The AGRARIAN MYTH in SUBURBIA:

Relating Materialized Culture with Actualized Sustainability

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Chris Hamilton
Primary Advisor: Jade Polizzi, Environmental Design
Honors Council Representative: Dr. Shawhin Roudbari, Environmental Design
Outside Committee Member: Dr. Heide Bruckner, Geography

Environmental Design Honors Program, University of Colorado Boulder

(Above/Cover: Lynn Betts, USDA)

Abstract

Suburbia is deeply tied to America's enduring and evolving idealization of agricultural life, known as the Agrarian Myth. As a socio-cultural force, it has influenced the design of suburbs and enforced their position as the predominant though problematic pattern of development in the United States. Suburbia is criticized for its environmental impacts, but has seen little effective change from designers due to its strong cultural and constructed underpinnings. The Agrarian Myth, which alternatively can refer to the ecological land-based culture of agrarianism yet is often superficially appropriated for other uses, has the potential to influence suburbia towards or against sustainability. This thesis seeks to relate the influence of the Agrarian Myth on suburban design with the actualized sustainability. To do so, a scorecard based methodology was developed to quantify and compare the Agrarian Myth with sustainability in twelve conventional suburban case-studies located in Northern Indiana. The Agrarian Myth scorecard was developed and updated from similar studies and measures Marketing, Development and Architecture contexts. Sustainability was measured using a modified LEED Neighborhood Development criteria. Results were analyzed using correlation analysis and ranked comparison. This study found a general negative relationship between the Agrarian Myth and sustainability for most mid-to high scoring developments, with a positive correlation between lowest scoring developments. At larger regional and neighborhood scales, this negative correlation was more pronounced and connected by direct Agrarian Myth-unsustainable elements. Among indirect and abstract elements like architectural style and marketing, there was a similar but less consistent trend to the overall pattern. Importantly, these findings also point to how the Agrarian Myth can be used to bolster a more urban/sustainable developments agrarian image, or how it can expand upon less sustainable practices. This thesis considers how suburban sustainability can be achieved by designing for prevailing cultural norms and aligning the Agrarian Myth with its supposed values. Further, agrarianism is considered as a holistic approach to envisioning and creating a sustainable future in harmony with life and land.

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My parents first introduced me to suburbia, and even as we've moved around the country, I know that the suburbs is where I can always call home. Thank you for inspiring this topic of research, tolerating my architectural criticism, and always supporting my pursuits and passions.

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Finally, I would like to thank all the friends, family and classmates, especially Anna Morelock, who supported me throughout this process and kept me excited to pursue this thesis to my fullest effort.

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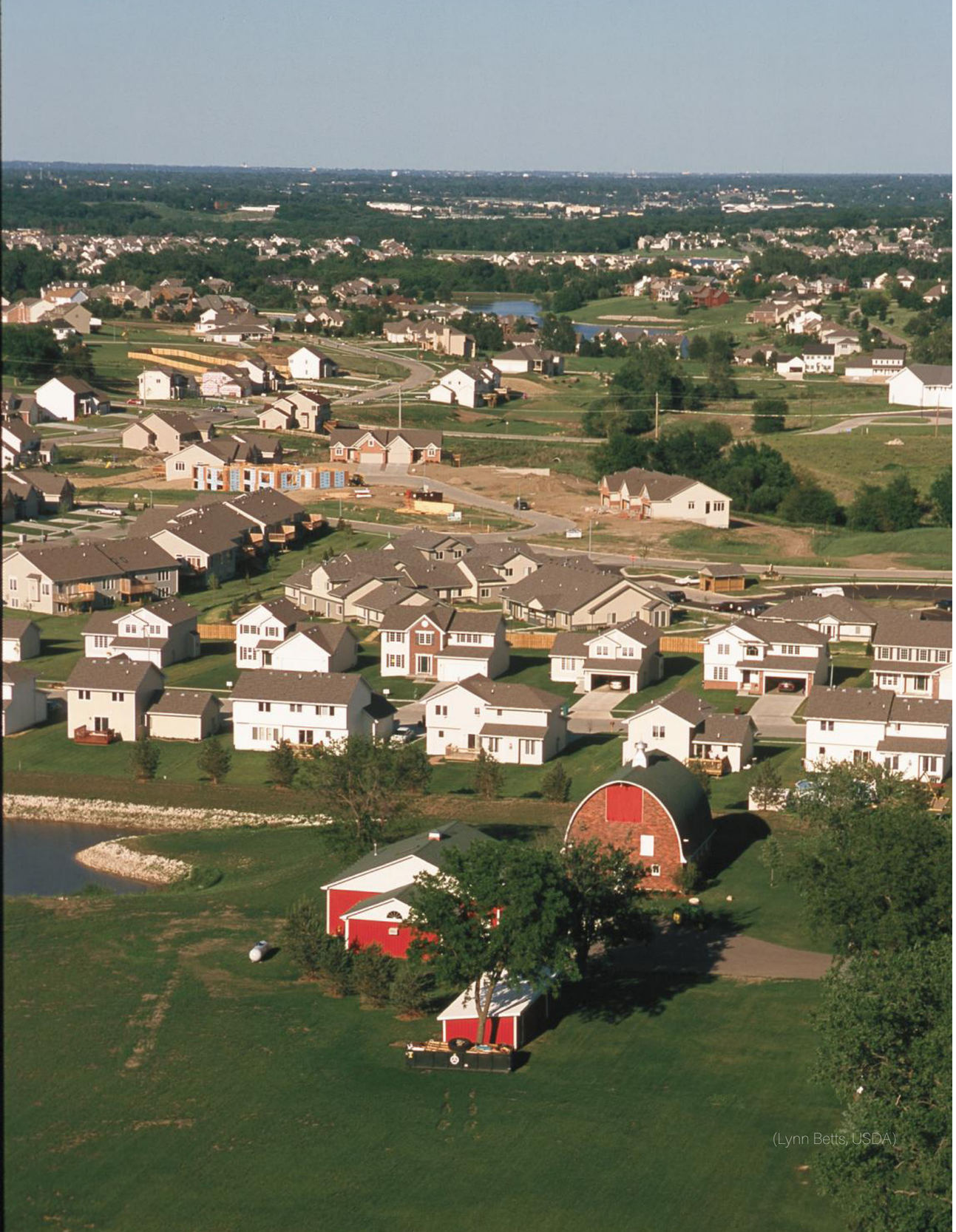
(Lynn Betts, USDA)

Introduction

Suburbia in America is a pervasive phenomenon. More than half of Americans today live in suburbs and that share is expected to grow (Parker et al. 2018). Sprawling expenses of single-family homes dominate the landscape, and new construction still isn't keeping up with the demand for suburbs (JCHS 2020). This prevalence is not just limited to the physical built environment though. As urban historian Kenneth T. Jackson has said, "Suburbia is both a planning type and a state of mind" (1985, 4). The socio-cultural component to suburbia is just as important and equally powerful. While the American Dream is most often thought of with suburbia, it is closely intertwined with another major doctrine of American life; the Agrarian Myth. The Agrarian Myth is a deeply-held view that idealizes rural-agricultural life as the most virtuous form of society and has been influencing America since Thomas Jefferson's initial vision for a rural utopia. Together, these two enduring and evolving phenomena hold influence on both the built environment and the American psyche. The environmental issues stemming from contemporary suburban development are well documented and have created compelling cases for change. The low-density pattern is linked to higher greenhouse gas emissions and increased Vehicle Miles Traveled, as well as flooding, loss of animal habitat and a host of others. Well designed solutions have been proposed ranging from New Urbanism, to single family zoning reform, to suburban "wastebelts." However, their implementation and effectiveness remains limited in part due to the socio-cultural dimension and how it materializes in suburban design and architecture.

The form and function of suburbia can largely be attributed to a reflective building culture that materializes prevailing cultural themes. Referring specifically to the building, this is what Richard Harris calls "tract house vernacular" and it makes up an important component to the built environment. The Agrarian Myth has influenced suburban design from its origins as a foundation to American democracy and identity. This thesis investigates the relationships between the materialized Agrarian Myth and sustainability in the context of conventional suburbia.

Research Question

How does the materialization of the Agrarian Myth in conventional suburban developments relate to actualized sustainability?

Literature Review

Critiques of Suburbia

In 2016 the Pew Research Center reported that 55% of Americans lived in suburbs[1] making it the predominant American residential landscape, as well as the fastest growing (Parker et al. 2018). At the start of the 21st century, Harvard Design Magazine estimated that 75% of new US construction was suburban sprawl (Dunham-Jones 2000) and in 2020, the highest rate of single-family home construction since the Great Recession[2] was recorded (JCHS 2020). Despite this, housing inventory remains low and The State of the Nation's Housing 2020 Report writes that, "what is certain is that the need for more housing of all types, locations, and price points will persist" (JCHS 2020). Future suburban growth is inevitable which presents an opportunity for designers to work to influence and address this important typology.

[1] 31% urban, 14% rural

[2] year start, pre-pandemic. The impact from the coronavirus pandemic beginning in early 2020 has created disturbances in the housing market and exacerbated many existing social and environmental issues (JCHS 2020). This thesis will not directly address those influences, instead assuming long-term stabilization of impacts.

Sustainability Issues

Aside from popular criticism, suburban development has well documented systemic issues that can be broadly categorized as environmental and equity problems. This thesis will focus on sustainability, though the two are deeply interrelated. Low-density development, the hallmark of suburbia, is correlated with increased greenhouse gas emissions and vehicle miles traveled (Ewing et al. 1997). Life-cycle assessment has confirmed higher energy use and emissions in suburbia compared to higher-density development (Norman, MacLean, and Kennedy 2006). Ellen Dunham-Jones additionally points to "more impermeable surfaces, declining air and water quality, increased flooding, loss of animal habitat" as consequences of sprawl (Dunham-Jones 2000). Compounding issues form a "chain of exclusion" which primarily impacts people of color and low incomes families (Wegmann 2020, 115), interelating environmental and social issues together.

The definition of sustainability itself is diverse and multifaceted, deeming it at times more of an ideological rather than environmental issue (Zimmerman 2001) and there still remains debate to the extent that issues can be attributed to suburbia (Neuman 2005). This thesis will not engage in those debates and follow the generally accepted and supported case that suburban sustainability change is a necessary challenge. Experts say that essentially, a "shift toward smaller housing

units placed closer together" (Wegmann 2020) and housing practices that respond to contributions and impacts of climate change will be necessary changes to future development (JCHS 2020, 7). In recent years, homebuyers have actually become less concerned about the environmental impact of their home (Brady 2018) leaving the responsibility of sustainable suburban reform largely to environmentally minded designers and developers.

Potential Solutions

There currently exists a range of proposed and implemented solutions responding to the issues of suburbia. New Urbanism, or 'neo-traditional planning' is one of the most well known planning, development and architecture methods that aims to return to traditional, diverse and human-scale communities (CNU 2015). Similarly, Smart Growth offers overarching development schemes based on principles including, "1. Mixed land uses, 2. Compact design, [and] 5. Distinctive, attractive communities with a strong sense of place," (Smart Growth America n.d.). Planners have promoted eliminating single-family R1 zoning, which restricts zones to building only single-family housing and "exacerbates inequality and undermines efficiency" (Manville, Monkkonen, and Lens 2020). Research recently published by MIT's Center for Advanced Urbanism took a more validating stance on suburbia and covered social mobility, urban form, economic relationships, ecology and governance. Solutions address sustainability through ideas such as suburban lawn rewilding, urban wetlands, "wastebelts" and energy production (Berger, Kotkin, and Balderas-Guzmán 2017). Numerous other local and national level solutions have been developed centered around similar goals. The intent of this thesis is not to critique those solutions directly nor to offer new ones, but rather to generally inform the implementation of existing solutions.

Shortcomings

The efforts above are well researched and well intentioned. Despite this, prevailing suburban development trends maintain unsustainable characteristics. Proposals are not intended to be exclusive or exhaustive, however there are deficiencies across solutions to consider for widespread influence. Political and economic challenges can thwart implementation (Grant 2009). This thesis will focus on perceived design and socio-cultural challenges to implementation. The first challenge is that solutions often ignore the actual design of the suburb from the individual's perspective. Urban geographer Richard Harris positions that, "to

influence public policy in a useful way, we need to know more about the built environment in which most North Americans live" (2008, 7). Architect Aron Chang writes how, "suburban reformers, focusing almost always on the scale of systems, have rarely paid sustained attention to suburbia's essential component, its irreducible unit — the freestanding single-family house" (2011). Large scale improvements will likely have to come from systemic policy and planning changes, the success of implementation still hinges on the scale of the neighborhood and the makeup of its architecture.

Second, the socio-cultural dimension of suburbia is not adequately addressed as a major driver of formation and bulwark to change. A common critique of New Urbanism and other models is that if they were truly as good as they claimed, then consumers and the market would have accepted them (Ellis 2002, 270). This critique is limited as it ignores intensive private and government subsidization and marketing that allowed for conventional mass suburbia to be so successful. In response to single-family zoning reform, planners "fail to acknowledge just how powerful the detached single-family home is in the American and global psyche" (Etienne 2020). "Now,... generations of Americans have a tenuous grasp of what a high-quality urban life might be" which makes it "extremely difficult to introduce new modes of urban design in the face of such powerful social currents" (Ellis 2002, 271). The social forces of suburbia in part enforce its own relevance.

It is also important to understand that while Americans predominantly prefer lower-density, single family housing (Talen 2009, 163), those preferences are not absolute. Studies by Emily Talen have shown how suburbanites can harbor both acceptance and aversion towards traditional (more compact) development (2001) and how Americans don't necessarily want sprawl, but are willing to live with its consequences (2009). She notices that, "studies seem to reveal a pattern of Americans wanting things all ways, unwilling to make the necessary changes" (2009, 164). There are socio-cultural challenges to creating suburban reforms, but as Ellis concludes her assessment, "this is not an argument that we should not try" (2002, 271). Suburban reform will need to address the socio-cultural element that drives and preserves and in the context of design.

In reality, there are many socio-cultural elements that overlap and complicate each other. Race is a major factor in the historic and contemporary pattern of suburbia (Rothstein 2017), however this will not be addressed by the scope of this research. Additionally, the American Dream, while probably the most understood and prevalent suburban socio-cultural actor, will not be this study's focus. Rather,

this thesis will engage the Agrarian Myth, "no longer a dominant rhetorical form" but "a latent vision of bedrock Americanism that retains a cultural resonance and power" (Singer, Grey, and Motter 2020, 4) and has long been integral to suburbia.

The Agrarian Myth

The Agrarian Myth is an ideal that extols the values of a rural-agricultural society and the virtuous "yeoman" farmer as a model for American life and democracy. From its early foundation, agrarianism has been seen as the, "ultimately authentic and authentically American experience" (Singer, Grey, and Motter 2020, 192). The term Agrarian Myth was first introduced by Richard Hofstadter in *Age of Reform*, which sought to understand America's rapid transition from a farming society to a modern industrial nation still clinging to agrarian values. Hofstader describes myth as a "complex of ideas" with "component themes that form a clear pattern" (1955). Myth is not a static cultural-identity but rather a dynamic, conscious and unconscious component of cultural fabric that can be "revised and reconstructed" across history (Singer, Grey, and Motter 2020).

Traditional Agrarianism

The basis for the Agrarian Myth in America was perpetrated by prominent countrymen/statesmen who argued for the creation of an agricultural nation populated with virtuous and self-sufficient Yeoman farmers (Fig 1.2.1) (Van Tassel 2003). Agricultural values were in part borrowed from the European upper-classes[4] (Indelicato 2014, 13), but used as political means to create an alternative model that "guarantees a society of free, independent citizens" (Hardinghaus 2008, 425). Thomas Jefferson is the figure most attributed to the agrarian sentiment and it was a key component to America's primary modes of distinction from Britain: democracy and land use/ownership (Eisinger in Van Tassel 2003, 8-9).[5] José Indelicato summarizes Hofstadter's assessment of the tenets of this proposed "rural utopia" as:

- "*A lifestyle in direct contact with nature and soil.* In early America, the natural right to labour the soil was defended, because agriculture was thought the honest and primary, ... source of life: farmers working the earth meant a healthy, prosperous, ethical nation, free from corruption.
- *Appreciation of life in small villages, as against life in big cities.* The ideal for the early American people was farms as self-sufficient units, ... depraved

4. By the landowning intellectuals turned Founding Fathers. (Indelicato 2014)
5. American nationalism and populism share a heritage in the Agrarian Myth too. At that time, ninety percent of Americans were farmers in some form. (Van Tassel 2003, 8-9).

Fig 1.2.1 The virtuous Yeoman farmer surrounded by an ideal social, civic and domestic life (Strobridge & Co. Lith. *Gift for the grangers* / J. Hale Powers & Co. Fraternity & Fine Art Publishers, Cin'ti. ; Strobridge & Co. Lith. Cincinnati, O. , ca. 1873. Cincinnati, O.: J. Hale Powers & Co. Photograph. https://www.loc.gov/item/96512563/.)

Fig 1.2.2 A Yeoman looks out on Lackawanna Valley as the train of industrialization threatens America's cultivated land and unspoiled wilderness (George Inness. *The Lackawanna Valley*, c. 1856, National Gallery of Art)

populations inhabited the large cities.

- *Promotion of a homogeneous nation composed by virtuous and incorrupt yeomen.* In the birth of America, the yeoman farmer was considered the ideal man and citizen, committed to moral values of industry, independence, equality, and austerity, surely an individual blessed by God ...
- *Belief in freedom and independence*... Americans congratulated themselves because they did not have a feudal past, industry, royal, aristocratic, ecclesiastical, or monarchical power, or manufacturing class; they considered rural society the most perfect and independent society existing then in the world" (Indelicato 2014, 11-12)

The Agrarian Myth is closely related and often synonymous with pastoralism. Pastoralism is based in the urban/rural divide that, "lauds the merits of a simplified and romanticized countryside; an idyllic arcadia" (Van Tassel 2003, 3). Leo Marx uses this term in his seminal work, *The Machine in the Garden* which splits pastoralism in two categories. The first "popular and sentimental" is seen simply as a preference for natural, agrarian values, expressed through imagery and marketing (Marx 1964, 11-12). Second, "dissenting pastoralism," is the pastoral ideal in America activated by its encroachment (Fig 1.2.2). To Marx, the "sudden and unsettling interruption of the pastoral" was the major strain of pastoralism in literature and

Fig 1.2.3 Frontier Agrarianism glorifying the white settler. (*"Sons of the Frontier,"* circa 1940, by Harvey Dunn (1884–1952), courtesy of the Mark and Carol Moseman Collection of Agrarian Art. https://nufoundation.org/agrarian-spirit/)

the "collective American psyche" (Robinson 2013, 571). Marx's claim is applicable to this paper, but as Van Tassel argues, the context he refers to is more *agrarian*, than *pastoral* (2003, 3). The American pastoral is a "middle landscape…between the corruption of the city and the dangers of the wilderness" (Van Tassel 2003, 5) relating to the peasant farmer rather than to the wild domain of the shepherd. Thus, what could be called the "pastoral ideal," is more accurate to the American context as agrarian and in the era before Manifest Destiny and the American Dream, this was the prevailing doctrine of American life and politics.

The Agrarian Myth continued into the nineteenth century with the vision of westward expansion and the garden frontier (Fig 1.2.3). Two strains of frontier agrarianism emerged, one justifying White-Indian conflict, the other, "[displacing] violent colonization" with the virtuous cultivation of abundant virgin land (Singer, Grey, and Motter 2020, 21-22). The reality for both was horrific for native people on the land. The image that emerged in white American society though was one of constant growth that "defined the promise of American life" (Smith in Singer, Grey, and Motter 2020, 23) and would remain influential even as the frontier closed.

Industrialization would be the most major challenge to rural/agricultural life preached and practiced by the Agrarian Myth. The actual characteristics of 19th century America were quite different from the ideal as industrialization, urbanization and capitalism pushed life and work from farms to cities and manufacturing jobs (Indelicato 2014). Society became more connected and interdependent, social stratification arose and the self-sufficient yeoman farmer lost status, being replaced by the idealized "self-made man" (Indelicato 2014). Despite this, Hofstadter identified that increased commercialization in society actually increased imaginary notions of

Fig 1.2.4 Heroic farmlife depicting bygone methods lost to industrialization. (Thomas Hart Benton, American, 1889–1975; *Cradling Wheat*, 1938; tempera and oil on board; 31 1/4 x 39 1/4 inches; Saint Louis Art Museum, Museum Purchase 8:1939; © 2021 T.H. and R.P. Benton Testamentary Trusts / UMB Bank Trustee / Licensed by VAGA at Artists Rights Society (ARS, NY))

agrarian values (Figure 1.2.4) (Indelicato 2014). Early "new agrarian ideas" emerged in the late nineteenth century against corporate monopolies and urban industrialization (Singer, Grey, and Motter 2020). Later, the full entry of agriculture into commercialized and industrialized enterprises was even seen by some to "[render] the agrarian myth obsolete" (Van Tassel 2003). The contemporary Agrarian Myth has transformed from the Jeffersonian rural utopia and the garden frontier, but it still retains underlying assumptions in the virtues of agrarian life. In modern society, there is a split between new agrarianism and the Agrarian Myth.

New Agrarianism

Wendell Berry is considered the father of the new agrarian movement with his canonical *The Unsettling of America* (1977). Berry looks at the rise of industrial-commercial agriculture and the loss of the family-farm for its detrimental environmental and social impacts that "extend beyond its rural communities" to greater loss in American culture and spirit (Van Tassel 2003, 74). The connection between life and work with home and land, associated with traditional agrarian values, has been lost, or *unsettled* to a modern and commercialized society with what can be described as "the agricultural equivalent of tract homes" (Wirzba 2003, 192).

New Agrarianism calls for a revival of traditional land-based values, but it is not a "call for turning back time to the nineteenth century when most citizens farmed and lived in rural areas" (Singer, Grey, and Motter 2020, 12) nor does it exclude progressive movements. Writer Norman Wirzba describes it as "learning to take up the responsibilities that protect, preserve and celebrate life" (Wirzba 2003,

Fig 1.2.5 McDonald's 2012 farm-to-fork ad campaign highlighted the agricultural origins of its food and support of farmers (iSpot.tv, reproduced under fair use)

Fig 1.2.6 2013 Ram Trucks Super Bowl commercial "So God Made a Farm" was directed to the "farmer in all of us" (Chrysler Group, reproduced under fair use)

8) and are not limited to agriculture or food-systems. New agrarianism "projects cultural meanings" onto a range of fields (Singer, Grey, and Motter 2020, 12) while also seeking to address the shortcomings of traditional agrarian practices and values[6] (Wirzba 2003). In literature, a "new vision" is being constructed to rectify "racism, sexism and rural insularity" (Singer, Grey, and Motter 2020, 12). The hope of new agrarianism is ultimately a "durable land-based culture…that is both environmentally equitable and culturally and economically inclusive" (Van Tassel 2003, 238) that extends beyond the bounds of agriculture.

6. Jefferson's Yeoman farmer was limited to the white, landowning male.
7. Marx writes that advertising is, "Perhaps the most convincing testimony to the continuing appeal of the bucolic" (1964).

Modern Agrarian Myth

In its mythic form, the modern agrarian sentiment is seen in the resurgence of farmers markets and farm-to-table consumption (Fig 1.2.5) as well in the selling of pick-up trucks (Fig 1.2.6), cigarettes and of course, suburban homes.[7] Rooted Resistance writes that the Agrarian Myth, "No longer a dominant rhetorical form,… takes on new qualities as a latent vision of bedrock Americansim that retains a cultural resonance and power to be tapped by a variety of social actors, for diverse purposes" (Singer, Grey, and Motter 2020, 6). The modern Agrarian Myth takes place as a "rhetoric of resistance," similar to Marx's dissenting pastoralism. It can push back against issues like an overly industrialized food system but also against fabricated threats. Its popular and sentimental strain similarly "may also be used to legitimate the status quo or propel developments that are hardly agrarian in intent of form" (2020, 14). Today's Agrarian Myth is perhaps even more constructive and active than it had been in the previous renditions bound to the confines of the farm.

Rooted Resistance focuses specifically on food-systems but looks to this "reservoir of myth" as a malleable and common cultural force that should be utilized to address the environmental, injustice and economic crises of today (Singer, Grey, and Motter 2020, 4–6) in a wider range of applications. Suburbia, though not as

directly agrarian as food-systems, is deeply related to its influence. Many contrasting themes of the Agrarian Myth: local/global, purity/corruption, independence/communalism, wild/cultivated, are parallel in suburban discourse. Importantly, suburbia is also responsive and reflective of its cultural context, making it particularly sensitive to current socio-cultural manifestations as a materialization of the Agrarian Myth.

8. This report found that, "In 2003, almost half (49%) of the respondents reported that they would prefer a custom built home on a lot they own. This number has dropped significantly to 23% by 2018."

Materialized Culture in the Suburban Context

Material culture "centers on the idea that materiality is an integral dimension of culture, and that there are dimensions of social existence that cannot be fully understood without it" (Tilley et al. 2006, 2). "Material culture studies involve the analysis of a domain of things, or objects, which are endlessly diverse: anything from a packet of fast food to a house to an entire landscape" (Tilley et al. 2006, 4). In this case, the focus is the suburban developments, or what is better described by Richard Harris's "tract house vernacular" (2008).

Vernacular architecture originated describing, "traditional rural buildings of the preindustrial era, buildings that were apparently the houses of yeoman farmers" (Upton 1983, 262). Vernacular studies looks to the production of building as an "unselfconsciousness" process that is the synthesis of a complex series of factors and, "rests on a comprehensive understanding of a building in its cultural context" (Hubka 1991, 157, 161; Lawrence 2000, 53). In modern society, a new middle-vernacular is understood as "popular architecture" (Hubka 1991, 155) where the mass-market American suburban home is situated and especially poignet as consumers today increasingly prefer tract/spec homes over custom options (Brady 2018).[8]

There are many additional outside factors that collaborate into tract house vernacular and form a "culture of building." Howard Davis describes it as "the coordinated system of knowledge, rules, procedures, and habits that surrounds the building process in a given place and time" (2006). Amos Rapoport made the case in the landmark *House Form and Culture* that, "sociocultural factors [are] primary, and the others [climatic, technical constraints, etc] secondary or modifying" (1969, 47) in influencing domestic vernacular form. Culture was defined by vernacular scholar Dell Upton as "learned behavior that embodies the enduring values and deepest cognitive structures of a social group," (1983, 270). J.B. Jackson engages this when applied to the American built environment and, "writes of the

American people as non reflective but deeply engaged with their senses" and "of their landscape as a place forged by contradiction" (Schwarzer 1998). From these perspectives, the Agrarian Myth, despite being little known by definition, is a core component to American culture that materializes, often contradictory, in built domestic forms.[9]

Harris and Dostrovsky write that the (North American) suburban culture of building, "has almost alway been evolutionary rather than revolutionary in form" (2015, 176). Builders are sensitive to consumer preferences and not incentivized to shape them. They "become agents who translate cultural preferences into bricks and mortar" (Harris and Dostrovsky 2015, 179). This echoes J.B Jackson's claim that the "mass home builder" has created, "a good working definition of vernacular architecture" as, "the visible result of a confrontation between the aspirations of the occupying family and economic and social realities" (1976). Suburbs become the synthesis of a broad range of factors, which are refined to meet the realities of the current circumstances.

This confrontation continues to evolve and produce new suburban forms. An understanding of the Agrarian Myth as an actor in the suburban landscape hinges on its preceding trajectory. The evolutionary nature of materialized culture requires an acknowledgment of our "discursive and reflexive knowledge" towards the built environment including symbols and how "human processes and products transform the constituents of the environment in order to meet prescribed aspirations, goals and needs" (Lawrence 2000, 65). Essentially, humans understand (perhaps unconsciously) symbolic meanings and adjust them through building. Societal and cultural contexts (such as demographics, technology and home use) change as well. The previous understanding of culture as "a monolithic and static concept that could inhibit change" has expanded to a "relativistic and a multidimensional concept with its components evolving over time" (Lawrence 2000, 68). The suburban landscape and home are evolutionary materializations of the Agrarian Myth. To understand how its current underpinnings relate to materialized form and actualized sustainability it is necessary to track the development of suburbia across its historical trajectory.

9. This thesis will only focus on exterior suburban architecture and development. While interior spaces do harbor sociocultural influence, that is not the scope of this research. Further, their independence is actually a common characteristic of American housing, where historicist architectural styling very often houses modern and technological-updated interiors (Hayden 2003).

Fig 1.4.1 A typical suburban bourgeois villa outside London (John Preston Neale, engraved by William Woolnoth. *Whitton, Middlesex*. Published London, 1816. Victoria and Albert Museum, Department of Engraving, Illustration and Design and Department of Paintings, Accessions 1945, London: HMSO, 1956. Given by Dr. G. B. Gardner)

Historical Evolution of Agrarian Myth in Suburbia

The Metropolitan Institute at Virginia Tech (Lang, LeFurgy, and Nelson 2006) and Dolores Hayden (2003) have established historic taxonomies of conventional suburban development in the United States. This paper will build on these frameworks to discuss the context of the Agrarian Myth in suburbia.

Proto Suburbs, Pre-1850

For most of history, the urban core had been the place to live and work for rich and poor alike. The suburbs were considered "disreputable zones" outside the city walls (Fishman 1987) with the exception being country estates of the most wealthy (K. T. Jackson 1985). Robert Fishman positions modern Anglo-American suburbia as the product of late eighteenth-century English bourgeoisie (1987) when changing understandings of the concept of family, selfhood and property drove them to seek domesticity in "bourgeois compact villas" on the urban peripheries (Fig 1.4.1)(Archer 2005).

Architect Andrew Jackson Downing was instrumental in establishing the suburban style for the new American bourgeoisie and middle class. The well-circulated *Architecture of Country Homes,* first published in 1850, promoted the arcadian single-family home and an "obsession with setting a suburban residence behind a wide swath of land and his insistence on exaggerated rooflines as proof of "style" are still part of suburban home design today" (Hayden 2003, 27). Downing even

Fig 1.4.2-3 An early American farmhouse transformed into a suburban country home (AJ Downing,"View of a Country Residence, as frequently seen," Stevenson Library Digital Collections, accessed March 7, 2022, https://omekalib.bard.edu/items/show/1682.), (AJ Downing, *"View of the same Residence, improved,"* Stevenson Library Digital Collections, accessed March 7, 2022, https://omekalib.bard.edu/items/show/1683.)

offered advice on transforming an ordinary farm into a country estate (Fig 1.4.2, 1.4.3). Designs replaced straight and functional farm-roads with picturesque curving drives setting a precedent for contradictory symbolism in agrarian suburbia.[10] The country home model derived from the European villa was made slightly more accessible in the US, yet still "not typical of their time but rather exemplary" (Fishman 1987). What it did become for the Anglo-American middle class was a new widespread aspiration.

Around this time another early form of suburbia was being developed on the peripheries of cites. Termed "Borderlands" by Dolores Hayden, this unstructured pattern of suburbia encompassed all classes. The poor were rural farmers and workers, the wealthy had second pastoral retreats, but it was the middle class that tried to "sustain a country ambience near the city with just one residence" (Hayden 2003). This loose form of development faced continual conflicts over the use of land (productive agricultural or economically-detached pastoral) and the continual encroachment of new development that would prompt designers to create more stable, planned suburban models (Hayden 2003).

Town and Country Suburbs, 1850-1890

While "in 1840 suburbs had not yet developed into a recognizable entity, distinct from either the city or the farm" (Jackson 1985), this new era would encompass planned developments and suburban structures. The country component,

10. This move is especially interesting considering that for most of history, urban growth had actually been limited by inefficiencies in agriculture (Bruegmann 2017). Even in the 1800's, Downing was already seen by some as nostalgic for the promotion of rural over urban values (Hayden 2003, 34).

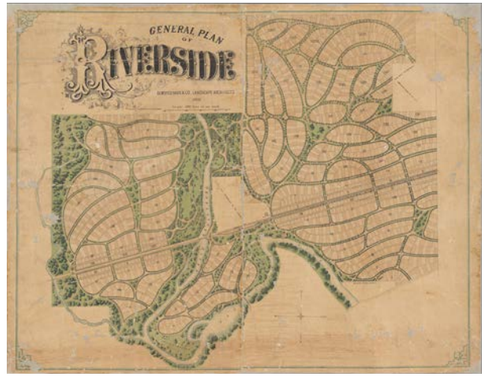

Fig 1.4.4 Plan of Riverside, New York, an exemplary picturesque enclave (Lionel Pincus and Princess Firyal Map Division, The New York Public Library. "*General plan of Riverside* " New York Public Library Digital Collections. Accessed March 7, 2022. https://digitalcollections.nypl.org items/250eb370-8137-0135-acb7-176cc9f33b4f)

Fig 1.4.5 Lawnmowing became a leisure activity as domestic life opened to the outdoors (*The Charter Oak Lawn Mower*, ca. 1870–1900, Boston Public Library)

or "Picturesque Enclaves," were influenced by earlier bourgeoisie villas and by communitarian settlements that tried to balance country with city in their innovative communities (Hayden 2003, 50). The communitarians co-opted the garden frontier movement with hopes that their model would become the development pattern of westward expansion. The new picturesque enclaves were wealthy and exclusive and tried to produce a harmonious pastoral landscape with large lots and winding roads (Fig 1.4.4). This reflected a shift in Americans attitudes toward natural landscapes from "awe and curiosity" towards "a more benign sense of adventure and romance" (Rowe 1992, 93). This corresponded with a gradual opening of the home to the outdoors and "country life periodicals that had nothing to do with farming [now] devoting their issues to a "simple life" of large, free-standing houses amidst ample acreage and appropriate foliage" (Fig 1.4.5) (K. T. Jackson 1985, 72). Agrarianism was beginning to take on an increasingly mythic form detached from reality.

Alternatively, "town" suburbs were closely adjacent to cities and much denser than picturesque enclaves, though still distinct from urban development by virtue of detached dwellings (Lang, LeFurgy, and Nelson 2006). Essentially proto-streetcar suburbs; the ferry and horse-car suburbs provided promising models for developers to profit from and the middle-class trying to escape industrializing cities (Jackson 1985). During this period, "the site of the exemplary suburb shifted decisively to the United States" due to American economic growth (Fishman 1987, 28) and expansion, and would soon come to full fruition with the development of the electric streetcar.

Fig 1.4.6 Dense single-family homes in a streetcar suburb outside Boston (Alex S. MacLean, Landslides, reproduced under fair use)

Fig 1.4.7 Electric streetcar passing through downtown South Bend, Indiana, early 1900s (No source, South Bend Tribune, reproduced under fair use)

Streetcar Suburbs, 1890 to 1930

The development of streetcar suburbs was closely aligned with the "height of industrial capitalism" (Hayden 2003, 4) triggering a boom of suburban growth, development and speculation (Lang, LeFurgy, and Nelson 2006). As American cities, especially those in the Northeast and Midwest rapidly industrialized and grew, there was a strong rise of anti-urbanism. Concerned about apartments and tenements in Minneapolis, Otto Davis famously commented that apartments cannot be considered homes because a home is "a house in which one can drive a yoke of oxen around" (Davis in Hirt 2018). The single-family neighborhoods that followed were tied to their urban/industrial counterparts by the streetcar but intentionally separate (Fig 1.4.6, 1.4.7) (Lang, LeFurgy, and Nelson 2006).

In England there was a push back against the industrializing city but an acknowledgment of the economic realities that led to Ebenezer Howard's utopian garden cities. In this imagining, the urban/rural relationship that would form a complex of dense developments spaced between greenbelt openspaces. This did not set the precedent for conventional suburbia but it did for suburban reformers finding solutions in mixed uses, intermediate density and traditional urban design (Berger, Kotkin, and Balderas-Guzmán 2017, 41).

Key shifts occurred in the twentieth-century that would lead to the modernization of the Agrarian Myth in American suburbia. The first was "attempts to secure for the whole middle class (and even for the working class as well) the benefits of suburbia" (Fishman 1987, 28). "Hasty subdividers" established barely-adequate infrastructure around streetcar lines which were then infilled with mass-produced mail-order homes in a range of styles (Hayden 2003, 97-99). Suburbia was becoming a truly accessible building type and that transformed its socio-cultural treatment as well. The American Dream was envisioned for all which stressed homeownership

Fig 1.4.8 Production of the Levittown arcadian landscape (*Workers prepare soil for landscaping*, 1948, Levittown History Collection, Levittown, NY, #331)

Fig 1.4.9 "Pastoral" mass suburb (*Curved Streets*, November 13, 1949, Levittown History Collection, Levittown, NY, #354)

and individualism accessible through a single-family home. This became the predominant socio-political doctrine of American life (Archer 2005, 249; Gormley 2017, 62) while the Agrarian Myth maintained an underlying presence.

Mid-Century Suburbs, 1930-1970

While the Great Depression and WWII slowed suburban development, the post-war period would drastically increase the scale and cultural significance of suburbia in America. Government intervention, particularly FHA and VA loans, "encouraged the production of large-scale suburban housing projects" that increased housing opportunities for white middle and lower income families[11] (Kelly 1993, 11; Lang, LeFurgy, and Nelson 2006). The automobile moved from a rural utility helping farmers get to market to be a fundamental fixture of suburban life[12] (Hayden 2003). Suburbia became a fully commodified phenomena strife with internal contradiction and agrarianism came to mythic fruition.

Levittown, the de facto mid-century suburban case study, led the process of standardization and contradiction. Its single-story homes repeated stylistically across the country had a minimal traditional exterior but a modern (now common) open-plan that "was both radically new and comfortably old" (Lang, LeFurgy, and Nelson 2006; Kelly 1993, 65). Levittown developers value engineered the designs for price and production efficiency to the limits of cultural acceptance, making all remaining details of crucial importance. Barabara Kelly studied Levittown and identified larger than required lot sizes. She writes, "the apparent contradiction in including an extra 2000 square feet of land while reducing nonessential elements in the house [also] underscores the intrinsic value of the Arcadian setting to the fulfillment of the American Dream" (Fig 1.4.8) (Kelly 1993, 71). The inclusion of extra

11. This also enforcing the hetro-normative family and racial segregation (Hayden 2003, 146)
12. The Department of Agriculture began building roads for farmers to get to market in 1916. In the 20's auto manufacturers thought that rural markets were becoming saturated and wanted to move into urban and suburban markets (Hayden 2003, 165)

Fig 1.4.10 New metropolis includes the elements of a city in autocentric suburban form, Tysons Corner, VA (La Citta Vitta, Flickr)

Fig 1.4.11 McMansions expand directly into existing farmland (Bob Nichols, Forsyth County, NC, USDA, reproduced under fair use)

land was a significant detail of the materialized Agrarian Myth, but the reality of an arcadian landscape was questionable when viewed from the stark aerial images of mass suburbia (Fig 1.4.9).

Beyond Levittown, the role of the land and its connection to the ranch-style home progressed. Lots configurations become more horizontal, emphasizing the home in the landscape and streets were laid out in a curvilinear flowing fashion to accentuate the (often non-existent) natural topography of the site (Rowe 1992). The garden was meant to be cultivated, the yard recreated in, and the home expanded. There was a "a shift… in the metaphor for the domestic landscape from a kind of naturalism to something more closely akin to rural life and even agriculture" (Rowe 1992, 94). Mid-century suburbia witnessed an unprecedented level of commodification, Agrarian Myth included. It saw the negotiation of idealized values, like rugged individualism in homeownership, contradict in actualized practice, like the conformity in identical homes. Finally, it set the precedent for dispersed auto-centric living, a major sustainability concern of suburbia.

New Metropolis, 1970-2010

Following the dominance of post-war suburbia, the New Metropolis is a decentralized, nonurban conglomerate of "people, shopping, and business" that has "become cities in function, but not in form" (Fig 1.4.10) (Lang, LeFurgy, and Nelson 2006).[13] Fishman refers to this pattern as the "technoburb" which represents the end of our traditional understanding of suburbia as an urban counterpart (1987).[14]

Residences shifted to what is called "Rural Fringes" (Hayden 2003). These sprawling, highly auto-dependent suburbs populate on cheap remote land. The homes employ a historicist neo-eclectic style and continue to grow in square footage, exemplified and satirized by the McMansion (Fig 1.4.11) (Dostrovsky and Harris

13. The commercial pattern is called "Edge Nodes," and are a typically highway-adjacent suburban form derived from automotive rather than residential perspective. They are incentivized by short-term growth economic policy and made up primarily of commercial office space, malls, and big-box stores (Hayden 2003).
14. Fishman actually dates the technoburb from 1945 onward with the first rise of the autocentric postwar suburbs.

Fig 1.4.12 New suburban development bridges to form megapolitan areas, Phoenix (Doc Searls, reproduced under fair use)

Fig 1.4.13 Modern farmhouse style is the current "perennial favorite" plan (Jason Breland, Zonda Media/ Builder, reproduced under fair use)

15. In Orange County, California
16. In addition to this, previously discussed historic suburban types continue to populate the American landscape, and many continue to be constructed (Hayden 2003).
17. As well as suburban populations and family structures (JCHS 2020)

2008; Lang, LeFurgy, and Nelson 2006). Hayden attributes, "part of the attraction [to] a fashion for country styles, farmhouses, barns, old painted furniture, [and] quilts" (Hayden 2003; 184). At the same time, the domestic landscape moved, "away from direct recreational use and toward the garden as an object of contemplation" (Rowe 1992, 94). "Countrification" became a dominant theme in 1980's culture and a proven tactic to sell products and quell fears about future uncertainty (Weightman 1981). Barbara Weightman documented this trend in the suburban context[15] and found it to be instrumental in the design and advertising of new developments. However, except for the few with money to buy expansive properties, "achieving pastoral ideals" was made possible only "through arcadian illusions" (Weightman 1981). The resulting New Metropolis urban form is "neither city nor countryside, but an uncomfortable fusion of the two" (Wirzba 2003, 196) as it tries to negotiate the draw of the Agrarian Myth with the realities of American life.

Megapolitan Suburbs, 2010 and beyond

The current "Megapolitan" era is a continuation and expansion of the previous suburban era.[16] It refers to the conglomeration of urban and suburban regions into a vast decentralized network where residents have the option of commuting in all directions (Lang, LeFurgy, and Nelson 2006). Now the extent to which the non-urban- whether agricultural, wilderness, or pastoral, is disrupted by development is at, "a degree that was unforeseen… even a [few] generations ago" (Fig 1.4.12) (Zimmerman 2001). The revival of traditional core suburbs and expansion of the most distant suburbs are predicted to dominate now (Lang, LeFurgy, and Nelson 2006).

Whereas previous eras can identify a specific prevailing architectural style that is no longer true. Home are more diverse[17] and more detailed than in the mid

century with “ranch, modern, traditional, farmhouse, craftsman and Mediterranean” all as popular options (Sichelman 2019).[18] In recent years, the farmhouse style has especially trended in new developments and appears to be a long-term favorite (Fig 1.4.13) (Zeledon 2021). Coupled with the resurgence in farm-to-table restaurants, urban gardening and organic consumption, there is a broader “agrarian turn” occurring in the present moment (Singer, Grey, and Motter 2020).

The prevalence of suburbia today is as strong as ever and continues to grow. Its privileged position in American society and its built form owe much to the deeply-held idealization of rural agricultural life. As Leo Marx has said though, the Agrarian Myth is a “powerful metaphor of contradiction” (1964, 11) and the very same could be said of suburbia. His arguments on the popular and dissenting Agrarian Myth have “had tragic implications, reinforcing the mid-century apprehension that in the suburb… Americans had somehow become prisoners of their own success” (Robinson 2013). The ideal of the pastoral retreat has seemingly been lost to the sprawling commercialized metropolis. With the imposing environmental crisis of the current state of suburbia, it poses the question of how the Agrarian Myth has strayed from its supposed values of land-based sustainable living. For designers to engage this “reservoir of myth” it is necessary to know if and in what ways the materialized Agrarian Myth contributes to the sustainability of suburbia.

18. An interesting aside, while “villa” referred to the early suburban dwelling set outside the city on a large lot involving farming, it now is used to describe compact, sometimes attached, housing in a planned and maintenance free community.

(Lynn Betts, USDA)

Methodology

19. See Agrarian Myth Scorecard in Appendix for all elements and scoring criteria
20. Homes were chosen based on popularity (best sellers or development model) and consistency with the development style.

To investigate the relationship between the Agrarian Myth in suburbia with sustainability, a quantitative scoring method was developed consisting of correlation analysis and comparative ranking analysis. Using a scorecard measuring system, twelve suburban development case-studies in Northern Indiana were evaluated for levels of both Agrarian Myth-influence and sustainability. These scores were then weighted, analyzed and correlated. Visual and spatial information was simultaneously collected and analyzed relating the Agrarian Myth with sustainability.

Measuring the Agrarian Myth

The scorecard for measuring Agrarian Myth influence in suburbia was derived from Weightman's 1981 study, "Arcadia in Suburbia." Weightman tracks arcadian (essentially agrarian) imagery in Orange County, CA through a series of indicators identified from real-estate publications. The study is classified by project setting, housing structures, and advertising/promotional materials. Building off this framework, a similar review of national builder publications (Builder Magazine, ProBuilder), trend guides and popular home plan designs (Builder House Plans) was conducted to revise and update the scorecard to reflect the current state of the Agrarian Myth and building practices.

The revised scorecard utilized a similar tripartite categorization of Marketing, Development, and Architecture. Marketing looked at details such as project name and pastoral descriptions. Development looked at neighborhood-wide components. It was further subdivided between the Project Scale (i.e. street layout), Homesite (horizontal lot configurations), and Development Details (signage design). The Architecture category had subgroups of Color (earthy tones), Materiality/Siding (board and batten), Building Form/Massing (front porch), Roof (gabled), Windows (dormers), and Details (rugged trusses).[19]

Points were assigned based on a distinct and agrarian presence (3), partial or limited presence (1) and no appearance (0). Architecture was scored by surveying two representative model homes for each development.[20] Scores were weighted as 25% Marketing, 25% Development and 50% Architectural (25% per home). This weighting reflects the strength of "tract house vernacular" as an expression of socio-cultural dimensions and its influence in the dwellers perception of the suburb.

Fig 2.1 Agrarian Myth and sustainability scoring categories

Given that 97% of home buyers now use the internet to search for homes (NAR 2021), internet-based resources were utilized to assess developments. Developer websites, online brochures, Zillow, Google Earth Pro and Google Street View were used as primary sources and photos were prioritized as they are the most important resource to home buyers (over details, floorplans, neighborhood info...) (NAR 2021).

While this scorecard was derived from existing research and literature, there are still limitations in its accuracy of defining the Agrarian Myth into material elements. The Agrarian Myth is a dynamic socio-cultural phenomena that materializes differently across temporal and geographic scales. To control for this, the study was limited to current development[21] in Northern Indiana. Many case-studies though are new phases in existing subdivisions that borrow from infrastructure built in the last five to fifteen years. The scoring criteria was primarily objective, though so elements did require subjective discretion based on the researcher's perception of the Agrarian Myth. This is acceptable as the scores do not represent actual values, however for the most accurate comparison, all development should be scored by the same researcher.

21. Actively building and/or selling new homes.

Measuring Sustainability

Sustainability was measured using a modified Leed Neighborhood Development rating system. Leed (Leadership in Energy and Environmental Design, under the U.S. Green Building Council) is a highly reputable and widely used green building rating certification and this system is aimed at creating more sustainable and better-connected communities. It was chosen over other sustainability measures like Living Building Challenge and Cascadia Scorecard based on its adaptable and transferable criteria. Formal Leed-ND certification requires an intensive and complex process facilitated by a certification professional. A "Citizen's Guide to LEED for Neighborhood Development" was created to enable citizens to assess and inform developments. Given the time, cost and applicability constraints of formal certification, the citizen's scorecard was further developed for specific use in this study.

Leed ND split sustainability into three primary contexts: Smart Location and Linkage, Neighborhood Pattern and Design, and Green Infrastructure and Buildings which were kept for this study's revised scorecard:

Smart Location and Linkage (SLL) looks at "where to build" and includes the topics:

- Locations
- Ecosystems and Open Spaces
- Transit-Oriented Locations
- Cycling and Walking Connectivity
- Jobs and Housing Proximity

Neighborhood Pattern and Design (NPD) is concerned with "what to build" and includes:

- Walkable Streets
- Compact Development
- Neighborhood Connections
- Mixed Uses, Affordable and Diverse Housing
- Parking and Transportation Demand
- Parks and Recreation
- Universal Design
- Community Participation
- Local Food
- School Access and Design

Finally, Green Infrastructure and Buildings (GIB) is "how to manage environmental impacts" and it made up of:

- Construction Techniques,
- Energy Efficiency and Conservation
- Energy Production and Distribution
- Water Efficiency and Conservation
- Stormwater and Wastewater
- Green Building Process
- Historic and Existing Building Reuse
- Heat Islands

Fig 2.2 South Bend underwent the typical American process of suburbanization including industrialization (Ruger, A, and Chicago Lithographing Co. *South Bend, Indiana.* [Chicago, Chicago Lithographing Co, 1866] Map. https://www.loc.gov/item/73693388/.)

Fig 2.3 The St Joseph River flows through South Bend, Mishawaka (pictured) and Elkhart, the three cities that anchor the northern Indiana suburban metropolis (Derek Jensen, 2005)

- Reuse and Recycling
- Light Pollution (Welch, Benfield, and Raimi 2011)

Criteria was modified to reflect the limits available information from non-invasive sources including Google Earth, Google Street View, Zillow, and development information publications. Scoring thresholds were reduced to be able to rate and compare conventional suburbs that would otherwise not reach Leed standards.[22] Points values were assigned per Leed's original distribution. Half points were awarded for difficult to verify questions and partial fulfillment. Based on the established breakdown of categories, overall scores were weighted as 28.5% SLL, 45% NPD, and 28.5% GIB to provide a balanced and comprehensive composite.

Case Study Selection

Region

To control for regional and climatic differences in the perception of the Agrarian Myth and in building practices this method was employed for a specific case study region. Northern Indiana (St. Joseph and Elkhart Counties), centered around the city of South Bend, Indiana was chosen as a prototypical American region.[23] Its agricultural heritage in farming (as opposed to ranching) is in line with the historical foundations of American cultivation-agrarianism as discussed in the preceding literature review. Northern Indiana is still an active agricultural region and the municipal GIS homepage even describes the county as a "comfortable mix of rural cultural heritage and urban amenities" ("St Joseph County Quick Access Maps" n.d.).

South Bend and its surroundings also underwent a process of suburbanization that reflects the national patterns outlined previously. As a small city it saw the

22. Therefore scores should not be compared to certified Leed-ND developments

23. Additionally, this area was identified and chosen due the researcher's familiarity with the region. Having lived in suburban Granger) from 2011-2018, I have background knowledge of area history and geography and was interested in learning more about the processes that had produced my hometown.

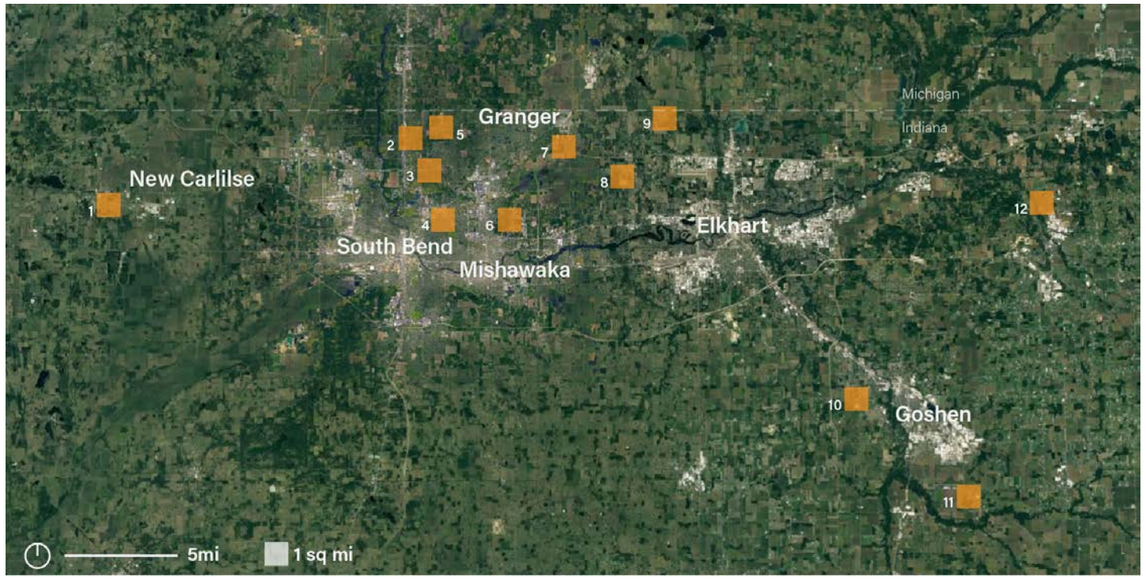

Fig 2.4 Map of case studies developments: 1. Wintergreen Meadows, 2. Audubon Woods, 3. Belle Terre, 4. The Echos, 5. Bradford Shores, 6. Savannah Pass, 7. The Hills at St. Joe Farm, 8. Pleasant Valley North, 9. Deerfield Estates, 10. Westoria, 11. Fairfield Farms, 12. Winding River

24. South Bend actually had the first electric streetcar in the country installed in 1882 (Morrison 2013)

25. There are inevitable limitations associated with a case study approach and while this region was chosen to be representative of wider trends, this does not mean it will be indicative of all trends or regions.

26. See Case Study Developments in Appendix for full list and descriptions

rise and fall of industry with the Studebaker automobile factory (Fig 2.2) and streetcar suburbs (Fig 1.4.7).[24] As the postwar years progressed, development exploded outside the city limits to eventually form exurban Granger, situated between South Bend and neighboring cities Mishawaka and Elkhart (Fig 2.3). Today, "South Bend is notable... not as a special city but as a stand-in for all of the underdog places like it, a postindustrial Everycity, worthy of interest in part because it is so ordinary" (Manier 2019). The New York Times surveyed it as, "progressive and conservative, country and urban, dangerous and quaint. A college town, really, but with high poverty. And corn" (Badger 2020). These qualities position South Bend/Northern Indiana to be emblematic of wider Midwestern and even national trends.[25]

Case Study Developments

Within this region, conventional suburban developments currently in process of building and/or selling were identified using Zillow new home listings and local developer websites. Twelve were chosen to be assessed based on availability of source materials including marketing descriptions, Google Earth satellite imagery and GSV. These case studies provide a range of price points, locations and developers/builders (Fig 2.4-6).[26]

Fig 2.5 Case study developments. Left to right: 1. Wintergreen Meadows, 2. Audubon Woods, 3. Belle Terre,* 4. The Echos, 5. Bradford Shores, 6. Savannah Pass, 7. The Hills at St. Joe Farm,* 8. Pleasant Valley North, 9. Deerfield Estates, 10. Westoria, 11. Fairfield Farms, 12. Winding River (Not to scale, orange denotes the boundary of the current phase. *These case studies had adequate alternative imagery to be assessed)

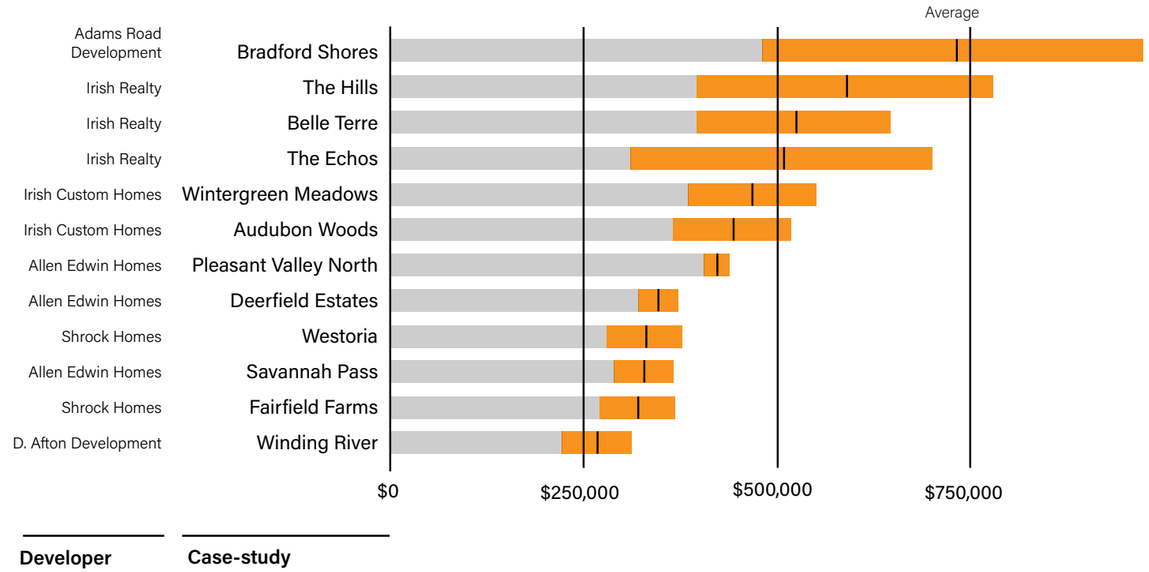

Fig 2.6 Case study price range and developer

(Brett VA)

Findings

27. See All Case Study Scores in Appendix for full individual development scores

Once all twelve selected case-studies were scored for the Agrarian Myth and sustainability, individual scores were compiled and weighted based on the three sustainability categories of Smart Location and Linkage (SLL), Neighborhood Pattern and Design (NPD), Green Infrastructure and Buildings (GIB) and the Agrarian Myth categories of Marketing, Development, and Architecture for analysis (Fig 3.1.1).[27]

	Materialized Agrarian Myth							Actualized Sustainability						
	(Weighted) Total	Market.		Develop.		Arch.		(Weighted) Total	SLL		NPD		GIB	
Audubon Woods	44.56	10	9.26	10	5.95	81	29.35	26.10	13.5	12.02	10.5	12.12	2.0	1.97
Belle Terre	45.49	5	4.63	9	5.36	98	35.51	17.84	9.5	8.46	6.0	6.92	2.5	2.46
Bradford Shores	57.92	14	12.96	25	14.88	83	30.07	13.75	5.0	4.45	5.5	6.35	3.0	2.95
Deerfield Estates	40.10	2	1.85	18	10.71	76	27.54	16.95	6.0	5.34	7.5	8.65	3.0	2.95
The Echos	45.96	5	4.63	11	6.55	96	34.78	35.53	20.0	17.81	14.5	16.73	1.0	0.98
Fairfield Farms	57.35	5	4.63	35	20.83	88	31.88	19.94	5.5	4.90	7.5	8.65	6.5	6.39
The Hills	60.10	12	11.11	19	11.31	104	37.68	18.72	6.5	5.79	9.5	10.96	2.0	1.97
Pleasant Valley N.	44.43	5	4.63	20	11.90	77	27.90	17.19	5.0	4.45	5.5	6.35	6.5	6.39
Savannah Pass	44.63	7	6.48	16	9.52	79	28.62	22.25	5.5	4.90	9.5	10.96	6.5	6.39
Westoria	49.50	1	0.93	25	14.88	93	33.70	18.85	6.0	5.34	10.0	11.54	2.0	1.97
Winding River	37.12	7	6.48	18	10.71	55	19.93	16.77	7.0	6.23	7.0	8.08	2.5	2.46
Wintergreen M.	48.93	15	13.89	12	7.14	77	27.90	19.47	5.5	4.90	10.5	12.12	2.5	2.46
		Gross	Weighted											

Fig 3.1.1 Results

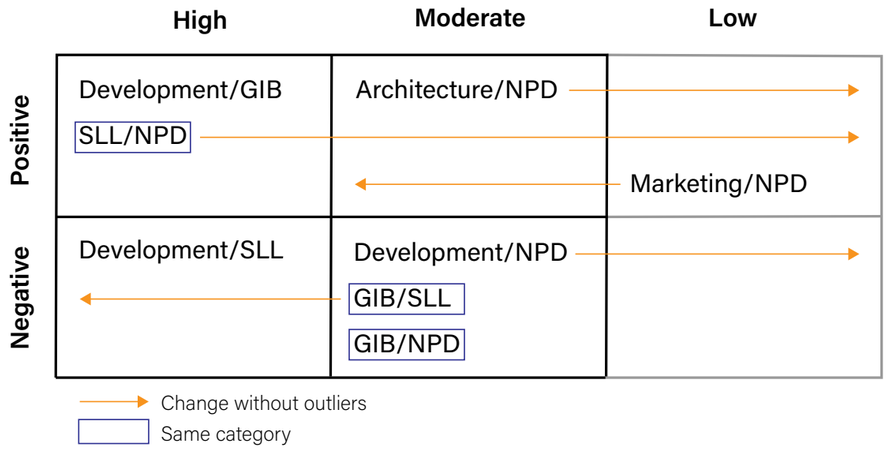

Fig 3.2.1 Found Correlations and Changes

Correlation Analysis

A correlation plot was created using R to find the correlation coefficient[28] between scorecard categories and identify possible relationships between Agrarian Myth and sustainability.[29] Matrices were constructed for weighted and unweighted scores.[30] Outlier tests identified Bradford Shores and The Echos, so correlations (weighted and unweighted) were also run with those developments removed from the data set. These were outliers because they are atypical/exceptional case-studies,[31] not because of measurement error and so the results of both correlation plots will be analyzed in tandem (Fig 3.2.1).[32]

Development/Smart Location and Linkage, and Neighborhood Pattern and Design

When plotted for the full set of 12 suburbs, a high negative correlation was found between Development and SLL (-0.58/-0.6; weighted/unweighted) and a moderate negative between Development and NPD (-0.32/-0.34). SLL and NPD themselves saw the highest degree of correlation in the data set (0.67) and address similar elements such as density and street layout but score inversely.[33] For example, Fairfield Farms (Fig 3.2.2) scored highest (#1) for Development but #9 and #10 for NPD and SLL, respectively. In this case, the long winding street layout scored points for Development, but resulted in a poorly connected and low density street network, criteria for SLL. Natural water features and common wooded areas again

The Echos was the most urban development in the set and scored exceptionally high for sustainability.
32. For clarity, correlations will be listed with the Agrarian Myth category first, followed by the sustainability category and separated with a slash (/). Correlation coefficients will be listed by their weighted score, followed by unweighted. When the same it will only be listed once. The number sign (#) will refer to rank in the data set, highest to lowest.
33. Since both are sustainability subcategories, this correlation does not directly pertain to the research question but provides insights in analysis.

28. The Pearson's correlation coefficient denotes the strengths of the correlation: "High degree: If the coefficient value lies between ± 0.50 and ± 1, then it is said to be a strong correlation. Moderate degree: If the value lies between ± 0.30 and ± 0.49, then it is said to be a medium correlation. Low degree: When the value lies below + .29, then it is said to be a small correlation." ("Pearson's Correlation Coefficient" n.d.)
29. This statistical analysis was conducted in collaboration with the University of Colorado Laboratory for Interdisciplinary Statistical Analysis (LISA). All correlation statistical analysis (in R) was conducted by LISA. All statistical interpretation and descriptive analysis was completed by myself.
30. See Correlation Matrices in the Appendix
31 Bradford Shores was the most expensive development in the set and scored very highly for the Agrarian Myth and very low for sustainability.

Fig 3.2.2 Fairfield Farms, highly Agrarian Myth influenced development with low development-scale sustainability. (Google Earth)

34. The Echos was #7-9 and #1 for Marketing and NPD
35. Adams Road Development. n.d. "Bradford Shores at Knollwood." Adams Road Development. Accessed March 14, 2022. https://knollwoodhomes.net/bradford-shores/.
36. Marketing: Literary/Poetic Description, Rustic/Rural/Pastoral Described
NPD: Walkable Streets, Neighborhood Connections

score Development points, but resulted in a lower density not meeting the threshold for scoring NPD points.

With the outliers removed, SLL and NPD saw an internal correlation shift from a strong (0.67) to limited degree (0.12). For both SLL and NPD, The Echos was #1 and Bradford Shores was #11-12. With these two negative correlation developments removed, the remaining correlation between SLL/NPD was limited.
The correlation between Development and NPD (moderate negative total plot) was reduced to a limited correlation (-0.05). This reflects strong inverse scores among the two outliers. The Echos was #10 for Development and #1 for NPD and Bradford Shores was #2-3 for Development but #11-12 for NPD. Development and SLL did not see did not see a significant change in correlations with the outliers removed (-0.58/-0.6 to -0.56/-0.61).

Marketing/Neighborhood Pattern and Design

With outliers removed, a new moderate positive correlation was found between Marketing and NPD (0.46/0.44, from 0.02/0.01 in total plot). This is a similar case as discussed for Development/NPD where the strong inverse scores were recorded among outliers. Bradford Shores was #2 for Marketing and #11-12 for NPD.[34] Here the advertised "road winding peacefully past gorgeous homesites" was also a road with limited walkability and neighborhood connectivity.[35-36] In a more typical case-study like Belle Terre (#10 for Marketing and NPD), the marketed agrarian influence is subtle using the french phrase meaning "beautiful land" which has pastoral value, but is limited in the context of the common American Agrarian Myth. Matching the subtleness of a foreign name, homes centered on a large paved boulevard/cul-de-sac that covers a significant portion of the land, negatively impacting

Fig 3.2.3 Fairfield Farms Barn (Google Street View)

Neighborhood Pattern and Design.[37] The change in correlation with outliers indicated a negative correlation between Marketing/NPD among exceptionally scoring outliers, but a positive correlation for the remaining dataset.

Development/Green Infrastructure and Building

A high positive correlation was found between Development and GIB (0.52) meaning that in this data-set, more agrarian development-scale features tend to have more sustainable construction practices and buildings. The three highest scorers (tied) for GIB were Fairfield Farms, Pleasant Valley North and Savannah Pass which ranked #1, #4 and #8 for Development, respectively. Fairfield Farms as previously discussed includes natural wetlands and undeveloped wooded areas (Fig 3.2.2) which score in Development. Those elements score in GIB "Construction Techniques" for preservation of existing site features and in "Stormwater and Wastewater." Fairfield Farms is also a unique case because it includes a pre-existing barn that is zoned for agricultural land use and owned by the developer (Fig 3.2.3). This is a reason for the high Development score as it receives points in "Community garden/farm" and "Additional Element". In GIB, the barn scores "Historic and Existing Building Reuse" points, being the only development to receive any in that category.

The other two highest scorers in GIB were from the same regional builder (Allen Edwin Homes) which certifies all new homes as RESNET Energy Smart, scoring GIB "Energy Efficiency" and "Conservation" points. The development rankings for all Allen Edwin case-studies (Pleasant Valley North, Deerfield Estates and Savannah Pass) was #4, #6, and #8, which does not by itself have a strong link between Agrarian development and GIB.

37. NPD: Parking and Transportation Demand, Walkable Streets, and Neighborhood Connections points

38. GIB/SLL was moderative total (-0.48/-0.47) and high with outliers removed (-0.52), GIB/NPD was moderate (-0.41, -0.44/-0.45)
39. GIB: Stormwater and Wastewater
40. NPD: Compact Development
41. See Ranked Score Distribution in Appendix

Green Infrastructure and Building/Smart Location and Linkage, and Neighborhood Pattern and Design

As sustainability categories, GIB correlated negatively with both SLL and NPD.[38] This indicated that gains in sustainable building resulted in lower neighborhood and town scale sustainability. GIB specifies points for preservation construction practices, so a suburb built in an urban-infill or previously developed site is limited in posible GIB points because there is not an option to preserve existing trees and portions of undeveloped site. The use of retention ponds is another element that scores GIB points,[39] however this also results in lower density.[40] Additionally as previously discussed, GIB scores are influenced by limited sample size and atypical case studies.

Architecture/Neighborhood Pattern and Design

Architecture and NPD had a moderate positive correlation for its unweighted total plot (0.32), however this correlation was limited in the unweighted total plot and with outliers removed.

Weighting

Change in correlation coefficients was minimal between weighted and unweighted scores. Coefficients with architecture for the full dataset saw the greatest change (avg. 0.057 compared to 0.0083 for others). Architecture had the highest amount of points possible due to the higher number of specific agrarian elements. Therefore its weighting created a larger shift. Architecture and SLL had the only significant change in weighted to unweighted coefficients (0.23 to 0.07). Because of the minimal effect, only weighted scores will be used in the following analysis.

Ranked Comparison Analysis

Using a descriptive statistical analysis approach, weighted results were compared graphically based on relative Agrarian Myth and sustainability ranking. Developments were matched to see the trend in change in ranking. In the total composite Agrarian Myth and sustainability score comparison, rankings were also tiered based on the distribution of scores to better differentiate relationships.[41] This plot showed three primary trends (Fig 3.3.1). Case-studies highest in Agrarian Myth influence tended to correspond with mid and low tiers of sustainability, high sustainability corresponded with mid tier Agrarian Myth and the lowest tiers matched equally low. This is in-line with the correlation findings. For many categories there

Fig 3.3.1 Total Weighted Ranking Comparison

was an inverse relationship between the Agrarian-myth and sustainability, however, at the high and low ends of the scores, those relationships often flipped. When plotted as a tiered rank bubble chart, the bottom tier scores and high sustainability-mid Agrarian Myth trends are identified as clusters (Fig 3.3.2[42]). Additionally, there is a cluster of mid-tier case-studies for both Agrarian Myth and sustainability.

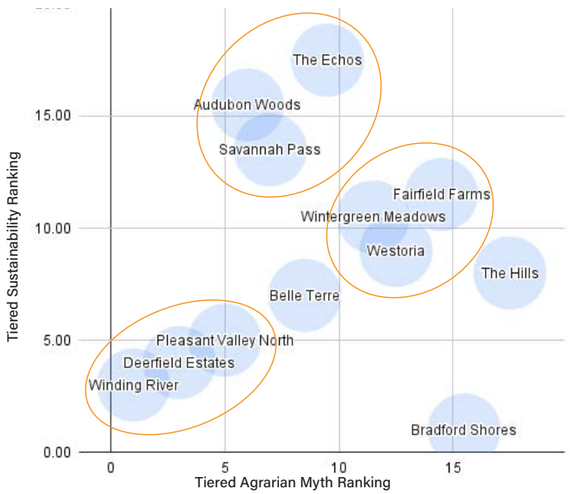

Fig 3.3.2 Tiered Ranking Comparison Clustering

42. This bubble chart is based on reversed tiered rankings of developments so the lowest rank is 1. The tiered rank spaces developments by an extra one point between tiers and half point between sub tiers.

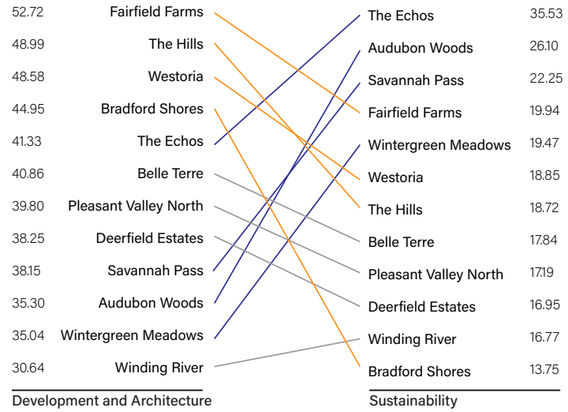

Figure 3.3.3 Ranked Comparison Variation: Built Elements

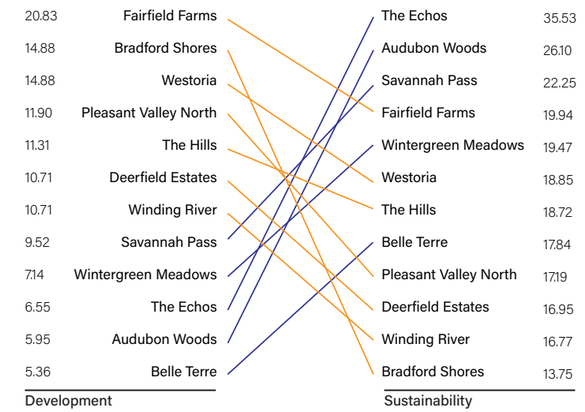

Fig 3.3.4 Ranked Comparison Variation: Development

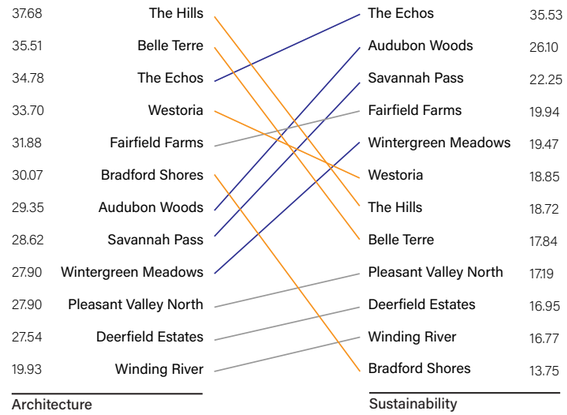

Fig 3.3.5 Ranked Comparison Variation: Architecture

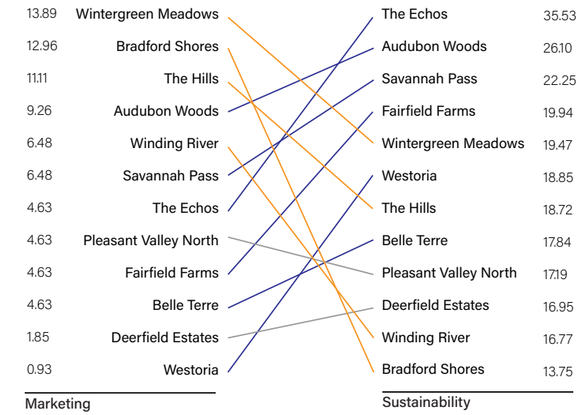

Fig 3.3.6 Ranked Comparison Variation: Marketing

Additional ranked comparison variations were conducted with a simplified, non-tiered plot to allow for quicker exploratory study. Marketing was removed from the composite Agrarian Myth score to understand the relationship between primarily built elements (Fig 3.3.3). Here, the overall inverse relationships remained, however the bottom tier relationship became weaker. High sustainability now matched much lower with the Agrarian Myth, meaning that those developments had a higher share of marketing in their Agrarian score. Conversely, the previous lowest scorers in Agrarian Myth would have had a limited marking component to their scores.

When sustainability was compared with just the Agrarian Myth-development a consistent negative relationship was found (Fig 3.3.4). Architecture had a trend that was more similar to the overall findings with a negative relationship among mid to high scores and a positive relationship at the bottom (Fig 3.3.5). With only Agrarian Myth-marketing compared to sustainability, there was no longer an identifiable trend (Fig 3.3.6).

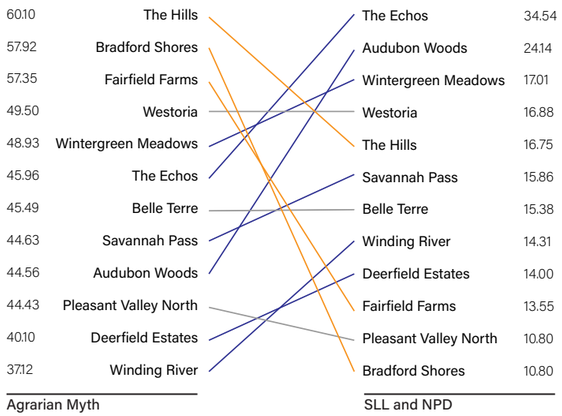

Fig 3.3.7 Ranked Comparison Variation: Without Green Infrastructure and Building

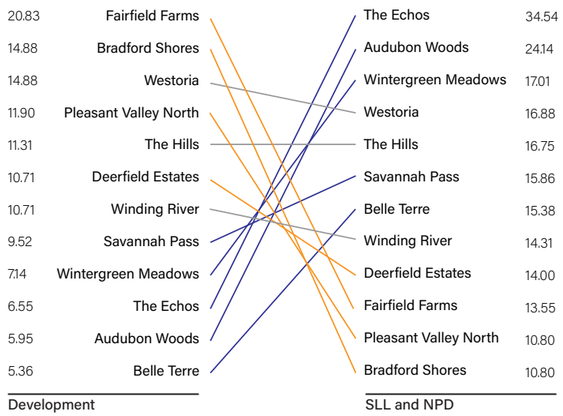

Fig 3.3.8 Ranked Comparison Variation: Development with Development scale sustainability

From the interpretation of the Development/Green Infrastructure and Building correlation, it was determined that GIB scores were affected by an atypical case-study and limited sample size. With GIB removed from the sustainability ranking, there was a negative trend between high Agrarian Myth and sustainability, however other relationships were inconsistent (Fig 3.3.7).

Development had correlated strongly with Smart Location and Linkage and Neighborhood Pattern and Design so a plot was constructed for the similar and large-scale topics (Fig 3.3.8). It shows a strong and dramatic negative relationship between the Agrarian Myth and sustainability.

(Winding River, Granite Ridge Builders, reproduced under fair use)

Discussion

The overall trend identified from the findings is that the Agrarian Myth relates negatively to sustainability among moderate to high scoring development and relates positively among limited scoring developments (Fig 3.3.1). There are inconsistencies to this trend (Fig 3.3.2) and the negative relationship is more reliable between the highly sustainable suburbs to moderately agrarian materialization. As a total composite of measures, this study did not find conclusive evidence to suggest that the Agrarian Myth is associated with sustainability in a positive or negative way.

The analysis of the Agrarian Myth categories (Marketing, Development and Architecture) with sustainability categories (Smart Location and Linkage, Neighborhood Pattern and Design, and Green Infrastructure and Building) did identify additional trends that inform how these concepts relate. They are split into direct and indirect relationships, meaning whether or not the individual elements have a distinct effect on both scores and by the scale at which they occur.

Direct-Large Scale Relationships

Design at the larger scales (Development, Smart Location and Linkage and Neighborhood Pattern and Design) of suburbia consists of the most literal and identifiable translation of the Agrarian Myth into the built environment. Large lots, “natural” water features and winding pastoral roads evoke the dream of the Yeoman farmer plotting their own homestead. This study found that for subdivisions with prominent agrarian imagery in the development scale (Fig 4.2) or for highly sustainable and typically urban subdivisions (Fig 4.3), there was a strong negative correlation between development scale sustainability (NPD) and Agrarian Myth materialization. However, with the removal of high scoring outliers from the analysis, this relationship was lost. This suggests that among more typical agrarian-expressing neighborhoods, there is not a consistent correlation to neighborhood sustainability.

The Development category also had a negative correlation with Smart Location and Linkage. While a low-density near-country development is effective at appealing to the Agrarian Myth, it results in lost efficiencies and connectivity. Following the trend seen with the Development/NPD, a similar loss in correlation would have been expected with outliers removed. However, the negative correlation (Development/SLL) was seen consistently. This indicates that across conventional

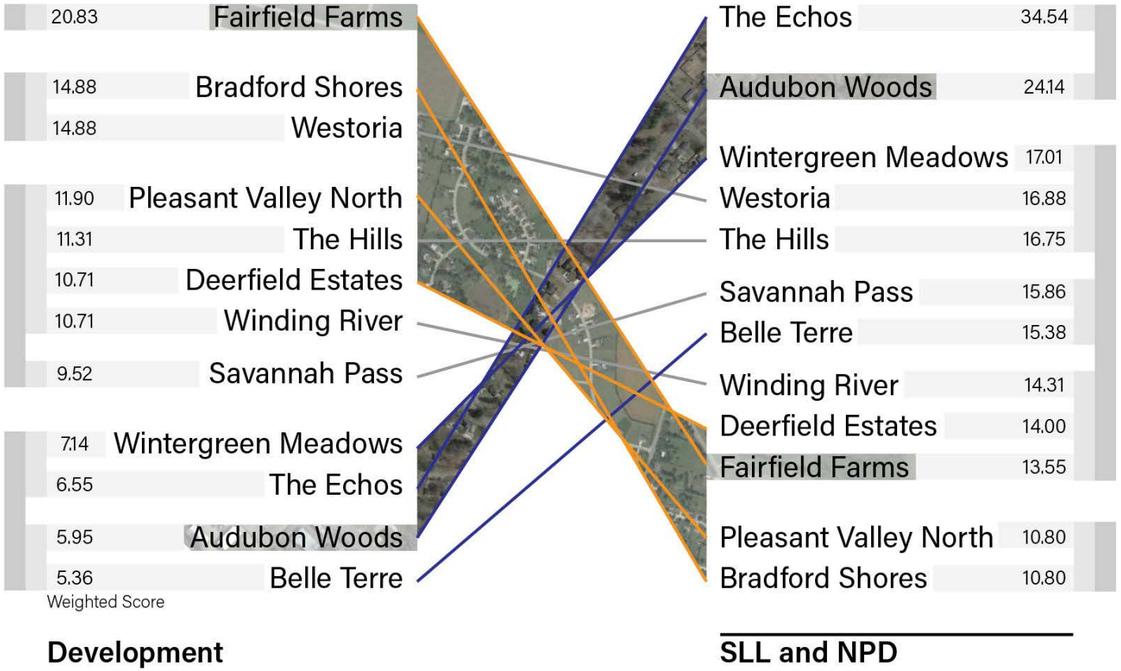

Fig 4.1 Direct-Large scale Agrarian Myth and Sustainability

Fig 4.4 Abstract Agrarian Myth and Sustainability

Fig 4.2 Bradford Shores. The Agrarian Myth materialized at the development scale in a poorly sustainable neighborhood and site (Team Foy Real Estate Brokers, reproduced under fair use)

Fig 4.3 The Echos. An urban and sustainable development of single family homes (Irish Realty, reproduced under fair use)

suburban development, the higher the influence of the Agrarian Myth at the development scale, the lower the sustainability will be for the location and surroundings of the subdivision site.[43]

When plotted as ranking comparison charts the large-scale trends are easily seen (Fig 3.3.4, 4.1). The case-studies with greatest Agrarian Myth materialization in their development are the most unsustainable at large-scales and the most sustainable case studies are limited in their agrarian appeal. These findings confirm an initial hypothesis and provide the most tangible evidence of the materialized Agrarian Myth and its direct relationship toward large-scale sustainability.

43. This relates to conventional mass-suburbia. As will be discussed in the implications, there are examples of sustainable suburban development that actively employ an agricultural theme ("agriburbs").

Indirect/Abstract Relationships

Architecture

While relationships at the larger scale were expected (and confirmed), a goal of this study was to be able to identify if there are relationships at the scale of the building, an often neglected component to suburban reform. In this context, Agrarian elements, such as board and batten siding or steep gabled roofing do not have preexisting connotations or links to a specific sustainable element. The intent at this scale was to identify non-tangible correlations only available through structured quantitative analysis.

Correlation analysis did not find any significant relationships. Green Building and Infrastructure was seen to correlate positively with Agrarian Myth Development, however further analysis of case studies suggests that is more likely a coincidence due to a limited sample size and an atypical case study (Fairfield Farms). Internal sustainability correlations of GIB with SLL and NPD were also determined to be insignificant because of overlapping scoring criteria and the anomalies in GIB scores. Lastly, a moderate positive correlation was found between Architecture and NPD in one correlation plot, but was limited in all others, deeming it insignificant.

Fig 4.5 The Echos home's steep gabled roof, front porch and stone rustication give it an agrarian appeal despite its more urban setting. (Zillow, reproduced under fair use)

Fig 4.6 A minimally designed home in the nearly rural Winding River subdivision (Zillow, reproduced under fair use)

Through ranking comparison and case study analysis, loose trends were identified. The highly sustainable Echos was also highly agrarian in its architecture which included rustication, earthy color schemes and prominent gabled dormers (Fig 4.5) The compact homes could have easily been a row of townhomes, yet are decidedly separate, featuring a front porch announcing the dwelling as a detached single-family home. Here architecture is used to express the Agrarian Myth which is limited at the development scale by an urban site. However, architecture does not always have that effect. The Hills at St. Joe Farm extensively utilized the Agrarian Myth in its "urban farmhouse" architecture but is not a significantly sustainable suburb. There does not appear to be a direct or indirect connection between the agrarian references like metal shed roofing and natural wood beams found in the model home with any sustainability gains. Additionally, the only certified energy-efficient homes in the study did not have a consistently agrarian style.

At the low-end, the bottom tiers of architecture correspond to the bottom tiers of overall sustainability. These homes feature the least agrarian elements, which typically meant a lack of any style and ornamentation (Fig 4.6). It could be that homes with minimal features generally will also have minimal sustainability features. Considering the current farmhouse trend, it also becomes more difficult to attribute an agrarian style to a specific connection to sustainability over an adherence to current market conditions.

Marketing

Suburbia is a bought and sold commodity, so the way it is portrayed through marketing and descriptive details is another key materialization of the Agrarian Myth. Ranked comparison did not find a consistent trend (Fig 3.2.6), but when compared to other metrics of Agrarian Myth (Fig 3.2.3) highly sustainable developments now matched to higher levels of the Agrarian Myth in marketing. This indicates that

Fig 4.7 Audubon Woods before construction began. A last remaining piece of country in the urbanizing landscape. (Google Earth, 2003)

marketing was a significant share of their Agrarian Myth appeal. Additionally, correlation analysis revealed a positive Marketing/NPD correlation once outlying cases were removed.

Audubon Woods is advertised for its "natural privacy" and "countryside feel while living in the city"[44] in response to a more sustainable yet less agrarian suburban infill site (Fig 4.7). In this case, the developer must rely on abstract methods to evoke the Agrarian Myth because it has limited direct-physical references like an adjacent farmfield or a space for a "natural" body of water. The positive Marketing/NPD correlation without outliers suggests that for typical suburbs, an increase in agrarian references though marketing corresponds to higher neighborhood sustainability. However, this correlation switches for outliers and it is evident how descriptors like, "road winding peacefully past gorgeous homesites"[45] (Fig 4.2), are also used to reference unsustainable features.

Together Marketing and Architecture make up primarily abstract components to the Agrarian Myth, meaning that individual elements do not correspond directly to a component of sustainability. They are also stylistic or applied conditions that do not have to impact the overall project cost and design. Natural color palettes and pastoral writing can easily be applied without drastically changing the project but don't necessarily connote sustainability. This study was interested to investigate if such a relationship existed because it is difficult to assess from observational assumptions alone and because it would represent a much less-invasive tactic to employ the Agrarian Myth for sustainability. Quantitative analysis did not find a consistent link between an abstract element, like the choice of paint color, and a sustainability gain, like stormwater retention. A composite ranked comparison demonstrates how sustainable suburbs tend to employ this strategy to a moderate extent (whether or not it is intentional) although it doesn't mean that a very high degree of the abstract Agrarian Myth will result in higher sustainability (Fig 4.4). There

44. "Audubon Woods." n.d. Irish Custom Homes. Accessed March 14, 2022. https://irishcustomhomes.com/subdivisions/audubon-woods/.

45. Bradford Shores description, as previously included in the findings section. Adams Road Development. n.d. "Bradford Shores at Knollwood." Adams Road Development. Accessed March 14, 2022. https://knollwood-homes.net/bradford-shores/.

is utility in employing ornamental/applied tactics like in The Echoes and Audubon Woods. When suburbs do not materialize the Agrarian Myth in any capacity there will be low actualized sustainability, marking the importance of abstract components. The trends found in the grouping clarify the findings from overall Agrarian Myth and sustainability.

Limitations

Contradictions in Scoring Criteria

In conducting this research, the complexities of the Agrarian Myth and sustainability had to be reduced to quantified measurable elements. The inherent challenge with defining the Agrarian Myth is that it is a dynamic factor that while rooted in American culture is experienced through individual perception. With sustainability there is the challenge of recording the actual impact of features in a real-world context. Scoring criteria can also include contradictory elements. Lawns and lot sizes are an example of this. Seen as an integral part of the American landscape, lawns have long been an important portrayal of the suburban pastoral. The expansive and neatly mowed lot still holds onto that connotation, however recently they have also become a symbol for the defunct, wasteful and placeless suburban landscape (E. M. Harris et al. 2013, 347). From a sustainability perspective, large lawns and lots are typically considered unsustainable - they result in lower densities, increased water uses, etc - however, they are not exclusively bad. Research has shown how large, typically exurban lots, are actually very effective tools at storing carbon, increasing biodiversity and providing societal benefits (Nassauer 2017). These types of nuanced considerations can be lost in the application of a rigid scorecard. To improve the accuracy of future studies, Agrarian Myth criteria could be refined using vernacular architecture methods to better understand semiotics and visual and qualitative surveys to test prevailing perceptions of proposed agrarian elements. Sustainability could be refined to include more sophisticated ways of measuring nuanced features.

Additional Variables

Price is perhaps the most important factor when purchasing a home and affects how a developer includes Agrarian Myth and sustainability features. The case studies were selected to make up a balanced and representative regional price range. Specific analysis regarding price was not within the scope of this research. However, a preliminary ranked price comparison chart was conducted.[46] It showed

46. See Preliminary Price Comparison in Appendix
47. Developer Irish Custom Homes
48. Bradford Shores

that the two highest for Agrarian Myth (The Hills, Bradford Shores) were also the most expensive and that the least expensive was the bottom-tier Winding River. A consistent relationship was not identifiable in between. Other variables like square footage and number of bedrooms were recorded to create a balanced data set, but were not included in the analysis.

Sample Size

This study was limited to the twelve case-studies in order to provide a manageable dataset for descriptive and qualitative analysis. At this scale, it was possible to interpret the relationships between, and within, individual case-studies found from statistical analysis. However, this limited sample size also reduced the statistical power of the study and each individual point had a significant effect on the relationships. The identification of two outliers then reduced the sample size further.

To address this, all statistical correlations were interpreted based on their scoring-criteria and some correlations were deemed to be coincidental (although this was also possible due to a limited number of case-studies to interpret). The combination of correlation plots with descriptive statistics (ranked comparisons) and score interpretation allowed for this study to be an effective exploratory case study analysis.

At a larger-scale, this study could more accurately find correlations between Agrarian Myth and sustainability sub-categories and define larger trends. It would also become possible to identify potential specific relationships between individual Agrarian Myth and sustainability elements. A study of this type would require a much more extensive data collection and statistical analysis phase beyond the confines of this thesis and there would be a loss in descriptive interpretation possible.

Site Region Specifics

The results found in this study reflect other influencers on the suburban form specific to the case-study region. The University of Notre Dame, located in South Bend, is a major influence on the region. Two developers included in the study co-opt the positive “Irish” connotation in their name and branding. Floor plans like “The Gipper” and “The Rockney”[47] and streets such as Kerry Glenn and Donegal Dr[48] are not uncommon in the region. Many exurban projects market their proximity to Notre Dame yet separation from the city and The Echoes is described as, “so close to Notre Dame that you can practically hear it.”[49] The presence of region-specific

factors does not negate the effect of the Agrarian Myth and would be found in any case study, however it should be understood that the developments studied take on additional socio-cultural materializations.

49. Irish Realty. n.d. “The Echoes.” Irish Realty. Accessed March 14, 2022. https://irishrealty.net/echoes/.

Conclusion

The commonality that suburbia shares with both the Agrarian Myth and sustainability is that actualized reality often differs greatly from its intentions and promises. This study attempted to define those relationships between the materialization of the Agrarian Myth and actualized sustainability in the context of new conventional suburban developments. Following the scoring of twelve case studies in Northern Indiana and correlation and ranked comparison analysis, a prevailing negative relationship was identified between the Agrarian Myth and sustainability for moderate to high scoring developments. Lowest scoring developments were consistently limited in both the expression of the Agrarian Myth and actualized sustainability (Fig 3.3.1).

A negative correlation is especially prominent at the larger development scales. In this context, Agrarian Myth materializations like long winding streets directly correspond to loss in sustainability of the neighborhood plan and surrounding site (Fig 4.1). This relationship is more common across levels of agrarian design when compared specifically to the location and connectivity of the project site.

This study did not find a consistent sustainability relationship among abstract expressions of the Agrarian Myth. Architecture and marketing analysis did reveal how these components are utilized indirectly to support the expression of the Agrarian Myth in urban/sustainable suburbs that have a limited direct agrarian materialization. It is also used to compound on already unsustainable and agrarian-appearing elements, or utilized not at all which relates to minimal sustainable features. In this context, the Agrarian Myth can materialize to either support or refute sustainability. The composite abstract relationship is that the Agrarian Myth and sustainability relate negatively when present and relate positively in minimally designed suburbs.

(Keith Mountain)

50. “Audubon Woods.” n.d. Irish Custom Homes. Accessed March 14, 2022. https://irishcustomhomes.com/subdivisions/audubon-woods/.

Implications

The underlying intent of defining relationships between the Agrarian Myth and sustainability was to inform how suburban reforms can be more effective through the employment of this socio-cultural factor. While the results of this study show a general negative correlation between the Agrarian Myth and sustainability, it does not disprove its utility as a tool for achieving a more sustainable future suburbia.

There are two primary modes for influencing suburban development. One, is to design to meet prevailing norms and preferences of the Agrarian Myth and second, is to shape its mythic meaning and materialization. The first is exemplified by Levittown where the development “succeeded, not by violating the existing social customs of the residents, but rather by reinforcing and expanding the prevailing cultural norms” (Kelly 1993, 4). Under this perspective, designers can employ specific Agrarian Myth-evoking elements that support higher sustainability.

This study showed how many direct large-scale elements have inherently unsustainable properties. However, abstract elements like marketing and architecture can be a key component to applying the Agrarian Myth while enabling higher densities and more urban sites. In Audubon Woods one experiences the “countryside feel while living in the city.”[50] The marketing is used not just as a means to describe the site, but as a way to address anti-urban concerns (Fig 6.1). The Echos distinctly uses agrarian architecture in their design to communicate an almost rural lifestyle despite a borderline urban site and density (Fig 4.3, 4.5).

For designers, there is a desire that the built environment makes sense, meaning the Agrarian Myth is employed in authentic and honest ways. For developers, the goal is to be effective. Arbitrary street names are common as builders extend farther from project themes to avoid repeating area street names. The Hills at St. Joe Farm, named for a nearby historic farm, adopted a high-mountain theme with Everest Bluff, Andes Ct, and Olympus Pass Drive. In Deerfield Estates, the theme is carried through in an almost morbid procession as a new home buyer might take Acorn Trail, to White Fawn Drive and Bambi Trail before pulling into Hunters Edge Drive or Salt Lick Trail. Applying a numbered street grid would be the easiest naming solution, however that has strong urban connotations. Developers know, and designers must accept, that the Agrarian Myth/anti-urbanism results in suburbanites preferring to live on the bucolic Salt Lick Trail rather than the bustling

Fig 6.1 An almost equestrian cross braced fence does little to hold anything in but announces the division between city and country. (Zillow, reproduced under fair use)

Fig 6.2 The Cannery, a California agriburb features real sustainable and agricultural components alongside symbolic elements. (The New Home Company, reproduced under fair use)

Fig 6.3 Prairie Crossing appears to be a new model of suburban sustainability but may actually be conserving traditional issues (The Shaw Company, reproduced under fair use)

87th street. Superficial features like naming, siding colors, and signage should be prioritized, and future research could quantify cost and cultural effectiveness at the individual element level. This approach can provide cost-effective and reliable means of fitting into the cultural expectation for quasi-rural settlement while achieving denser and more sustainable neighborhoods.

The second approach is to reformulate and create a "new vision" of the Agrarian Myth in suburbia that better addresses environmental issues. This approach is exemplified by contemporary agrarian literature (Van Tassel 2003; Singer, Grey, and Motter 2020). It would include targeted symbol usage and rhetorical strategies to align the meaning of the Agrarian Myth with actualized sustainability, or even more inclusively with the principles of new agrarianism.

The Hills at St. Joe Farm uses agrarian rhetoric and design extensively, however this is not aligned in practice. The "urban farmhouses" are limited to gardening in rear lots with HOA approval needed on raised beds and composters required to be store-bought. Trees are required to be planted along the street. However, the specified Bradford Pears are in reality an ornamental and invasive breed shown to take over adjacent farm fields, cause damage within developments (Rojas 2021) and in this case, are being used to replace a previously wooded site. This is no different from industrialized agriculture tirelessly evoking the image of the independent farmer. It will be necessary to align the meaning of symbolic design gestures with the reality of their sustainability implications. Suburbia will provide what the consumers want, so consumers must understand those contradictions and require that the design be for performance as well as appearance.

The implementation of suburban sustainability will likely need to pull from both strategies in what environmental writer Emma Marris calls an, "interwoven decoupled" approach. That is to accept and embrace our socio-cultural commitments to the Agrarian Myth while simultaneously employing technocentric solutions to

the design of homes, neighborhoods, and even in policy and other roles outside of design. A new "agriburb" in California provides a glimpse to a decoupled suburban future. The Cannery "links the presence of the [community] farm with a general mood of sustainability" which is achieved technically by energy efficient homes and photovoltaics and symbolically through the inclusion of small individual front yard gardens tended by hired professionals (Fig 6.2) (Marris 2017). Its environmental initiatives should be commended, but what perhaps is more impactful is its strategies in fostering a new tide of agrarian minded citizens who see deeper value in the land. Community farms, or pastured greenspace and rewilded lawns, through education and exposure to nature and agriculture, "can play a critical role wherever suburbanization is underway" (Wirzba 2003, 47). Through this process, the reality of a more agrarian society, at least in the sense of ecological health, responsible land use and proximity to nature start to become more feasible.

Still, interwoven decoupling does not guarantee a holistically sustainable development. Prairie Crossing, a "conservation community" outside Chicago hits all the points for ecological services like restored prairies, alternative transportation, and energy efficient homes and even attempts to address economic and racial disparities in conventional suburbia. However, the reality of this development is rooted more in the production of an "environmental aesthetic" and a progressive/sustainable experience for privileged consumers. The enacted Agrarian Myth, expressed architecturally as Midwest farmhouse vernacular (Fig 6.3), alludes specifically to the "White-settlement frontier," creating a "symbolic economy" of "exclusion and entitlement" (Zimmerman 2001). Zimmerman's assessment of Prairie Crossing concludes that it does not constitute a proper future model but instead "conserves the essence of suburban life."

Just as the deployment of the Agrarian Myth by developers in conventional suburbia can fall to artificated and negative sustainability, it can too when employed

consciously and environmentally by designers. The appeal of a progressively-oriented agriburb is effective at obscuring criticism beyond a low community garden tomato yield. Questioning the true impact of design remains just as important when produced by architects. This research primarily involves conventional suburbs but the reality of an evolutionary and market-based building culture means that it is more likely to be internalized by designers in the application of new neighborhoods. The Cannery and Prairie Crossing are precedents of the potential successes and pitfalls in a designer's interwoven decoupled agrarian approach.

A better future suburbia additionally will not be solely rooted in sustainability, and certainly not of that derived from a spreadsheet of a remote researcher's computer. To cultivate a truly sustainable future, sustainability must be considered in a truly holistic sense. This should encompases the "three pillars" of environmental, social, and financial well-being and move beyond. Wendell Berry warns against the modern inclination for purely rational measures, that we must engage our sympathetic minds in the formation of the future.[51] A mind that "is no longer satisfied with the conventional standards of industrialism" (Berry 2003). Leed is a system of efficiency and defined metrics, and in this context of this study, the Agrarian Myth is too. Sustainability must encompass what agrarian thinkers have considered for years: "land, beauty, food, work and community," (Donahue 2003) or even more generally, "the responsibilities that protect, preserve and celebrate life" (Wirzba 2003). Living Community Challenge may be one certification (or philosophy) up to the task. Through imperatives like Habitat Exchange, Net Positive Water, Resilient Community Connections, and Beauty & Spirit, it strives to create, "Socially Just, Culturally Rich and Ecologically Restorative" environments ("Living Community Challenge 1.2" 2017). It is a charge that incorporates a system of sustainability much broader than efficiency and that does not sustain but thrives. There is a long way to go. Living Community Challenge was not even a feasible option to be adapted for this study as its standards are so far beyond what could be measured in conventional suburbia. Even most earnestly sustainable developments, including Leed-ND certified[52] do not achieve this level.

Utilizing the Agrarian Myth to move towards, and perhaps-though unlikely, achieve sustainability will require the dualized approach of engaging our mythic predispositions towards an agrarian way of life and aligning the sentiment with reality. This thesis did not find particularly promising results. The conventional form of suburbia that designers often scorn and drive by, or quietly pull into the garage of, is indeed unsustainable, and the Agrarian Myth is more often than not contributing the wrong way. However, this study also affirms upon the power of the Agrarian Myth in the material suburban context as a tool for doing what Wendell Berry would call good work. True sustainability is a long way from this study, but it is a necessary challenge. Designers now have an opportunity to activate this bedrock "reservoir of myth" to create, and to envision, a sustainable future that is in harmony with life and land.

51. Wendell Berry also warns against the academic and electronic confines of work. That, "to work, we must work in a place" (Berry 2003). However, I wanted to do an honors thesis and I also wanted to study abroad, which in this case found myself spending many hours writing about suburban sprawl in Indiana from the Sagrada Familia Public Library in one of the largest and most dense cities in Europe.

52. The Cannery and Prairie Crossing both have Leed certified components.

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Appendix

Agrarian Myth Scorecard and Criteria

Category		Element	Observations		Strong Example (3)	Moderate Example (1)	No (0)	How to measure/examples
Marketing		Project Name			3			Farm, crops, etc. (1) for non agrarian nature
		Model Home Names			3			
		Literary/Poetic Description			3			
		Rustic/Rural/Pastoral Described			3			
		Nostalgia/Tradition Described			3			
		Country/City Described			3			Live away from city
		Do-it-yourself Home expansion			3			(3) for homeowner remodeling emphasized, (1) for providing builder additions
		NO lawn/landscaping service			3			Emphasize do-it-yourself lawn care
		Additional Element(s)			3			
Development	Project Scale	Pastoral Street Layout			3			Curving, pastoral; (1) for curve but overall straight orientation
		Paths/Sidewalks/Trails			3			Curving, winding; (1) if following street
		Agricultural Views/Adjacency			3			Farmland, pasture, etc
		Community Garden/Farm			3			Greenhouse, planters
		Ponds, Streams, "natural water"			3			(3) Natural or natural-looking; (1) Manmade, retention pond
		Natural Commons			3			Woods, grasslands, fields, etc
		Perceived Density			3			Estimate (3) Lower density than surrounding developments; (1) Average surrounding density
	Homesite	Horizontal lot configuration			3			Horizontal to street
		Private front/back yard gardens			3			(3) Common in development; (1) occasional gardens
		Landscaping			3			Homes consistently landscaped (standard from developer)
		Trees			3			(3) Wooded, mature or many saplings. (1) Some trees
	Development Details	Entry Sign style/materiality			3			Agrarian style, wood, rustication, etc
		Street Signs/Details			3			Agrarian style, wood, rustication
		Street Names			3			Farm, pasture, etc
		Rural mail boxes			3			(1) Freestanding, (3) Agrarian style
		Additional Element(s)			3			

Agrarian Myth Scorecard and Criteria cont.

Architecture Home Model:	Colors	White/Red Siding			3			Farmhouse/barn color
		Earthy Tones			3			Browns, greens, tans
		Simple color scheme			3			(3) single color, (1) additional main colors
		Dark or Agrarian Window accents			3			Black windows, red muntins, etc
	Materials/Siding	Board and Batten Siding			3			
		Clapboard				1		(1) if home also has board and batten
		Brick Siding (1)				1		(1) Maximum
		Stone Siding (1)			3			(1) Maximum
		Rustication			3			Rough stone, base in stone/brick
		Natural Wood Accents			3			Brackets, post/beams, etc
		White Painted Elements/Trim			3			
	Building Form/Massing	Simple Horizontal/Rectangular massing			3			Simple roofline and facade
		Large single story footprint			3			(1) for small single story
		Front Porch			3			
		Outdoor living space			3			Deck/patio
	Roof	Gabled Roofs			3			Classic Gabled Silhouettes
		Gambrel Roofs			3			
		Lean-to shed roof			3			Covered porch, awning, etc
		Steep Roof slope			3			(3) Approx 12:12, (1) Approx 6:12
		Metal/Dark Roofing			3			Standing-seam
	Windows	Greenhouse Windows						
		Dormers			3			Simple
		Window Muntins			3			
		Shutters			3			Wood, barn style
	Architecture Details	House Lamps/Lanterns			3			Discretion for “agrarian” lamps
		Weathervanes			3			
		Rugged Trusses / Brackets			3			Craftsman-details
		Square posts/columns			3			Tapered, wood/white, porch
		Barn-style door			3			include garage doors
		Exposed Chimney			3			
		“Barndominium”			3			Barn-like stye
		Additional Element(s)			3			

Sustainability Scorecard and Criteria

	Topic	Does the project do the following		Yes/ Points Possible	Partial (half)	No (0)	How to measure
Smart Location and Linkage	Location	Well-connected to adjacent development by an existing street network		1			Does the development have multiple connection points? Does it use apparent intersections?
		Infill (75% surrounded by existing development)		1			
		Well-served by transit or neighborhood amenities		1			Is there a transit route (Google Maps) to the downtown area?
		Located on a site that is one of the following (pick just one for scoring): - Infill and also a previously developed site (5), Infill but not a previously developed site (3), Adjacent to existing development, and also a previously developed site (2), A previously developed site, but not adjacent or infill (1)		5			
		Existing number of intersections per square mile nearby: - 25-50 (0.5) - 50 to 100 intersections per square mile (1), 100 to 150 intersections per square mile (2), 150 to 200 intersections per square mile (3), 200 to 250 intersections per square mile (4, More than 250 intersections per square mile (5)		5			Use Google Earth to create polygon measure (1sq mi) around development and count intersections (do not include cul-de-sacs)
		Is located in an economically distressed area while also providing affordable housing. (3)		3			2020 DCI Interactive Map to determine if distressed (half point if At Risk); and Median Household Income. Use Freddie Mac Affordability Calculator and assume $10,000 down payment, 30 year loan, 3% interest rate and $250 monthly debt payments
	Ecosystems and Open Spaces	Does not build on wetlands or water bodies and leaves buffers of undeveloped land around them of at least 50 to 100 feet.		1			Wetlands/water identified through Google Earth and FEMA Flood Maps
		Does not build on agricultural land, unless the project is infill or transit-served		1			Use historic imagery (Google Earth) to see previous land use
		Does not build on floodplains		1			Use FEMA Flood Maps, no points for Special Flood Hazard Areas, half points for Other Areas of Flood Hazard
		Conserves/does not further destroy pre-existing on-site habitat, native plants, wetlands, and water bodies.		1			Use historic imagery (Google Earth). Is there a loss of pre-development natural features?
		Restores degraded or creates new habit on-site habitat, wetlands, or water bodies		1			Use historic imagery (Google Earth), are there increased pre-development natural features (forested area, pond/wetlands; half points for dispersed trees, retention-style ponds)
		Limits development on steep slopes (greater than 15%), and restores many or all previously developed steep slopes with native or noninvasive plants.		1			Use Google Earth to approximate slopes
	Transit-Oriented Locations	Is located on a site that is within walking distance (¼ mile for buses or streetcars and ½ mile for rail, ferry, and bus rapid transit) of high levels of transit service		1			
		Transit Score (how well a location is served by public transit based on the distance and type of nearby transit lines)		4			Transit Score. (1) for 25-49 (Some transit), (2) for 50-69 (Good Transit), (3) for 70-89 (Excellent Transit), (4) for 90-100 (Riders Paradise)
	Cycling and Walking Connectivity	Bike Score (bike lanes and trails, hills, road connectivity, and destinations)		3			Walk Score Bike Score application. (.5) for 25-49 (Somewhat bikeable), (1) for 50-60 (Bikeable), (2) for 70-89 (Very Bikeable), (3) for 90-100 (Bikers Paradise)
		Walk Score (distance to nearby places and pedestrian friendliness)		3			Using Walk Score . (.5) for 25-49 (Car dependent), (1) for 50-60 (Somewhat Walkable), (2) for 70-89 (Very Walkable), (3) for 90-100 (Walkers Paradise)
	Jobs and Housing Proximity	- Existing jobs within ½ mile walk distance outnumber project's dwelling units, and the project provides affordable housing. (3) - Existing jobs within ½ mile walk distance outnumber project's dwelling units. (2) - Existing jobs within 1 mile walk distance outnumber project's dwelling units. (1)		3			(0.5) points for some jobs within 1/2 mile or jobs outnumber units with 3 miles

Sustainability Scorecard and Criteria cont.

Neighbor-hood Pattern and Design	Walkable Streets	A minimum "building-height-to-street width-ratio" of 1:3 (1 foot of building height for every 3 feet of street width) along at least 15% of street length.		1			Unless otherwise stated, assume 15' for single story, 25' for two story. Width from street center-line to building façade. Use two story if true for estimated 15%
		Sidewalks along 90% of street length (both sides of the street).		1			
		Garage doors along no more than 20% of street length.		1			Sample four garages in a representative section. (0.5) points for 20%-30%
		Low design speeds for most streets (20 mph for residential)		1			Use GSV to identify sign. (0.5) for 20-25 mph residential
		Lines 60% of street length with trees		1			Estimate, (0.5) points for some trees along street
	Compact Development	Density of at least 3 dwelling Units per acre, (0.5) for at least 2 DU/A		1			Planned number of Dwellings Units divided by project area
		Exceeds increasing density thresholds: (1) 4-5 DU/A, (2) 5-6 DU/A, (3) 6-7 DU/A		3			
	Neighborhood Connections	Does either of the following: -Includes a street or pathway into the project at least every 800 feet, -Or, only if the project has no internal streets: is surrounded (within ¼ mile) by an existing street network of at least 90 intersections per square mile		1			Measure distance from entrance to furthest home along streets
		Does not include cul-de-sacs.		1			
		Includes a street or pathway into the project at least every 400 feet.		1			
	Mixed Uses	Enables walking access (within ¼ mile) to the following number of existing or new land uses, clustered within neighborhood centers : - 4 to 6 uses (1), 7 to 10 uses (2), 11 to 18 uses (3), More than 19 uses (4)		4			Uses can include commercial or civic facilities such as restaurants, schools, pharmacies, super-markets, theatres, parks, libraries, or shops. Half points for uses within a mile
		Proximity to essential urban services - "15-minute" city		2			15-min City Map App (2) For 15 min walking, 1 for 20 min walking, (1/2) for 15 min driving
	Affordable and Diverse Housing	Provides multiple housing types of different sizes, such as large and small apartments, duplexes, townhomes, and/or single-family homes.		3			
		Provides a percentage of new rental and/or for-sale housing at high level of affordability		3			(1) 120% of AMI, (2) 100% of AMI, (3) 80% of AMI
		Provides both high levels of affordability and multiple housing types of different sizes.		1			
	Parking and Transporta-tion Demand	Does all of the following: - Parking Footprint Minimizes total surface parking area (no greater than 20% of devel-opment area) and includes no individual surface lot over 2 acres. - Locates any off-street parking at the side or rear of buildings (not along the sidewalk).		1			(0.5) for developments with no parking lots but front facing driveway/garage
		Provides bicycle storage and parking		1			
		Includes shelters, benches, lighting, and information displays at all new and existing transit stops.		1			
	Parks and Recreation	Enables access to public space such as squares, parks, paseos, and plazas.		2			Use Google Maps to identify distances based on shortest walking route. (2) with 1/4 mile, (1) within 1/2 mile, (.5) 1/2 to 1 1/2 miles
		Enables access to publicly accessible indoor or outdoor recreational facilities		2			
	Universal Design	Universal accessibility for people of diverse abilities in some dwelling units.		1			(.5) for single story units with low entry step
	Community Participation	Relies on multiple forms of community input and feedback to guide project concept and design, both before and during development. (1) - Also conducts a design charrette or obtains an endorsement from a smart growth jury or program. (2)		2			Documentation/Advertising of community engagement

Sustainability Scorecard and Criteria cont.

Neighborhood Pattern and Design cont.	Local Food	Set aside gardening space (community or individual)		1			Use Google Earth to identify gardens
		Proximity to a farmer's market (on-site or within ½ mile walk distance)					
		Allows growing of produce, including in yards or on balconies, patios, or rooftops		1			Review covenants for restrictions, use Google Earth/ GSV to identify existing growing
	School Access and Design	Neighborhood Schools Is located within walking distance of a school (½ mile for elementary and middle schools; 1 mile for high schools).		2			(0.5) for schools within double the distance within ½ mile walk distance)."
Green Infrastructure and Buildings	Construction Techniques	Preserves all heritage trees and most other noninvasive trees, especially larger ones.		2			Documentation, Historic Aerial Imagery
		Preserves a proportion of previously undeveloped land (10% to 20%) on the project site.		2			
	Energy Efficiency and Conservation	Some homes (or standard developer provided plans) have RESNET Energy Smart Label/ HERS rating or similar standard		1			Documentation/Advertising
		All homes with RESNET Energy Smart Label/ HERS rating or similar standard		1			
		Exceeds energy efficiency rating for at least some homes		1			
		Orients 75% of buildings or dense blocks lengthwise along east-west axes (within 15 degrees) to maximize passive and active solar access.		1			(0.5) for 60-75%
		Energy Star or equivalent		1			Zillow Utilities/Green Energy Details for model/test home. (0.5) if energy efficient but no certification)
	Energy Production and Distribution	Generates renewable energy on-site (solar) 5%-(1), 12.5%-(2), 20%-(3)		3			Number of homes with PV panels/completed homes
		Provides energy-efficient new neighborhood infrastructure such as traffic lights, street lights, and water and wastewater pumps		1			Documentation/Advertising
	Water Efficiency and Conservation	Water efficiency in buildings		1			Documentation/Advertising
		Exceeds increased threshold for water efficiency in buildings (at least 40% reduction)		1			
		Reduces water consumption for outdoor landscaping		1			Documentation/Advertising OR low-water usage landscaping (xeriscaping, natural grasses)
	Stormwater and Wastewater	Is able to retain stormwater on-site		1			Retention Ponds
		Treats and reuses wastewater on-site		1			Documentation/Advertising
	Green Building Process	Uses LEED or similar green building rating system to certify at least one project building		1			
		Uses LEED or a similar green building rating system to certify the following percentages of the project's buildings		5			At least 10%-(1), At least 20%-(2), At least 30%-(3) At least 40%-(4), At least 50%-(5)
	Historic and Existing Building Reuse	Reuses and restores some (20%) of the existing building stock		1			Historic Imagery
		Includes a historic building(s), and rehabilitates if necessary.		1			
	Heat Islands	Solar-reflective roofs or vegetated roofs. - Shade, open-grid pervious paving, or solar-reflective paving for at least 50% of roads, sidewalks, parking areas, and other "hardscape.		1			
	Reuse and Recycling	Provides at least 2 of 3: - Recycling services for residents - Hazardous waste disposal services for residents - Composting services for residents		1			(1) Country required recycling and compost. (0.5) County required recycling.
	Light Pollution	Motion sensors in "shared areas" to reduce lighting when unoccupied and during daylight hours and/or Limits "light trespass" to surrounding areas by directing exterior lighting downward and reducing brightness		1			Documentation/Advertising, no points for dawn-to-dusk lighting

Case Study Developments

Developer	Name	Location		Price (low)	Price (high)	Sq Ft (low)	Sq Ft (high)	Beds (low)	Beds (high)	Bath (low)	Bath (high)	Garage
Allen Edwin Homes	Pleasant Valley North	53321 Corwin Dr, Granger, IN 46530		$411,900	$439,000	2276	2393	3	3	2.5	2.5	2
	Savannah Pass	1323 Chapel Hill Dr, Mishawaka, IN 46545		$293,650	$368,000	2060	2060	3	3	2	2	2
	Deerfield Estates	Hunters Edge Drive, Elkhart, IN 46514		$323,900	$374,900	1252	2276	2	4	1	2	2
Irish Custom Homes	Audubon Woods	51580 Prescott Ave Roseland, IN 46637		$369,000	$519,000	1450	2000	3	5	2	3	2-3
	Wintergreen Meadows	104 Lavender Court New Carlisle, IN 46552		$389,900	$549,900	1450	3110	3	5	2	3	2-3
Irish Realty	The Hills at St. Joe Farm	12765 Brick Rd, Granger, IN 46530		$400,000	$782,148.00	1450	2758	3	5	2	3	2-3
	Belle Terre	53082 Bracken Fern Ct, South Bend, IN 46637		$400,000	$649,000.00	1754	2238	3	4	2	3	2
	The Echos	1210 Rosemary Lane South Bend, IN 46637		$315,000	$703,887.00	1994	2072	4	5	3.5	4.5	2
D. Afton Development	Winding River	54757 Winding River Dr, Middlebury, IN 46540		$225,000	313,000	1640	2442	3	4	2	3	2
Schrock Homes	Fairfield Farms	67301 Kensington Dr, Goshen, IN 46526		$274,685	$371,000.00	1424	2200	3	3	2	2.5	2-3
	Westoria	842 Wentworth Dr, Goshen, IN 46526		$285,000	$380,000.00	1,474	2,286	2	3	2	2.5	2
Adams Road Development/ Century Builders	Bradford Shores	51106 Kerry Glen Dr, South Bend, IN 46637		$485,000	$975,000	3700	6,000	4	6	4	5	2-3

All Case Study Scores

Agrarian Myth

Case Study	Total	Marketing	Development					Architecture						
				Project Scale	Homesite	Details			Colors	Materials/Siding	Building Form/ Massing	Roof	Windows	Details
Belle Terre	112	5	9	4	3	2		98	18	22	12	19	18	9
Deerfield Estates	96	2	18	10	1	7		76	12	14	7	10	20	13
Fairfield Farms	128	5	35	19	6	7		88	14	23	16	10	7	15
Savannah Pass	102	7	16	8	4	4		79	10	17	6	8	16	19
The Hills	135	12	19	11	7	1		104	18	20	12	21	16	17
Wintergreen Meadows	104	15	12	7	3	2		77	12	21	8	8	13	12
The Echos	112	5	11	4	7	0		96	16	28	14	12	16	8
Bradford Shores	122	14	25	14	5	5		83	15	20	15	9	10	11
Winding River	80	7	18	11	5	2		55	8	6	16	4	12	9
Pleasant Valley North	102	5	20	11	4	5		77	10	13	10	9	14	18

Sustainability

Case Study	Total	Smart Location and Linkage						
			Location	Ecosystems and Open Spaces	Transit- Oriented Locations		Cycling and Walking Connectivity	Jobs and Housing Proximity
Belle Terre	18	9.5	5.5	2.5	0		0.5	1
Deerfield Estates	16.5	6	1	4.5	0		0.5	0
Fairfield Farms	19.5	5.5	0	4.5	0		0.5	0.5
Savannah Pass	21.5	5.5	0	4.5	0		0.5	0.5
The Hills	18	6.5	1	4	0.5		0.5	0.5
Wintergreen Meadows	18.5	5.5	0	4	0		0.5	1
The Echos	35.5	20	10	4	1		3	2
Bradford Shores	13.5	5	1	4	0		0	0
Winding River	16.5	7	0	4	0		0	3
Pleasant Valley North	17	5	0	4	0		0.5	0.5
Audobon Woods	26	13.5	7	4	0.5		1	1
Westoria	18	6	0.5	4.5	0		0.5	0.5

Case Study	Neighborhood Pattern and Design											
		Walkable Streets	Compact Development	Neighborhood Connections	Mixed Uses	Affordable and Diverse Housing		Parking and Transportation Demand	Parks and Recreation	Universal Design	Community Participation	Local Food	School Access and Design
Belle Terre	6	1	0.5	1	0.5	0		0	1	0.5	0	0.5	1
Deerfield Estates	7.5	3	0	1	0.5	0		0.5	0.5	0.5	0	1.5	0
Fairfield Farms	7.5	1	0	0	1	0		0	1.5	1	0	1	2
Savannah Pass	9.5	3.5	1	0.5	0.5	0.5		1	1	0	0	0.5	1
The Hills	9.5	3.5	1	0.5	1.5	0		0	1.5	0.5	0.5	0.5	0
Wintergreen Meadows	10.5	3.5	0	1	1	0		1	1	0.5	0	1.5	1
The Echos	14.5	3	4	2	1.5	0		1	2	0	0	0	1
Bradford Shores	5.5	3	0	0	0	0		1	0.5	0	0	1	0
Winding River	7	1	0	0	0.5	2		0.5	1.5	0.5	0	1	0
Pleasant Valley North	5.5	2.5	0	0	0.5	0.5		0.5	1	0	0	0.5	0
Audobon Woods	10.5	2.5	1	2	1	0		0.5	1	0.5	0	1	1
Westoria	10	2	0.5	0	1	0.5		0.5	3	1	0	0.5	1

Case Study	Green Infrastructure and Buildings										
		Construction Techniques	Energy Efficiency and Conservation	Energy Production/ Distribution	Water Efficiency/ Conservation		Stormwater and Wastewater	Green Building Process	Historic/ Existing Building Reuse	Heat Islands	Reuse and Recycling	Light Pollution
Belle Terre	2.5	0	1	0	0		1	0	0	0	0.5	0
Deerfield Estates	3	0.5	2	0	0		0	0.5	0	0	0	0
Fairfield Farms	6.5	4	0	0	0		1	0	1.5	0	0	0
Savannah Pass	6.5	2	3	0	0		1	0	0	0	0.5	0
The Hills	2	1	0.5	0	0		0	0	0	0	0.5	0
Wintergreen Meadows	2.5	0.5	0.5	0	0		1	0	0	0	0.5	0
The Echos	1	0	0.5	0	0		0	0	0	0	0.5	0
Bradford Shores	3	1.5	0	0	0		1	0	0	0	0.5	0
Winding River	2.5	2	0.5	0	0		0	0	0	0	0	0
Pleasant Valley North	6.5	2	3	0	0		1	0	0	0	0.5	0
Audobon Woods	2	1	0.5	0	0		0	0	0	0	0.5	0
Westoria	2	1	0	0	0		1	0	0	0	0	0

Correlation Matrices

These correlation matrices were produced by LISA. They show the correlation coefficient between the six categories (Agrarian Myth: Marketing Development, Architecture and sustainability: SLL (Smart Location and Linkage), NPD (Neighborhood Pattern and Design), GIB (Green Infrastructure and Building). The coefficient is the correlation between the categories in the corresponding horizontal and vertical direction. The matrix is effectively mirrored across the horizontal band of 1.0 correlation (categories correlated with themselves).

	SLL	NPD	GIB	Market.	Develop.	Arch.
SLL	1					
NPD	0.67	1				
GIB	-0.48	-0.41	1			
Market.	-0.13	0.02	-0.28	1		
Develop.	-0.58	-0.32	0.52	-0.19	1	
Arch.	0.23	0.26	-0.04	-0.17	0.13	1

Weighted, Full Data Set

	SLL	NPD	GIB	Market.	Develop.	Arch.
SLL	1					
NPD	0.67	1				
GIB	-0.47	-0.41	1			
Market.	-0.13	0.01	-0.28	1		
Develop.	-0.6	-0.34	0.52	-0.1	1	
Arch.	0.27	0.32	-0.09	0.02	-0.04	1

Unweighted, Full Data Set

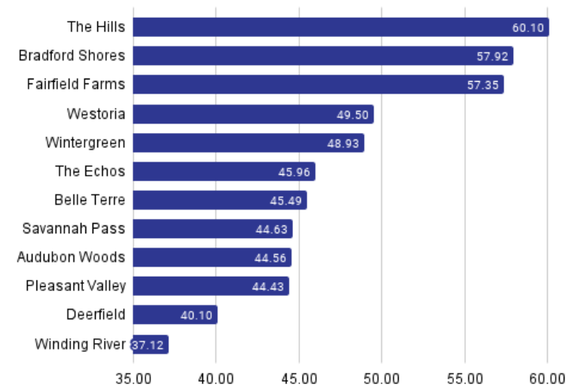
	SLL	NPD	GIB	Market.	Develop.	Arch.
SLL	1					
NPD	0.11	1				
GIB	-0.52	-0.44	1			
Market.	-0.18	0.46	-0.28	1		
Develop.	-0.56	-0.05	0.52	-0.1	1	
Arch.	0.23	0.22	-0.05	-0.11	0.21	1

Weighted, Without Outliers

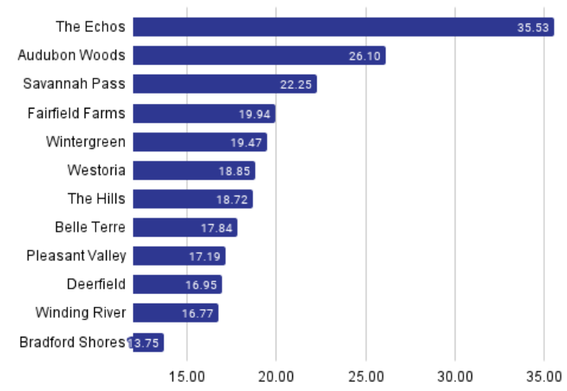
	SLL	NPD	GIB	Market.	Develop.	Arch.
SLL	1					
NPD	0.13	1				
GIB	-0.52	-0.45	1			
Market.	0.18	0.44	-0.27	1		
Develop.	-0.61	-0.06	0.58	-0.1	1	
Arch.	0.07	0.2	0	0.09	0.06	1

Unweighted, Without Outliers

Ranked Score Distribution



Agrarian Myth



Sustainability

Preliminary Price Comparison