A Case Study in the Use of Photo Simulation in Local Planning

Abstract

The Town of Cary employed photographic simulations in four separate comprehensive planning projects during the period 2000-2003. The four projects covered a range of downtown, suburban, and rural planning environments within Cary's planning jurisdiction, making Cary's experience applicable to most types of local jurisdictions. This paper describes how photographic simulation was used in three of these planning projects, and evaluates the effectiveness, tips, and lessons learned for each project.

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Introduction

Photographic simulation is the practice of taking a photograph of an existing urban or rural scene, and then digitally altering it to create a photo-realistic image depicting a proposed change to that environment. For example, photo simulation can be used to show how a downtown street might look if a proposed building were built or if new street trees were planted.

The use of photo simulation within the planning profession is gaining ground as a powerful aid to local planning. Photo simulation has been employed by communities in North Carolina as diverse as New Bern, Raleigh, Smithfield, and Cary, as well as by the Triangle J Council of Governments and campus planners at NC State University.

In the practice of comprehensive planning, photo simulations can be used to: (1) increase public understanding of a proposed plan or ordinance; (2) engage the public and get constructive feedback on draft plan concepts or recommendations; (3) achieve community consensus on the desired future; (4) demonstrate or evaluate the feasibility of proposed plan recommendations; or (5) evaluate competing alternatives. A given set of photo simulations may serve multiple purposes during the course of a project, depending on the project phase or the nature of the target audience (e.g., the public, property owners, land developers, public officials, etc.).

The following sections describe Cary's use of photo simulation in developing: (1) a master plan for the downtown area, (2) a master plan and special zoning district for redevelopment along a suburban thoroughfare, and (3) Cary's Open Space and Historic Resources Plan. For each project, two or three of the photo simulations developed for the project are shown and discussed as representative examples of the varied purposes to which photo simulation may be applied to planning practice. The photo simulations for all three of these projects were developed by the Design Research Laboratory (DRL) in the College of

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Case 1: Redevelopment and Infill with Cary's Downtown Area Plan

Project Backgrounnd

Development of Cary's master plan for its downtown area occurred in 1999-2001. It was Cary's first planning project to employ photo simulation. One of the principal goals of the plan is to encourage higher densities of mixed-use development and redevelopment within the "heart of the downtown" – an area of about four-to-five square blocks within roughly a quarter mile walking distance of a planned regional rail transit station – while still maintaining the downtown's historic "small town" charm and character. The plan was developed with the advice and consent of a twelve-member Citizen Advisory Committee, appointed by the Town Council.

Midway through the project, in early 2000, it was decided to incorporate photo simulations into the planning process in order to: (a) help the Citizen Advisory Committee understand and envision the draft land use and urban design recommendations that were emerging, so that staff could verify whether there was consensus on the plan vision; (b) help the advisory committee come to closure on their land use recommendations for a couple of downtown areas where they were torn between two or more competing alternatives; and (c) help the advisory committee come to closure as to the preferred residential densities for several downtown areas where a range of densities were under consideration.

It also was anticipated that the photo simulations could serve the larger purpose of communicating the draft plan to the public, the Town Council, and the Planning Board, to help achieve overall community-wide understanding of and consensus on the downtown vision.

Bearing in mind the goals and purposes for using photo simulations in this project, DRL and planning staff selected eight downtown locations for photo simulations, and made preliminary assessments of the preferred photographic viewpoint for each location. Numerous ground-level and aerial photographs (taken from a chartered low-flying aircraft) were taken of each location, and from these the DRL and planning staff selected the photographs to be used in the simulations. DRL and town staff then identified the parameters and characteristics of the changes to the built environment that would be shown in each simulation. Three of the photo simulations used in the project are described below, each representing a different aspect of the use of photo simulation in such a project.

Photo Simulation 1: "Main Street" Redevelopment

Figure 1A is a westward-looking photograph of existing conditions on E. Chatham Street, which is the downtown's "main street." Figure 1B shows a photo simulation of the street after redevelopment consistent with the plan's recommendations. This simulation was used to confirm and get feedback on the draft land use and design recommendations for the commercial district. A ground-level photograph was used, to help place the viewer in the street from the familiar point of view of a motorist traveling through the downtown. Multiple elements were tested in this simulation: the overhead utility lines were removed and buried; brick sidewalks were added; underdeveloped or vacant lots were redeveloped with buildings brought to the sidewalk; ornamental light poles and streetlights were added; and new street trees and landscaping were added.

This simulation garnered extremely positive feedback from the advisory committee, the public, and Town officials. The Town staff was able to confirm that the committee liked the "build to the street" design recommendations of the draft plan; that two to three-story buildings were acceptable to the community (there had been resistance); that the draft plan recommended an appropriate level of density; that mixed-use buildings having ground-level retail and second and third floor housing or offices were desired; that the public realm of the streetscape (sidewalks, trees, lights, utility poles, etc.) has an enormous effect on the desirability of the vision; and that the community was willing to take bold moves to achieve the vision. This simulation achieved virtually unanimous buy-in on all of these concepts.

Figure 1A: Looking west on East Chatham Street - existing conditions

Figure 1B: Photo simulation of the street after redevelopment

Photo Simulation 2: Downtown Park vs. Infill Housing

Figure 2A is a northward-looking photograph of existing conditions in a square block in the middle of the downtown, north of Walnut St., between S. Academy St. to the west and S. Walker St. to the east. There is a large undeveloped area in the center of the photograph, where the advisory committee debated between a recommendation for infill housing or a future downtown park. Photo simulations were prepared to help the committee decide between the two uses. An aerial photograph was used since it allowed us to capture the entire 14-acre area and its context in a single photo, which also enables the viewer to consider the relationship of the site to Cary Elementary and the Cultural Arts Center, located in the lower left of the photo.

Figure 2B shows a photo simulation of how the area might look if developed as a public park (with 88 surface parking spaces for joint use with the Cultural Arts Center). Figure 2C shows how the area might look if developed instead with 66 multifamily units (plus 50 satellite parking spaces for the Cultural Arts Center). Both the park and the infill housing simulations were based on conceptual site plans developed by DRL.

These simulations enabled the advisory committee to settle quickly on a recommendation for a park at this location, rather than additional downtown housing. The simulations also were shown to the community later in the year, and achieved the same near-unanimous buy-in for the park recommendation. The Town has subsequently done a detailed design study for the park, and Cary is currently in the process of acquiring the park land.

Photo Simulation 3: Alternative Residential Densities and Design

Figure 3A is a northwestward-looking aerial photograph of existing conditions in and around an 8-acre infill and redevelopment area in the downtown. The area is located immediately north of the Norfolk-Southern Railroad corridor (running

Figure 2A: Looking north at middle of downtown

Figure 2B: Photo simulation of how the area might look if developed as a public park

Figure 2C: Photo simulation of how the area might look if develoed with 66 multifamily units

from the middle left to lower right of the photo), and immediately west of N. Harrison Avenue, a major north-south thoroughfare that bisects the downtown. The future downtown Cary regional rail transit station will be located immediately to the east of N. Harrison Avenue, just off the lower right of the photograph. For the eight acre infill area in the center of the photograph, the advisory committee debated between different types and densities of infill housing. Photo simulations were prepared to help the committee decide on a preferred residential density. An aerial photograph was used since it enabled us to capture the entire area and its context in a single photo.

Figure 3B is a photo simulation of how the area might look if developed with about 48 medium-density town homes. Figure 3C shows the same area developed with 288 garden apartments or condominiums, utilizing a mix of surface and under-unit parking. Figure 3D shows the area developed with 307 high-density condominium units, but using fewer and taller buildings than in Figure 3C, and making greater use of under-building parking, allowing the inclusion of a private pocket park between the buildings. Once again, all three simulations were based on conceptual site plans developed by DRL.

These simulations generated a great deal of debate and discussion as to the preferred residential density and types of buildings, not only by the advisory committee, but also later by the public, the Planning Board, and Town Council members. In general, most advisory committee found all of the simulated densities acceptable, but preferred the higher densities shown in either Figures 3C or 3D. Reaction from the general public was mixed when they viewed the images at an open house some months later, although citizens who lived in the nearby neighborhoods preferred the lower densities of Figure 3B and the suburban-looking buildings of Figure 3C over the more urban-looking buildings shown in Figure 3D. A number of Town Council members felt strongly that the urban style of Figure 3D represented the kind of downtown urban environment they desired. The final adopted plan encourages the higher densities shown in Figures 3C or 3D, and not the medium densities shown in Figure 3B. The plan does not

Figure 3A: Northwestward-looking aerial photograph of existing conditions in and around an 8-acre infill and redevelopment area in the downtown

Figure 3B: Photo simulation of how the area might look if developed with about 48 medium-density town homes.

Figure 3C: Area developed with 288 garden apartments or condos

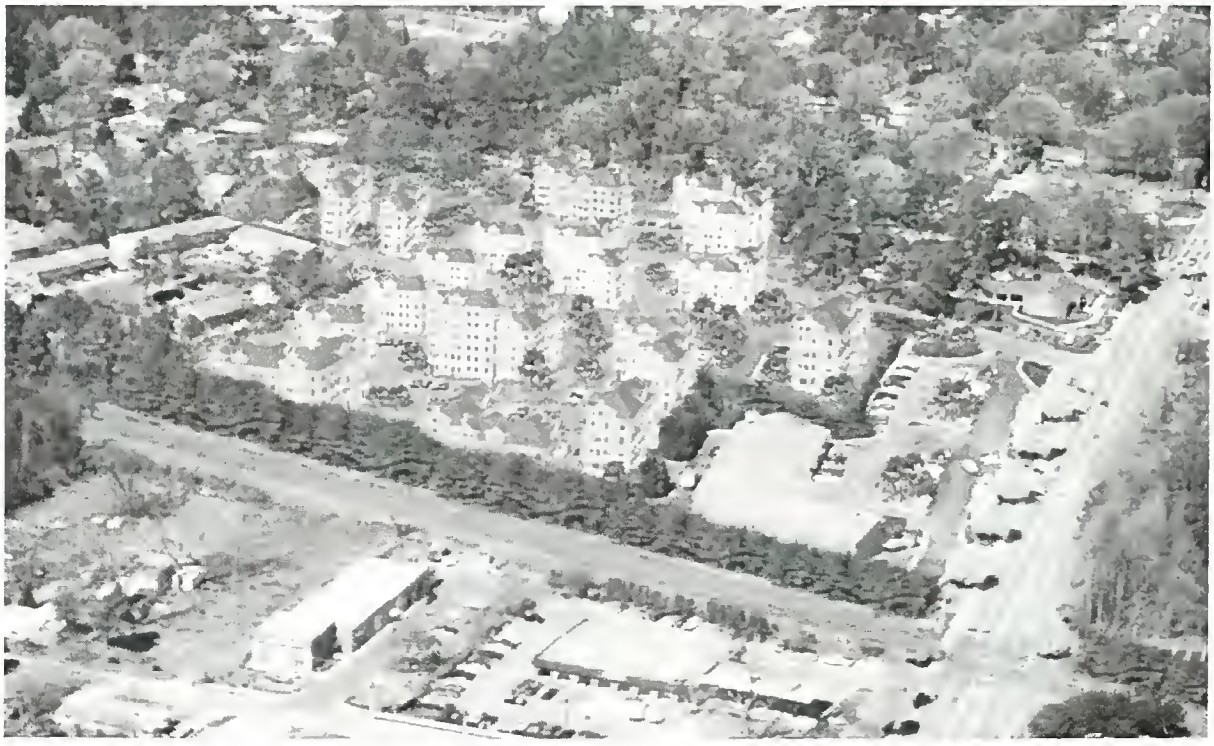

Figure 3D: Area developed with 307 high-density condominium units

specify a specific type of building or site design, thereby allowing designs such as those shown in either Figure 3C or Figure 3D, in addition to other creative designs.

Case 2: Redevelopment along a Residential Thoroughfare

Project Background

Around 1990, one of Cary's principal streets, Walnut Street, was widened from a three-lane road to a five-lane boulevard along a mile-long section that runs from a regional shopping mall (Cary Towne Center) in the west to an interchange with US Hwy. 1/64 in the east. This section of Walnut Street is lined with 1960's suburban single-family homes fronting the street, with lots ranging in size from quarter-acre to about one acre. By the late 1990's there were steady complaints from the homeowners on Walnut Street that their homes had become unlivable due to the widening and increased traffic impacts. Individual homeowners began to press for commercial rezonings so they could sell their lots for nonresidential uses, enabling them to move. This pressure intensified in 2000, after the adoption of a new Comprehensive Transportation Plan that indicated Walnut Street would eventually need to be widened again, to six lanes with a planted median.

In response, the Town adopted a special land use plan for the corridor in 1998. The plan recommended that individual home lots fronting Walnut Street be allowed to convert or redevelop to office, institutional, or very low intensity commercial uses, subject to specific guidelines. More intense redevelopment would be allowed at either end of the mile-long corridor, and less intense redevelopment – using residentially-compatible scale and architecture – would occur along the middle of the corridor.

Then, in late 2001, staff began development of a special corridor zoning district to implement the recommendations of the 1998 Plan, and to amend and refine the 1998 Plan as needed. From 2001-2002, staff worked closely with the affected property owners and adjacent residents and neighborhoods to develop the zoning district and refine the plan, holding a series of neighborhood meetings with each of three separate affected neighborhoods.

In the earliest stages of this effort, in early 2002, staff realized that the use of photo simulations would be extremely valuable in order to: (a) help citizens understand and envision the draft zoning district and plan amendments; (b) facilitate community feedback on the draft plan and district, to guide refinements to the recommendations; and (c) help reach consensus between the affected property owners, adjacent neighborhoods, and public officials on a unified vision for the corridor.

DRL and planning staff selected three locations along Walnut Street for ground-level photo simulations, plus one perspective aerial photograph of the corridor. After taking and selecting the best photograph of each of these sites, DRL and planning staff developed the specifications and characteristics of the redevelopment that would be shown in each simulation. For these simulations, DRL first created conceptual site plans for the redevelopment areas shown in the photographs, in order to guide the creation of the photo simulations. The site plans were based on the requirements of the draft corridor district, in order to ensure that the final simulations represented feasible scenarios.

Two of the photo simulations used in the project are described next.

Photo Simulation 4: Redevelopment of Residential Lots on a Widened Thoroughfare

Figure 4A is a photograph of existing conditions for several home lots on the north side of Walnut Street, at the western end of the mile-long corridor, just a block east of Cary Towne Center Mall. Figure 4B shows a photo simulation of the lots redeveloped according to the draft ordinance. A ground-level photograph was used, since most citizens experience the corridor from the point-of-view of a motorist or pedestrian. Multiple elements were tested in this simulation: Walnut St. was widened from a four-lane road with a center two-way turn lane to a six-lane boulevard with an 18-foot landscaped median. The existing homes were removed and replaced with two-story office buildings of about 5,000-10,000 square feet each, with buildings brought up to the street and parking placed to the sides or rear. Driveway access points onto Walnut St. were consolidated. Finally, street trees and median landscaping were added.

This simulation garnered quite positive feedback from the community. The owners of the depicted lots were satisfied with the potential they saw for their properties, although some of them wished that the ordinance allowed for commercial uses as well as office. Community residents felt the depicted buildings were of a scale and design that fit in well along the boulevard, and did not result in a "strip development" feel. We were also able to confirm that the community and

Figure 4A is a photograph of existing conditions for several home lots on the north side of Walnut St., at the western end of the mile-long corridor, just a block east of Cary Towne Center Mall.

Figure 4B shows a photo simulation of the lots redeveloped according to the draft ordinance.

public officials liked the "build to the street" recommendations of the draft ordinance, the consolidation of the driveway access points, the location of parking to the rear of the sites, and the inclusion of a planted median with the next widening of Walnut Street.

Photo Simulation 5: Cumulative Redevelopment of Residential Lots on a Widened Thoroughfare

Figure 5A is an aerial photograph of existing conditions along a half-mile section of Walnut Street, looking westwards to a shopping center in the distance on the south side of Walnut Street, immediately across from Cary Towne Center Mall, which is off-photo to the upper right.

Figure 5B shows a photo simulation of the corridor redeveloped according to the draft zoning district. An aerial photograph was used in order to: (a) show the cumulative effects of corridor redevelopment along the length of Walnut Street (which is not feasible when using a ground-level image), (b) provide an image that includes the neighborhoods located immediately behind the redeveloped Walnut Street lots, and (c) show the rear-yard elements of the redeveloped Walnut St. lots, such as parking lots situated behind the buildings and rear-yard buffers next to the adjacent neighborhoods.

The simulation also shows the impact of eventually widening Walnut St. to six lanes with a planted median, and of consolidating driveway access points. Figure 5B also depicts the less intense and more residentially-compatible redevelopment that the 1998 Plan recommended for the middle section of the boulevard, seen in the center of the photo. The more intense type of redevelopment recommended for the ends of the corridor – as depicted in Figure 4B – can be seen at the western end of Walnut Street., in the upper half of the photo.

This simulation proved to be very valuable in helping citizens and public officials "see the big picture" as to how redevelopment could actually work along this corridor, and it was key in answering questions about the location of parking and impacts on adjacent neighborhoods. For residents in the adjacent neighborhoods, the rear-yard parking shown in the photo-generated community debate about the desired type of rear-yard buffer or separation, and resulted in specific landscaping and fencing requirements. For the Walnut Street lot owners and interested developers, the simulation helped demonstrate that reasonable office products could be built along the corridor under the proposed district guidelines.

Case 3: Rural & Historic Environments: Cary's Open Space & Historic Resources Plan

Figure 5A: Aerial photograph of existing conditions along a half-mile section of Walnut Street

Figure 5B: Photo simulation of the corridor looks redeveloped according to the draft zoning district.

Project Background

In 2000-2001, planning staff developed Cary's *Open Space and Historic Resources Plan* (OSHRP), a master plan for the protection of key natural resources, open spaces, and historic areas within the planning jurisdiction, as part of Cary's smart growth initiatives. The plan includes an inventory and map of the most important open space and historic resource areas where preservation efforts should be focused. The plan also includes specific recommendations for regulatory and policy approaches that can be used to preserve open space and historic areas.

During the early stages of plan development, it became apparent that cluster or conservation subdivision design would likely be one of the foremost tools for open space preservation. Staff realized, however, that some rural landowners would have difficulty in understanding cluster design or how it could be applied to familiar parcels in their own community. It was decided, therefore, to use photo simulations to help illustrate for rural landowners, other citizens, and public officials, how cluster subdivision design could be used to protect open space areas, using local rural sites as examples. DRL and planning staff selected three well-known rural locations for perspective aerial photographic simulations of conventional vs. cluster subdivision development. One of these three photo simulations is described below as Photo Simulation 6.

Another challenge facing the planning team concerned the recommendations for the two National Register Historic Districts located in the rural extraterritorial jurisdiction. Both districts are examples of small, early-20th century rural crossroads communities. A photo simulation was used to convey to the community the recommendations and opportunities for contextually sensitive infill development and redevelopment within the historic districts. DRL and planning staff selected a location within the heart of the Carpenter Historic District for this

photo simulation, which is described below as Simulation 7.

Photo Simulation 6: Cluster vs. Conventional Subdivision Design

Figure 6A is a northward-looking perspective aerial photograph of existing conditions in the Carpenter Area, a rural part of Cary's extra-territorial jurisdiction (about two miles south of Research Triangle Park) that includes the Carpenter Historic District. The historic central crossroads of the Carpenter Historic District is located just left-of-center in the photograph. On the left side of the photo, a CSX Railroad line can be seen running from the top to the bottom of the photo. An aerial photograph was used since it enabled us to capture the entire area and its context in a single photo.

Figure 6B shows a photo simulation of how a farm located in the lower right quadrant of the photo might look if developed using conventional subdivision design, with the entire site – except for regulatory stream buffers – built out with single-family homes on 12,000 square foot lots. Figure 6C shows the same farm developed with a cluster subdivision design that achieves 40% of the site in open space while still attaining the same number of dwellings as in Figure 6B. This is done by altering the housing stock to include a mix of smaller-lot single-family detached housing (on 8,000 square foot lots) and single-family attached housing (town homes, duplexes, triplexes).

These images were initially used at community meetings designed to get public feedback on the draft Open Space & Historic Resources Plan. At those meetings, the simulations fully achieved the goal of conveying cluster subdivision concepts to the community and landowners, greatly increasing public understanding. For many citizens, Figure 6B made clear the degree to which conventional subdivision development might encroach upon and threaten the historic rural context of the Carpenter Historic District. However, most citizens at the community meetings indicated that while they wanted the preserved open spaces shown in the cluster simulation of Figure 6C, they also wanted the larger-lot housing of the conventional

Figure 6A: Aerial photograph of existing conditions in the Carpenter Area, a rural part of Cary's ETJ .

Figure 6B: Photo simulation of how a farm located in the lower right quadrant of the photo might look if developed using conventional subdivision design.

Figure 6C: Farm developed with a cluster subdivision design.

Figure 7A: 360-degree panorama of existing conditions at the historic crossroads - Carpenter Historic District.

Figure 7B: Photo simulation of how the area could be redeveloped in a contextually-sensitive and compatible manner.

subdivision of Figure 6B. That is, the public wanted to preserve open space, but did not want to have smaller lots or attached housing in order to get it. Thus, there was mixed public buy-in to the use of cluster subdivisions as a tool for preserving open space.

Photo Simulation 7: Contextually Sensitive Infill Development in a Rural Historic District

Figure 7A is a 360-degree panorama of existing conditions at the historic crossroads in the heart of the Carpenter Historic District, where there is a cluster of historic structures, including a general store, a farm supply store, a storage building, and a former antique store. Figure 7B shows a photo simulation of how the area could be redeveloped in a contextually sensitive and compatible manner. The elements tested in the image include the addition of sidewalks, a planted traffic island, street trees, landscaping, facade renovations to an existing building, and the addition of an infill restaurant building with outdoor seating.

This simulation received universally positive public support at the community meetings held to gain feedback on the draft plan, as well as in meetings with public officials.

Tips and Guidelines for using Photo Simulations in Local Planning

The tips and guidelines presented below are based not only on the experience of Cary's planning staff, but also on the broad experience gained by the staff of NCSU's Design Research Laboratory doing photo simulation work for numerous communities in North Carolina.

A. Develop specific parameters for each simulation.

At the outset of work on a simulation, carefully identify the characteristics or parameters of the changes to the environment that will be shown in the photographic simulation. For example, if a simulated building is to be added to a photograph, determine in advance the specific type of building that is desired, including its size and architectural style, and the desired placement and orientation of the building within the photograph. Try to identify all of the peripheral elements that are desired in the simulation, which may include adding people, vehicles, trees, and so forth, to the image.

B. Develop a site plan for each simulation scenario.

A sketch site plan should be developed for each scenario to make sure the program represented in the simulation is realistic and achievable under existing or proposed development ordinances. An otherwise valuable simulation can be discredited if, for example, it violates the zoning ordinance's setback, height, buffer, or appearance standards. Once the sketch site plan is developed, the next step in building the simulation is to skew and overlay the scanned site plan into the initial photograph. This becomes the base map upon which the simulation is built. Figure 8 shows the subdivision plan created as the first step in developing Figure 6B, skewed into the proper perspective and then superimposed on the base photograph of Figure 6A.

C. When presenting simulations, indicate the program-specific quantities visualized.

Validity can be given to a simulation scenario by indicating the specific development program that is depicted in the simulation, such as the total lot yield, gross residential density, site FAR, building square footage, parking counts, etc. The development program data should be based on and obtained from the sketch site plan prepared for the simulation. If this information is not provided to the viewer when the image is displayed, then one must at least be prepared to answer such questions when asked, or else run the risk of losing credibility in the eyes of the public. If the simulation only covers part of a subject site, one may need to be able to describe not only the quantities shown in the simulation photo, but also the quantities that occur off-photo on the balance of the site.

D. The initial photograph should be from a view that captures an appropriate area to demonstrate the relevant issues.

Selecting the correct photograph to start with is important to the success of the simulation. Take numerous photographs of each location from a variety of angles. A good rule of thumb is that the changes in the simulation should cover from 1/3 to 2/3 of the existing photograph (see Simulations 2, 3, and 6). This leaves enough of the photograph

Figure 8: Subdivision plan created as the first step in developing Fig. 6B

unchanged in the final simulation to provide context for the audience to orient themselves and quickly identify the changes made to the existing environment. Note that while it appears at first that more than 2/3 of the base photo for Simulations 1 and 4 have been changed, the roadway is in fact the unchanging element that orients the viewer.

Use ground-level photographs for smaller sites where the simulation is addressing issues from the automotive or pedestrian experience. Aerial photographs are best used to demonstrate relationships between nearby or adjacent land uses and for programming decisions for larger sites. Perspective aerial photographs tend be understood more easily by the public than plan-view orthophotos. Aerial photographs may require additional explanation or labeling about their location.

Be aware that the broader the geographic area shown in the photograph, the less detail can be shown in the simulation. For example, the high level of finishing and detail shown in Simulations 1, 4, or 7 – including building fenestration, café tables, and ornamental street lights – could not be feasibly shown in Simulations 2, 3, 5, or 6.

E. Limit simulation detail to that necessary to address the defined issues.

Too much photorealism or detail can cause the viewer's focus to shift from design and planning concepts to design details. The level of detail needed in a simulation is a function of the issues that the simulation is addressing. Less photorealism and detail are appropriate when illustrating issues concerning broad land use issues, such as in Simulations 3 and 6, while a higher degree of detail and photorealism is required for the evaluation of design issues, such as in Simulations 1 and 4.

When presenting a simulation, it is necessary to keep the viewers focused on the pertinent issues. For example, when Simulation 1 was shown to the public at a community meeting, a number of people expressed concerns about building colors, materials, and architectural styles. In response, the planning staff quickly explained that the focus of the simulation was to get feedback on the overall concept for downtown redevelopment, rather than on details of the individual buildings.

F. When photorealism is called for, pay attention to peripheral simulation details.

The realism of a simulation can be greatly enhanced through the inclusion of peripheral details in a photograph, especially details that suggest human activity. For example, in Scenario 1 pedestrians and a sidewalk café table were added to the scene, in order to increase the realism, vitality, and visual appeal to the image. The inclusion of pedestrians and vehicles in a photograph can also help the viewer to understand the scale of buildings and other elements in the scene.

G. Review photo simulations during their draft stage.

As in other design or planning projects, interim review is important in order to minimize the time and cost in preparing a simulation. It is recommended that the planning project team review the development of a simulation once the sketch site plan upon which the simulation will be built is complete, and then again, when the simulation is 25 percent and 75 percent complete. These interim reviews allow one to catch mistakes or change the simulation parameters at an early stage – which sometimes happens if the interim product reveals that the original concept would not achieve the desired effect.

H. Limit the complexity / number of issues demonstrated in a single simulation.

The more complex a simulation is, the more difficult it is for the public to understand. Focus on one or two issues per simulation, whenever possible. Limit each simulation to one site in the photograph. Simulations demonstrating alterative land uses or site programs should be limited 2 or 3 alternatives per simulation, such as in Simulations 2, 3, and 6, in order to not confuse the viewer.

I. When presenting simulations, show them in a series of incremental changes.

Photo-imaging software allows individual elements of the photo simulation to be isolated and

saved into separate digital photographic overlay "layers." By adding these layers incrementally to the simulation, a series of photographs can be developed, with each successive image adding another element to the simulation. In this way, planners can introduce proposed changes to the environment one or two at a time when presenting the simulation to the public. This technique increases public comprehension of the changes made to the environment, as well as how each individual element contributes to the final outcome. This technique can also be used to evaluate public perception of a single element by showing the simulation with and without that element.

For example, Simulation 1 was first shown to the public as a series of seven photographs in a PowerPoint presentation. The first photograph showed the existing scene (Figure 1A). The second photograph only showed the overhead utility lines removed and buried, and a brick sidewalk added. The third and fourth photographs added the new infill buildings – first in the background block, and then in the foreground block, respectively. The fifth photo added ornamental streetlights and traffic lights, and the sixth photo added street trees. The final photo populated the scene with pedestrians and sidewalk cafe tables (Figure 1B). Moreover, during the PowerPoint presentation planners could flip back and forth between adjacent photographs in the series, in order to highlight the impact associated with adding a particular visual element.

J. When presenting simulations, indicate if the scenario is site-specific or typical to an area.

The need for a photo simulation can be driven by opportunities at a specific location or by a more generalized issue that affects an area or the community as a whole. For example, Simulation 2 is site-specific, and was driven by land use opportunities specific to the area in the photo. In contrast, Simulation 6 addresses alternatives for suburban development in a rural landscape – an issue not limited to the farm in Figure 6A. That simulation was designed to be "typical" of development alternatives that could occur throughout the area. Nevertheless, some citizens and landowners inferred from the simulation that the town was advocating for development of this particular site, and town staff had to explain that the simulation was not specific to the site.

Conclusions

Photo simulation can be an extremely effective tool for local planning. It is likely to be a technique that will gain ground among planners in coming years, as the cost of photo simulation services comes down and the availability of software tools increases. When outsourced, a single simulation may take anywhere from several days to several weeks or more to complete, and can cost anywhere from $500 to $2,000 or more (as of 2003), depending on the complexity of the simulation. As technology improves it may become more likely that larger municipalities will bring such capability in-house, reducing costs and turn-around time, which should help make these techniques more commonplace within the profession.

References

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Open Space and Historic Resources Plan, Town of Cary, NC, Aug. 2001

Walnut Street Corridor District – Standards and Guide, Town of Cary, NC, Nov. 2002.

WEBSITE LINKS

Town of Cary

www.townofcary.org

North Carolina State University, College of Design, Design Research and Extension Program

www.ncsu.edu/www/ncsu/design/sod5/research/index.html

New Bern, NC: Visioning Streetscapes and Neighborhoods

www.ncsu.edu/www/ncsu/design/sod5/research/projects/community/newbern2/

Triangle Visioning II: Alternative Development Forms Along River Corridors

www.ncsu.edu/www/ncsu/design/sod5/research/projects/land_use/triangle_visioning2/index.html

Triangle Visioning: Opportunities for Urban Nodes

www.ncsu.edu/www/ncsu/design/sod5/research/projects/land_use/triangle_visioning/index.html