

Paving over Paradise reviewed: A case study on elevating discourse in the democratic processes of environmental design

Key Words: rural growth, sprawl, growth projection,
build-out analysis, planning

JOSEPH BILLELO
Ball State University
DANIEL GLENN
Montana State University

PART 1. PAVING OVER PARADISE—A STUDY OF RURAL GROWTH IN THE BORDERLANDS OF YELLOWSTONE NATIONAL PARK: THE STUDY'S HISTORY, GOALS, PREMISES, AND LIMITATIONS

On June 16, 1999, the Montana State University School of Architecture entered into a contract with the Park County Environmental Council to develop a build-out analysis for Paradise Valley in Park County, Montana. Paradise Valley is currently a spectacularly picturesque valley of ranches, farmland, and rural homes bordered to the east and west by mountain ranges in National Forest land, to the north by the town of Livingston and to the south by Yellowstone National Park.

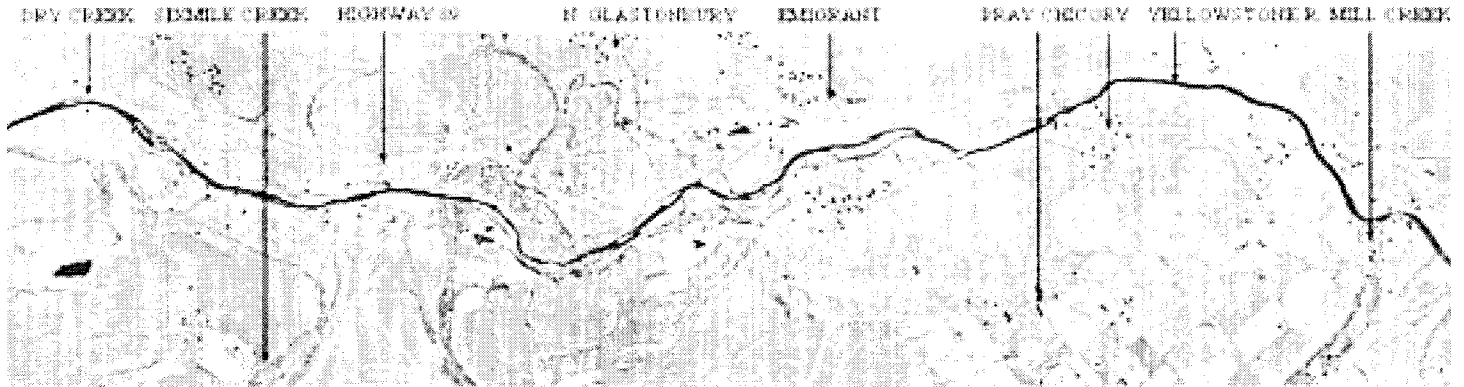


*Paradise Valley, Park County, Montana
Photo by Torin Euter*

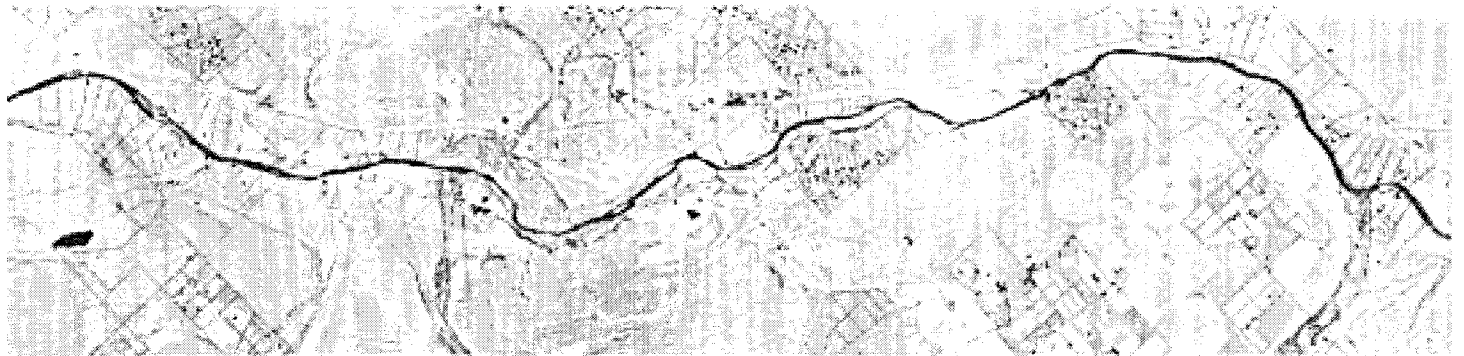
The principle objective of the study was to create visually compelling images of the potential future of Paradise Valley to allow residents to “see” the cumulative impact of current actions over time. This type of analysis, described in the *Manual of Build-out Analysis* (Lacy 1990) attempts to respond to issues of growth and its planning:

The depletion of farm, forest, recreational lands, scenic roadsides, and other valued open spaces often occurs incrementally over years and decades. Unfortunately, this often means the public does not become aware—or alarmed—about the situation until there is little left to be saved . . . One way for towns to anticipate, and therefore

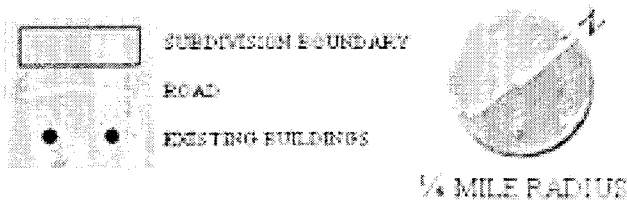
prevent, this unfortunate outcome is to preview or “test” their existing zoning ordinances and subdivisions controls by performing a build-out analysis. This planning tool can be used to estimate the impact of cumulative growth upon a town’s land area once all developable land has been consumed and converted to the uses permitted under the current regulatory framework.



AERIAL EXISTING CONDITION



AERIAL SUBDIVISION OVERLAY



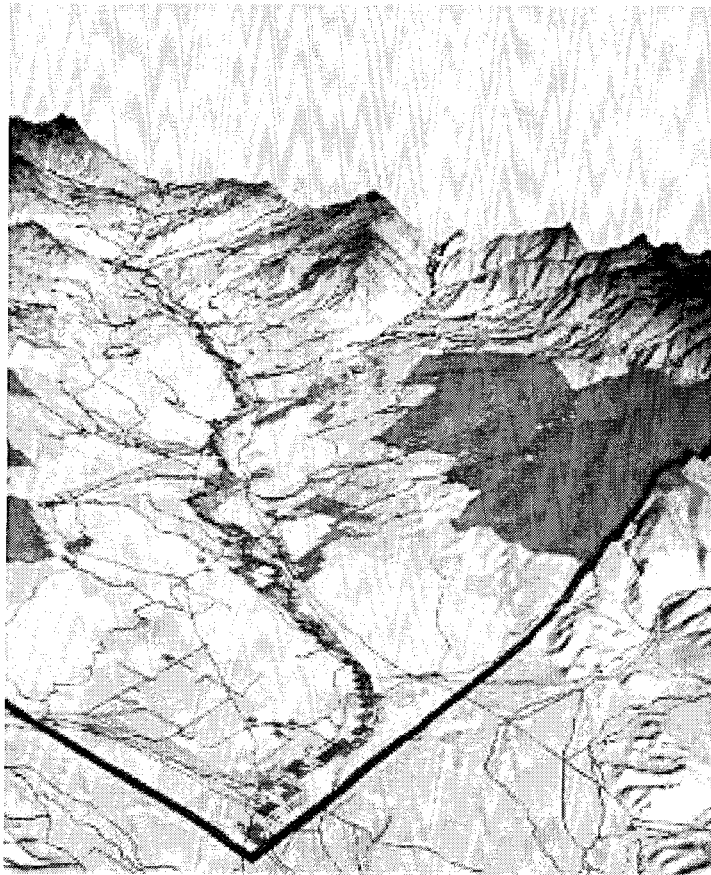
SUBDIVISION ANALYSIS

Overlaid Aerial Photographs of the river corridor of the study area in Paradise Valley, Montana analyzing existing conditions excerpted from Paving Over Paradise: A Study of Rural Growth in the Borderlands of Yellowstone National Park.

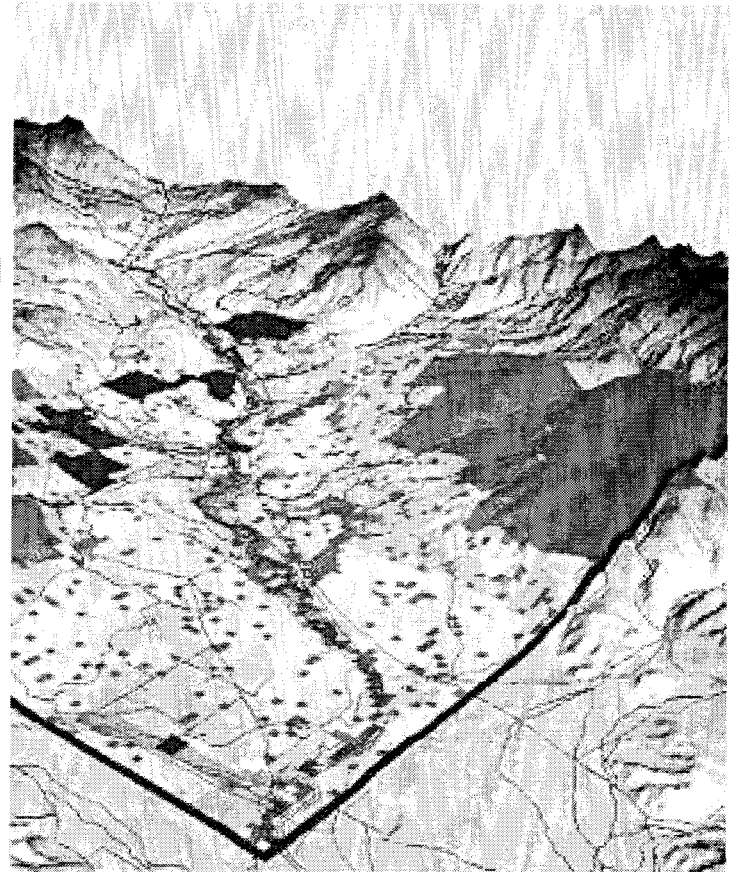
In Paradise Valley, the current regulatory framework was limited and creating a predictive model of the future problematic. As a largely unplanned and un-zoned district, there are very few limitations on what could happen in the valley, limited only by the State of Montana Department of Environmental Quality standards that allow a maximum of one septic tank per acre. In a traditional build-out analysis, researchers would have depicted a structure on every developable acre in the valley (not a believable scenario, although that is what is occurring in other parts of Montana, such as in the suburban-fringe of the state's largest city, Billings). Other means were needed. Analysis of existing subdivision platting, septic permit information, analysis of aerial photographs, mapping information, and a computerized growth simulation model were chosen. Limited in scope by a very small grant, researchers relied on available existing databases and sources primarily on the Park County Planning. Several visits to the Planning Office in Livingston led to the information used in the study throughout 1999 and 2000.

The researchers requested and received subdivision platting for Park County. For the first time, they linked separate plat files together to create a continuous map of the subdivided parcels in Paradise Valley to understand the cumulative impact of the subdivided plats. The results showed the majority of the nearly pristine Yellowstone River Corridor in the valley was already subdivided down to forty acre and smaller subdivisions.

Current aerial photographs were linked digitally across the length of the valley to create a current picture of the river corridor. Roads and built objects were highlighted to depict existing conditions. They overlaid the aerial photographs with the latest digitally available (1993) subdivision plats, highlighted in red. Utilizing existing subdivision patterns as patterns for potential future subdivisions, multiple build-out scenarios showed potential new subdivision lines, roadways and building. Each build-out indicated a doubling of the total number of existing buildings. Due to the relative slow growth of this rural



PARADISE VALLEY STUDY AREA IN 1991 (ACTUAL)



PARADISE VALLEY STUDY AREA IN 2039 (PROJECTION)

Growth Simulation Model of the study area in Paradise Valley, Montana excerpted from Paving Over Paradise: A Study of Rural Growth in the Borderlands of Yellowstone National Park.

area, the researchers chose not to illustrate the total build-out of the valley, stopped at Build-out 3, and attempted to determine a plausible date at which this level of build-out might occur. Census data was of very limited use. It is county-wide; however growth occurs in small pockets. Additionally, the data indicates permanent resident population, whereas much area growth is from second-home buyers. So, county septic permit data provided an indication of the growth trends in the valley. The data from the county indicated an approximate doubling of new permits every ten years giving one indication of the possible growth rate in the valley. Growth trends in the valley were confirmed with a growth simulation model of the MSU Department of Land Resources and Environmental Science. Its Land Use/Land Cover Prediction system provided the study with a scientific methodology of growth trend analysis and provided a snapshot of the valley's study area in 2015, 2027, and 2039. Combining this information with septic information, researchers determined approximate dates for earlier build-out illustrations. The two very different approaches appeared to confirm a plausible future scenario given current trends.

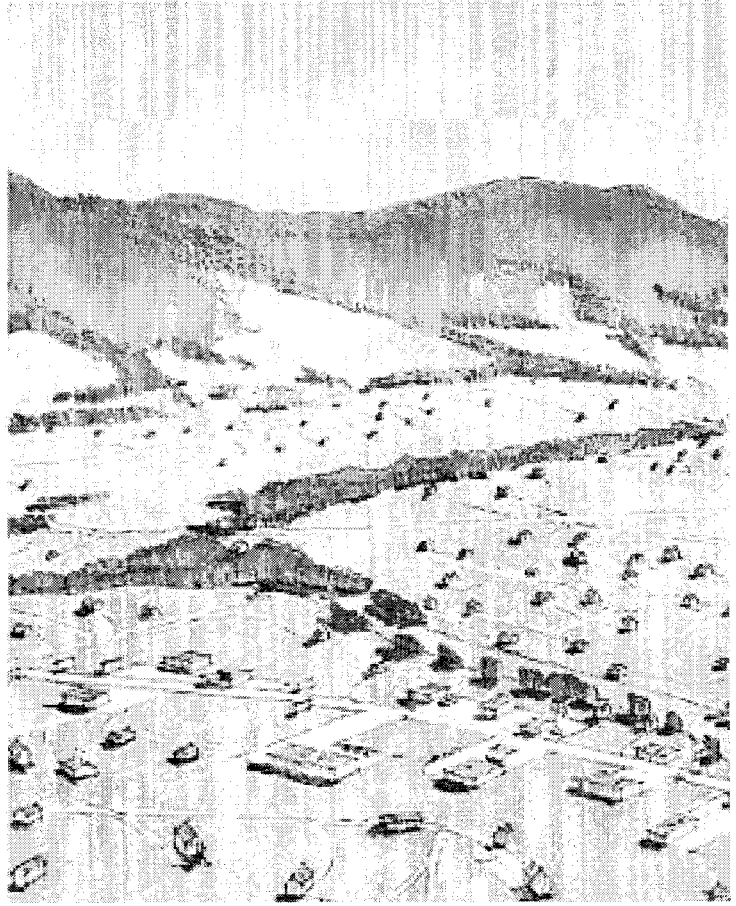
Architectural renderings graphically illustrated the impacts of the unplanned growth in the valley, a most important dissemination aspect to attempt to communicate to the broad public. They selected one area of the valley from over-flight photos that would be clearly recognizable to the citizens of Park County. Three sequential illustrations of one selected valley area showed the existing conditions, a likely future given conventional growth, and a final illustration showing an alternative. Finally, researchers assembled a "Toolkit to Save Paradise" based on well-established legal methods from around the country to protect agricultural lands. The kit was intended to be a catalyst for discussion about growth in the valley, not a prescription of planning options.

In October 2001, the Montana State University School of Architecture publicly released the study *Paving Over Paradise – A Study of Rural Growth in the Borderlands of Yellowstone National Park* in a summary newspaper insert format, a 20 page booklet, a web page and in two public presentations, one at the 2001 ACSA Western Regional Conference at Chico Hot Springs in Paradise Valley and one at the Livingston Depot. The principle conclusion drawn from the analysis, and graphically illustrated in the report, is the following: "If current trends

PARADISE VALLEY TODAY



PARADISE VALLEY TOMORROW: CONVENTIONAL GROWTH



Aerial oblique renderings of the Mill Creek area in Paradise Valley, Montana illustrating current and potential future views excerpted from Paving Over Paradise: A Study of Rural Growth in the Borderlands of Yellowstone National Park.

continue, Paradise Valley, the original gateway to Yellowstone National Park, will one day be a continuous residential subdivision, all the way from Livingston to Gardiner.”

PART 2: RESPONSE TO THE STUDY

From its initial public presentation at the ACSA Western Regional Conference, the study became the focus of significant controversy in Park County. Several ranchers and homeowners gave emotional testimonies about their concerns and the changes impacting the valley. Others appeared ready to defend their property rights at the point of a gun, as though the study under discussion somehow threatened those rights. The idea of contested terrain moved from an esoteric academic conference notion to the core of a real conflict. A primary point of contention appeared to be the Toolkit to Save Paradise, which outlined potential mechanisms that might be utilized to preserve the valley’s agricultural character, including conservation easements, right-to-farm laws, agricultural protection

zoning, growth management laws, real estate transfer taxes, etc. The specter of zoning and government intervention raised the ire of local landowners including the most vocal opponent, a former state legislator who is one of the largest valley landowners. Shortly following the panel presentation, the Director of the School of Architecture received a letter from three Park County Commissioners, the Chair of the Park County Board of Health and the Chair of the Park County Planning Board. The letter faulted the study asserting, “Inaccurate statements and maps are detrimental and often fatal to the very difficult process of responsible land use planning. A publication recently released by your department is an example of some of the most inaccurate information we have ever had released on development in the Paradise Valley.” House scale inaccuracies made the area look over-run. Several areas were delineated for future subdivision where the subdivision would be impossible or very difficult. Septic information was wrong. Park County Planners were not involved. The letter concluded:

The document has no basis in fact and it was irresponsible to print it without checking the accuracy of the product. It is divisive and detrimental to the planning process in Park County. Instead of starting a dialogue about land use planning and promoting constructive discussion among the residents of Paradise Valley, the study takes the focus away from pertinent and legitimate planning issues. Montana State University has a responsibility to insure that the information released in their name is accurate and objective. The document is neither.

The letter was also sent to the President of Montana State University, the Park County Environmental Council Board of Directors, The Dean of the School of Arts and Architecture, the local and regional newspapers, and the researchers. The dean and director of the College and School immediately responded in the form of a letter to the Principal Investigator, copied to all of the recipients of the first letter. It acknowledged that the university and school's clear responsibility to the state's citizens to provide services that assist in the development as well as protection of state resources. They authors were directed to address all concerns about data and interpretation as a part of their obligation to the state's citizens and to review them with appropriate primary sources. The scheduled public presentation was to be canceled.

Both letters were subsequently reprinted in Livingston's major newspaper, the *Livingston Enterprise*. The public presentation was not cancelled. Instead, the PI reached an agreement with his Department to proceed with the presentation of the study, publicly acknowledging that some of the reports findings were being challenged and would not be presented. The unchallenged growth simulation model was utilized in the presentation as the primary indicator of future growth in the valley. The Planning Director's subsequent letter indicated that the meeting was heavily attended by outraged ranchers who "will have a large impact on the contents of any future planning documents related to Paradise Valley."

A Park County Planning Board member followed with a letter to the Planning Director citing his disappointment that the Park County Environmental Council director never came to them "for even the most basic study fact verification." None of the questions he raised were answered nor was information he provided used for this meeting, he asserted:

1. The title of the study, "Paving over Paradise," is negative, prejudiced, and biased, betraying the underlying mission of presenting an inflammatory "sky is falling" crisis piece, likely to find facts to the contrary a minor inconvenience to be simply ignored.
2. The inside cover has a map scale that is inaccurate with an error rate that gets significant if one tries to figure out proposed lots.

3. Foreword statement "the greatest threat to preservation of open space in Park County is the conversion of farms and ranches to residential subdivisions." The commissioner indicates that the last two years, 34 square miles have been put into conservation easements and only two square miles into preliminarily approved subdivisions. The real heavy subdivision activity was pre-1994 [seven years before the study].
4. It is clearly disingenuous to imply the county should have included enforcement mechanisms in its Growth Policy Plan. State law mandated plans are advisory only, not mandatory on the part of developers seeking project approval.

Similar questions were raised about septic tank numbers and their related subdivisions, the constraints of infrastructure and limited job economy, and the lack of coordination among various research team members. Conversely, the organization that funded the study, the Park County Environmental Council, was delighted with the work and believed it started an important dialogue about growth in the valley. In a subsequent response, its director wrote to the architecture school director:

The Park County Environmental Council finds the allegations made by the county to be without foundation in fact, politically motivated and a blatant attempt to discredit a reputable institution in order to deflect criticism away from their own inaction. . . . Our efforts and the efforts of many local residents have in reality been vain attempts at stimulating a progressive approach and open dialog to deal with unplanned and rampant grown and sprawl in our community.

We chose to solicit assistance of the University to establish a high degree of objectivity and authority that our group does not possess . . . We felt that a visual description of the future would be more compelling than words, and intelligent and thoughtful discussion would ensue. We knew from the beginning that this would provoke shock by some and criticisms by others; it has done both.

A director for the Greater Yellowstone Coalition, an environmental organization focusing on the lands surrounding Yellowstone National Park, found the study's criticisms "insignificant if not downright ridiculous [and] politically motivated."

There has been a growing chorus of discontent over the way that County officials have dealt with (or not dealt with) the ever more obvious impacts of poorly planned growth . . . The build out analysis has served as a critically needed catalyst to spark this discussion. . . . The attempt to suppress this information or discredit it is nothing short of a crime against future generations of Park County residents.

Nearly all of the back and forth letters were aired publicly via publication in the Livingston Enterprise. The controversy engendered a significant, nearly daily, number of Letters to the Editor on the subject. The following are brief excerpts from one of the many letters:

Business-as-usual is no longer acceptable

Park County Commissioners should be aware that their business-as-usual approach to planning, i.e., the easiest thing to do is to do nothing, may no longer be acceptable. Their complacent attitude toward planning in Park County has been brought to task in a study funded by Park County Environmental Council and conducted by the Montana State University School of Architecture.

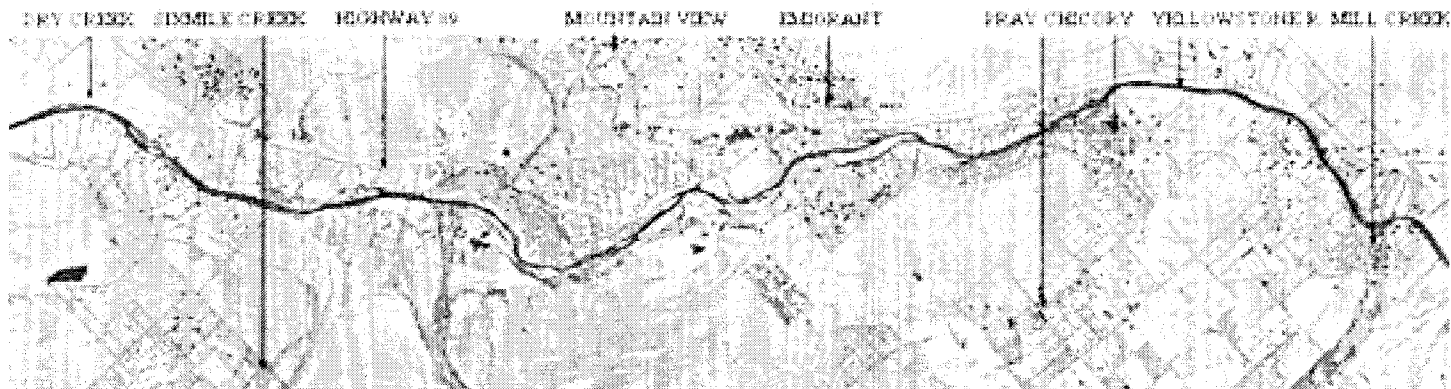
At the height of the controversy, the president of MSU stepped in and requested the dean initiate a professional review of the

study. The president noted that the university would not allow the controversial or political nature of the issue to affect support of the study. If the data were not accurate, or the methodology flawed, the University would publicly recognize it and issue a revised study with the corrected data and/or methodology.

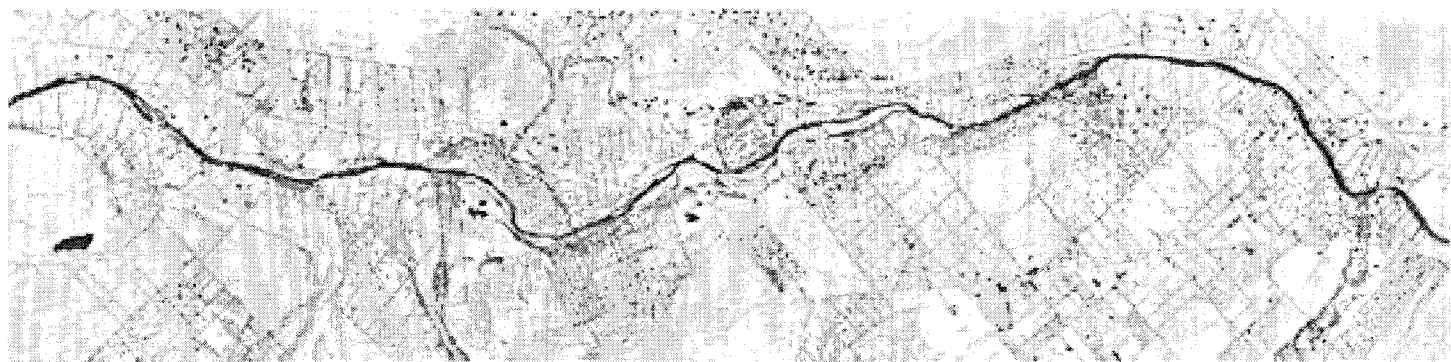
PART 3. PROFESSIONAL REVIEW OF THE STUDY

The professional reviewer was asked to address four major questions:

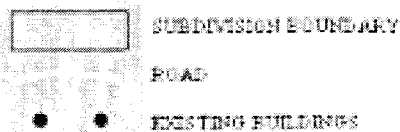
1. Was the study methodology/research design a valid way to approach the problem?
2. Did the study use the appropriate types of data for the research question it sought to address?



AERIAL: 2015 PROJECTION



AERIAL: 2027 PROJECTION



1/4 MILE RADIUS

SUBDIVISION ANALYSIS

Overlaid Aerial Photographs of the study area in Paradise Valley, Montana illustrating projected residential land subdivision based on current trends excerpted from Paving Over Paradise: A Study of Rural Growth in the Borderlands of Yellowstone National Park.

3. Were the conclusions of the research congruous with the methodology used, data gathered, and subsequently synthesized?
4. What is the role of a study like this in the long-term process of native lands assessment and development?

The reviewer was provided the study website address, full copy of the study, a letter from the researcher addressing the study methodology, copies of all correspondences with respect to the study and its presentation that Montana State University College of Arts and Architecture's Dean's Office has, and articles from the local press relating the project. Within carefully defined limits as well as its budgetary constraints, the study was rigorous and represented a reasonable standard of care in its professionalism. Its dimensions were limited (in this case architecture, planning, and geography), thus, its results reasonably questioned by those who represent other dimensions (for instance, economists, demographers, sociologists, etc), he noted. Further, the study extruded existing patterns into the future (rates of development), predicated on the hypothesis that proceeding unabated, sprawl in the valley would make it visually and environmentally degraded over the next few decades. The study made no effort to anticipate unusual occurrences. He also found that validity challenges could be based on a study's neutrality (objectivity, emergence from null hypotheses) or predisposition. The reviewer called for a replication study to ascertain if others would have reached the same conclusions with the data.

Indeed the data available from the current regulatory framework is too limited to create a predictive model thus the team legitimately decided to use other available data including existing subdivision platting, septic permit information, analysis of aerial photographs, mapping information and a computerized growth simulation model. The different approaches appeared to confirm a plausible future scenario given current trends. Both text and graphics of the study richly illustrated growth rates and patterns. Numerous environmental impacts were represented, however, he concluded that the fiscal and economic impacts were addressed marginally and needed further development if they were to form an equally well-developed part of the study. Nonetheless, most conclusions of the research seemed congruous with the methodology used, data gathered and synthesized. He concluded that the study played a critical role in the long-term process of lands assessment and development, illuminated possible futures that elevate the level of discourse within concerned communities, and critical to democratic processes in land use planning.

In an afterward, the reviewer added some recommendations related to good data, method improvements, and neutrality. The congruity of the title of the study and the assertion of science based was problematic, he stated. "They paved paradise and put

up a parking lot" was the chorus to a well-known song/anthem to aging baby boomers environmentally conscious people.

Finally, the reviewer drew attention to the lack of interim reviews by stakeholders that rendered the process problematic. "It is critical that the appropriate town officials review the various [data] developed or updated for the project. If at all possible, the contractor should review the mapping of environmental or legal constraints with all appropriate municipal staff." Key stakeholders were invited to participate and review the work too late, thereby elevating the controversy and subsequent dialogue. Nonetheless, he noted, the process was salvageable and worth the energy it will take to do so.

PART 4. THE SUSTAINED DISCOURSE

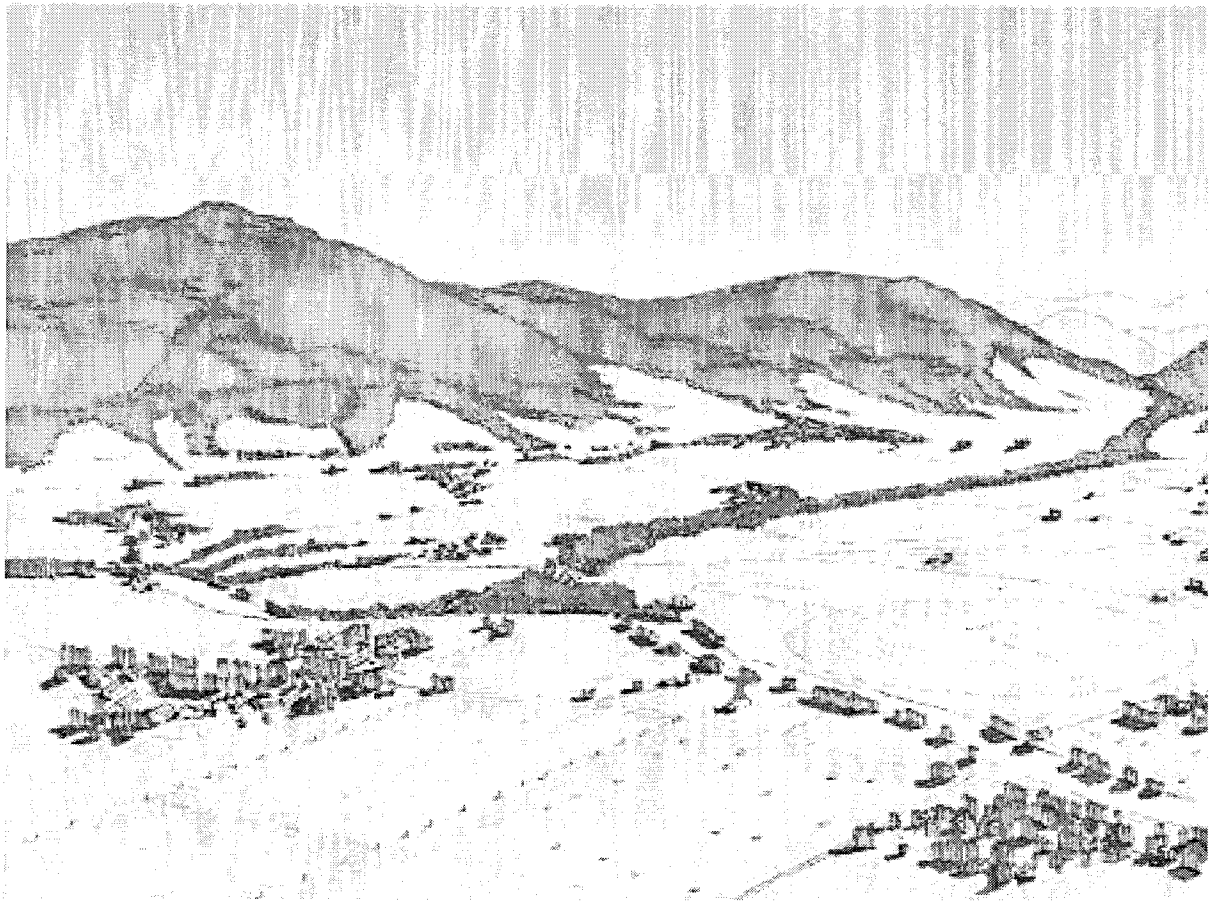
After the review's release and circulation, both sides declared victory citing parts of the review that favored their position. More work was conducted on the study and more news developed. At a March 2002 meeting with the Park County Commissioners, the principal investigator distributed a letter along with graphics illustrating the outcome of the study's revisions. He asserted that none of the concerns they raised substantively altered the principal conclusion of the study: "If current trends continue, Paradise Valley . . . will one day be a nearly continuous residential subdivision, all the way from Livingston to Gardiner." Even without projecting any new subdivisions in the valley, the river corridor was already largely subdivided by 1993, demonstrated by linking together the existing plats – all the way from Livingston to Gardiner. The build – out of these parcels alone would irrevocably alter the character of the valley.

The Dean and Architecture School Chair endorsed the study as amended, noting, "We are proud of this study and applaud the efforts of the principal investigator. We believe – as the Peer Review by the nationally respected scholar and planner has stated – that the study was in fact "rigorously and professionally undertaken, leveraging a small grant into a dialogue whose long-term value lies in its comprehensive development"."

In June 2002, the American Farmland Trust released the results of its study of population growth on farm and ranchlands in Idaho, Montana, Wyoming, Utah, Colorado, Arizona and New Mexico in order to help state and local governments and private organizations target critical conservation areas. The research was jointly conducted with the Center of the American West, and The Nature Conservancy. Via Geographic Information System (GIS), the study found that population growth is transforming the landscape of the Rocky Mountain West threatening future landscapes. Specifically, the study found that:

ATTRIBUTES

- Housing is clustered in protected open space, ranchlands, wildlife corridors, and agriculture
- Commercial activity is clustered in major transportation and/or population centers
- Open space is abundant
- Farms and ranches remain viable
- Mixed woods habitat is maintained
- River corridor is protected
- Rural character is maintained
- Fish and wildlife habitat is protected
- Water quality remains high
- Infrastructure and roadway costs are greatly reduced through clustering



PARADISE VALLEY TOMORROW: AN ALTERNATIVE TO SRAWL

Illustration of an alternative to sprawl in the Mill Creek area in Paradise Valley, Montana excerpted from Paving Over Paradise: A Study of Rural Growth in the Borderlands of Yellowstone National Park.

- Strategic ranchland at risk is concentrated in high mountain valleys and the mixed grassland areas surrounding major mountain ranges in the region.
- Prime ranchland is threatened in all seven Rocky Mountain States. Montana and Idaho contain the greatest amount of strategic ranchland at risk (over 5 million acres each), followed by Colorado (4.8 million acres).
- The Greater Yellowstone Ecosystem (GYE) hosts a significant portion of the Rocky Mountain region's strategic ranchland at risk. 10 of the top 25 counties fall within the GYE.

Sixth on the "at risk" list was Park County, Montana.

CONCLUSIONS: LESSONS LEARNED FROM PARADISE VALLEY STUDY EXPERIENCE

The environmental design issues in this case are fraught with the problems of meaning, particularly the meaning of land development versus land preservation. How people interpret

those relative values makes the problem of land use planning in Paradise Valley dynamic and contentious. For some it may be paving over paradise. For others, it is the opportunity to exercise the democratic right to build on one's own land as one sees fit. Additionally, the meaning of change of all kinds (new development, prospects of the study's Toolkit, a new voice in the press, etc) makes the environment unstable and unpredictable. Analysis may have been the intention of the Paving over Paradise study; however, it is interpreted as recommendations by some stakeholders who interpret its cluster development based illustration and the Toolkit as more than concepts. Indeed, this case demonstrates that discourse both destabilizes and re-stabilizes the land use planning processes. It brings conflicting views to the table, exposes them, and enables the prospect of new syntheses.

Participants and constituents to Paradise Valley land use planning have framed the reality of the study, its analysis and the subsequent dialogue in each and hybrids of these ways. Reframing what has occurred may enable all the stakeholders to come to the table for a fresh look at what and how to go about

affecting the best interest of the people and myriad of other creatures that inhabit the borderlands and valley adjacent to Yellowstone National Park. In subsequent work on this case study, six related subjects emerge and merit illumination:

- 1) Academic institutions can act as viable “third-parties” in politically charged questions on land use. As a state-funded institution, a university may be subject to political pressures. The inherently political nature of this work (planning as opposed to, say, chemistry) exposes the institution much more directly.
- 2) Graphic visualizations of possible futures have extraordinarily powerful potential in affecting public decision-making about the built environment. They are a powerful medium in that they are easily misinterpreted. To architects and planners, a drawing is often just a drawing, a visual expression of an idea, not an inherent fact. The general public, however, may take drawings literally. One solution may be to illustrate more abstractly or non-specifically, yet this approach may dilute the impact of the visualization exercise.
- 3) The media (newspaper, television, radio) is critical to publicly disseminating the outcomes of any visualization or planning effort. Should work be distributed in draft form to the key political players – County Commissioners, and others prior to public release? In this case, an effort might have been launched to attempt to block any publication of the study given the political dynamic of the situation.
- 4) The client, whether a government entity, a college board, or a non-profit organization, must be relied upon to handle the political dynamic.
- 5) Participatory process involving multiple stakeholders is critical to legitimizing and successfully affecting land-use decision-making. The controversy sparked a true public dialogue on questions of land use and planning in the county.
- 6) Research including quantifiable data, trend analysis, and computer-aided projections can be effective tools in determining and communicating potential future outcomes in the built environment to aid the public in the decision-making process. It is very difficult to generate

data and projections that are universally regarded as viable. Any projection of the future, no matter how scientific, is speculative, and can never be accepted as incontrovertible. Further, in studies such as this one, with limited scope and budgets, relying secondary sources of data may be unavoidable.

This is an important study in many ways. For some, it will become an important case study in affecting sustainable development and the on-going quandary many communities face when planning meets development, or when land is understood by some as a commodity and by others as a resource. A replication study would be a welcome addition and may help reaching a greater consensus on the valley’s future.

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