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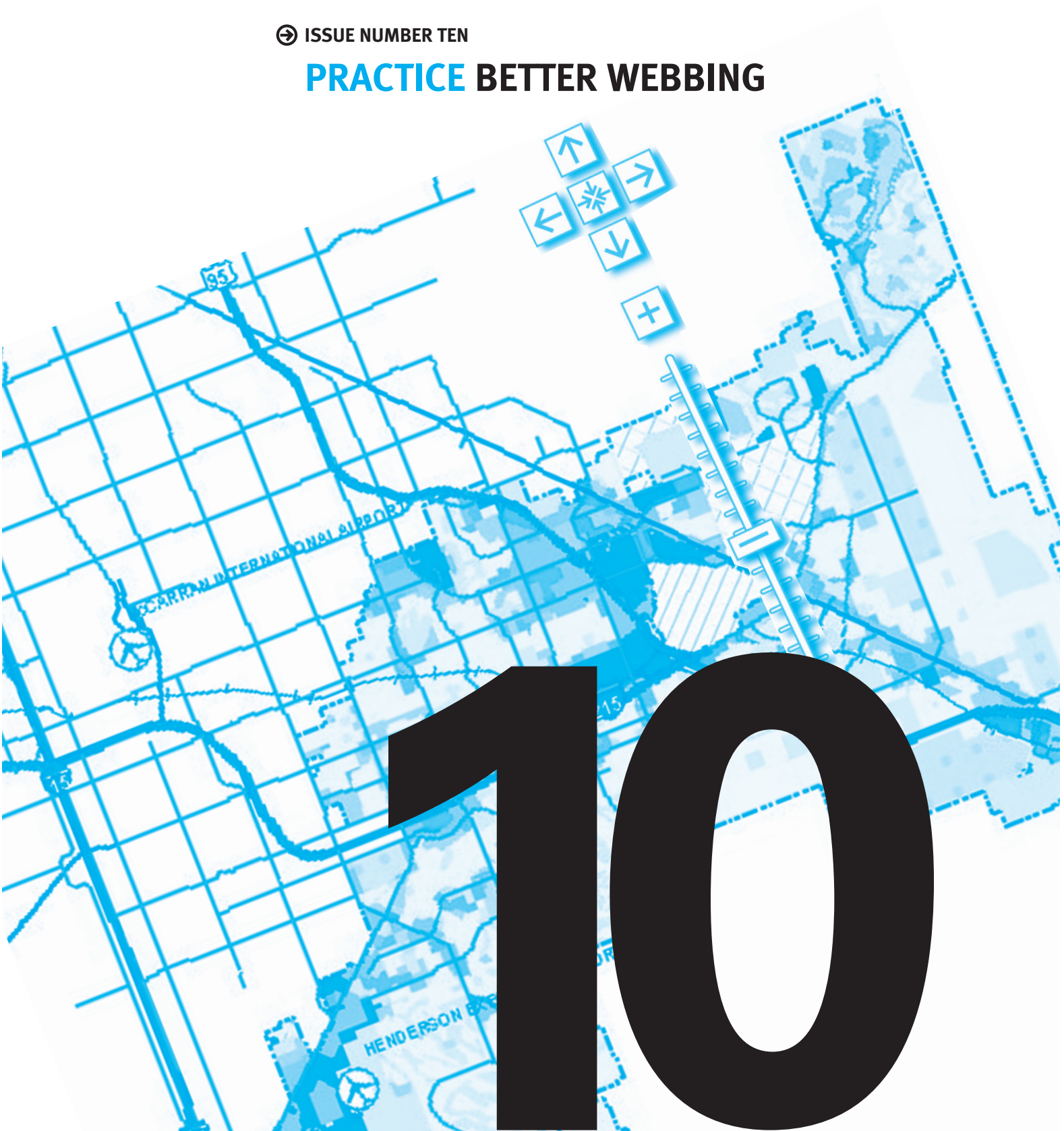
PRACTICE BETTER WEBBING



10

Better Zoning on the Web

By Don Elliott, FAICP

The Internet is transforming the field of planning in myriad ways. Combinations of Google Earth images, GIS database layers, visualization tools, and infinitely manipulable census and survey information have dramatically increased the data and analytical tools available to planners.

Virtually no aspect of planning has been untouched by this revolution. The changes have not been quite so dramatic in the field of land-use regulation, though virtually all cities now have an electronic version of their zoning and subdivision codes, searchable by keywords. Public versions of those documents are often kept more current, as well, since the ability to upload amendments electronically means that cities do not have to wait until the next three-month, six-month, or annual reprinting of the paper versions. A few cities have gone further to adopt more widely searchable and graphically rich codes like the Visual Interactive Code, but those cases are still fairly rare.

Nevertheless, most cities still maintain paper versions of their land-use regulations and they are sometimes still the "official" version—so users of the web documents are sometimes at risk for misinformation. But it's only a matter of time until web-based tools transform zoning and subdivision codes the same way they have changed planning. When that happens, what will it look like—and what *should* it look like?

A BETTER WAY TO ZONE

In *A Better Way to Zone* (Island Press 2008), I identified 10 changes that could make big-city zoning more effective, more efficient, and easier to use and understand. Change number nine was "Better Webbing"—using the web more effectively. I identified four changes that will transform the organization, use, and maintenance of local land-use laws—as well as how we make land-use decisions. Those four innovations are:

1. Cities will develop web portals that link planning, zoning, subdivision, and utility information. Much of that information is already available but not linked. Since it is easier to draw and digitize planning maps than it is to interpret how written policies affect different parcels of land, it is not common for comprehensive and neighborhood plans to be linked to GIS data—but they will be in the future.
2. A good planning and zoning web portal will make clear to property owners the difference between the plan designation and the zoning for their property. What parts of the plan are binding—if any—and how do planning goals make it into the land-use decision-making process?
3. Future web-based zoning will link written information on what permits may be required for a proposed development with mapped information about notification and protest areas and graphic displays about the steps in the decision-making process—who makes the decision, who hears the appeal, on what criteria, and in what time frames.
4. The fourth and biggest improvement will be the ability to tailor complete answers to zoning process questions—like "How do I get a conditional use permit?"—for specific addresses. Once the portal knows your address it will be able to provide answers that take into account your current use of the land, your neighbors' current use, the future land-use designation, when your lot was platted and your house was built, what regulations were adopted before or after those dates, and whether there are variances or conditional uses on adjacent parcels that affect what you can do. The key will be linking address-based data structures with more sophisticated query-based searchability.

The technology for each of these tasks is already available, but few cities have committed themselves to making the most of it. This article reviews some attempts by large North American cities to harness the power of the Internet for planning and zoning. More specifically, it reviews how 10 cities have tried to enhance and link their web-based planning and zoning tools to make them significantly more usable for the public.

EMERGING BEST PRACTICES

Visiting the planning and zoning websites for large American and Canadian cities reveals how quickly technology has advanced in the past 10 years. Detailed GIS systems and accurate mapping are now the norm rather than the exception. Satellite imagery is routinely available as an additional layer on the same base maps as other GIS information—making it much easier for users to orient themselves or to find major landmarks. The user-friendliness and graphic quality of public portals has improved dramatically, making it much more likely that citizens will actually be able to find the information they need.

Despite these common themes, however, large city websites still show enormous variation in the information they provide, how they present it, how they link it together, and what questions they can answer for John Q. Public. Some of these differences are illustrated in the examples below. In each case, I focused on characteristics that distinguish the city websites from each other rather than what they have in common. Because many of these cities use multiple mapping bases and information systems it is quite possible that I missed additional sites and linkages that would fill some of the gaps, and I apologize in advance for any errors in this information.

ASK THE AUTHOR JOIN US ONLINE!

Go online from November 3 to 14 to participate in our "Ask the Author" forum, an interactive feature of Zoning Practice. *Don Elliott, FAICP, will be available to answer questions about this article. Go to the APA website at www.planning.org and follow the links to the Ask the Author section. From there, just submit your questions about the article using the e-mail link. The author will reply, and* Zoning Practice *will post the answers cumulatively on the website for the benefit of all subscribers. This feature will be available for selected issues of* Zoning Practice *at announced times. After each online discussion is closed, the answers will be saved in an online archive available through the APA* Zoning Practice *webpages.*

About the Authors

Don Elliott, FAICP, is a senior consultant with the Denver office of Clarion Associates and a former chapter president of APA Colorado. As a planner and lawyer he has assisted more than 40 North American cities and counties to reform and update their zoning, subdivision, housing, and land-use regulations. He has also consulted in Russia, India, Lebanon, and Indonesia, and served as USAID Democracy and Governance Advisor in Uganda for two years.

Anchorage, Alaska

Anchorage maintains multiple maps to display planning and zoning information. These include a generalized land-use map for the entire city with companion maps showing residential intensity, commercial intensity, and community facilities—all in PDF format that can be zoomed but with some loss of resolution. Unfortunately, map legends are not visible once you have zoomed in—you need to zoom back out or pan laterally to read them. Separate maps cover streets, wetlands, streams, assembly districts, zoning districts, and land-use categories, but do not include address searchability. An online platting and zoning notice system shows active cases with case numbers, but not the notification areas (in fact, none of the cities surveyed had a parcel-based notification area feature). One nice feature is that the zoning and planning cases are searchable by neighborhood or community organization area. Zoning is shown by a letter designation, zoning boundaries by colored lines, and general existing (not future) land use by shading. Most of the different maps are linked but some use different base maps.

Chicago

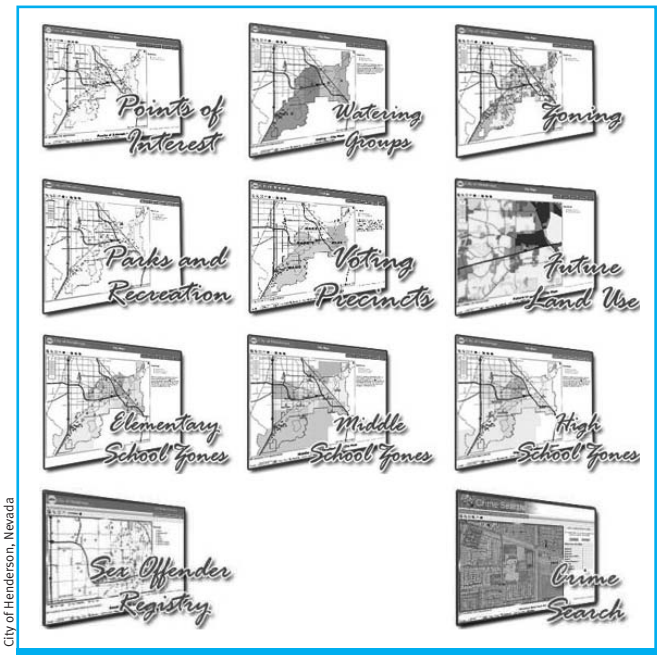
Chicago's municipal code is maintained by American Legal Publishing and has separate chapters for its Land Use Ordinance and Zoning Ordinance. Fortunately, information related to both chapters has been packaged together through its website. The Land Use Ordinance covers topics like Lake Michigan and Chicago waterfront protection, flood protection, planned manufacturing, enterprise zones, adult uses, and impact fees, while zoning information is grouped by type of district. The map interface is very usable and accessed through a single map; using the cursor to highlight a smaller area zooms to that smaller area. Information layers are easy to turn on and off without zooming back out or returning to a master map. Information is searchable by street address to find information on parcels, wards, ward offices, schools, and neighborhood features.

Planning information is not well linked with GIS and zoning information. To access planning data, users must navigate to a separate web portal hosted by the Chicago Metropolitan Agency for Planning (www.goto2040. org) that is not linked to the city's master map.

ON THE WEB

The online resources for the 10 cities mentioned in this article are available at the following addresses:

- **ANCHORAGE:**
  www.muni.org/iceimages/Planning/LandUse%20_Plan_11x17.pdf;
  www.muni.org/Planning/Maps.cfm;
  http://munimaps.muni.org/mox52/advanced.cfm
- **CHICAGO:**
  http://maps.cityofchicago.org/website/zoning
- **DENVER:**
  www.denvergov.org/DenverMaps/report.asp?rpt=zone&cat=cprop
- **HENDERSON:**
  www.cityofhenderson.com/gis/interactive_maps.php
- **INDIANAPOLIS:**
  http://imaps.indygov.org/Zoning/
- **MINNEAPOLIS:**
  www.ci.minneapolis.mn.us/zoning/maps
- **PORTLAND:**
  www.portlandmaps.com
- **SAN DIEGO:**
  www.sandiego.gov/development-services/zoning/zoninggridmap.shtml;
  www.sandiego.gov/planning/genplan/pdf/peir/peir331thru341.pdf;
  www.sandiego.gov/planning/genplan/figures.shtml;
  www.sandiego.gov/planning/community/profiles
- **SEATTLE:**
  www.seattle.gov/dpd/Research/Zoning_Maps/default.asp;
  http://web1.seattle.gov/dpd/maps/;
  http://web1.seattle.gov/dpd/maps/dpdgis.aspx
- **VANCOUVER:**
  www.city.vancouver.bc.ca/vanmap/;
  www.city.vancouver.bc.ca/commsvcs/currentplanning/coloured_zoning_map.pdf).



City of Henderson, Nevada

Henderson, Nevada's map selection interface is based on user-friendly graphics.

Denver

Denver maintains a thorough and user-friendly interface that is strong on zoning, GIS, and community data, though weaker on planning information. An address query takes you to a parcel map, and clicking on the parcel takes you to a property table with further links, including zoning history and zone district descriptions. Additional links take you to the MuniCode website, but the city quickly gives you which sections to search for in order to find district information—significantly improving the usability of the MuniCode system. Since Denver is in the middle of a multiyear zoning code update, there is also a link to the zoning update website. Moving back to the search page allows you to click on a link to the registered neighborhood organizations whose area includes the property, with boundaries and contact persons listed. Another link provides a table listing all of the addresses on the same block as your property, waiting to be filled out with the names, phone numbers, and e-mail addresses of your neighbors (though none of that individual information is provided). Additional links bring up lists (not maps) of schools and public safety facilities within one mile of the property, crime statistics for the neighborhood, and the subdivision where the property is located. Importantly, a final set of links ties into Blueprint Denver (the land-use element of Denver's comprehensive plan) and shows future land-use classifications, future street classifications, and whether the property is in an area designated for change or stability. These final maps are not zoomable to property level, but despite this weakness, Denver's linkages between planning and zoning information are among the strongest in the cities surveyed.

Indianapolis's parcel-based access map also provides information on neighboring parcels.

City of Indianapolis

Henderson, Nevada

Henderson was one of the first large cities in the U.S. to use the Visual Interactive Code (VIC) format, and is now involved in a "second generation" update. Viewers access mapping through a Windows Vista-like graphic of nine topical maps covering zoning, future land use, watering groups, elementary school zones, sex offender registries, parks and recreation, points of interest, voting precincts, middle school zones, high school zones, and crime statistics. But not all the maps are created on the same base, many allow the user to zoom into small areas through the use of a cursor drag box. While satellite imagery can superimpose buildings on to some maps, turning on that layer sometimes makes information on other layers difficult to read, and the resolution of the satellite imagery is limited (i.e., if you zoom in very close the buildings become blurs—a problem common to many of the systems that use Google Earth images). Zoning map layers include 11 overlays, but do not include a direct link to the future land-use designations (to see them, you need to click out of zoning and into the land-use map). An address search function centers the map on that site but does not link directly to more information about it. However, these are minor flaws in an otherwise user-friendly site, and Henderson is one of the few cities that has made serious efforts to bring planning and zoning information closer together.

Indianapolis

Like Denver, Indianapolis presents zoning data through an address query that immediately links to a parcel map showing adjacent streets, parcel lines, and building footprints. Clicking on the parcel links into GIS data that covers a wide variety of topics, including primary and secondary zoning, rezoning history, variances, legal nonconforming uses on the parcel, zoning approvals (with links to a very cryptic summary of the document), location in wellhead and flood zones or historic districts, regional center designations, and the subdivision where the property is located. In some cases, turning on a layer indicates which parcels the status applies to by putting a dot on each parcel, while in other cases more data is given. Unfortunately, the dot approach can get confusing when multiple dot-layers are turned on simultaneously. In addition, the property table entry for "comprehensive plan" just indicates whether the property is covered by a subarea plan, and clicking on the link takes you to the plan document—no specific plan designation is presented or mapped.

Minneapolis

Unlike the Chicago and Vancouver, Minneapolis does not use a single map interface, but instead a grid map where users select a grid square to begin their search. While functional, this approach requires the user to either know which grid contains the property or use a trial-and-error approach to finding it (particularly when the property is located near the edges of a grid square). The website contains two separate map layers for base and overlay zones, and it is not easy to view both at the same time. Minneapolis's zoning code is maintained by MuniCode, and links to that site are not particularly friendly—many links simply take you to the beginning of the code and require the user to restart the search within the code document. Similarly, links from maps to zoning district descriptions take the reader to the beginning of a list of districts with short titles—clicking on those titles takes you to the MuniCode site rather than a description of the district. A link from the maps to the development review procedures also leads to the MuniCode site. As for many cities, links between planning and zoning information are weak.

Portland, Oregon

Portland has a very detailed GIS system accessible through a map interface that provides an unusually wide range of information. An address search takes the user to an assessor's parcel map showing the building footprint and the following property data:

- assessor's data
- zoning permits and cases
- schools within one mile
- parks within one mile
- businesses within one mile (not particularly helpful since they show up as unidentified dots and appear to include home businesses)
- capital improvement projects within one-half mile (dots with codes but no description)
- stormwater incentive areas
- floodplains within 50 feet
- slopes over 20 percent
- potential landslide hazards
- potential wildfire hazard
- earthquake hazards
- noise contour areas
- crime statistics
- water and sewer lines
- transit lines
- zoning

While many of the maps are thorough, they are sometimes not scalable—zooming in and out is not easy without a cursor drag box feature. In addition, some of the information is displayed on different base maps, so that turning on a new layer takes you to a different map, sometimes at a different scale. Like many other cities, links between GIS/zoning information and planning information are not particularly strong.

San Diego

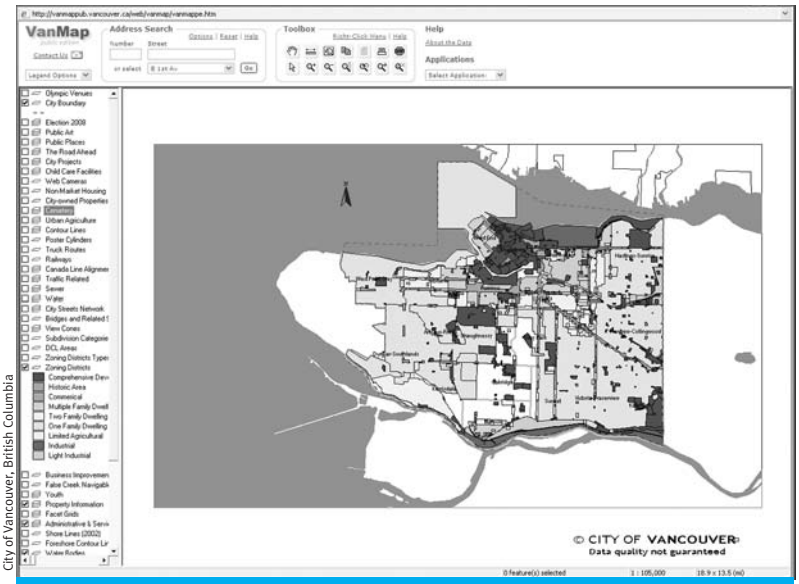
Like Anchorage, San Diego uses multiple maps to convey planning and zoning information. General zoning maps are shown as PDF grid maps (i.e., the user selects a grid square to begin using the system and must click back out to the main map to select a second grid). Unlike some PDF maps, these are zoomable without much loss of resolution, but there is no cursor drag box feature. The zoning map legend appears to cover both base and overlay districts—which means a total of 82 legends with subtle color differences that are difficult to distinguish on the map. Searching by address can confirm what zone the property is in but requires that the user actually know the property address in question. A link can take the user to the community planning area containing the property (including the contact person) but does not map any plan information. A "base zone guide" link takes users to the code text, and the searchable PDF format makes navigation through the code fairly easy. General Plan maps are helpful but not complete. The three maps presented appear to have been developed as part of a habitat conservation planning process, and they distinguish between vegetation/urban land, city owned/non-owned lands, and active fault areas. Other plan maps are in citywide PDF formats that lose resolution as you zoom in and cannot easily be used to find designations for specific parcels. In spite of some weaknesses, however, San Diego is one of the few surveyed cities that has tried to link planning and zoning information.

Seattle

Like Minneapolis, Seattle uses a grid map to present zoning information, but the "grain" is much finer than many other cities. The grid cells are smaller and more detailed, but the user needs to be able to find the proper grid square, which may take some trial and error. Zoning maps are zoomable without losing resolution and present information on parcel boundaries, boundary adjustments, zoning boundaries, and sometimes the names of key buildings and developments. Unfortunately, the map legend is not repeated on each grid square map—you need to click back out to the main map to see it. Like Portland, a very wide range of information is presented, including assessor numbers, lot dimensions, meander lines, 2,000-foot rail station buffers, urban villages and centers, historic landmarks, critical areas requiring SEPA review, critical areas not requiring SEPA review, closed or nonpublic streets, mineral or aerial rights, known landslide locations, and streets with special requirements. Among the cities surveyed, this is a standout GIS/mapping system with the GIS information linked to Microsoft Virtual Earth data. There are submenus that show permitting and approval data as flags on a zoomable map. Aerial satellite images can be shown on the same base map as parcel and GIS data while remaining mostly readable. Unfortunately, the zoning layer sometimes requires panning off the property in question to find the designation for the area, and does not link to a description of that zoning designation. The user-friendly layer menu minimizes the need to zoom in and out or between different maps—once you find the property in question you can toggle layers on and off without having to move around to understand the data. Only assessor's data is available by address query, however.

Vancouver, British Columbia

Like Chicago and Anchorage, Vancouver bases its presentation of data in a single map (not a grid map) where you use a cursor drag box to zoom in on the desired search area. In fact the map appears to be a very high-resolution scan of a wall map available for sale to the public. The quality of the Vancouver map is very high, and can be zoomed from the base 14 percent image to almost a parcel-level image with no loss of resolution. A single legend on the main map shows both zone designations and descriptions. Unfortunately, this amazing map is not linked to a query function—either you find the information you are looking for or you don't. To supplement this map, the city's GIS system is searchable by address and (like Portland and Seattle) contains many layers



City of Vancouver, British Columbia

Vancouver, British Columbia's master map is scalable from citywide scale to the parcel level.

covering zoning district labels and types, utilities, parcel information, subdivision titles, public art, streetlights, legal places to place posters, child care facilities, truck routes, view cones, and even Olympic venues. Passing the cursor over a property lights up a zone district designation for the parcel, and clicking on a parcel can light up all of the contiguous properties in the same zone district. GIS information is presented on maps with a cursor drag box zoom feature and links to satellite orthophotography. Like Seattle, Vancouver has a standout GIS/mapping system.

SUMMARY TABLE

Although the art of compiling and presenting GIS planning, zoning, subdivision, and utility data is evolving rapidly, the linkages between those types of data is still incomplete. None of the 10 cities surveyed had completely implemented any of the four planning and zoning-oriented innovations identified in *A Better Way to Zone*, though some were close. The performance of each city against those four benchmarks is summarized in the table at right.

CONCLUSION

Of the four web-based zoning and planning improvements suggested in *A Better Way to Zone*, the surveyed cities had made the most progress on the first—creation of web portals that link information about planning, zoning, subdivisions, and utilities. All 10 cities had portals that linked at least two, if not three, of those levels. Unfortunately for planners, linkages between GIS layers (usually including subdivision parcel maps and utilities, and sometimes zoning) and planning designations are particularly weak. This may be because future land-use designations are considered "softer" (i.e. advisory) and because planning lines are more general than lines representing platted lots, zoning districts, or built infrastructure. Indeed, some city attorneys and planners might resist mapping future land-use designations for precisely these reasons, but mapping them (even with appropriate disclaimers) would help educate the public about the anticipated future for their block and neighborhood and could involve them more effectively in the planning process.

The second area of progress is in the area of address-based queries for zoning and planning information. Based on available GIS information and a specific property address, we should be able to tell property owners what steps would be required for various zoning permits and approvals—taking into account neighboring land uses, existing and adjoining variances, nonconforming uses, and structures on his lot and on adjoining lots and the dates those structures were built. This is still far from the case, however. While several of the survey cities had address-based querying capability, it was linked mostly to GIS data layers and not designed to answer planning and zoning questions. In short, the evolving web-based systems can lead users to lots of data about the current state of the property and services in the neighborhood (and, increasingly, to neighborhood groups concerned with land use and zoning in the area). But they cannot yet tell the owner much about how to go about changing the planning

City	Portals link planning, zoning, subdivision and utility information	Maps clarify between planning and zoning designations	Steps for zoning approvals and mapped notification areas	Address-based queries for zoning approvals based on lot and structure history
Anchorage	Partial	No	No	Partial—some queries possible
Chicago	Partial, but on different maps	No	No	No
Denver	Partial—links to utilities incomplete	No	No	Partial—some queries possible
Henderson	Partial—links to utilities incomplete	No	No	No
Indianapolis	Partial—links to planning incomplete	No	No	Partial—some queries possible
Minneapolis	Partial	No	Partial—links to district descriptions and general procedures	No
Portland	Partial—links to planning incomplete	No	No	Partial—some queries possible
San Diego	Partial	No	No	No
Seattle	Partial—links to planning and subdivision incomplete	No	No	Partial—some queries possible
Vancouver	Partial—links to planning incomplete	No	No	Partial—some queries possible

designation or the zoning designation or permits for the property. Doing so would be another effective way of involving citizens in planning and zoning issues more effectively.

The final two innovations have seen almost no progress. None of the 10 surveyed cities had a map- or address-based system to explain the difference between planning and zoning designations—one of the major areas of confusion for many property owners. In addition, almost none had made progress in organizing their GIS and mapping systems so that they could automatically map for property owners the notification areas around their properties necessary for different types of zoning permits and approvals.

Nevertheless, this is an area where the technological foundations are already in place. The time is ripe for developing new linkages and tailoring our massive abilities to collect and organize to begin answering planning and zoning questions for property owners. As the survey above shows, 10 large North American cities are on their way to doing just that. It is probably only a matter of time.

NEWS BRIEFS

ZONING DISTRICTS MUST INCLUDE PERMITTED USES

By Brian W. Ohm

In July 2008, the Wisconsin Supreme Court addressed the basic issue of whether a zoning district must include some permitted uses. The case involved the unincorporated community of the Town of Rhine in Sheboygan County, north of Milwaukee. The town had a zoning ordinance that included a "B-2 Commercial Manufacturing or Processing" district that expressly stated "[t]here are no permitted uses" and "[a]ll uses are conditional." The ordinance listed six categories of conditional uses for the district: (1) fabrication of consumer or industrial commodities; (2) garbage, rubbish, offal, industrial waste, and dead animal reduction or disposal; (3) quarrying; (4) mining and ore processing; (5) salvage yards for wood, metals, paper, and clothing; and (6) stockyards.

The case arose after a private off-highway vehicle club purchased 77.2 acres of land zoned B-2 in 2003 and used the property for riding all-terrain vehicles. At the time of the purchase, the land had been zoned B-2 for 20 years. In 2004, the town informed the club that it needed a conditional use permit to use the land. The club applied for a conditional use permit but the town denied it. The club applied to rezone the property but that request was also denied. The town then sued to stop the ATV use. The town alleged that the ATV uses violated Rhine's public nuisance ordinance and asked for a determination of whether the club was violating its zoning ordinance.

The trial court held that the town lacked standing to raise the public nuisance claim because the property at issue was not a public place. The trial court also determined that Rhine's zoning ordinance was unconstitutional. The town appealed the trial court's decision to the Wisconsin Court of Appeals. Because of the importance of the fundamental question presented in the case, the Wisconsin Court of Appeals did not issue an opinion in the case and certified the case to the Wisconsin Supreme Court, which accepted it.

The Wisconsin Supreme Court agreed with the trial court that the B-2 zoning district was unconstitutional, finding that that the town's zoning district was arbitrary and unreasonable because it precluded any uses in the district as a matter of right. According to the court, this practice bore no substantial relation to the public health, safety, morals, or general welfare and hence was a violation of the constitutional guarantee of substantive due process. The court noted that the town's exclusive reliance on conditional use permits "opens the door to favoritism and discrimination." However, the court did state that there may be limited circumstances, such in the case of floodplain zoning, in which not allowing any permitted uses is valid because the restriction bears substantial relation to public health, safety, morals, or welfare. The Wisconsin court also held that the trial court had applied the wrong definition in the public nuisance claim and sent that issue back to the trial court for a new hearing.

To support its decision on the need for permitted uses in the zoning district, the Wisconsin Supreme Court cited several zoning treatises and publications of the American Planning Association including *Zoning Practice* and its predecessor, *Zoning News*. Several issues of *Zoning Practice* play a prominent role in the court's opinion. It cited S. Mark White, "Classifying and Defining Uses and Building Forms: Land-Use Coding for Zoning Regulations," *Zoning Practice* (September 2005), to note that conditional uses are different than permitted uses: "While a permitted use is as of right, a conditional use does not provide that certainty with respect to land use." In addition, the court quoted extensively from Gail Easley, "Conditional Uses: Using Discretion, Hoping for Certainty," *Zoning Practice* (May 2006), to support its conclusion that "accepted zoning practice is to provide permitted uses as of right and then, in addition to permitted uses, the ordinance may provide for conditional uses." Later in the opinion, Easley's piece is used to support the court's statement that "Conditional uses may be expressly permitted by the ordinance so long as the conditions are met, but this does not render them 'permitted uses.'" The court also quoted from John B. Bredin's *Zoning News* contribution entitled "Common Problems with Zoning Ordinances" (November 2002) to note the problems that arise when ordinances rely too heavily on conditional use permits. (*Town of Rhine v. Bizzell*, Wisconsin Supreme Court, Decided July 1, 2008, 2008 WI 76)

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Cover photo: Henderson, Nevada's Future Land Use mapping portal. ©City of Henderson, Nevada. Design concept by Lisa Barton.

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HOW WELL CONNECTED ARE YOUR PLANNING DOCUMENTS?

10