

Modeling Downtown Parking Requirements With Planning Support Systems in Sheridan, Wyoming

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The character of small western towns is often defined by active storefronts and the pedestrian-friendly nature of their main streets. The look and feel of these compact, walkable areas can be significantly impacted by the demands of automobile use, including parking. Too often, traditional requirements for minimum-parking provisions found in land use regulations result in large surface parking lots that tend to separate uses and deaden downtowns (Nozzi 2005).

Sheridan's Main Street Historic District serves as a center of community and business activity against a backdrop of late 19th and early 20th century western architecture. In Sheridan and similar main-street focused communities, it is important to evaluate whether parking requirements will enhance or detract from the qualities which make these areas so special.

The City of Sheridan's goals for its historic district include maintaining "... a community character that preserves the quality of life, values, and traditions of the area [supporting] ... the downtown as a primary hub of the community, to minimize through traffic, and to support the downtown as both a commercial center and gathering area." (Vision 2020: Sheridan County Growth Management Plan).

Implementation strategies in support of these goals include encouraging efforts to maintain and improve the historic character of the downtown and using capital improvements to promote a pedestrian-friendly downtown. Given downtown Sheridan's existing vibrant character, the

desire to maintain it, and the potential impact of parking in the area, citizens and business groups identified the need to assess existing parking requirements to see if they support the desires of the community in the Main Street Historic District.

The overall goal of the project was to quantitatively assess the city's parking requirements in order to gauge whether or not they support the community's goals. Parking requirements were assessed by comparing them to different sets of minimum-parking standards, comparing the standards with existing parking supply, and relating parking requirements and supply to existing land use. The project also demonstrated the utility of using GIS-based planning support systems tools in providing a cost-effective assessment of parking issues in a municipality, as well as providing improved access to information about downtown parking to citizens and decision-makers.

Broader impacts of the project were to suggest a reversal of the conventional wisdom that national standards for minimum-parking requirements will maintain the vitality and character of downtown Sheridan. Another indirect impact was to assist city staff with implementation of the Sheridan County Growth Management Plan.

Project partners included the City of Sheridan Planning and Geographic Information Systems Divisions and the University of Wyoming. Resources were brought to bear with the assistance of the Plan-IT Wyoming Partnership, <www.planitywoming.org>, which coordinates efforts between the university and state communities to improve capacity in using geographic information systems and planning support tools.

The initial objective for the modeling effort was to produce a quantitative comparison of minimum-parking standards. The university compiled three sets of parking standards in tabular format: (1) the City of Sheridan's parking requirements; (2) the standards published by the Institute of Transportation Engineers (ITE); and (3) the standards from the American Planning Association

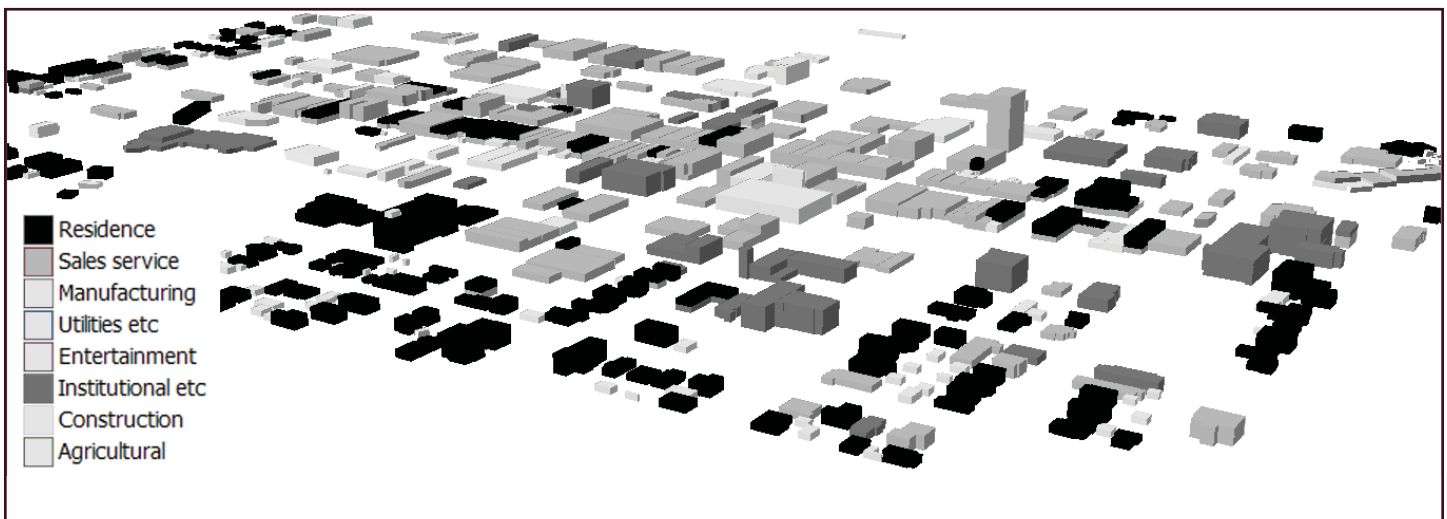


Figure 1: Land Use in Sheridan, Wyoming

(APA). Data were recorded as number of spaces required per 1,000-square feet of building floor area. Because the standards are all based on land use, requirements were linked in the table to land use designations from the APA's Land Based Classification Standards (LBCS) activity codes.

The second modeling objective was to compare required parking specifications with available parking (defined as parking within a 300-foot distance of each structure). This required developing detailed data layers for both parking supply and land use. The parking supply layer was developed by the city in 2005. The layer shows precise locations for parking spots and includes attributes for (a) type of parking (15-minute, 20-minute, two-hour, handicapped, private and unrestricted); (b) type of surface; (c) markings; and (d) space size.

The land use layer was developed by the Wyoming Geographic Information Science Center (WyGIS) from a layer of building footprints suitable for large-scale analysis. In order to obtain a coarse assessment of land use, building footprints were first attributed with parcel-level data from the county assessor's database. These data were expanded and augmented through a windshield-level survey, which added land use data for each floor of each building using LBCS activity codes. Also added were the necessary z-values so building footprints could be properly placed and extruded in a third-dimensional environment (**Figure 1**).

The next step in comparing required parking with available parking was to use planning-support tools to relate the data layers to one another and analyze resulting outcomes. CommunityViz® (Placeways, LLC; Boulder, Colorado) was used to calculate minimum-parking requirements for each land use record by determining the area for each record and multiplying that area by the corresponding value (linked by the LBCS activity codes) from the minimum-parking requirements table. Parking requirements were then stored as attributes in the land use layer.

Relating parking requirements to parking supply is an iterative process. As CommunityViz® lacks capabilities for flexibly working through multiple iterations, WyGIS developed a customized parking-allocation application to perform the analysis. The application relates land use and parking requirements to available parking distributions (stored in a separate layer), allowing the user to select the land use layer, an allocation field, the parking spaces layer, and a minimum-parking requirements table.

After selecting the data inputs, the user specifies values for a *maxdistance* variable, allocation process, allocation method, and allocation type. *Maxdistance* is the maximum distance a parking space can be from a building and still be considered to be available to the building. Allocation process is a choice between allocating parking spaces until buildings meet their parking requirements or until all available parking spaces are used. Allocation method is a choice between using the closest available parking space

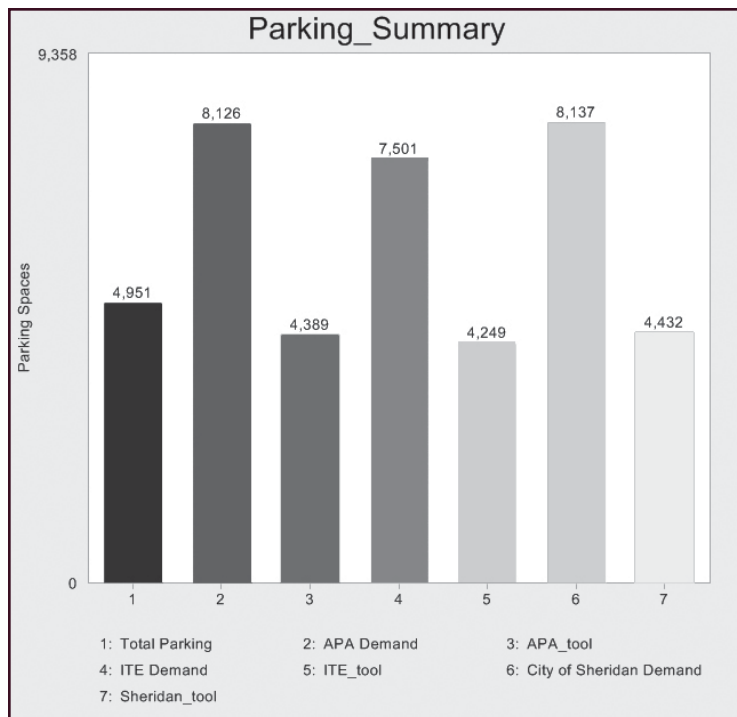


Figure 2: Parking Summary Results

or first available space in the attribute table of the parking layer. Choices for allocation type are “one time through” or “iterative.” The parking-allocation tool stores results in a designated field in the land use layer.

The impact analysis capabilities of CommunityViz® were next used to develop and chart indicators of parking supply and demand. The chart, “Parking Summary” (**Figure 2**), aggregates overall parking supply and demand in the historic district. Parking supply is the total number of spaces available regardless of type (4,951). Also on the chart are summations of total calculated demand based on the three sets of parking standards (APA, ITE and the city). These indicators simply sum the relevant demand field (APA, ITE, or Sheridan) from the appropriate land use layer while excluding vacant properties. The chart also shows parking demand as calculated by the parking-allocation tool.

Parking demand based on the three sets of minimum-parking standards was, in all cases, significantly higher than existing supply. The similarity between the overall demand calculated for the three sets of standards and the difference between overall calculated demand and the availability of spaces suggests there should be a severe shortage of parking in downtown Sheridan. Anecdotal evidence suggests otherwise. With the exception of extremely busy times, such as during a summer festival or rodeo, it is almost never difficult to find a parking spot within a couple of blocks of your destination. Overall numbers for parking supply and demand suggest parking requirements in the city's zoning code and the alternative national standards are too high.

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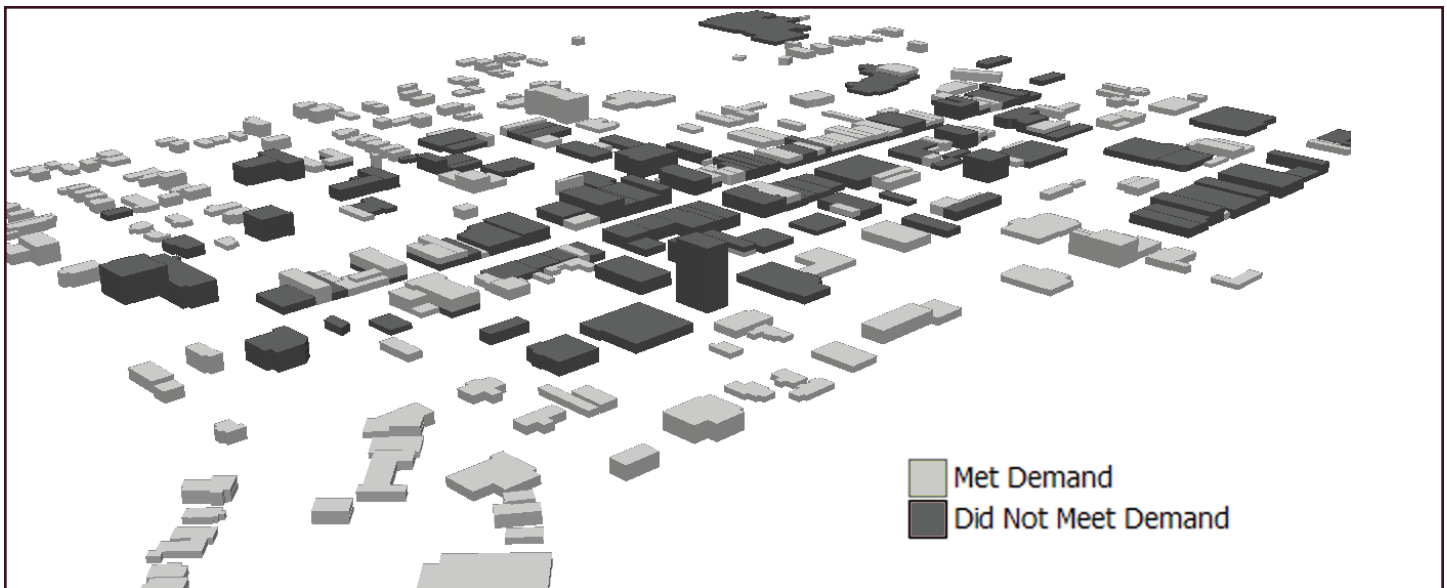


Figure 3; Parking Demand Requirements

The parking-allocation tool allows for a more precise analysis by moving the scale of the evaluation from the entire Sheridan Main Street Historic District to the level of each land use record. Results were summarized statistically and viewed spatially. Using the APA parking standards, 69 percent of buildings meet their parking requirements; under ITE parking standards 76 percent of buildings meet requirements; and under city requirements 67 percent of buildings meet requirements. Buildings that meet their requirements are almost entirely those with low parking requirements. The majority of buildings (199 of 283) with a demand of greater than six spaces fall short of their required number of spaces. The spatial distribution of buildings that do not meet requirements is also telling. Under all the parking-demand scenarios, the majority of smaller buildings that don't meet requirements are located on main street. Under the city's parking requirements, 143 of 189 land use records that don't meet requirements are located on main street (**Figure 3**.)

Minimum-parking requirements, as put forth by the ITE, APA, and the City of Sheridan zoning code, are too high for a mixed-use area like the Sheridan Main Street Historic District. Coupled with the anecdotal evidence that the supply of parking is adequate, general results for parking supply and calculated demand, as well as the results of the parking-allocation tool runs, suggest that some percentage of overall parking requirements will be sufficient to meet demand in the historic district. The idea that minimum-parking requirements can be reduced in a mixed-use area is well supported in the literature. In mixed-use areas demand for parking is reduced and, consequently, parking requirements may be reduced because people are able to park once and visit several establishments (Saunders 2005; ULI/NPA 2000; Morris 1996). A 2004 Montana study found that central-business districts only require 60 percent of the parking of a commercial corridor (Saunders 2005).

There are a suite of policy options which modify or provide alternatives to minimum-parking requirements. As mentioned above, a municipality can simply lower requirements in mixed-use districts and areas well served by transit (Wittenberg 1998) or in any district simply to match real demand (Morris 1996). Another option is charging developers a fee in lieu of providing required parking. The fee is paid per space to a municipality in compensation for not providing required parking. The municipality can then use the funds to provide parking which serves several businesses. This option provides flexibility to business, especially in high-land-value, central-business-district locations (Morris 1996). Market-rate parking can be used to efficiently allocate parking and is politically palatable when revenues are spent on local improvements, often through a parking benefit district (Shoup 2005; Morris 1996).

This study suggests the city's parking requirements are not likely to help realize the city's goals for the historic district. Excessive minimum-parking requirements have negative impacts including separation of uses and deadening of downtowns (Nozzi 2005), which are contrary to the goals expressed in the county's growth management plan. Over time, if these parking requirements are maintained, they will likely degrade the quality of the built environment and decrease overall vitality in downtown Sheridan. On the other hand, a well-developed understanding of the relationship between parking and the built environment will facilitate growth and change, ensure adequate parking is available, and enhance the quality of the Sheridan Main Street Historic District.

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WP Conference Sessions Filling Up

Rendezvous 2008 is promising to be a big draw! This year's annual Western Planner Conference is being held in an excellent location, Cheyenne, Wyoming, at a top notch facility—The Plains Hotel in the heart of downtown. An impressive list of sessions is already in place, which are sure to have something for everyone. As of early April, the following sessions are confirmed and ready to go, with speakers coming from several western states (Wyoming, Colorado, Nebraska, South Dakota, Arizona, New Mexico, Idaho, Nevada, Utah, Washington) and some wishing-they-were-western states (Ohio and Florida):

- The New West: Navigating Political Planning Landscapes in Rural Western Towns
- Planning Across Boundaries: Laramie Foothills, Mountains to Plains
- The Quiet Side of the Tetons
- Sustainable Community Plans
- Planning and Zoning Commissioner Training
- Green Building/LEED/Sustainable Design
- Mixed Use: Embracing Density
- Keynote Speaker: **Bob Hunter**, FAICP, APA President
- Keynote Speaker: **Bob Bradshaw**, Historian
- The Energy Boot Region: Coping With Uncertainty
- Downtown Historic Preservation
- Designing Collaborative Planning Processes
- Small Wind Power in Western Communities
- Hazard Mitigation: Multi-jurisdictional Planning
- Poster Sessions by UW and UNL Graduate Students
- What They Didn't Teach in Planning School: New Professionals
- Working Successfully With Tribes in Application of State/Local Laws
- Ins, Outs, Ups and Downs of a Small Planning Department
- Land Use Planning and Sustainable Development in the Rural West: Role for County Extension and Universities
- Safety and Mobility: The Bonuses of Access Management
- From CFIs to Bowties: Innovative Solutions for Busy Intersections

A few more sessions are pending although not confirmed yet. If you are interested in submitting a proposal as well, get in touch with Joanne Garnett and she will send you a conference abstract form for completion and submittal as a proposed session. Contact Joanne at <joaneg@wlcwyo.com> or call her at 307-367-6548.

AICP Certification Maintenance Credits will be offered at no additional registration cost. No matter what, plan to be in Cheyenne, August 5-8, 2008, for another in a series of GREAT Western Planner regional conferences! 🐾