000</td>
<td>72,400</td>
<td>77,700</td>
<td>83,100</td>
<td>88,400</td>
</tr>
<tr>
<td>Moderate (120%)</td>
<td>56,300</td>
<td>64,300</td>
<td>72,400</td>
<td>80,400</td>
<td>86,800</td>
<td>93,300</td>
<td>99,700</td>
<td>106,100</td>
</tr>
</tbody>
</table>

Source: Department of Housing and Community Development, 2008

Table N-4.1 HUD data on area median income

<table>
<thead>
<tr>
<th>State</th>
<th>County</th>
<th>MSA</th>
<th>HUD Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA SAN LUIS OBISPO COUNTY, CA</td>
<td>SAN LUIS OBISPO-PASO ROBLES, CA</td>
<td>67,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50% of area median 33,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>80% of area median 53,600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table N-4.4 Results of 2008 HUD Area Median Income Search

Source: Department of Housing and Community Development, 2008
Neighborhood Pattern & Design

NPD Credit 5: Affordable For-Sale Housing

Intent: To enable citizens from a wide range of economic levels and age groups to live within a community.

Standard:

OPTION 1
At least 10% of for-sale housing is priced for households up to 80% of the area median income (1 point);
OR
OPTION 2
At least 20% of for-sale housing is priced for households up to 120% of the area median income (1 point);
OR
OPTION 3
At least 10% of for-sale housing is priced for households up to 80% of the area median income and an additional 10% of for-sale housing is priced for households at up to 120% of the area median income (2 points).

Meeting the Criteria:

As stated in NPD Credit 4, Paso Robles did not have an inclusionary housing ordinance in place at the time of this study, thus it is not required to provide affordable housing in the project. River Oaks II does not set aside a percentage of affordable units due to the economic infeasability of doing so. Due to the high cost of building fees, it is more and more challenging for developers to provide affordable units unless the City is provides aggressive relaxation of fees, or subsidies to incentivize affordable for sale housing. Even with the help of the City, it may not be feasible to provide affordable for-sale housing for River Oaks II, thus points for this credit will most likely not be pursued.

There are 924 dwelling units proposed in River Oaks II, thus for option one, 92 units would need to be priced for 80% of the median area income. 80% of the area median area income is $53,600. Option two would require 185 units be priced at 120% of area median income, a price tag of $80,400. Option three would be a combination of the two (10% for $53,600 and 10% for $80,400). The median home price in Paso Robles in 2008 was $396,500 (http://www.slowatch.com/median_home_prices.htm, 2008).

Credit Analysis:

California has some of the most aggressive inclusionary housing policies in the nation, and some of the most unaffordable housing in the nation at the same time. Affordable housing is an important element in developing sustainable, green communities because it allows people to live near jobs and town centers, reducing vehicle miles traveled. Providing affordable housing may be very challenging for some projects, but is an appropriate criteria for green development.

A potential problem with NPD credits 4 and 5 is the method for calculating sufficient affordable housing provisions. Because LEED-ND certifies projects that contain a minimum of two buildings and no maximum number of buildings, the difference in size of various projects would create an imbalance in the proportionate amount of affordable housing that would be required. A project that is two buildings would only need to fund affordable housing for one building to achieve this credit yet for a 1,000 unit development, 100 affordable units at 80% area median income would be required. It might be more reasonable for projects to be divided into categories based on their size, then certain percentages would apply to different project size categories.

Table N-4.1 2008 HUD estimates for Paso Robles area median income

<table>
<thead>
<tr>
<th>State</th>
<th>County</th>
<th>MSA</th>
<th>HUD Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>SAN LUIS OBISPO COUNTY, CA</td>
<td>SAN LUIS OBISPO-PASO ROBLES, CA</td>
<td>67,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80% of area median</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>102% of area median</td>
</tr>
</tbody>
</table>

Source: HUD
NPD Credit 6: Reduced Parking Footprint

Intent: Design parking to increase the pedestrian orientation of projects and to minimize the adverse environmental effects of parking facilities.

Standard:

For any non-residential buildings and multifamily residential buildings that are part of the project, locate all off-street surface parking lots at the side or rear of buildings, leaving building frontages and streetscapes free of surface parking lots;

AND

Use no more than 20% of the total development footprint area for surface parking facilities, with no individual surface parking lot larger than 2 acres. For the purposes of this credit, surface parking facilities include ground-level garages unless they are under or over space intended for human occupancy. Underground or multi-story parking facilities can be used to provide additional capacity, and on-street parking spaces are exempt from this limitation;

AND

For any non-residential buildings and multifamily residential buildings that are part of the project, provide bicycle and/or carpool parking spaces equivalent to 10% of the total automobile parking for each non-residential and multifamily building on the site. Signage indicating carpool parking spots should be provided, and bicycle parking should be within 200 yards of the entrance to the building that it services. The 10% carpool/bicycle space requirement can be met with any combination of bicycle and carpool parking.

Meeting the Criteria:

To achieve credit 6, Reduced Parking Footprint, all non-residential and multifamily residential buildings' off-street parking lots should be located to the side or rear of buildings, leaving building frontages and streetscapes free of surface parking lots. This design concept is reflected in many of the residential concept drawings for River Oaks II (Figure N-6.1).

In addition, surface parking lots for non-residential and multifamily residential buildings would have to be limited to 169,012 sq.ft. or 20% of the 845,064 sq.ft. development footprint. Angled parking lots have a capacity of approximately one parking space per 281.7 sq. ft. Thus for 982 spaces, the total parking footprint for River Oaks II would be at least 276,629 sq.ft. This calculation is based on standard parking lot size and does not take into consideration special site circumstances such as slope.

Of the 982 parking spaces that would be required by City standards, 98 spaces would have to be designated for bike or carpool. Based on early estimations of buildingsquare feet for non-residential uses and multifamily units, this credit may be feasible for River Oaks II.

<table>
<thead>
<tr>
<th>Non-Residential and Multifamily Use</th>
<th>Multiplication Factor</th>
<th>Required Spaces per Factor</th>
<th>Total Required</th>
<th>10% of total for bike/carpool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitality</td>
<td>130 rooms</td>
<td>1.5 (+add'l 5)</td>
<td>200</td>
<td>20</td>
</tr>
<tr>
<td>Conference center</td>
<td>10,000 sq. ft.</td>
<td>0.01</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Health and Fitness Center</td>
<td>15,000 sq. ft.</td>
<td>0.01</td>
<td>150</td>
<td>15</td>
</tr>
<tr>
<td>Spa</td>
<td>8,000 sq. ft.</td>
<td>0.01</td>
<td>80</td>
<td>8</td>
</tr>
<tr>
<td>Restaurant</td>
<td>40,000 sq. ft.</td>
<td>0.01</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>Multifamily Estimate</td>
<td>206 (16 du/acre)</td>
<td>2</td>
<td>412</td>
<td>41</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>982</strong></td>
<td><strong>98</strong></td>
</tr>
</tbody>
</table>

Source: City of Paso Robles Planning Department and Wallace Group

Credit Analysis:

Locating parking lots such that buildings may be oriented better for the pedestrian is becoming more common as a form based standard that many City's are encouraging. This criteria is beneficial and shouldn't be too difficult to achieve. It would also be very feasible to allocate 10% of the parking for bike or carpool spaces.

The requirement for surface parking lot square feet is unclear in that 20% the total development footprint is a very large area for surface parking facilities; it seems that the 20% should come out of the non-residential and multifamily footprint total, instead of the entire development footprint.

Recommended documentation:

- A site plan indicating the location of all surface, underground, or multi-story parking facilities, including relevant carpool and bicycle spaces and carpool signage. For bicycle spaces provided for non-residential buildings, indicate the distance between the spaces and the entrance to the building they serve.
- The percentage of total development footprint that is used for surface parking facilities.
- The size of each individual parking lot that is part of the project.
- For any non-residential or multifamily residential buildings, submit the number of conventional automobile parking spaces, carpool spaces, and bicycle parking spaces that will be provided.
- Confirm that signage will be provided for any carpool spaces.
Neighborhood Pattern & Design

NPD Credit 7: Walkable Streets

Intent: Provide appealing and comfortable pedestrian street environments in order to promote pedestrian activity. Promote public health through increased physical activity.

Standard:
Design and build the project such that all of the following are achieved (4 points):

a. A principal functional entry of each building has a front façade that faces a public space such as a street, square, paseo, or plaza.

b. A minimum of 30% of all street frontages located within the project, if any, are planned for development that complies with the minimum building-height-to-street-width proportions of 1:3; and where building sites are planned along streets bordering the project, a minimum of 15% of the total street frontage of such sites contains (or is dedicated to) development that will produce a building-height-to-street-width proportion of 1:3. Street frontages are to be measured in linear feet.

c. Continuous sidewalks or equivalent provisions for walking are provided along both sides of all streets within the project. New sidewalks must be at least 4 feet wide. Equivalent provisions for walking include woonerfs and footpaths.

d. All streets along exclusively residential blocks within the project, whether new or existing, are designed for a maximum speed of 20 mph.

e. All streets along non-residential or mixed-use blocks within the project, whether new or existing, are designed for a maximum speed of 25 mph.

If the above measures are achieved, the project may earn additional points as follows: 1 point for designing and building the project such that any three measures on the list below are accomplished (up to 4 additional points):

f. The front façades of at least 80% of all buildings are no more than 25 feet from front property line.

g. The front façades of at least 50% of all buildings are no more than 18 feet from the front property line.

h. The front façades of at least 50% of mixed-use and non-residential buildings are contiguous to the sidewalk.

i. Functional building entries occur every 75 feet, on average, along non-residential or mixed use blocks.

j. All ground-level non-residential interior spaces that face a public space have transparent glass on at least 33% of the ground-level façade.

k. No blank (without doors or windows) walls longer than 50 feet occur along sidewalks. Walls with public art installations such as murals may be exempted.

l. Any ground-level storefront windows must be kept open and visible (unshuttered) at night, and this must be stipulated to future owners in CC&Rs or other binding documents.

Credit Analysis:
The Walkable Streets credit offers a higher number of points as an incentive for projects to focus on the pedestrian experience. The intention of this credit could include the environmental benefits of creating walkable streets as well as the recognized health benefits.

Meeting the Criteria:
A detailed site plan with building orientation and lot layout was not developed at the time of this study. To achieve at least the minimum four points of this credit it is recommended to orient buildings so that their front façade and principal entry face the street. Building to height proportion should be 1:3 for at least 30% of all street frontages.

River Oaks II plans to provide continuous sidewalks on all streets.

Residential streets would need to have a minimum 20 mph speed limit, while non-residential streets would need to be a minimum 25 mph.

This credit may be feasible, depending on the opportunities and constraints of building orientation to the street and whether or not it would be reasonable to require the minimum speed limits.
Neighborhood Pattern & Design

NPD Credit 8: Street Network

Intent: Encourage the design of projects that incorporate high levels of internal connectivity and the location of projects in existing communities in order to conserve land, promote multimodal transportation and promote public health through increased physical activity.

Standard:

If new cul-de-sacs are created as part of the project, include a pedestrian or bicycle through-connection in at least 50% of any new cul-de-sacs. If topographical conditions prohibit such connections, these are not included in the calculation.

AND

OPTION 2 – FOR PROJECTS 7 ACRES OR LARGER
Design the project such that the project’s average street grid density falls within one of the ranges listed in the table below:

<table>
<thead>
<tr>
<th>Street grid density (centerline miles/sq.mi.)</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 29</td>
<td>1</td>
</tr>
<tr>
<td>&gt;30</td>
<td>2</td>
</tr>
</tbody>
</table>

Meeting the Criteria:

At the time of this study a detailed street network had not been created, therefore a recommendation for street grid density is provided instead. Based on the street grid density for River Oaks I (Table S-8.1), it would be feasible for River Oaks II to obtain a street grid density of over 20, which would earn the project one point for this credit. The total square miles of River Oaks II is 0.39. In order to achieve a street grid density of at least 20, street center line miles would need to sum 7.8 miles within River Oaks II (Table N-8.1).

Credit Analysis:

The street grid density concept is a good measure for internal connectivity, though it could also be contradictory to some of LEED’s other credits which promote reducing paved surfaces. The project is rewarded in this credit for including more street surfaces within the project, but penalized for increased paved (impervious) surfaces in the Green Construction and Technology section. The objective, then, is to design the street network for sufficient connectivity and efficient circulation with as little impervious surface as possible.

Street grid density does not require that the street network be designed as a grid; streets can be curvelinear, so long as there are enough streets that their sum is high in relation to the total square miles of the project.
**Neighborhood Pattern & Design**

**NPD Credit 9: Transit Facilities**

**1 Point**

**Intent:** Encourage transit use and reduce driving by creating safe and comfortable transit facilities.

**Standard:**
Provide covered and at least partially enclosed shelters, adequate to buffer wind and rain, with at least one bench at each transit stop within the project boundaries. Shelters shall be illuminated to five average maintained footcandles (light levels may be reduced after hours). Existing external lighting can contribute to this level, but any new lighting shall meet light pollution requirements in GCT Credit 20, and designed to not directly illuminate any windows of residential properties. 

AND

Provide kiosks, bulletin boards, and/or signs devoted to providing local transit information as part of the project, including basic schedule and route information at each transit stop that borders or falls within the project.

**Meeting the Criteria:**
River Oaks II will add at least two new transit stops within the project boundary. The transit stops should provide shelter and seating as well as evening illumination. Transit schedule information will be posted at each stop that will include information about other regional transit connections.

**Credit Analysis:**

**Standard:**
Provide covered and at least partially enclosed shelters, adequate to buffer wind and rain, with at least one bench at each transit stop within the project boundaries. Shelters shall be illuminated to five average maintained footcandles (light levels may be reduced after hours). Existing external lighting can contribute to this level, but any new lighting shall meet light pollution requirements in GCT Credit 20, and designed to not directly illuminate any windows of residential properties.

AND

Provide kiosks, bulletin boards, and/or signs devoted to providing local transit information as part of the project, including basic schedule and route information at each transit stop that borders or falls within the project.

**Credit Analysis:**

River Oaks II will add at least two new transit stops within the project boundary. The transit stops should provide shelter and seating as well as evening illumination. Transit schedule information will be posted at each stop that will include information about other regional transit connections.
Neighborhood Pattern & Design

NPD Credit 10: Transportation Demand Management

Intent: Reduce energy consumption and pollution from motor vehicles by encouraging use of public transit.

Standard:

OPTION 1
Create and implement a comprehensive transportation demand management (TDM) program for the project aimed at reducing weekday peak period trips by at least 20% compared to the forecasted trip generation for the project without the TDM strategies; and fund for a minimum of two years following buildout of the project (1 point);

OR

OPTION 2
Provide transit passes valid for at least one year, subsidized to be half of regular price or cheaper, to each resident and employee locating within the project during the first three years of project occupancy (or longer). Publicize the fact that subsidized transit passes are available to the eligible residents and employees (1 point);

OR

OPTION 3
Provide transit service (with vans, shuttles, buses) to rail, ferry, or other major transit facilities and/or another major destination such as a retail or employment center, with service no less frequent than five rides per weekday peak period. The service must begin when the project is 20% occupied or sooner, and must be guaranteed for at least two years beyond project buildout (1 point).

Meeting the Criteria:

For River Oaks II option one or three of the Transportation Demand Management credit would be the most feasible. The San Luis Obispo region does not have a sufficient population density to support a public rail transit system. The regional bus system (SLORTA) offers connections to all cities and urban areas within the SLO region. A major transit facility in Paso Robles is the Pine and 8th street Multi-Modal Transfer Center, where SLORTA (regional) PRCATS (local) buses and the Amtrak train stop. It is also a park and ride lot, where vanpools and carpools meet. The North County shuttle, which currently serves the River Oaks neighborhoods with a stop at Cuesta College, provides 12 rides a day to the multimodal transit center in Paso Robles. From the multimodal transit center, SLORTA route 9 connects riders to the greater SLO region. With the addition of at least two new bus/shuttle stops within River Oaks II, there will be more than 12 rides a day to the multimodal transit facility.

Option one could be accomplished through the use of Cal Poly student work, if a senior or master's City and Regional Planning or Transportation Engineering student took on the task of creating and implementing a Transportation Demand Management program for River Oaks II as part of their senior or Master's project. This would be a relatively inexpensive way to achieve option one for this credit.

Credit Analysis:

The Transportation Demand Management credit is a useful standard that provides several ways that projects can reduce the transportation demand that would be created by the project. Each option seems reasonable to pursue, depending on the size of the project. For River Oaks II, a project that would be adding approximately 2500 people option 2 would less feasible because of the greater cost it implies for larger projects.

Option three is geared towards areas the more likely have high speed rail systems or other modes of public transit other than bus. For a region like San Luis Obispo, the bus is the only regional, far reaching service that exists. The Amtrak train is also a bonus for the region, providing connections along the entire west coast and beyond.
Figure N-3.1: River Oaks II diversity of housing types based on varying densities

Source: SLO Council of Governments
Neighborhood Pattern & Design

NPD Credit 11: Access to Surrounding Vicinity

1 Point

Intent: Provide direct and safe connections, for pedestrians and bicyclists as well as drivers, to local destinations and neighborhood centers. Promote public health by facilitating walking and bicycling.

Standard:

Design and build projects such that there is at least one through-street at the project boundary every 800 feet, or at existing abutting street intervals, whichever distance is smaller. This does not apply to connections that cannot physically be made; e.g. wetlands, rivers, railroads, extreme topography, natural gas lines, pipeline easements, highways, expressways and other limited-access roads.

Meeting the Criteria:

At the time of this study a detailed street network had not been created. Along the northern edge of the boundary through-streets are limited due to agricultural lands. The City of Paso Robles requires a 300 foot buffer between residential development and agricultural uses. The western edge of the boundary is not suitable for through-streets, as it is within the Salinas River Riparian corridor. Thus, areas that would apply in calculating this credit are along the southern and eastern boundaries. Figure N-11.1 shows the distance between primary through-streets at the project boundary. As of now, no primary through-street distance along the boundary is less than 800 feet.

To achieve this credit minor through-streets may be added that would intersect the project boundary, decreasing the distances between through-streets.

Credit Analysis:

The Access to Surrounding Vicinity credit is a reasonable credit that not only benefits residents of the project for increased access to areas outside the project boundary, but also for overall circulation surrounding the project so that as future development fills in around River Oaks II, it will be easily integrated into the new street networks. This will create more efficient circulation within and through the project.
Figure N-4.1: River Oaks II primary street through-fares at boundary edges
**Neighborhood Pattern & Design**

**NPD Credit 12: Access to Public Spaces**

**Intent:** To provide a variety of open spaces close to work and home to encourage walking, physical activity and time spent outdoors.

**Standard:**

Locate and/or design project so that a park, green plaza or square at least 1/6 acre in area, and at least 150’ in width, lies within 1/6 mile walk distance of 90% of the dwelling units and business entrances in the project. Parks less than 1 acre must also have a proportion no narrower than 1 unit of width to 4 units of length;

AND

For projects larger than 7 acres only, locate and/or design the project so that taken together all of the parks in the project shall average at least 1/2 acre in size.

**Meeting the Criteria:**

Every open space area in River Oaks II is over one acre, except for the “promenade”, which is .85 acres. The main public spaces in River Oaks II are the community center plaza and the outdoor amphitheater (see Figure N-12.1). Other park-like spaces may include the passive open space along the northwest boundary of the property, the ag buffer zone along the northern boundary and the vineyard. All together, parks, open space, plazas, the vineyard and recreation space have an average acreage of 8.9 acres (Table N-12.1)

This credit would be feasible for River Oaks II.

**Credit Analysis:**

The Access to Public Spaces credit provides environmental and social benefits. Parks help lessen heat island effect and help with stormwater drainage. And public open spaces are important for providing areas that community residents can be active in and use for socializing and community building. These are also features that are very marketable in master planned communities, thus this credit is not unreasonable.
Figure N-12.1: River Oaks II open spaces, parks, recreation and public space in relation to housing

Source: City of Paso Robles Planning Department and Wallace Group
Neighborhood Pattern & Design

NPD Credit 13: Access to Active Spaces

1 Point

Intent: To provide a variety of open spaces close to work and home to encourage walking, physical activity and time spent outdoors.

Standard:

OPTION 1
Locate and/or design the project so that an active open space facility (e.g., general playfields, soccer, baseball, basketball and other sports fields) of at least 1 acre lies within ½ mile walk distance of 90% of the dwelling units and business entrances in the project;

OR

OPTION 2
Locate and/or design the project so that at least 50% of dwelling units and business entrances are located within ¼ mile walk distance of a multi-use trail or Class I bikeway of at least 3 miles in length;

OR

OPTION 3
Locate and/or design the project so that at least 90% of all dwelling units and business entrances in the project are located within ¼ mile walk distance of a public recreation center or gym with outdoor facilities or a park with active recreational facilities.

Meeting the Criteria:

River Oaks II is at a great advantage for earning the Access to Active Spaces credit, with its planned recreational amenities that include:

• 4.5 miles Hiking and Recreational Trails
• 2.2 miles Pedestrian Trails adjacent to Primary Roads
• 64 acres Open Space
• 31 acres Recreation (Practice Fields, Golf Course and Parcours)
• 3 acres Neighborhood Recreation (Parks, Lap and Social Pools, Children’s Water Park, Volleyball and Multi-Sport Courts)
• 2 Hot Mineral Wells
• 8,000 square foot Spa with Natural Hot Mineral soaking waters
• 15,000 square foot Health and Wellness and Fitness Center

All of these amenities are within walking and biking distance from all the residential neighborhoods in the project.

Credit Analysis:

The Access to Active Spaces credit promotes neighborhoods that offer opportunities for residents to lead active lives. This is also a very marketable feature for master planned communities, thus it shouldn't be a difficult credit to achieve.
**Neighborhood Pattern & Design**

**NPD Credit 14: Universal Accessibility**

**Intent:** Enable the widest spectrum of people, regardless of age or ability, to more easily participate in their community life by increasing the proportion of areas that are usable by people of diverse abilities.

**Standard:**

For each residential unit type developed, design 20% (and not less than one) of each type to comply with the accessible design provisions of the Fair Housing Amendments Act (FHAA) and Section 504 of the Rehabilitation Act (Rehabilitation Act), as applicable. Separate residential unit types include: singlefamily, duplex, triplex, multi-unit row or townhouses, and mixed-use buildings that include residential units. (Compliance for multi-family buildings of four or more units is already a regulatory requirement.). All paths of travel between residential units and other buildings within the project shall comply with the accessible design provisions of the FHAA and Rehabilitation Act, as applicable.

AND

For projects with common-use or recreational facilities constructed as part of the project:

- For any residential areas, apply the accessible design provisions of the FHAA and the Rehabilitation Act to facilities and rights-of-way; and
- For any non-residential areas, apply the accessible design provisions of the American Disabilities Act (ADA) to facilities and rights-of-way.

Projects that include only non-residential components and public right-of-ways will not be able to achieve this credit, since they are already required by law to comply with applicable accessibility regulations. However, if non-residential projects include any common-use or recreational facilities not covered by accessibility regulations, they will be able to achieve the credit.

Regarding residential accessibility design provisions, an accessible entrance can be located at the front, side or back of the residential unit, which may sometimes be determined by the topography of the site.

**Meeting the Criteria:**

The level of difficulty of achieving this credit for ROI has not yet been determined. A cost analysis of building FHAA and Rehabilitation Act features into buildings would need to be assessed to determine whether or not River Oaks II could achieve this credit.

The table below lists the number of dwelling units being proposed for each residential type and the corresponding proportion that would need to comply with FHAA Rehabilitation Act standards, according to the LEED-ND standard.

**Credit Analysis:**

The Universal Accessibility credit can be achieved by spending extra money to build in FHAA and Rehabilitation Act features. It is not site specific; it is a fair credit that anyone may pursue as long as they can finance the added cost.

<table>
<thead>
<tr>
<th>Residential Type</th>
<th>Units</th>
<th>20% of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFD</td>
<td>12</td>
<td>2.4</td>
</tr>
<tr>
<td>SFD</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>SFD-Senior</td>
<td>165</td>
<td>33</td>
</tr>
<tr>
<td>SFD</td>
<td>24</td>
<td>4.8</td>
</tr>
<tr>
<td>SFD</td>
<td>66</td>
<td>13.2</td>
</tr>
<tr>
<td>SFD</td>
<td>32</td>
<td>6.4</td>
</tr>
<tr>
<td>Townhome/condo</td>
<td>39</td>
<td>7.8</td>
</tr>
<tr>
<td>Townhome/condo</td>
<td>28</td>
<td>5.6</td>
</tr>
<tr>
<td>Townhome/condo</td>
<td>19</td>
<td>3.8</td>
</tr>
<tr>
<td>Townhome/condo</td>
<td>26</td>
<td>5.2</td>
</tr>
<tr>
<td>Townhome/condo</td>
<td>457</td>
<td>91.4</td>
</tr>
<tr>
<td>Townhome/condo</td>
<td>31</td>
<td>6.2</td>
</tr>
<tr>
<td>TOTALS</td>
<td>924</td>
<td>184.8</td>
</tr>
</tbody>
</table>
Intent: To encourage community participation in the project design and planning and involve the people who live in a community in deciding how it should be improved or how it should change over time.

Standard:

Meet with immediate neighbors and local public officials to solicit input on the proposed project during the pre-conceptual design phase,

AND

Host an open community meeting during conceptual design phase to solicit input on the proposed project,

AND

Modify the project design as a direct result of community input, or if modifications are not made, explain why community input did not generate design improvements,

AND

Work directly with community associations and/or other social networks of the community to advertise public meetings and generate comments on project design,

AND

Establish ongoing means for communication between the developer and the community throughout the design, construction, and in cases where the developer maintains control of part or the entire project, postconstruction.

Meeting the Criteria:

At the time of this study, River Oaks II was in the early stages of the development process. Several public hearings had been held for re-zoning the property; public comment was heard. Future opportunities for community involvement may be available as the design moves into more detailed stages.

It is not possible at this time to determine whether or not River Oaks II could achieve this point.

Credit Analysis:

The Community Outreach and Involvement credit is a beneficial credit for both developers and the public. In engaging the public you not only show that you care what the community thinks about the project and that you are willing to listen to their ideas, but by garnering public support for the project it can ease the entitlement process. Final approval of a project will be much easier with public support.
Neighborhood Pattern & Design

NPD Credit 16: Local Food Production

Intent: Promote community-based and local food production to minimize the environmental impacts from transporting food long distances and increase direct access to fresh foods.

Standard:

Establish CC&Rs or other forms of deed restrictions that do not prohibit areas for growing produce, including greenhouses, on any portion or area of residential front yards, rear yards, side yards, balconies, patios or rooftops. Greenhouses, but not gardens, may be prohibited in front yard areas that face the street. AND

Meet the requirements under one of the following Options:

OPTION 1 – NEIGHBORHOOD FARMS AND GARDENS
Dedicate permanent and viable growing space and/or related facilities (such as greenhouses) within the project at the square footage areas specified below. Provide fencing, watering systems, soil and/or garden bed enhancements (such as raised beds), secure storage space for garden tools, solar access, and pedestrian access for these spaces. Ensure that the spaces are owned and managed by an entity that can include occupants of the project in its decision-making, such as a community group, a homeowners association, or a public body.

<table>
<thead>
<tr>
<th>Project density (dwelling unit/acre)</th>
<th>Required growing space (sq ft per dwelling unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 to 14</td>
<td>200</td>
</tr>
<tr>
<td>&gt; 14 and ≤ 22</td>
<td>100</td>
</tr>
<tr>
<td>&gt; 22 and ≤ 28</td>
<td>80</td>
</tr>
<tr>
<td>&gt; 28 and ≤ 35</td>
<td>70</td>
</tr>
<tr>
<td>&gt; 35</td>
<td>60</td>
</tr>
</tbody>
</table>

OPTION 3 – PROXIMITY TO FARMERS’ MARKET
Locate and/or design project such that the center is within ¼ mile of an established farmer’s market (that has been operating for at least two years), with at least three producer vendors, and that operates at least once a week for at least 5 months of the year.

Meeting the Criteria:

An integral part of River Oaks II will be the 25 acre sustainable vineyard. While, not a food crop, the wine grapes represent the agricultural and viticulture heritage of the region; their cultivation promotes appreciation of agriculture in general.

Neighborhood gardens and private gardens in yards, or patios should be permitted and encouraged within River Oaks II. In addition, there are three farmer’s markets in Paso Robles on different days of the week, providing the community with ample opportunities to buy local fresh produce. The farmer’s markets are not within a ¼ mile of the center of the project; for this reason it may not be feasible to achieve this point.

Paso Robles Country Farm and Craft Market
Paso Robles, CA
(805) 237-0345
Saturdays 8am - 12:20pm

Paso Robles Farmer’s Market
Wal-Mart parking lot at Niblick Rd. and River Rd., Paso Robles, CA
Fridays 9am - 12:30pm

Paso Robles Farmers Market - City Park
City Park
Paso Robles, CA
(805) 237-2113
Tuesdays 3pm - 6pm

Credit Analysis:

The Local Food Production credit is a valuable standard for projects especially in our age of increased gas prices and climate change which affect and are affected by the shipment of produce from all regions of the world. It seems that a more reasonable distance for the location of a farmer’s market would be within a 1/2 mile of the project center.

This may be a difficult credit for projects that are located in areas without an abundance of cropland or less than ideal farming conditions. This credit brings into question the appropriateness of human settlements in areas that do not provide conditions for local food production. California has a great advantage over many places, as it is one of the biggest producers of food crops in the nation.
Green Construction and Technology
Green Construction and Technology

GCT Prerequisite 1: Construction Activity Pollution Prevention

Intent: Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation

Standard:
Create and implement an Erosion and Sedimentation Control (ESC) Plan for all construction activities associated with the project. The ESC Plan shall list the Best Management Practices employed and describe how the BMPs accomplish the following objectives:

- Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of any impacted stormwater conveyance systems or receiving streams.
- Prevent polluting the air with dust and particulate matter.

The BMPs shall be selected from the 2003 EPA Construction General Permit (CGP) or local erosion and sedimentation control standards and codes, whichever is more stringent.

Meeting the Criteria:
See Paso’s Title 20 requirements

Recommended documentation (LEED-ND, June 2007):
Site plan indicating where erosion and sedimentation control will be necessary during construction, and a written commitment that an ESC plan will be created and implemented if the project is built, or confirmation that local code requires the same provisions.

Prerequisite Analysis:
The Construction Activity Pollution Prevention prerequisite requires a construction standard that is commonly required by many jurisdictions today.

Green Construction and Technology

GCT Credit 1: LEED Certified Green Buildings

Intent: Encourage the design and construction of buildings to utilize green building practices.

Standard:

OPTION 1 – FOR PROJECTS WITH 5 OR FEWER HABITABLE BUILDINGS
Design, construct, or retrofit one building as part of the project to be certified under one of the following LEED building rating systems: LEED for New Construction, LEED for Existing Buildings, LEED for Homes, LEED for Core & Shell, LEED for Schools, or any Application Guides of these rating systems (1 point). Additional points (no more than 3 total) may be earned for each additional certified building that is part of the project;

OR

OPTION 2 – FOR PROJECTS WITH 6 OR MORE HABITABLE BUILDINGS
Design, construct, or retrofit a percentage of the square footage of buildings that are part of the project to be certified under one of the LEED building rating programs listed above. Points are available as follows:

<table>
<thead>
<tr>
<th>Percent of square footage of project’s buildings LEED certified</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>20% to 30%</td>
<td>1</td>
</tr>
<tr>
<td>&gt; 30% to 40%</td>
<td>2</td>
</tr>
<tr>
<td>&gt; 40%</td>
<td>3</td>
</tr>
</tbody>
</table>

Meeting the Criteria:

River Oaks II consists of more than 6 habitable buildings (there are 924 units total), thus option two of this credit would apply. In order for River Oaks II to achieve at least one point for this credit, a minimum of 20% of the total building square footage of the project would need to be LEED certified under one of the rating systems listed in the standard. The approximate total building square footage of River Oaks II is 1,611,700 sqft. Based on this number, 322,340 sqft of project buildings would need to be LEED certified. This may be roughly equal to 180 residential units (based on average square feet of various residential products).

It was not the intention at the time of this study to certify any of the buildings within River Oaks II under a LEED rating system. However, it is the intention to design and construct buildings using green building standards. Residential buildings will be designed using the Energy Star standards and would be evaluated through a local association, SLO Green Build using their “Green Points” system. Non-residential buildings may be designed, constructed and rated using standards such as those developed by SLO Green Build.

As long as the USGBC requires buildings within the project to be LEED certified, points for this credit would not be feasible for River Oaks II.

Credit Analysis:

Credit one of the Green Construction and Technology section would not be feasible for River Oaks II. This is not necessarily because 20% of the project’s building square footage would not be designed and constructed using green building principles and standards, but because a LEED rating system would likely not be used to rate the buildings. The main reason that LEED certification for buildings would not be pursued is because of the added time and cost of the LEED certification process for buildings.
Intent: Encourage the design and construction of energy efficient buildings to reduce air, water, and land pollution and environmental impacts from energy production and consumption.

Standard:

Design and construct at least 90% of all buildings in the project such that they meet one of the following requirements according to the appropriate category:

(for minimum one point)

Category 1: For non-residential buildings and residential buildings over 3 stories:

WHOLE BUILDING ENERGY SIMULATION

Demonstrate a minimum 10% improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 (without addenda) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard. Appendix G requires that this energy analysis include all of the energy costs within and associated with the building project. To achieve this point, the proposed design:

• must comply with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) in Standard 90.1-2004 (without addenda);
• must include all the energy costs within and associated with the building project;
• must be compared against a baseline building that complies with Appendix G to Standard 90.1-2004 (without addenda). The default process energy cost is 25% of the total energy cost for the baseline building. For buildings where the process energy cost is less than 25% of the baseline building energy cost, the LEED submittal must include all of the energy costs within and associated with the building project;

For Prescriptive Performance Path A and B see LEED-ND rating system

Meeting the Criteria:

In California, for non-residential buildings, state-developed code, Part 6 of Title 24, which meets or exceeds ASHRAE/IESNA 90.1-2004, is mandatory statewide. For residential buildings, State-developed code, Part 6 of Title 24, which exceeds 2006 IECC is mandatory statewide (http://www.energycodes.gov/implement/state_codes/state_status.php?state_AB=CA : website retrieved July, 2008). Thus, non-residential buildings are required to at least build to the ASHRAE 90.1 2004 standard; improving the performance of the building by 10% for non-residential buildings would be feasible for River Oaks II.

A whole building simulation per ASHRAE standard 90.1-2004 was not feasible at the time of this study. The simulation requires computer software and mechanical engineering knowledge that was not available. The ASHRAE 90.1 2004 standard is available for purchase online at: www.ashrae.org. Software is available for computer or on-line compliance with national codes such as IECC (through 20030 and ASHRAE/IESNA (through 2001).

Addendum G of the ASHRAE 90.1 2004 Standard gives credit for:
•Building orientation
•Interior and exterior automatic shading devices
•Occupancy sensors and timers
•Efficient plug loads
•Under floor and thermal displacement systems

Credit Analysis:

90.1-2004 outlines minimum requirements for a building's envelope, electrical power systems and equipment, lighting, heating, ventilating and air conditioning, service, water heating, and energy management. As energy costs rise and energy saving technology becomes more affordable, State regulations have lagged in keeping up with tightening energy savings standards. ASHRAE has therefore taken steps to create more stringent standards that States may choose to adopt in the future as they catch up.

In some states the ASHRAE 90.1 2004 standard is already a required minimum for non-residential buildings. A 10% improvement as compared to the building's baseline performance would not be unreasonable to achieve.
Intent: Minimize water use in buildings and for landscape irrigation to reduce the impact to natural water resources and reduce the burden on municipal water supply and wastewater systems.

Standard:

Design and construct at least 90% of all buildings in the project such that they meet one of the following requirements according to the appropriate category:

(for minimum one point)

Category 1: For non-residential buildings and residential buildings over 3 stories: Employ strategies that in aggregate use 30% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures (as applicable to the building): water closets, urinals, lavatory faucets, showers, and kitchen faucets.

Category 2: For residential buildings 3 stories or fewer:

Comply with all of the following requirements:

- The average flow rate for all lavatory faucets must be ≤ 2.0 GPM.
- The average flow rate for all shower heads must be ≤ 2.0 GPM.
- The average flow rate for all toilets, including dual-flush toilets, must be ≤ 1.3 GPF.

Meeting the Criteria:

Non-residential:

1. How many toilets, sinks, and showers will be in each building?
2. Estimate occupancy usage
3. Calculate the amount of water used based on 1992 requirements
4. Calculate amount of water used with changes to fixtures.

Exceeding the 1992 requirements for water fixture performance would be feasible for buildings in River Oaks II.

Recommended Documentation (LEED-ND, June 2007)

Calculate design use for sewage conveyance. Include water-efficient plumbing fixture requirements in the project specifications. Specify dual-flush toilets, low-flow lavatories with automatic faucets, and waterless urinals. If applicable, specify water efficient kitchen dishwashers or washing machines.

Consider using rainwater for flushing toilets. A dual-plumbing system is necessary for greywater reuse. Identify the amount of water that could be collected from interior graywater, or stormwater, for flushing toilets.

Credit Analysis:

Potable water is a limited resource, and current usage through ineffective and inefficient plumbing fixtures results in the loss of this resource “down the drain.” Conserving water is not only a strong long-term economic and environmentally responsible decision, it is also socially responsible. Water-saving fixtures, such as dual-flush toilets, waterless urinals, low-flow faucets, and low-flow showerheads are comparable in price to standard fixtures.
Green Construction and Technology

GCT Credit 4: Building Reuse and Adaptive Reuse & GCT Credit 5: Reuse of Historic Buildings

Intent: Extend the life cycle of existing building stock, conserve resources, reduce waste, and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport. and Encourage use of historic buildings in a manner that preserves their historic materials and character.

Standard:

Credit 4:
Incorporate into the project the reuse of one building that maintains at least 50% (based on surface area) of the existing building structure (including structural floor and roof decking) and envelope (including exterior skin and framing, and excluding window assemblies and non-structural roofing material).

Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained (1 point).

For projects reusing portions of two or more existing buildings, 1 additional point can be earned by incorporating into the project the reuse that achieves the greater of the following:
- 50% of 1 existing building plus an equivalent amount reused among one or more buildings (based on surface area, as defined above); or
- 20% of the existing building stock (based on surface area, as defined above)

Credit 5:
Incorporate into the project one or more buildings that have been:
- designated, listed, or identified by a local government as a historic or contributing structure in a locally designated historic district pursuant to a local preservation ordinance;
OR
- designated, listed, or identified as a historic or contributing structure in a historic district under a state historic register or on the National Register of Historic Places;
AND
Rehabilitate the building(s) in accordance with local or federal standards for an historic rehabilitation, OR
- obtain confirmation from a State Historic Preservation Office or the National Park Service that the rehabilitation satisfies the Secretary of the Interior’s “Standards for Rehabilitation.”

Meeting the Criteria:

One main structure exists on the River Oaks II site; the River Oaks spa. The spa business will move to a new location as part of the project and the old building will be adapted to a new use Therefore, credit 4 may be obtainable.

Credit 5 would not be earned as there are no historic buildings on the site.

Credit Analysis:

The building reuse and adaptive reuse credit and the reuse of historic buildings credit are useful and applicable to both dense urban areas and semi-rural regions, though the credits are probably more likely to be achieved in dense urban areas.

Adaptive reuse is most likely to happen in infill projects where older structures, abandoned warehouses for example, may be re-constructed to serve some new use. It is understood that the inherent intent of LEED-ND credits is often to encourage infill development or projects on sites within dense urban cities. In the case of River Oaks II, it is essentially a greenfield site so old buildings or historic buildings are not expected to be found. As an alternative to meeting this credit, River Oaks II could be
**Intent:** Preserve existing tree canopy, native vegetation and pervious surfaces while encouraging high density, smart growth communities.

**Standard:**
Depending on the density of the project, do not develop or disturb a proportion of the land that has not been previously developed on the site, exclusive of any land excluded from development by law or required to be preserved as a prerequisite of LEED for Neighborhood Development, and stipulate in CC&Rs or other binding development documents that the undisturbed area will be protected from development in perpetuity. Densities and minimum percentages are as follows (mixed use projects should use the lowest applicable density or calculate a weighted average per the methodology in NPD Credit 1: Compact Development).

<table>
<thead>
<tr>
<th>Residential Density (DU/acre)</th>
<th>Non-Residential Density (FAR)</th>
<th>Minimum percentage of previously undeveloped site area to leave undisturbed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 15</td>
<td>&lt; .50</td>
<td>20%</td>
</tr>
<tr>
<td>15 - 21</td>
<td>.50 – 1.00</td>
<td>15%</td>
</tr>
<tr>
<td>&gt; 21</td>
<td>&gt; 1.0</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Meeting the Criteria:**
The average residential density in River Oaks II is 10 du/acre, thus the minimum percentage of land that would need to be protected in perpetuity would be 20%, which, if taken from the total project area of 270 acres, would be 54 acres. If the total area does not include the land which would be protected as part of the SLL prerequisite, then the area would be...

**Credit Analysis:**
The credit does not specify what the total area of land is to be used for the calculation.
Green Construction and Technology

GCT Credit 7: Minimize Site Disturbance During Construction

Intent: Conserve existing natural areas and protect trees to provide habitat and promote biodiversity.

Standard:

Option 2: For portions of the site that are not previously developed: identify limits of disturbance through the creation of construction impact zones; and limit all site disturbance to 40 feet beyond the building perimeter; 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities and playing fields) that require additional staging areas in order to limit compaction in the constructed area.

OR

OPTION 3 – AVAILABLE FOR SITES WITH TREES ONLY
Survey the site to identify:
• trees in good or excellent condition as determined by a certified arborist,
• any Heritage or Champion trees of special importance to the community as defined by a jurisdictional City, County or State Forester because of their age, size, type, historical association or horticultural value,
• the caliper of all trees at 4’6” above ground (diameter at breast height or D.B.H.), and
• any invasive species of tree present on the site, and whether those species threaten the health of other trees to be preserved on the site, as determined by a certified arborist.

Preserve the following on the site that are also identified as in good or excellent condition:
• all Heritage or Champion Trees identified,
• a minimum of 75% of all non-invasive trees (including the above) over 18” in caliper (D.B.H.)
• a minimum of 25% of all non-invasive trees (including the above) that are over 12” in caliper (D.B.H.) if deciduous, and 6” in caliper (D.B.H.) if conifer.

Meeting the Criteria:

Recommended Documentation (LEED-ND June, 2007):
A site plan indicating the location of any areas that are previously developed, the development footprint of the project, and the zone of construction impact.

Credit Analysis:

compare with city’s codes and standards, what do other green building guidelines say.
Define “site disturbance” - USGBC
Intent: Encourage brownfields cleanup methods that reduce contaminant minimize long-term remediation or monitoring burdens.

Standard:

Earn SLL Credit 1: Contaminated Brownfields Redevelopment; 
AND

Use cleanup method(s) for 100% of the remediation that treat, 
reduce or eliminate the volume or toxicity of contaminated 
material found on the site. Cleanup methods which include only 
capping or translocation of contaminated material to an off-site 
location will not achieve this credit.

Meeting the Criteria:

River Oaks II is not a brownfield site, therefore this credit would 
not apply.

Credit Analysis:

This credit will count against River Oaks II in the LEED rating 
system. Like SLL credit 1, the Brownfield Remediation credit is 
not an appropriate development criteria for the context of this 
project.
Green Construction and Technology

GCT Credit 9: Stormwater Management

Intent: Reduce adverse impacts on water resources by mimicking the natural hydrology of the region on the project site, including groundwater recharge. Reduce pollutant loadings from stormwater discharges, reduce peak flow rates to minimize stream channel erosion, and maintain or restore chemical, physical, and biological integrity of downstream waterways.

Standard:

Option 2: Implement a comprehensive stormwater management plan for the project that infiltrates, reuses, or evaporates the below-specified amount of rainfall from the project's development footprint and other areas that have been graded so as to be effectively impervious.

Meeting the Criteria:

River Oaks II will use Low Impact Development techniques which center on mimicking natural hydrology and designing efficient, green stormwater management systems. This credit may be feasible for River Oaks II.

Recommended Documentation (LEED-ND June, 2007):

A site plan indicating the project's development footprint, and the location of any planned stormwater management technologies or BMPs.

Credit Analysis:

Compare with "Sustainable Sites" standards for stormwater management.

<table>
<thead>
<tr>
<th>Points achievable</th>
<th>Arid Watersheds (less than 20&quot; of rain/year)</th>
<th>Semi-arid Watersheds (between 20&quot; - 40&quot; rain/year)</th>
<th>Humid Watersheds (at least 40&quot; rain/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 point</td>
<td>0.3&quot;</td>
<td>0.45&quot;</td>
<td>0.6&quot;</td>
</tr>
<tr>
<td>2 points</td>
<td>0.6&quot;</td>
<td>0.9&quot;</td>
<td>1.2&quot;</td>
</tr>
<tr>
<td>3 points</td>
<td>0.9&quot;</td>
<td>1.35&quot;</td>
<td>1.8&quot;</td>
</tr>
<tr>
<td>4 points</td>
<td>1.2&quot;</td>
<td>1.8&quot;</td>
<td>2.4&quot;</td>
</tr>
<tr>
<td>5 points</td>
<td>1.5&quot;</td>
<td>2.25&quot;</td>
<td>3.0&quot;</td>
</tr>
</tbody>
</table>
Intent: Reduce heat islands to minimize impact on microclimate and human and wildlife habitat.

Standard:

OPTION 1 – NON-ROOF
Provide any combination of the following strategies for 50% of the non-roof impervious site landscape (including roads, sidewalks, courtyards, parking lots, and driveways):

- Shade (within five years of occupancy)
- Paving materials with a Solar Reflectance Index (SRI) of at least 29
- Open grid pavement system

Meeting the Criteria:

River Oaks II would most likely provide shade for impervious site landscape to achieve this credit. Paving materials with an SRI of at least 29 may be too costly to use at this time.

Recommended Documentation (LEED-ND June, 2007):

A site plan indicating the location of any non-roof areas that will be employing the heat island reduction technologies or strategies listed in the requirements.

A written commitment to employ sufficient non-roof heat island reduction strategies to meet the requirements, if the project is built.

Credit Analysis:
Green Construction and Technology

GCT Credit 11: Solar Orientation

Intent: Achieve enhanced energy efficiency by creating the optimum conditions for the use of passive and active solar strategies.

Standard:

OPTION 1 – BLOCK DESIGN (AVAILABLE FOR PROJECTS EARNING AT LEAST 2 POINTS UNDER NPD CREDIT 1: COMPACT DEVELOPMENT)
Locate project on existing blocks, or design and orient project, such that for 75% or more of the project’s blocks, one axis of each block is within 15 degrees of geographical east/west, and the east/west length of each block is at least as long, or longer, as the north/south length of the block.

OR

OPTION 2 – BUILDING DESIGN (AVAILABLE FOR ALL PROJECTS)
Design and orient 75% or more of the project’s buildings such that one axis of each building is at least 1.5 times longer than the other, and such that the longer axis is within 15 degrees of the geographical east/west axis. The length to width ratio shall be applied only to the length of walls enclosing conditioned spaces; walls enclosing unconditioned spaces such as garages, arcades, or porches cannot contribute to credit achievement. South-facing vertical surfaces of buildings counting towards credit achievement must not be more than 25% shaded at time of initial occupancy (measured at noon on December 21st).

Meeting the Criteria:

With current building density for River Oaks II being on average 10 du/acre, the project earned one point for NPD credit 1, therefore option one of the GCT Credit 11, Solar Orientation would not be feasible. Option two would require at least 75% of blocks in River Oaks II to be oriented to the south for passive solar gain.

This is challenging for River Oaks II because of the undulating topography and hills. It is possible for some of the buildings to be oriented for passive solar gain, but probably not all of them.

Credit Analysis:

Solar orientation is challenging for specific site contexts, but is generally thought of as good design. This credit is oakly.
Intent: Reduce air, water, and land pollution from energy consumption and production by increasing the efficiency of the power delivery system. Increase the reliability of power.

Standard:

OPTION 1 – (PRESCRIPTIVE) ELECTRICAL BASELINE
Develop on-site energy generation system(s) with peak electrical generating capacity of at least 5% of the project’s specified electrical service load.

OPTION 2 – (PERFORMANCE) TOTAL ENERGY BASELINE
Develop on-site energy generation system(s) with capacity of at least 5% of the project’s annual electrical and thermal energy consumption, as established through an accepted building energy performance simulation tool.

For both options, total CO2 emissions shall be less than or equal to national average of CO2 emissions for grid supplied electricity, which shall be calculated as the sum of 1545 lb per MWh produced by the onsite power generation system and 145 lb per MMBtu of thermal energy produced by the on-site power generation system.

For both options, calculations for total on-site energy can include future site or building-integrated systems stipulated through CC&Rs or other binding documents.

Meeting the Criteria:

Credit Analysis:

1 POINT
Green Construction and Technology

GCT Credit 13: On-Site Renewable Energy Sources

Intent: Encourage on-site renewable energy self-supply in order to reduce environmental and economic impacts associated with fossil fuel energy use.

Standard:

OPTION 1 – (PRESCRIPTIVE) ELECTRICAL BASELINE
Design and incorporate the use of shared on-site nonpolluting renewable energy generation technologies such as solar, wind, geothermal, small scale/micro hydroelectric, and biomass with peak electrical generating capacity of at least 5% of the project’s specified electrical service load.

OPTION 2 – (PERFORMANCE) TOTAL ENERGY BASELINE
Design and incorporate the use of shared on-site nonpolluting renewable energy generation technologies such as solar, wind, geothermal, small scale/micro hydroelectric, and biomass with peak electrical generating capacity of at least 5% of the project’s annual electrical and thermal energy consumption, as established through an accepted building energy performance simulation tool. For both options, calculations for total on-site energy can include future site or building-integrated systems stipulated through CC&Rs or other binding documents.

Meeting the Criteria:

Credit Analysis:

1 point
Intent: Reduce air, water, and land pollution resulting from energy consumption in buildings by employing energy efficient district technologies.

Standard:
Design and incorporate into the project a district heating and/or cooling system for space conditioning of all buildings in the project (at least 2 buildings total) such that at least 80% of the project total square footage is connected, and at least 80% of the project total peak heating or cooling load is connected. The efficiency of each component of the system which is regulated by ASHRAE / IESNA 90.1-2004 must have an overall efficiency performance at least 10% better than specified by the ASHRAE 90.1 - 2004 Prescriptive Requirements. Additionally, pumping power must not exceed 2.5% of the thermal energy output (with one kWh of electricity equal to 3,413 Btu). Combined Heat and Power (CHP) district systems can achieve this credit by demonstrating equivalency relative to the above criteria.

Meeting the Criteria:  

Credit Analysis:
**Green Construction and Technology**

**GCT Credit 15: Infrastructure Energy Efficiency**

**Intent:** Reduce air, water, and land pollution from energy consumption.

**Standard:**

Design or purchase any traffic lights, street lights, water and wastewater pumps and treatment systems that are included as part of the project to achieve a 15% annual energy reduction beyond an estimated baseline energy use for this infrastructure. If any traffic lights are installed as part of the project, use light emitting diode (LED) technology.

**Meeting the Criteria:**

**Credit Analysis:**

1 point
Green Construction and Technology

GCT Credit 16: Wastewater Management

Intent: Reduce pollution from wastewater and encourage water reuse.

Standard:
Design and construct the project to divert at least 50% of the wastewater generated by the project, and reuse wastewater to replace the use of potable water. Provide for on-site wastewater treatment to a quality defined by state and local regulations for the proposed reuse. 50% of the wastewater is calculated by determining the total wastewater flow using conventional design practices in gallons per day and demonstrating that 50% of that volume enters an alternative, on-site process.

Meeting the Criteria:
- Reuse greywater for toilets?
- dual flush
- roof runoff for landscaping

Credit Analysis:
Green Construction and Technology

GCT Credit 17: Recycled Content in Infrastructure

Intent: Use recycled materials to reduce the environmental impact of extraction and processing of virgin materials.

Standard:

Use the indicated recycled materials in all the following applications, if present in the project. For roadways, parking lots, sidewalks, and curbs (above-ground structured parking and underground parking are exempt from this requirement):

- Any aggregate base and aggregate subbase shall be at least 90% by volume recycled aggregate materials such as crushed Portland cement concrete and asphalt concrete.

- Any asphalt base shall be a minimum 15% by volume recycled asphalt pavement.

- Any asphalt concrete pavement shall:
  o be a minimum 15% by volume recycled asphalt pavement, OR
  o be a minimum 75% by volume rubberized asphalt concrete from crumb rubber from scrap tires (crumb rubber modifier), OR
  o include a minimum of 5% (of total weight) of pre-consumer or post-consumer asphalt roofing shingles.

- Any Portland cement concrete pavement shall contain:
  o recycled mineral admixtures (such as coal fly ash, ground granulated blast furnace slag, rice hull ash, silica fume, or other pozzolanic industrial byproduct) to reduce by at least 25% the concrete mix's typical Portland cement content, AND
  o a minimum of 10% by volume reclaimed concrete material aggregate.

Piping made of Portland cement concrete shall contain recycled mineral admixtures (such as coal fly ash, ground granulated blast furnace slag, rice hull ash, silica fume, or other pozzolanic industrial byproduct) to reduce by at least 25% the concrete mix's typical Portland cement content.

Meeting the Criteria:

It was unknown at the time of this study if using recycled content in infrastructure was going to be feasible for River Oaks II.

Credit Analysis:

1 Point
**Intent:** Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate site.

**Standard:**
Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be stored on-site or commingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.

**Meeting the Criteria:**
River Oaks II will recycle at least 50% of the construction waste from the project.

**Credit Analysis:**
One point may be earned for this credit.
Green Construction and Technology

GCT Credit 19: Comprehensive Waste Management

Intent: Reduce the waste hauled to and disposed of in landfills. Promote proper disposal of office and household hazardous waste streams.

Standard:

Meet at least two of the following three requirements and publicize the availability and benefits of the drop-off point(s), station(s), or services:

1) Include at least one drop-off point as part of the project available to all project occupants for office or household potentially hazardous wastes such as paints, solvents, oil, batteries; OR locate project in a local government jurisdiction that provides services for collecting these materials. If a plan for post-collection disposal or use does not exist, establish one.

2) Include at least one recycling or reuse station as part of the project available to all project occupants dedicated to the separation, collection, and storage of materials for recycling including, at a minimum, paper, corrugated cardboard, glass, plastics and metals; OR locate project in a local government jurisdiction that provides recycling services for these materials. If a plan for post-collection use does not exist, establish one.

3) Include at least one compost station as part of the project available to all project occupants dedicated to the collection and composting of food wastes; OR locate project in a local government jurisdiction that provides services for composting materials. If a plan for postcollection use does not exist, establish one.

Meeting the Criteria:

Curbside recycling in the City of Paso Robles is provided by Paso Robles Waste Disposal. They currently pick up green waste and household recycling to single-family residential customers and cardboard and white paper recycling to commercial customers. Paso Robles Waste Disposal, Inc. collects green waste and blue bin household recycling weekly. By getting all residents involved in recycling, our city is looking to meet the mandated 50% reduction of solid waste going to the landfill.

Green Waste
All green waste materials listed below can be placed into your 96-gallon green automated container. Remember, the lids must close.

- Leaves
- Plant prunings
- Grass
- Weeds with a minimum of soil
- Tree trimmings
- Clean yard waste

Place automated container on the street next to your trash and blue bin by 6:00 a.m. Be sure to have a 3-foot clearance on all sides. Lids must close on your green waste and trash containers. Trucks run on all holidays except Christmas, regular schedule, 51 weeks a year.

The City of Paso Robles, in partnership with the SLO County Integrated Waste Management Authority (IWMA), has a facility for dropping off your hazardous waste. It is located at the Paso Robles Landfill on Highway 46 East and is open every Saturday from 11 a.m. to 3 p.m., with the exception of holidays and rainy days. It is open to all residents of San Luis Obispo County free of charge (up to 15 gallons or 125 pounds). Small businesses must first call 805-481-9213.

Types of Waste Accepted

Pesticides, herbicides, automotive products, paints, solvents, acids, caustics, batteries, and CRTs.

Credit Analysis:

The Comprehensive Waste Management Credit is a reasonable standard that should be feasible for most projects. If proper recycling facilities are not established in a project’s region, this credit may help to spur that activity, as recycling and responsible waste management is one of the basic elements of essential for sustainable communities.
Intent: Minimize light trespass from site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments.

Standard:

For exterior lighting in shared portions of the project, only light areas as required for safety and comfort. Do not exceed 80% of the lighting power densities for exterior areas and 50% for building facades and landscape features as defined in ASHRAE/IESNA Standard 90.1-2004, Exterior Lighting Section, without addenda; AND

Stipulate CC&Rs or other binding documents that require continued adherence to these standards. All projects shall be classified under the following zones, as defined in IESNA RP-33, and shall follow all of the requirements for that specific zone:

LZ1 — Dark (Park and Rural Settings)
Design exterior lighting so that all site and building mounted luminaires produce a maximum initial illuminance value no greater than 0.01 horizontal and vertical footcandles at the site boundary and beyond. Document that 0% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down).

LZ2 — Low (Residential areas)
Design exterior lighting so that all site and building mounted luminaires produce a maximum initial illuminance value no greater than 0.10 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 10 feet beyond the site boundary. Document that no more than 2% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary.

LZ3 — Medium (Commercial/Industrial, High-Density Residential)
Design exterior lighting so that all site and building mounted luminaires produce a maximum initial illuminance value no greater than 0.20 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 15 feet beyond the site. Document that no more than 5% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary.

LZ4 — High (Major City Centers, Entertainment Districts)
Design exterior lighting so that all site and building mounted luminaires produce a maximum initial illuminance value no greater than 0.60 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 15 feet beyond the site. Document that no more than 10% of the total initial designed site lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary.

Credit Analysis: