Chapter 4.   USING SPECIAL TECHNIQUES TO ENHANCE PARTICIPATION

Public involvement programs aim to involve the largest possible segment of the population. Yet traditional methods such as meetings and hearings frequently interest only a small group of people. Capturing the attention of a larger, more representative group requires careful planning and often substantial effort. Maintaining that attention level is even more of a challenge.

How does an agency know when its public involvement program needs enhancement?

Gradually declining attendance or static membership among participants is a major signal that a program is not engaging. Another signal is a dearth of questions from participants or expressions of concern that progress is not being made.

Why are special techniques useful?

An enjoyable and productive public involvement experience gets people talking and enhances an agency's image in their minds. If agency efforts are unique and stimulating, people more readily spread the word about them. Agencies themselves renew their enthusiasm and take more pride in their efforts to involve the public. Communication often improves. And the best result is a more effective and extensive collaboration between an agency and the public in transportation planning and project development.

How does an agency attract people who do not usually participate?

Special techniques are available to attract both new and existing participants or give a jump-start to a lackluster public participation program. These techniques, best used occasionally rather than regularly, may not guarantee continued interest, but they do hold promise for more interesting and varied participation and feedback. Several options are described on the following pages:

A.   **Holding special events;**
B.   **Changing a meeting approach;**
C.   **Finding new ways to communicate; and**
D.   **Taking initial action steps.**

Chapter 4.   USING SPECIAL TECHNIQUES TO ENHANCE PARTICIPATION

A.   HOLDING SPECIAL EVENTS

People like special events now and then. These unique occasions are light-hearted and intended to be fun for participants. They have a holiday-like feeling clearly different from day-to-day meetings and hearings. They give community people opportunities to meet others in a friendly, non-threatening setting and share their ideas. People like the freedom and openness of pleasurable events that do not demand immediate action or response.

Nearly any public involvement program benefits by incorporating special, one-time events. They complement many techniques by providing exhilarating breaks during a larger and longer process. A special event does not require a commitment to hold another such occasion, unless evaluation determines it is likely to be useful and appropriate.

Special events reach new participants. Individuals who have not participated in transportation planning or project development become interested because of exposure to agency work at a special event. Special events help current participants recruit neighbors to the process and demonstrate why it can be fun. With the help of participant advisors, an agency can determine if a special event is appropriate and if its timing can be integrated with other community events.

During special events in a public involvement program, messages about transportation—while clearly a motivating force—should be understated to keep the occasion light and friendly.

Special events take many forms. Two techniques have potentially significant use for transportation planning and project development:

- Transportation fairs; and
- Games and contests.

TRANSPORTATION FAIRS

What is a transportation fair?

A transportation fair is an event used to interest community members in transportation and in specific projects or programs. It is typically a one-day event, heavily promoted to encourage people to attend. Attractions such as futuristic vehicles can be used to bring people to the fair, and noted personalities also draw participants. New Jersey Transit holds an annual fair in a transit terminal with a festival aimed toward children—including participatory and educational exhibits.

A transportation fair focuses on visual elements, such as exhibits, videos, and maps or models of projects. A speaker or presenter is not required but can help focus the attention of viewers on the purposes of the fair. A fair gears individual displays toward a desired message. Once prepared, exhibits can be used again at another location and date.

A transportation fair has these basic features:

- Visual interest and excitement;
- Variety in exhibits: maps, photos, models, slide shows, videos, full-size vehicles, give-away items;
- Accessibility in a central location for the target audience;
- Extensive publicity to attract participants;
- Attraction for a wide variety of people;
- Ability to elicit comments and points of view of participants—always on a voluntary basis; and
- Impermanence.

Why is it useful?

A transportation fair presents information to the public. Participants are encouraged to view exhibits, ask questions, consider information, and give comments. In San Francisco, a commuter mobile van travels from show to show to promote alternative means of commuting.

A transportation fair creates interest and dramatizes a project or program. Graphics present goals and messages in a comprehensible and visually interesting way. Interactive audiovisual and computer-based displays make programs come alive and encourage public comment. (See **Interactive Video Displays and Kiosks**.)

A fair is a one-time event. With good publicity, it becomes a known opportunity for people to participate in transportation planning. The date and place can be chosen to fit within an agency schedule. It can be held annually, as in Boston's World-Class Commuting Day. A fair helps agencies or organizations under-stand public reactions at a specific point in time.

A fair keeps participants informed, interested, and up-to-date. Sharing information and discussing issues gives participants a status report on projects and programs. At a fair, people become educated on technical issues and gain a better understanding of the effort involved and milestones achieved.

Does it have special uses?

A fair provides an opportunity for casual community input. As an informal short-term event, it can be held in central locations where many people pass by, such as a store downtown or a shopping mall. (See **Non-traditional Meeting Places and Events**.) A fair asks participants to focus on a project's or program's components and details and offer advice and comment. For example, in Idaho twelve

transportation fairs were held in urban and rural regions to talk about statewide transportation improvements.

A fair emphasizes specific, positive points about a subject. It can include exhibits of all types to highlight the wide variety of people, organizations, and effort involved in a project or program. It allows an agency or organization to point up salient, desirable points about a project, while responding to potential drawbacks.

Who participates? And how?

Fair attendees are self-selected. Responding to publicity, individuals decide whether or not to attend—often based on the location and date of the fair. Because a fair is not an invitational event, a representative sample of community groups or stakeholders cannot be expected to attend. Despite this self-selection, a diversity in viewpoints is usually represented.

People participate through taking part in activities. Attendees examine the presentations and ask questions about the exhibits. At a typical fair, before attendees leave they are encouraged to fill out questionnaires or response forms with written comments, which are collected and analyzed for input. (See **Public Opinion Surveys**.)

How do agencies use the output?

The principal output is improved community awareness. Written and oral comments by community residents are collected at the fair and used as input to a project or program. This information may be anecdotal but, with analysis, may be of use within the sponsoring organization. As a special example, fairs were held in the Phoenix, Arizona, area to help employers present alternative commuting ideas and programs to employees and get their feedback.

Comments should be used in association with other community input. Comments assist agencies in becoming aware of opinions and stances of participants, often before they become solidified or difficult to modify. Because they are made in a casual atmosphere, the comments are sometimes more conciliatory than would be the case in a different setting.

Who leads a transportation fair?

Agencies or private groups sponsor fairs. Public agencies hold fairs to detail a specific project and its impacts and to demonstrate support for it. Private transportation management groups hold fairs to attract new members or explain new programs. Representation of public officials at a transportation fair can be productive, depending on the fair's purpose. For example, in the San Francisco area, employers sponsor fairs, with assistance from public agencies.

A transportation fair requires no leader on the day of the event. However, a fair can be scheduled with specific times for presentations or brief talks or to introduce featured attractions such as celebrities. At such times, a moderator or other person is needed to make introductions.

What are the costs?

A fair requires support staff within an agency, and the work required can be substantial. Finding a site—usually on land or in buildings that are privately-owned—takes advance preparation. Agency representatives must be alerted to attend if needed to respond to inquiries or explain technical issues.

Material needs are extensive. Graphics should be sufficiently large and well-prepared to address principal issues. Photographs may be required for orientation. Slide presentations are often desirable.

Substantial exhibition room is essential. Written materials can supplement graphic presentations. Take-away souvenirs, including buttons, maps, brochures, or imaginative graphics, are useful reminders of the fair's subject. For example, an annual transportation fair for an employer in the Washington, D.C., region includes table-top exhibits by employers, give-away items with emblazoned information, and contests or drawings for seed money to start a vanpool. (See **Public Information Materials; Games and Contests**.)

How is a transportation fair organized?

A fair is managed by an existing organization. It may have a chairperson or director, depending on the extent or importance of the event. A fair needs staff to manage the exhibitors, oversee production of graphic or written materials, and make the physical arrangements on the day of the event. In the Los Angeles area, for example, fairs are sponsored by private firms and managed by their employer transportation coordinators.

Organizational meetings are necessary to set the policy and goals for the fair, select a date and place, solicit exhibitors, and develop publicity for wide public distribution. Specific assignments and delegation of responsibilities help assure on-time production of exhibits.

How is it used with other techniques?

Not a stand-alone approach, a transportation fair pairs well with other techniques and shows the products of public involvement, such as the results of a brainstorming session. (See **Brainstorming**.) It can be sponsored by a civic advisory committee to show work in progress. (See **Civic Advisory Committees**.) With videos or fixed exhibitions, fairs can display goals or accomplishments of a public agency. (See **Video Techniques; Interactive Video Displays and Kiosks**.)

A fair helps interest community residents in transportation or sets the stage for upcoming events, such as a complex, large-scale project. It is used to elicit candidates for membership in a civic advisory committee. It also is used to present awards to individuals who have contributed to improvement of transportation services.

What are the drawbacks?

A fair cannot replace other techniques. As a one-time event with self-selected participants, it is not usually representative of all interests. It is temporary in intent and thus does not meet Federal standards for continuing public involvement. It cannot replace a public process that records statements in a more formal manner, where local people are certain they are being heard by appropriate authorities. (See **Public Meetings/Hearings**.)

A transportation fair does not bring public consensus. There is no deliberation between potentially opposing groups. The principal intent in a fair is to disseminate information, not to receive ideas. Attempts by the sponsor to derive consensus from a fair may cause problems; the sponsor becomes vulnerable to charges of not taking public involvement seriously.

Representative comments cannot be expected because a fair is not likely to include all potential participants. In fact, comments from participants are appreciated because they are to some extent unexpected. In certain instances, little or no feedback will be directly useful to an agency. However, unarticulated comments do not mean that the fair was a failure; many participants do not view writing comments as an essential element of their enjoyment of the exhibits at the fair.

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For further information:

- Caravan for Commuters, Boston, Massachusetts, (617) 973-7189
- Commuter Transportation Services, Los Angeles, California, (213) 380-7750
- New Jersey Transit, (201) 491-7079
- Regional Public Transportation Authority, Phoenix, Arizona, (602) 262-7242
- Rides (Commuter Services), San Francisco, California, (415) 861-7665
- Washington, D.C., Council of Governments Ride-finders Network, (202) 962-3327

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GAMES AND CONTESTS

What are games and contests?

Games and contests are special ways to attract and engage people who might not otherwise participate. They often vividly demonstrate issues and the consequences of decisions. They are unusual, lively, and more stimulating than formal meetings or reports. People play games and enter contests for diversion or entertainment, a prize or an objective, or for the possibility of winning.

Games entice people to think about different alternatives, alignments, modes, densities, heights, land uses, and other transportation issues. They engage people interactively and are more effective than a matrix or other written description to show the consequences of actions. They enhance participation by giving people tangible, interesting, easy-to-relate-to activities rather than reams of reading material or meetings to attend in the middle of winter.

Contests and games are unique methods for getting peoples' attention in subtle yet comprehensive ways that reach more people and increase awareness, overall understanding, and sophistication about specific issues.

Games and contests help generate publicity about planning and project development. Publicity about a planning process is sometimes hard to generate, but involving people in a game or contest often results in significant coverage because people think they are fun. The fun factor is important to acknowledge, because it breaks down barriers between technicians and community people, generates good will for an agency, and gives people something interesting to look forward to.

Games and contests typically include:

- Board games—for the table-top or the computer;
- Card games;
- Computer simulation games or contests;
- Crossword puzzles or other word games;
- Games of chance, such as raffles; and
- Essay, design, or poster contests.

Why are they useful?

Games alert people to a broad range of issues, give them information, and pinpoint their transportation priorities by asking them to make decisions and tradeoffs. Games that involve choices—for instance, placing game pieces to indicate acceptable development densities or spending play money for industry or environmental protection—help clarify priorities, identify the range of positions, and aid agency decision-making. In a game used by Triangle Transit Authority in Raleigh-Durham, North Carolina, participants decided on development densities at certain growth and transportation nodes in the region. By making choices about where to put development in relation to transportation, participants were able to see land use/transportation relationships, others' perspectives, and the implications of decisions. As part of long-term planning for light-rail extensions, the San Francisco County Transit Authority developed a game in which focus groups expressed preferences by placing colored tape (red for surface lines and green for subway sections) on a city map. The length of tape was determined by the amount of money available for the projects. Given the substantial difference in cost between subway and surface lines, participants—representing different points of view and different areas of the city—discussed alternatives, made tradeoffs, and finally agreed on mutually acceptable solutions that could be accomplished within budget. The game encouraged participants to expand their thinking from a local to a city-wide perspective and helped them understand the complex transportation decision-making process.

Contests encourage participants to bring in new and fresh ideas. The Boston, Massachusetts, Visions Contest, sponsored by a partnership of private industry, government agencies, and public utilities, was designed as a national contest to interest people in the future of the City. With substantial prizes to be awarded to several categories of winners, the contest attracted many people who wanted to express their visions of the future. The results led the Massachusetts Bay Transportation Authority (MBTA) to investigate in depth the feasibility of specific suggestions for its Washington Street Corridor.

Games and contests involve a broad variety of people who might not otherwise participate in planning and project development processes. No one is likely to be an expert at a custom-made game, so everyone starts at an equal level of skill; people who are neophytes in transportation planning play together with those more knowledgeable about planning and project development. For example, games that elicit value tradeoffs are much more effective than the "indifference trade-off method," a complex, abstract process involving measuring preferences, assigning weights, and mathematically determining priorities. Few other participation techniques match games and contests for light-heartedness, playfulness, and liveliness.

Games and contests are interactive, requiring players to make conscious efforts to participate. In every game or contest, a player or contestant must understand instructions and then interact with other people playing the game or engaging in the contest. This interaction is rewarding and fruitful and makes participation a pleasure.

Playing a game or entering a contest is often educational. Participants may explore history or transportation issues or learn about regulations, transportation construction techniques, or geography. The MBTA used a crossword puzzle in a newsletter to explain transit planning and the concurrent land development process. This newsletter was sent to thousands of transit corridor residents, most of whom were not traditional participants in project development studies.

Games and contests generate publicity, because they grab the attention of people in a busy world, then provide a useful way for them to focus on an issue. They engage people quickly and involve their thoughts during the time it takes to play. They give a sense of accomplishment, leading beyond simple advertising. A major utility company used contests to promote its health plan options and health club programs by giving cash prizes to winners with the best T-shirt design.

Games are used in training agency public involvement staff to help them better understand the issues from a lay point of view. A number of computer games give players a chance to create new towns, complete with transportation lines, budgets, and impending natural and fiscal disasters. An urban planning computer game shows the interrelationships between urban growth and city management and investment.

Do they have special uses?

Games and contests sometimes change an agency's image in the community. Agencies that have been thought of in the past as outsiders uninvolved in the community are seen in a different light when they sponsor a game or contest. The MBTA sponsored a children's game for designs to be incorporated into the ceramic tiles of a new transit station in their neighborhood. Displaying community artwork permanently on the walls of the new station provided very conspicuous evidence that the MBTA was interested in involving the neighborhood in the transit-line extension.

Contests generate ideas for implementable projects. In St. Louis, Missouri, the Sierra Club sponsored a contest involving high school students to develop projects for which enhancement funds could be applied.

Games and contests are exploratory, stressing possibilities for change in the environment, transportation, and the places we live. They get participants to understand different perspectives and concerns by opening up opportunities. The annual contest called "Tour de Sol" is a showcase for

improving public understanding of the design and technology of electric vehicles. Major auto makers, colleges, specialty manufacturers, and the U.S. Department of Energy sponsor the rally and give prizes to entrants based on evaluations of vehicle range and efficiency.

Games are risk-free for participants. People are often willing to play a game in which they encounter the potential impacts, because there are no real-life consequences. Yet, by being involved, they see an issue from a different perspective—one that may be completely foreign to them.

Games and contests get parents involved through their children. Many children are interested in games and become engaged easily. Oregon Metro ran a transportation fair that provided child care and activities especially for children. The children's activity room offered a variety of toys and computer games for kids to engage in while parents walked around the fair. Creating a family event at which kids were welcome made it easier for parents to attend. In Boston, the MBTA developed a picture guide book for children, *Anna Discovers the T,* designed to teach children how to use the transit system—with the hope that children would help their parents learn as well. The MBTA also sponsored a contest for children to design a car card for transit vehicles promoting the children's guidebook. The contest was publicized through elementary schools and reached a broad audience.

Who participates? And how?

Games are played by interested community people, officials, or other stakeholders. Games and contests are distributed as widely as necessary to engage people who need to be aware of issues or themes and to open up communication lines. A game of chance, such as a raffle, reaches a large group of people and makes them aware of an issue. A group of merchants in Cambridge, Massachusetts, reached thousands of people during a transit construction project by giving away bicycles, roller skates, rides on an antique fire engine, free transit passes, a month of free parking, and a trip for two to Montreal. A suburban transportation management organization held a raffle to publicize ridesharing by giving away dinners for two, gift certificates, and bicycle tune-ups. These contests help increase communication between the agency and communities and make it easier to engage them in the future for input and help in making decisions.

Certain games are easily played at regular community meetings. Simple board games or charades are easy to play with any group. Role-playing board games can provide a central focus for a special meeting. The U.S. Department of Energy used a board game with the neighbors of its Fernald plant in Ohio to seek help in locating a site for atomic waste disposal. The board game was based on participants playing roles of managers of the site. (See **Role Playing**.)

Computer games appeal to a limited group of participants. Computer simulation games should be geared to a wider audience than just the computer literate. Exciting, colorful graphics, icons, and simple instructions that walk users through the steps are key. They should entice play by people who may be unfamiliar with computer capabilities and are distrustful of computers. Computer games focused on role playing are helpful for people who would particularly benefit from seeing other perspectives. These include, for example, using a computer to illustrate what different floor area ratios would mean in terms of development density or to show how close various transit alignments would come to neighborhoods. (See **Computer Presentations and Simulations**.)

Contests are often designed for special audiences. Participants who have considerable knowledge of technical issues are reached through specially designed contests. Contests that require abilities in art or poetry attract people with these special skills. The Neponset Greenway project in Massachusetts sponsored a logo design contest for its signage and maps that was judged by a professional jury.

Children enjoy tactile games and toys. To teach the various roles of people working for the railroad, Amtrak hands out paper engineer's caps describing people who make the railroad work. Printed on the back is a scene for children to color. Several railroad employees are hidden among the crowd, with a challenge for children to find all the people before the train leaves.

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People participate as individuals by playing a game or figuring out a crossword puzzle. They also design posters or submit ideas for contests.

For meetings, small group board games with visual implements foster interaction. A board game used by the Santa Barbara, California, Community Development Department asked players to place blocks on development parcels following the allowable zoning. In a risk-free, non-threatening way, players were able to state preferences for development based on their own reasons. No judgments about positions were allowed, but, through evaluating the game, it became relatively easy for participants to see that the development allowed by the existing zoning would be very dense. In Dane County, Wisconsin, a similar game used a computer model to develop alternative comprehensive plans. Participants paint future land uses at a meeting, and the model estimates the future impacts. In a few seconds, numbers are produced showing the impacts of land uses on transportation, schools, and other infrastructure. A facilitated discussion to explore game results is often essential to enable participants to get the most out of a game.

Involving children requires outreach, since children do not generally attend meetings. Schools offer one of the best ways to reach children—through classes, extracurricular activities, or field trips. A school class won a contest sponsored by a major supermarket chain and developed a board game full of environmental tips. Such groups as the Boy Scouts, Girl Scouts, or Camp Fire Girls are another good resource.

How do agencies use the output?

Agencies use games to learn people's priorities by incorporating ranking games at meetings. Canada's Saskatchewan Power used a game to explore what people wanted to see happen in the Saskatchewan River Delta. Participants used play money to invest in economic development or wildlife projects, helping the power company set priorities. Simple ranking of priorities using adhesive dots placed next to issues of concern is another way an agency learns about community priorities.

Agencies use games and contests to stimulate interest in planning issues or publicize project development. Contests are effective in reaching those not traditionally involved. As part of a school curriculum, the Missouri Highway and Transportation Department ran a contest that asked school children to describe verbally or illustrate what transportation means to them. About 900 students in 160 teams submitted contest entries. Contests help agencies increase the visibility of a process or project. They get people involved and interested in learning about the details of a project incorporated into the contest.

Games facilitate effective communication between an agency and a community. The U.S. Department of Energy uses a manual board game similar to Monopoly® at community meetings to help people understand the Department's fiscal constraints. For example, if a player lands on the first available place, Congress reduces the agency budget by $11 million. Another example is a contest with a prize or a raffle to show an agency in a different, non-technical light.

Agencies use games for training, which helps staff understand their potential for public involvement processes. The MBTA created a board game called "On Track" to train its operators. Questions tested operators' customer-service skills and knowledge of the MBTA system and its history. They ranged from how to go the Children's Museum to what a bus driver should do if someone tries to board with a gorilla. Each question had three answers, ranked (using a dollar value) by degree of "correctness." Trainees got play money worth $10,000 if they said the gorilla should ride in the back of the bus and be restrained by its owner; they were docked $10,000 if they told the gorilla and its owner to get off the bus. Similarly, Pennsylvania DOT created "Citizen Lane," a board game used to train DOT employees on public involvement in project development, from preliminary design through construction. The one-hour game uses six sets of color-coded question cards for the phase of project development. The cards cover "incidents"—for example, what to do when 400 people show up at a room capable of holding 50—and "issues"—questions that challenge players to deal with potential major problems in a public involvement process. The "issues" cards require the six players to brainstorm together for an

answer. The questions cover material included in the DOT's handbook on public involvement. Agency personnel have been extremely enthusiastic about participating in workshops using "Citizen Lane." Such training efforts help staff understand what tools are useful and how games and contests that are engaging, fun, and easy to learn can contribute significantly to a public involvement process.

Names of contestants and game players can form the basis of a mailing list for agencies to contact interested parties and supply further information. Permission should be obtained prior to placing anyone's name on a list. (See **Mailing Lists**.)

Who leads games and contests?

Contests are designed, promoted, and led by people who have a clear vision about the goals— whether the contest is for publicity, education, or more specific transportation planning options. An organizational leader is needed to support the contest through publicity; distribution, receipt, and tabulation of forms; and awarding of prizes.

Games require trained leaders who understand the game's goals. A leader must be enthusiastic and fully understand the process. Either agency staff members or outside consultants lead games. Guidance through a game may be required, even if the game is extremely well-developed. After the game, the leader must skillfully guide people through discussion and evaluation.

Games or contests are often designed to be played by individuals or in groups, sometimes with help or kibitzing from a friend or relative.

What are the costs?

Significant time and skills are required in developing the concept for a board game, creating the physical board itself, and manufacturing the game for multiple users. Outlining a concept takes as little as a week, but a single, hand-produced board game can take six weeks or more from concept through final production. Outside consultants are helpful in designing particularly complicated board games.

Creating a computer game takes even more resources. Computer models as a basis for games tend to be very complex. Computer games often require thousands of hours to develop and test.

Preparing simpler games takes significantly less time. Crossword puzzles, simple word games, or word search contests do not take long to develop. Brainstorming the approach to be taken or the questions to be included involves several staff people for several hours each. The MBTA prepared a crossword puzzle using clues from drawings that appeared in previous editions of the project newsletter.

Creating a contest usually involves less staff time than conceiving a board game. Staff develops a concept, define rules and parameters, decide if there will be a prize, and figures out how to publicize it. Depending on the complexity of the contest and how many entries are desired, the time commitment for staff is probably in hours or days, rather than weeks.

Larger-scale contests are much more structured and expensive. For example, a six-month-long planning and design contest called *The Electric Vehicle and the American Community* required participants to have considerable research and design skills. A consortium of private and governmental agencies challenged contestants to envision a new infrastructure for electric and hybrid vehicles. With over $100,000 in cash prizes as an attraction, the contest drew hundreds of participants. Preparing entrance requirements, books, posters, and other materials for official entrants was a major effort. Agencies can join forces with other agencies or private-sector firms to sponsor such a contest; in such cases, preparation and evaluation efforts are distributed among all of the sponsors rather than falling heavily on the shoulders of already overworked internal staff.

How are games and contests organized?

Goals for a game or contest must be clearly established. As each concept for a game is put forth, it should be tested to see if it meets the game's overall goals.

Board or computer games require staff or consultant time for design, illustration, rule-making, printing, and distribution. Target audiences for distribution should be outlined prior to design and production of a game. Simplicity for players is key; the game should be easy to understand and play.

Contests require staff or consultant time to prepare, implement, and follow up the entries. Contests are introduced at any time in a process and are successful ways to keep interest sustained over the long haul. Follow–up is particularly important if the agency aims to generate interest and gather names for mailing lists.

Board games involving role play are often most effective early in a process, because they immediately allow participants to see issues from other points of view. This helps establish an atmosphere of open-mindedness and sets the tone for the entire process. However, games that illustrate conflicts that arise out of budget constraints or community development issues are often used to move away from a stalemate in the middle or at the end of a process.

Most games do not require players to prepare before participating, but preparation by staff and leaders is essential. Making several dry runs of a game intended for public use helps agencies anticipate problems and questions. For games designed to be played at community meetings, agencies often announce the rules and send instructions to participants in advance.

How are they used with other techniques?

Games and contests are used to broaden the thinking and understanding of people involved in the study or exploration of an issue. Board games or computer games simulate situations and urge people to view a transportation plan or project from many different vantage points. In Jefferson County, Colorado, a visioning exercise for development of the Route 285 Corridor used food and candy as elements placed on a base map to indicate participants' preferences. Licorice sticks were used for roadways, and food not used was eaten. The project was known as *Eat Your Way to the Future.*

Agencies use games and contests as ice-breakers at meetings. They supplement other techniques and enliven staid processes that rely on passive meetings. They are useful when people from different walks of life are working on a common project. The Town of Orleans, Massachusetts, used a quiz-show game format to present the results of a town-wide survey.

Games are used in mediation. In Amherst, Massachusetts, the National Association of Mediation in Education collects a variety of mediation games to deal with environmental conflicts, which are closely related to transportation situations. These games include instructions for training, leading, and playing. (See **Negotiation and Mediation**.)

Games are included in special events such as transportation fairs. In Portland, the Oregon Metro transportation fair offered board games and computer games for children, some in a separate room with supervision so parents could participate in the fair and allow the children to play and learn. (See **Transportation Fairs**.)

Contests are incorporated into newsletters, handouts, and other written materials. (See **Public Information Materials**.)

What are the drawbacks?

Poorly designed games are not likely to generate usable public input. Some games do not appeal to the bulk of the desired audience. Overly complicated or detailed contests draw only those already involved or interested in the issues. If games or contests are not linked to other involvement activities or if their goals are not clear, participants are likely to feel let-down and frustrated. Games are viewed as frivolous if they are not integrated well into a total process for meaningful public involvement in planning.

If not well-designed, games fall flat. Without skillful design, the basic point of an exercise is obscured. Leaders of game sessions need to be prepared to mitigate the effects of boring games through lively discussion and follow-up.

Games and contests do not interest everyone. Certain members of the community are likely to resent their use or interpret playing games as trivializing the issues and talking down to them. This perception is avoided by making sure the game relates clearly to the situation at hand and the goals of using it are explained up front.

Games and contests are expensive in terms of staff or consultant time, because design techniques are not yet in widespread use. They take time to develop if they are to be easily understood or to generate widespread interest. Games are sometimes quite elaborate or expensive and require fancy hardware, software, or other equipment not normally available for community meetings.

Are games and contests flexible?

Games and contests are flexible in terms of type, where and when they can be used, staff time, and cost.

Games are developed for varying levels of sophistication. Most staff people are capable of developing or working with simple games, but complicated computer games or contests require specialized skills. Contests vary widely in complexity, depending on the nature of the project or plan and the issues to be addressed.

When are they used most effectively?

Used at the beginning of a process, games and contests attract attention and participation. A computer simulation modeling game was used in Hawaii to test different assumptions about energy use, the economy, and various policy decisions. The public advisory group gave input on the policy scenarios fed into the model. Games and contests help enliven or sustain interest in a plan or project. To maximize initial effort and subsequent follow-through, the MBTA publicized its new cross-town bus service and announced a six-month design contest for logos. Contest entries were displayed later on car cards in buses and trains.

For further information:

- Amtrak, Washington, D.C., (202) 906-2108
- Hawaii Department of Business, Economic Development & Tourism, Honolulu, Hawaii, (808) 587-3837
- Massachusetts Bay Transportation Authority, Boston, Massachusetts, (617) 222-4487
- Missouri Highway and Transportation Department, Jefferson City, Missouri, (314) 526-3851
- National Association for Mediation in Education, Amherst, Massachusetts, (413) 545-2462
- Oregon Metro, Portland, Oregon, (503) 797-1743
- Santa Barbara Community Development, Santa Barbara, California, (510) 845-7549
- San Francisco County Transit Authority, (415) 557-6850
- Triangle Transit Authority, Research Triangle Park, North Carolina, (919) 406-1710

Chapter 4.   USING SPECIAL TECHNIQUES TO ENHANCE PARTICIPATION

B.   CHANGING A MEETING APPROACH

People are almost always "too busy" to attend meetings. Low attendance occurs even when agencies have made heroic efforts to get people involved in regularly scheduled meetings or well-publicized special events. Practitioners feel like Sisyphus, endlessly rolling the stone uphill. When people do turn out, the meetings themselves may seem stale or lifeless and their discussions unfocused or of little use. Repeated discussions of narrow issues often frustrate participants, especially if they do not lead to progress. Yet meetings remain a basic, low-cost way for people to get involved in transportation planning and project development. In one room, during one limited time period, participants represent many viewpoints and interests, including those that have been traditionally underrepresented.

A modest shake-up can inject new life into a dying public involvement program. For instance, a change in meeting place often changes people's perspectives as well—and may attract new participants because the new setting is more convenient or interesting. Changing the dynamics of the way people interact at meetings allows different viewpoints to emerge. Alternating group leadership or assuming different roles also helps spark new enthusiasm and fresh thinking. Novelty, however, becomes routine if repeated, and change for the sake of change is seldom effective. Diverse meeting approaches should be purposeful elements of an overall plan or respond to identified problems.

Before changing a meeting approach, an agency can work with participant advisors to shape a more effective program and give them greater ownership and pride in the process. If they do not like a new approach, participants may offer alternatives more suitable to the community's needs.

Rather than giving in to discouragement over low turnout, then, agencies can take special measures to boost attendance and improve the quality and productivity of meetings. The following techniques—some tried-and-true, others more innovative—offer several options for changing a meeting approach and getting more people involved in meaningful ways:

- Improving meeting attendance;
- Role playing;
- Site visits; and
- Non-traditional meeting places and events.

IMPROVING MEETING ATTENDANCE

What does this mean?

For many agencies, getting people to attend meetings is challenging, if not daunting. Often, despite an agency's concerted efforts, people simply do not come, and the level of effort seems unjustified by the results. Low attendance is especially common for State and Metropolitan Planning Organization (MPO) planning activities that do not focus on specific project details. How can agencies summon their resources to get more people meaningfully involved in the process of transportation planning and project development?

A first step is to understand why people do not participate. They offer numerous reasons for not attending transportation meetings:

- They are not aware a meeting is taking place;
- They receive inadequate notice;
- They have other commitments;
- They have a negative perception of the sponsoring agency;
- Public comments are not taken seriously;
- Decisions have already been made behind closed doors;
- Meetings are too time-consuming or boring; and
- Meeting sites are too far away, inconvenient, or inaccessible.

Underneath these very real and very valid reasons lies a deep-seated cynicism: generally, people today do not believe their input makes a difference.

An agency's fundamental weapon in countering such cynicism is to make public input count in decision-making—to "walk the talk," as popular wisdom has it—and to let people know that expressing their opinions has a real, tangible effect. People participate if an agency offers meaningful opportunities, plans strategies and logistics carefully, and has a history of using the output to make better plans and projects. According to a telephone survey of 2,000 households in Colorado, people want to provide more input into the "transportation decision-making process, *if they will be listened to...by officials.*"

Good meeting attendance, then, is closely linked to an agency's responsiveness and receptivity, commitment to the process of public involvement, careful advance planning, and good communication strategies. High turnout with productive results is possible. A Wisconsin Department of Transportation (DOT) survey indicated that several States were able to attract large numbers of participants in their last round of long-range plan updates. These included Wisconsin (7,500) and Florida and New Jersey (6,000 each).

Why is improved meeting attendance desirable?

High meeting attendance helps ensure a broader range of input. This, in turn, enables staff to identify additional issues and see new perspectives. The more inclusive a process, the greater its credibility—and the more likely it is to produce usable input.

Widespread participation enhances public awareness about a plan or project. When people get involved in a meaningful exchange of ideas on transportation issues, they are likely to spread the word to friends and neighbors. It is also crucial when an elected body such as a legislature or MPO board must ratify a plan.

Broad participation from the beginning of a process aids consensus-building at its end. When people are instrumental in shaping the vision for a project or plan and have been involved in working

through issues and alternatives, they are more likely to be supportive of the final results. In Portland, Oregon, a recent 64-percent vote in favor of a bond to support extensions to the light rail system demonstrates the value of highly-inclusive planning. Several years prior to the election, a broad-based public involvement program began with the MPO's 50-year plan for the region, including numerous community meetings, focus groups, surveys of preferences, and speakers' bureaus. Information provided by participants was integrated by proponents and culminated in an extensive public information and meeting program immediately prior to the election.

All community segments benefit from increased meeting attendance because their interests and viewpoints have a greater probability of being voiced. These include elected officials; agencies; organizations; residents; businesses; minority, ethnic, low-income, and disabled constituents; and special interest groups that focus on specific issues such as freight; bikeways and trails; pedestrian safety; taxes; clean air; growth and development; and quality of life. Central Puget Sound Regional Transit Authority (RTA) invited key groups to an important meeting, prepared an agenda with specific time slots for each group to present its position, and sent the agenda to participants in advance.

What are the main keys to success ?

A positive and responsive agency attitude is essential. This is reflected in the level of care, attention, clarity, sincerity, and honesty its staff displays in contacts with the public. Outreach efforts before, during, and after meetings are opportunities to assert a positive attitude and improve rapport with the public. The Environmental Defense Fund trains staff members who regularly deal with the public in the importance of a positive attitude. The Spokane, Washington, MPO makes special efforts to explain why its meetings are important and that the organization cares about what people have to say.

It is important to stress that an agency involves people because their input is valued and useful. New Jersey Transit, for instance, states, "It's not something we have to do, but rather something we want to do—to ensure that our services and products meet the public's expectations, to serve as a quality check on our performance, and to help us find answers and set priorities." The public quickly detects when an agency is engaging in public involvement simply because it is required to do so—and they will stay away.

Equally important is an agency's record on translating community input into real decisions. The National Resource and Defense Council advises that people will not attend meetings if they perceive that their views will not be heard. Many agencies confirm this. When the Portland, Oregon, MPO attracted more than 300 participants to a series of outreach meetings, it attributed the success to a "track record of credibility." The transit agency in Houston, Texas, believes the most important factor is "developing and nurturing a trusting relationship" between the agency and the public.

Careful advance planning is crucial. Good organization assures people that their time is not wasted and that the agency has a strong handle on what needs to be accomplished.

- *An agency clearly determines the meeting's purpose,* what needs it will fill, how it relates to the overall public involvement program and the larger transportation planning or project development effort, and how the results will be used. The more specific an agency's vision for the meeting, the more likely it will generate feedback that staff people can use.

- *The type of meeting, as well as its style, is based on this strategic assessment.* Agencies decide whether a meeting will emphasize information or interaction and explore the menu of options within these approaches. They also need to estimate the number of participants and consider break-out groups if a large audience is expected.

- *Agency staff identifies desired participants and their special needs.* Factors such as familiarity with the plan or project, the degree of sophistication, and the ability to understand

English all affect meeting planning. The agency also needs to determine which staff members and resource people need to take part, when, and in what roles.

- *Successful meetings have clear agendas,* including the purpose, discussion topics, types of activities, names of speakers, and overall schedule. For meetings on a corridor study in East Los Angeles, the Metropolitan Transportation Authority (MTA) based its agenda on questions such as "What's the project about?" "What's its current status?" "What's the time line?" "What are the criteria?" and "How can I give comments?"

- *Meeting times and locations optimize people's ability to participate*—for instance, after work hours, in convenient neighborhood locations and comfortable settings conducive to interaction. Participants can be consulted beforehand about what times or dates are preferable. The Pennsylvania DOT holds meetings both during working hours and in the evening. The Wisconsin DOT finds that a 4:00–7:00 P.M. meeting time accommodates most people. The Cleveland, Ohio, MPO and the Minnesota DOT schedule their meetings from 5:00–7:00 P.M. The Ohio DOT has found that people in urban areas prefer night meetings, while rural residents prefer daytime. (See **Non-traditional Meeting Places and Events**.)

- *Thoughtfully prepared and coordinated meeting materials convey the appropriate level and kind of information.* An agency must allow ample time for writing, editing, printing, and collating. Presentation materials are particularly important. Good visuals convey principal points, aid audience understanding of a plan or project, and encourage people to ask questions. (See **Public Information Materials**.)

- *Sufficient notice well in advance of a meeting helps constituents set aside time in their schedule for preparation and attendance.* Mailed invitations can take the form of a "save-the-date" card or flier. The Kansas DOT sent out more than 5,000 fliers to invite people to 10 informational meetings on its statewide long-range plan. The Montana DOT sent 5,500 fliers that attracted 3,000 participants to its long-range planning meetings. Phoning and in some cases FAXing meeting notices are other possible approaches.

Involving the community in planning a meeting enhances its chances for success. Agencies can ask community groups about what issues to raise and what meeting dates and places are likely to draw people to participate. This consultation also helps determine an appropriate format, depending on the community's traditions or preferences. This is particularly crucial when the community involves minorities and ethnic groups whose cultural attitudes strongly influence how they see and participate in a public process.

Offering a variety of formats increases the chances of attracting participants and demonstrates an agency's intent to make it easy for the community to take part. States use a blend of topics and formats to attract broad involvement. The Montana DOT enlisted 3,000 participants in its long-range transportation plan through 6 open forums, 5 thematic forums, 9 open houses, and 7 forums with tribal governments. Over 7,500 people attended Wisconsin DOT meetings on its long-range plan: 16 forums, 9 informational meetings, 7 topical review meetings, 1 meeting with 40 statewide organizations, peer review meetings on subjects such as freight, 10 statewide groups, and 15 town meetings.

What else helps?

Agencies are experimenting with a broad range of strategies and approaches to attract more participants and make the public involvement process more meaningful and productive. Some of their most successful ideas are discussed below.

- *Follow up a meeting notice by mail, phone, or FAX* to make sure it has been received and to stress the importance of attendance and input. The Los Angeles County MTA makes friendly

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reminder phone calls to key leaders. The Bay Area Rapid Transit District (BART) in San Francisco sends FAXes to between 500 and 600 businesses.

- **Survey communication preferences** to find out what works best for the community. One "size" does not fit all. The Missouri DOT conducted a statewide survey asking, "How can we best communicate with you?" Results indicated that newsletters worked best for this audience and that electronic meetings were not preferred. (See **Public Opinion Surveys**.)

- **Focus each meeting on a special issue.** If community members clearly see how the specific issue affects their lives, they more readily attend meetings. The Chesapeake Bay Foundation in Maryland organized a meeting around the relationship between transportation, affordable housing, and minority groups.

- **Do the legwork.** There's no getting around it. The Houston transit agency's community relations people know constituents and work the phones before meetings. They also place fliers on doorknobs. New Jersey Transit hired drug rehabilitation participants to distribute meeting announcements to downtown Newark shoppers.

- **Use other groups' publications to announce meetings.** Sharing resources helps agencies reach a variety of potential participants cost-effectively. The Johnson County–Iowa City, Iowa, MPO has reached larger audiences this way. The Chesapeake Bay Foundation develops partnerships by interesting leaders from other organizations in its meetings and by publicizing them collaboratively.

- **List meetings in a calendar of events.** A little research can uncover numerous places where people look for information on what's happening—for instance, in local newspaper weekly calendars or on public access television channels that offer community bulletin boards. MPOs in Seattle and San Francisco issue regular newsletters with a calendar of upcoming meetings and events for several months ahead. The Alaska DOT gets local clerks to list public involvement meetings on government calendars. (See **Media Strategies**.)

- **Engage support through local schools.** Most parents give thoughtful consideration to materials they receive through their children's school. The Portland, Maine, MPO and Los Angeles MTA send fliers home with school children. The Florida DOT created a special program for students to learn about its East–West Corridor Study by riding the Metro rail system and writing essays to express their views on the project.

- **Stir interest through name recognition tactics.** The more people see an attractive logo, easily-identifiable symbol or slogan, or "teaser," the more likely they are to be curious about what's behind it. To promote project name recognition for Miami's East–West Corridor Study major investment study, the Florida DOT developed a sophisticated logo placed on widely-distributed calendars and business cards.

- **Establish information networks.** Word of mouth is a powerful tool. Houston's transit agency uses "leadership groups" of residents and businesses that take direct responsibility for informing other people about transportation issues and meetings.

- **Offer low-cost meeting perks,** ranging from food and transportation to day care and entertainment for children. The Missoula, Montana, and Spokane, Washington, MPOs offer light food and beverages. The Pittsburgh MPO receives FAXed requests for the kinds of cookies it should serve. The San Diego MPO offers certain meetings in a luncheon setting. The Minnesota DOT provides box lunches for day-long meetings. New Jersey Transit offers entertainment and babysitters for children during selected meetings. The Alaska DOT offers transportation to some meeting sites.

- *Offer alternative modes of participating for individuals constrained by time or distance.* The Portland Metro, the Los Angeles MTA, and the Savannah MPO give the public opportunities to phone in comments regarding meeting topics. Technological advances increase the opportunities for participating via teleconferences or computer communication. Agencies sometimes use other techniques such as community surveys to assure input and yet conserve people's energy and time, then target meetings for a stage in the process when they will be particularly crucial.

- *Spark interest by featuring well-known experts or political candidates.* If well-publicized, the presence of prominent people enhances attendance. The Chesapeake Bay Foundation featured elected officials as key attractions. The Missouri DOT survey results indicated preferences for public meetings with elected officials as guests. The Kansas DOT achieved a high level of participation when it featured Alan Pisarski, author of *Commuting in America,* at a statewide workshop. The Alaska DOT holds meetings in the weeks before an election; when the candidates are scheduled to appear, the agency gets good turnout.

- *Feature agency board or staff members as guest speakers.* The active interest of high-level staff demonstrates the value an agency places on public input. Senior managers at the Oregon and Pennsylvania DOTs appear at meetings to enhance attendance. Los Angeles County MTA's chief executive officer frequently speaks at the agency's meetings. The Houston Transit Agency brings board meetings into the community every three months for a project and program status report. The Central Puget Sound RTA's board is directly involved in meetings to show residents their voices have value and their comments are not being "filtered" through staffers.

- *Evaluate outreach efforts after a meeting.* Determining what worked and what didn't helps assure that future meetings will be more effective. When participants see that the agency has improved its process, their enthusiasm is renewed. Reviewing attendance lists can help track individual interests. The Portland Metro, with attendance of over 300 people at meetings, evaluates its outreach program every three years.

- *Maintain interest through follow-up*. When people know their presence has been appreciated, they feel more inclined to continue with the process. Follow-up includes thank-you letters, reports, phone calls, surveys, and distribution of new information. For invited participants, courtesy dictates a thank-you note. Written responses are also appropriate to follow up unanswered questions or unresolved issues.

- *Target key individuals for special invitation to the next meeting.* Participants who are active in the community should be encouraged to attend and bring neighbors. This not only generates good will by showing respect for their role in the community, it also has a rippling effect within their sphere of influence.

- *Court press coverage and establish good media relations.* Agency community relations staff usually knows which reporters have transportation issues as their "beat." Feeding them choice bits of news and keeping them up-to-date helps assure they will cover the story well and in a timely fashion. On the other hand, agencies should avoid blanketing them with material. Timing is all. The Wisconsin DOT maintains relations with 600–800 media outlets and gets stories in the press prior to meetings. The Portland Metro takes out eye-catching ads, and the Cape Cod Commission gets a newspaper article "almost every day." In Minnesota, the Twin Cities MPO has a two-pronged media strategy: one focused on its region's editorial boards, another on reporters.

- *Employ radio coverage as a cost-effective alternative* to reach broad segments of the public. Paid ads, public service announcements (PSAs), and spot interviews can make more people aware of a transportation effort and call attention to upcoming meetings. The Montana DOT arranged interviews at local radio stations before its long-range plan meetings. The Minnesota

DOT developed call-in shows and later distributed tapes to cable stations. The tapes were played repeatedly, thus reaching a wider audience, and a comment number was listed at the end of the tape.

Who leads the effort?

In-house staff usually initiates these measures, developing strategies and techniques for improving attendance and tailoring the approach to meet community needs as well as the project's particular demands. The Roanoke, Virginia, MPO assigns a staff person to devote the necessary time and energy to improving attendance. The Denver Transit Agency looks outside its engineering staff for meeting leaders who are skilled in describing technical issues in non-technical language.

Community leaders or elected officials can suggest what works best in their communities, advising an agency on key strategies and putting it in touch with others who are able to improve outreach. Agency credibility is often improved when a community leader conducts a meeting or introduces agency staff.

Professional facilitators help create a fair, neutral atmosphere. For complex or controversial issues, they help attract people who doubt they will otherwise be heard. They also contribute innovative ideas on how to increase subsequent participation. (See **Facilitation**.)

What are the costs?

Costs depend on the number of people to be reached and the community's past involvement with agency programs. Direct expenses include ads, graphics, visuals, mailings, translators if necessary, facility rental, and equipment. Staff costs are incurred to plan and implement a program, monitor progress, and make required adjustments. The level of time and energy staff must commit to a public involvement effort is closely linked to factors such as the complexity of the issues and the community's cultural heritage as well as its history of response to the agency. Costs may be significantly less for outreach to a community that has a well-established relationship with the agency.

What are the drawbacks?

Establishing credibility is difficult. Agencies lacking a track record in participatory planning sometimes have difficulty establishing a process and convincing the public that efforts are sincere. Agencies that previously made "token" efforts without using the input to improve the plan or project may find it doubly hard to engage the community. A reputation for an honest commitment to involving the public is only built over time.

Preparations to increase meeting attendance are time-consuming. Personnel who are savvy about engaging the community in public involvement may be scarce. A trial-and-error period is sometimes needed to determine what works. Agency inaction, errors, and poor planning compound the difficulties of establishing credibility.

Groups not traditionally involved in meetings are often hard to reach. Ethnic, minority, and low-income communities may need extra contact and encouragement to keep them involved, since they often have more barriers to overcome. People who have been put off by an agency's insensitivity to their cultural heritage may be reluctant to participate again. (See **Ethnic, Minority, and Low-income Groups**.)

A larger number of participants increases the challenge of building consensus. Success in attracting more people places extra demands on staff, because more information must be prepared and transmitted. A wider array of opinion sometimes creates polarization or prolongs the process of

narrowing down alternatives to reach consensus. Agency staff needs to research potential issues and prepare focused agendas for meeting discussions.

For further information:

- Alaska Department of Transportation, Juneau, Alaska, (907) 465-2171
- Capital District Metropolitan Planning Organization, Albany, New York, (518) 458-2161
- Central Puget Sound Regional Transit Authority, Seattle, Washington, (206) 684-1357
- Florida Department of Transportation, Tallahassee, Florida, (904) 488-8006
- Metropolitan Transit Authority of Harris County, Houston, Texas, (713) 739-4000
- Lawrence–Douglas County Metropolitan Planning Organization, Lawrence, Kansas, (913) 832-3153
- Los Angeles Metropolitan Transportation Authority, Los Angeles, California, (213) 922-2000
- Wisconsin Department of Transportation, Madison, Wisconsin, (608) 266-7744

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ROLE PLAYING

What is role playing?

In role playing, participants act out characters in a predefined "situation" dealing with controversial aspects of transportation planning or project development. A role playing session is followed by an evaluation of the interaction and the statements made. At a recent conference of Federal agencies and private groups, participants took roles as members of groups competing for funds from the Intermodal Surface Transportation Efficiency Act (ISTEA). The range of groups included one arguing for a larger share for highways, another representing air quality environmentalists, and one speaking as a national cycling lobby seeking more money for bike paths.

Role playing allows people to take risk-free positions by acting out characters in hypothetical situations. It helps participants understand the range of concerns, values, and positions held by other people. It is sometimes called game simulation, simulations, simulated discussion, simulation games, and gaming. (See **Games and Contests**.)

Role playing has these components:

- A clearly defined and simple "situation" applicable to the problem or issue at hand;
- Written descriptions of the "roles" (characters) for participants to play;
- Goals to be accomplished during the session;
- A trained small-group leader/facilitator;
- Sufficient time for each participant to speak;
- An overall time limit for the session; and
- An evaluation period.

Role playing encourages *active* participation in confronting a situation. There is no script. Participants improvise how their characters might respond in the given situation and interact with the other characters.

Role playing is also used to dramatize proposed changes. In Hawaii, skits were used at an electronic town meeting to compare State funding for traditional industries with State help for new high-tech industries. Instead of the participants themselves assuming roles, a local improvisational acting company acted out several scenes, and viewers were then asked to react to issues raised by the role playing.

Why is it useful?

Role playing is an enlightening and interesting way to help people see a problem from another perspective. It builds bridges between people, so they can appreciate the pressures and constraints faced by others. Rather than simply listening to speeches, people actively address the impacts of their decisions, actions, and positions on other people. Since statements made while playing a character are not binding on any participant, role playing facilitates involvement by engaging participants in a non-threatening process.

In role playing, players become interactive. They step out of their normal roles and into another role—often one that opposes their own goals and values. In this way, for example, an environmental activist and an industrial representative might change roles for purposes of the exercise. By presenting their own interpretation of how their characters would react, participants are often enlightened about the attitudes and behavior of others.

Role playing shows how people stereotype others and make judgments based on those stereotypes. The British Columbia Hydro and Power Authority used role playing to help measure attitudes toward

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exportation of power. Participants opposed to exporting power assumed the role of an energy exporter and discussed the benefits of exportation. Then, each drew a picture of what he or she thought an energy exporter looked like. By being forced to show biases through role playing and graphic representations, participants could see how stereotypes cloud people's ability to be open to others' ideas.

Does it have special uses?

A common application of role playing is employee training. As part of its Neighborhood Transit Services Workshops program, the Boston Transportation Department used role playing and other techniques to train staff in facilitation skills and responding to questions and comments. This enabled city staff to continue a program initially developed and conducted by consultants.

Role playing helps when interaction among participants is needed to break down barriers or reduce conflict or tension. Role playing jump-starts a lifeless group or helps people get to know each other at meetings or conferences. Role-playing exercises are particularly useful when groups have clearly defined positions that draw battle lines and limit communication.

Role playing is also used to bring expert opinion to bear on a problem. At a recent conference, a group of public involvement specialists participated in a role play that examined the needs of a power authority preparing a sustainable energy strategy. Through the role play—in which a wide range of interest groups, elected officials, and residents were portrayed—the expert group helped the power authority outline appropriate responses and involve the public better.

Who participates? And how?

A full range of representatives of community groups, interest groups, or key stakeholders can participate. A broad array of positions should be represented. If groups are large, some participants may be teamed with others to allow greater participation. Participants who have difficulty acknowledging other interests, are unable to see the problem in context, or appear to be wedded to a particular position need particular encouragement to become engaged in the process.

Role playing is usually best with informed participants, since they already have some knowledge of the issues and the positions of the various parties. In any case, characters' positions and interests should be reasonably clear and well-defined. The Dallas Area Rapid Transit Authority (DART) used role playing with the general public during its bus planning efforts and with its advisory group for the South Oak Cliff Alternatives Analysis. DART found that the role-playing exercises were most productive when participants were informed community members and not simply "persons on the street."

Agency staff also participate, provided they do so on equal footing with community members. This helps staff to better understand the positions of participants and break down barriers between them and the community members with whom they need to interact.

A trained leader describes the process orally. Participants receive a written description of the situation, setting, and characters involved. The leader reads it aloud, sets time limits, gives examples of how responses might be presented, assigns roles, and begins the exercise. Each person speaks with the "voice" or viewpoint of his/her assigned character. As role playing progresses, time checks are helpful to keep participants focused and directed toward presenting their characters' full positions and reaching closure.

Face-to-face contact is essential in role playing, so chairs should be arranged around a table or in a circle. Props, such as hats or clothes, sometimes help people get into their roles. A newsprint pad and markers are useful to record comments during the evaluation period. Index cards or pads of paper encourage participants to make notes.

Evaluation is essential to the outcome. The trained leader initiates an engaging discussion with participants—one that focuses not only on the outcome but also on issues raised by participants, probing why various stands were taken and decisions made. Acting ability is irrelevant and may be discussed only in genial and friendly terms!

Role playing is sometimes done spontaneously, without a scripted situation or roles. In Santa Rosa, California, the city worked with community members on the impacts of discharging treated wastewater into the river. Through spontaneous role playing, with participants arguing on behalf of other people's preferences, the administration was able to understand better the public perception of wastewater discharge.

How do agencies use the output?

Agencies create stronger participation by building on the increased understanding of issues and positions that result from role play. Role playing helps flesh out or clarify participants' opinions. They gain a clearer understanding of the planning or project development process, the multiple issues and interests that are involved, and the links between transportation and other areas like land use. Some alter their own perspectives on issues and potential solutions. Role playing also assists in negotiation and coalition building, where participants test potential consensus points.

Who leads role playing?

Role playing requires a trained leader from within or outside the agency who is clear about the goals. This leader must be skilled at designing representative situations and scenarios that are applicable to the real-life situation. The leader should also be knowledgeable about areas of conflict and able to guide the group toward resolution. Finally, she or he must be able to lead the evaluation and engage participants in discussing the process, the lessons learned, and their relevance to real-world transportation issues.

What are the costs?

Costs tend to be high in terms of staffing. If a trained leader is not available within the agency, a consultant knowledgeable about the issues needs to be hired for one or more days. Preparation time for developing the roles and the situation is extensive, depending on the complexity of the real-life problems. Even skilled consultants or staff require several dry runs and revision cycles to get the role play right. Agency staff sometimes finds that oversight of consultants is demanding in terms of time and energy to assure that they fully understand the issues to be covered. However, compared to other interactive processes—such as charrettes or workshops—that work on these different perspectives, role playing requires fewer staff resources, funds, and materials.

How is role playing organized?

Role playing is part of an ongoing process to develop cooperation among participants. Trust among group members is essential: people are unlikely to fully participate if they do not know each other and have not developed a sense of mutual trust.

Preparation includes developing a situation and roles, inviting participants, determining the length of time for role playing, and making the setting conducive to the event. Effective role-playing games are relatively small, involving between 7 and 15 people.

Community representatives can be consulted to sound out the idea, work on characters, and help determine whose participation might bring out specific issues. Such consultation helps assure that role

playing is well-integrated with the larger process. Advance notice and consultation mitigate distrust and questioning of motives.

Establishing clear and achievable goals is critical. Goals might include resolving a conflict, increasing awareness of various perspectives, looking at familiar issues in different ways, and bridging gaps among participants and with the agency.

A time limit is usually imposed, but the atmosphere should be light and friendly.

Observers or non-players may be invited to follow the action and participate in the evaluation period. Agencies may observe the proceedings first-hand for information to help an overall process of planning or developing a project. However, observers dampen enthusiastic participation or cause resentment if they are viewed as having unexpressed or reserved opinions that are not addressed during the role playing.

How is it used with other techniques?

Role playing is part of a more extensive involvement process. It is used to broaden understanding of an issue early in the process. It is used with board or computer games that simulate situations and require people to step into another "pair of shoes." (See **Games and Contests; Computer Presentations and Simulations**.) It is used when people from different walks of life are all working on a common project.

Role playing is used as an ice-breaker at regular committee meetings. If participants' thinking is changed through role playing, they are more likely to accept opinions about a variety of issues. As a result, later public involvement efforts are easier and more productive. Participants come to see that their opponents' views can also change. Role playing also spices up an otherwise dull topic by creating characters with humorous names that allude to their roles (for example, "Douglas Fir," representing the Forest Service).

What are the drawbacks?

Role playing requires significant time and skills, primarily for preparing scenarios and roles, taking dry runs, and conducting the exercise. A consultant can be expensive, particularly when briefing is needed. This expense, however, is offset by time savings in reaching an understanding of the problems and constraints. A consultant may also train agency staff people to plan and conduct future role playing sessions on their own.

Participants may be uncomfortable playing roles that negate their true feelings. The leader must provide reassurance, support, and suggestions.

The outcome is unpredictable, even with a strong leader. Although the action can go in an unplanned direction, a trained leader can step in and refocus the session. In addition, an unpredicted outcome may bring up new issues that have not yet been considered.

Lack of enthusiasm or minimal participation occurs if the motive or sincerity of the agency is questioned. Agencies enhance the chances of success by involving participants in planning the role play, conducting the session early in the process, and providing clear direction and strong leadership. Agencies need to show the links between the role playing and participation in the real issues and decisions at stake.

For further information:

- British Columbia Hydro and Power Authority, (604) 623-3629
- Dallas Area Rapid Transit District, (214) 749-2543
- Massachusetts Bay Transportation Authority, (617) 222-5000
- Surface Transportation Policy Project, (202) 939-3470

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SITE VISITS

What are site visits?

Site visits are trips taken by community residents, officials, agencies, and consultants to proposed or actual project areas, corridors, impacted areas, or affected properties. They are also known as field visits or site tours.

Site visits are made in a variety of ways—by bus, train, taxi, private car, or on foot. Some involve long-distance trips by air.

Why are they useful?

Site visits show the physical environment of a proposal. They are used by local people to show engineers, agency personnel, and planners details and conditions they might have missed. Frequently, site visits are the best way to demonstrate a physical fact to either the community or agency personnel.

Site visits give participants a common frame of reference. They see conditions at the same time and under the same circumstances. The Connecticut Department of Transportation (DOT) organized a bus tour of New Haven's Q Bridge area so the Community Advisory Committee (CAC) could see the existing bridge, potential new rights-of-way, and sensitive neighboring areas. The tour included agency staff, community people, and consultants.

Site visits help people understand each other's point-of-view. Residents, officials, and agency staff stand on the street, observe where a proposed project would be, and locate it on a plan. This helps people understand how agency plans translate into reality. Site visits are valuable as a basis for repeated discussions and as details are developed.

Site visits help get people to participate who normally would not be involved or may be uncomfortable working with agencies. The field office personnel for Denver's light rail transit project conducted walking tours of the corridor for neighborhood residents, many of whom had never been involved in a planning or construction project.

A site visit is a chance for agency staff to better understand a proposal and hear the perspective of others. Engineers and other staff find an informal, risk-free opportunity for communication with the community.

Site visits improve media coverage and accuracy of reporting, on occasions when the media are involved. A reporter who devotes several hours to a site visit is more likely to understand and write clearly about complex, subtle issues and planning details. (See **Media Strategies**.)

Site visits help gain credibility for the agency by going into the community. They help dispel the notion that agencies do not understand the area or people they will affect. They show that an agency is willing to listen to community concerns.

Do they have special uses?

Site visits help people understand a particular technology. Visits are made on buses, transit lines, roads, or other forms of transportation to illustrate the operations, problems, and advantages of a specific mode. In Denver, the transit agency put a light rail transit vehicle on display to let people see what it was like and walk through it.

Trips to the site are useful to address new questions as they arise. Participants helping to develop the Central Artery North Area project in Boston's Charlestown neighborhood had difficulty understanding the dimensions of a park proposed for the top of the depressed highway. Going to the site on a low-traffic morning, agency staff outlined the proposed new parcel on the ground with lime. With a rooftop view of the outlined space, participants were able to appreciate the new park's size. The community newspaper carried a feature on the visit to help local people grasp the enormity of the parcel.

Site visits are sometimes tours to locations similar to the proposed site. Cities contemplating new rail systems have sent delegations to cities where such systems already exist. During these visits, meetings were arranged between the delegation and agency officials, community people, and the business community. For Denver's light rail transit project, community groups visited light rail transit systems in Portland and Vancouver.

Who participates? And how?

Anyone can participate (as long as the site is accessible). Site visits are sometimes targeted to advisory committee representatives, elected officials, neighborhood activists and local residents, environmentalists, or the business community. People from the disability community may have difficulty visiting a site with rough topography. (See **People with Disabilities**.)

Site visits help local people make a particular point about a proposal, especially if they feel the agency does not understand the point. In Sioux City, Iowa, planning for Vision 2020 planning started with a citywide bus tour for its Task Force to provide an overview of the physical attributes of the city. Task Force members were able as a group to view issues in all parts of the city. Agency staff thought the trip was invaluable as an overview of local concerns.

Information about the site visit is distributed widely to potentially participants. Information is sent out in meeting notices or as fliers. Notices are mailed to active participants in the process and placed in local newspapers or on signs in local stores or activity centers. (See **Public Information Materials**.)

A special invitation helps draw specific participants. An agency may target certain people because of their concerns or issues. In these instances, a special written invitation or phone call helps. A follow-up letter or notice also helps draw special participants.

Tours can be organized. For Boston's Central Artery/Tunnel, the project offered a series of walking tours. Notices were sent to a variety of organizations, and the public was invited. Bus or train tours may be an appropriate way to include a large group. In special instances, air tours are useful. For people unable to attend, a video tour is a good alternative. Videos are also used in meetings to help participants remember site details. (See **Video Techniques**.)

Community residents request a site visit so they can point out specific issues and make sure the agency understands their concerns. A community coalition asked the Massachusetts Secretary of Transportation, the transit authority's General Manager, and project planners to tour a corridor being studied for transit improvements.

How do agencies use site visits?

Site visits are useful to show how a facility or plan would operate or fit into its surroundings. In preparation for a major investment study, the Maryland Transit Authority used tours to show how its existing light rail line operates. Dallas Area Rapid Transit (DART) took neighborhood associations on site visits to show that proposed technologies and operations were being used elsewhere. Inviting media representatives on site visits results in better-informed reporting and editorializing. (See **Media Strategies**.)

Agencies use site visits to better understand the physical environment, make better-informed decisions, and clarify conflicting positions on particular physical points, such as sources of background noise levels or distances between buildings and proposed tracks.

Who leads site visits?

A site visit must be led by experienced, knowledgeable staff who know the area and the issues. The staff must communicate the issues in a non-judgmental and open-minded way, so that participants feel the trip is a worthwhile learning experience.

A community representative can lead a site visit. The leader should not be biased or present only one side of the story. Since other community groups have different perspectives, such bias could be divisive.

A high agency official or an elected official may lead a site visit, particularly for high-profile, controversial projects. Community members may feel that top officials are the most appropriate leaders for such projects.

What are the costs?

Costs vary. Transportation costs are high for long-distance visits requiring extensive arrangements. Costs were a significant factor when community representatives from Burlington, Vermont, along with agency staff, considered traveling by air to see the Portland, Oregon, light rail installation.

The costs of staff time vary. Staff time costs relatively little for local site visits but could involve several days for more distant trips.

Agencies can provide food, especially if the visit is lengthy or if extended discussion is planned. Light snacks and beverages convey an informal message and encourage people to stay and ask questions. In Dallas, DART always feeds participants during site visits.

Site visits can be photographed or taped. A camera records information such as how close a building is to the street. Photos or videos of the gathering are informative for other people, the staff, or the media. A video camera helps record the details raised by local people, as well as interchanges between community members and agency personnel.

How are site visits organized?

Agency staff contacts community group leaders to see if there is interest in a site visit. If there is, staff should ask for names of potential invitees and compile an invitation list. If the list is short, the agency can ask invitees if they feel comfortable opening the visit to a wider audience by listing it in local newspapers, posting notices in public places, or sending a notice to an entire mailing list.

Community people can ask an agency to conduct a site visit. Agency staff inquires about the goals of the visit, the agency personnel who should be present, and others who should attend. It is important to work together in setting an appropriate date, time, and other logistics to demonstrate cooperation and assure participation.

Site visits are held at convenient times, such as evenings or weekends. These times should be selected in conjunction with the community. They should also be selected so that site conditions are not obscured by equipment or bad lighting. It is preferable to hold a site visit during the time the site is most active or when the site represents a condition that people are concerned about.

A meeting can be added to a site visit if the logistics are feasible. It is helpful to discuss what people saw while impressions are fresh. A formal meeting on-site requires distinctive planning. Details such as chairs, lights, and weather must be considered.   If an agency wants an on-site meeting, it should get agreement from the community.

The agency supplies transportation, if required. It is important that the vehicle be comfortable. People should be able to hear the leader or any discussions clearly.

Descriptive materials are provided before the visit, including a summary of the proposal, the purpose of the visit, specific characteristics to look for, etc. Maps and materials may be needed to explain major elements of the proposal.   In Dallas, DART shows a site video beforehand and provides written materials in advance.

Generally, participants gather in one location and leave together for the site. Occasionally, participants gather at the site itself. A definite arrival time is set, since an opening explanation is crucial and helps the group work together; the informality of learning together helps break down factions within the group.

The organizer of the visit may lead it. It can be conducted as a walk or drive around the site. The visit should be narrated, so that participants are aware of where the proposal affects the land. Time should be allowed for discussion of each area and for a question-and-answer period as the group goes along and at the end of the site visit.

Viewpoints from all participants are heard during the visit. The agency makes sure each participant can view and react to the site and the proposal. Direct input is solicited.

Summing-up should be done promptly. Participants may gather and discuss what they experienced. A written record should be prepared, including a list of participants, items to investigate further, and areas in which there was agreement and disagreement.

How are they used with other techniques?

CACs are good candidates for site visits. CAC members can be selected from visit participants. (See **Civic Advisory Committees**.) The San Francisco Citizens' Planning Committee took site visits to joint developments in other communities. During the Hudson waterfront transit alternatives analysis in New Jersey, CAC members toured potential air quality monitoring sites.

A site visit can be a first step in another technique such as a charrette. (See **Charrettes**.) Computer simulations are more accurate and credible if site visits are incorporated. (See **Computer Presentations and Simulations**.)

Site visits with media involved are important parts of media strategies. Newsletter articles highlighting site visits and incorporating photos and diagrams demonstrate agency efforts in public involvement by reporting the trip to many people. (See **Media Strategies; Public Information Materials**.)

What are the drawbacks?

Organizing a visit and getting appropriate people there is a challenge. Coordinating schedules, weather, and transportation requires considerable effort and staff time.

Site visits may need to be repeated several times for a large project.   Despite careful planning, they may fall flat due to weather or other conditions over which the staff has no control. A trip to a proposed

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site may cause later problems in recollection if viewed on a day when weather is an aberration or if part of the site is inaccessible.

A site visit fails if staff cannot answer questions or are poorly prepared. The community may feel its time is wasted if it seems the agency is not listening or is defensive.

The costs of a visit to a distant location are often prohibitive. Airplane, train, or bus group travel to other cities may be beyond an agency's budget.

For further information:

- Bay Area Rapid Transit District, San Francisco, California, (510) 464-6172
- Burlington, Vermont, (801) 658-3004
- Central Artery North Area Project, Massachusetts Highway Department, (617) 973-7000
- Connecticut DOT, Newington, Connecticut, (860) 594-2000
- Dallas Area Regional Transit, Dallas, Texas, (214) 749-2581
- Denver Regional Transit District, Denver, Colorado, (303) 299-2401
- Siouxland Interstate Metropolitan Planning Committee, Sioux City, Iowa, (712) 279-6344

NON-TRADITIONAL MEETING PLACES AND EVENTS

What are non-traditional meeting places and events?

These are locations that are not the usual meeting hall or public building where many participation events are traditionally held. These non-traditional options include shopping centers, elderly drop-in centers, county fairs, neighborhood fairs and block parties, and sporting events. Traditional places such as schools, town halls, board rooms, and libraries do have benefits. Space in these buildings is readily available and inexpensive to operate. They are usually central to the community and the neighborhoods and can be perceived as neutral in a socially polarized area. However, to reach people who don't typically participate, an agency needs to go to where they congregate and feel comfortable—in other words, to their own turf.

Many non-traditional meeting places are within the local community and enable an agency to achieve a wider range of public contact. When these meeting site options are used, community access is easier and people's interest is heightened. By choosing non-traditional community locations and events, an agency shows its sincere interest in involving community people and tailoring participation opportunities to their needs.

Why are they useful?

Unusual locations help agencies increase attendance. Sites may be physical locations or events open to the public. Transportation agencies have used the following non-traditional locations and events to attract new and different participants to the transportation planning process:

- **Shopping malls attract large numbers of people.** The New Jersey Department of Transportation (DOT) used suburban shopping malls for events and meetings during development of its statewide long-range transportation plan. Activities included videos, mini-focus groups, children's activities, and staff assistance at presentations. (See **Interactive Video Displays and Kiosks; Games and Contests**.)

- **Agricultural fairs are good locations for exhibits.** The Vancouver Intergovernmental Resource Center had a booth for 10 days at the Washington State Fair. Using interactive video games, the transit authority took an educational approach to issues of air quality, congestion, and alternative modes. Video games were a hit with all age groups, especially children. The Los Angeles, California, Metropolitan Transportation Authority (MTA) staffed a mock-up transit car at a booth at the county fair for 28 days. The Idaho DOT staffed a booth at the East Idaho Fair with 2 people on 2 shifts per day for 9 days.

- **Neighborhood fairs and events help in distributing information.** The Sioux City, Iowa, Siouxland Interstate Metropolitan Planning Committee had an information booth at a local festival. The Houston–Galveston Area Council staffed several information booths each week to provide information on-site at community events.

- **Local buildings and events are good locations for agency contact.** New Jersey Transit has sponsored meetings at a Portuguese social club, a State museum oriented to children, a suburban senior citizen center, and a work site at Port Elizabeth.

- **Community sports events are good places to meet and talk with people.** As part of a major investment study, the Missouri Highway and Transportation Agency set up displays in a tent inside the gate at a community football game. People were encouraged to stop by, ask questions, and fill out a survey form.

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- **Special neighborhood events help agencies reach people.** Displays or mini-meetings may be held in conjunction with career days, block parties, house meetings, bus trips, or local community festivities.

- **Centrally-located, convenient places may be used to distribute agency information.** Local libraries are a good place for viewing community displays and are often used to make project environmental documents available locally. Public parks have been used for large meetings and for events where transportation agencies can participate.

Agencies reach individuals who usually do not participate. At new sites and places commonly visited by the public, an agency distributes information to a large population it ordinarily would not reach. People may be directly contacted who do not ordinarily come to public buildings or participate in agency meetings.

Agencies receive a wider array of comments from more people. With greater community awareness about a new process, more people are encouraged to participate in meetings associated with it. Georgia DOT uses "greeters" to welcome participants at its open houses and instructs staff to help.

An agency's credibility is enhanced by new approaches. By bringing a meeting into a community, an agency shows its concern and desire to obtain local comments. Highway public hearings are traditionally held near the site proposed for improvement—for instance, in high school auditoriums. But many planning and project development meetings can also benefit participants by using local sites at convenient times, since many members of the public are not free to attend during business hours. For its statewide plan, the Massachusetts Highway Department held open houses in numerous community facilities around the State.

Do they have special uses?

Specific sites in a community can be targeted. Instead of requiring people to travel to agency offices, sites can be chosen that are central to neighborhoods. This is particularly important if neighborhoods are defined by specific ethnic, minority, or other underrepresented groups. (See **Ethnic, Minority, and Low-income Groups**.)

Using project sites for meetings helps the public understand technical issues. As one non-traditional way to hold meetings, a visit to a project location or a tour of an alignment provides first-hand experience to help people envision a plan or project. (See **Site Visits**.) To obtain public input, the Ada Planning Association in Boise, Idaho, set up an outdoor task force meeting in a public park, where a pedestrian crossing bridge was proposed. A direct viewing of the physical site, along with displays and maps, helped people understand the technical design of the proposed improvement.

Non-traditional sites help an agency reach specific target groups. The Kansas DOT met at local sites for regional meetings with business and industry in developing its long-range plan. The Maricopa Association of Governments in Phoenix, Arizona, developed two types of meetings at local sites, one for business leaders and key community leaders and the other for the general public.

Specific modes can be used as a focus for meetings. The Denver, Colorado, Regional Transit District (RTD) invited people to one major investment study meeting held on a trolley. During Miami's East–West Major Investment Study (MIS), the Florida DOT invited elementary and middle-school students to tour the existing system and encourage their parents to participate in the decision-making by attending meetings. During its rail transit alternatives analysis/draft environmental impact statement/draft environmental impact report process, the Los Angeles MTA offered a walking tour or a ride on a passenger rail car inside the proposed construction area to explain the operation and construction process and gain input on proposed mitigation measures.

Sites or events that attract large numbers of people are especially useful. There is increasing interest in taking agency work to "where the people are." By going to where people congregate in large numbers, an agency takes advantage of a pre-existing audience. Non-traditional sites draw crowds a public meeting rarely does. Shopping centers attract people in such numbers that an agency may not need to publicize its presence.

Who participates? And how?

People are usually invited to participate informally. In unusual locations, agencies often must get the attention of passers-by through attractive displays that compete with other activities at the site. The displays encourage people to visit, get information, and give an agency their views and comments. However, a meeting in a special place can also be directed beyond individuals through notices and invitations to a general audience or a mixture of representatives from community groups.

Participants usually visit the site for a meeting or for browsing through an exhibit. At a booth or display, they view exhibits or talk to a staff person. At a project site, people get information from the surroundings as well as from agency displays, brochures, and presentations. Depending on the location and the type of meeting or display, they give comments on agency work.

How do agencies use the output?

Agencies need to consider how to document comments for use as input to decisions. Comments recorded in writing by participants or staff bring new insights or considerations to a plan or project. But the informality of the situation may make it difficult for passers-by to write their comments, particularly if they have children with them or if there is no convenient place to sit and write. In such cases, recording oral comments on tape for later transcription is one option. Another is providing comment forms that can be filled out at home and mailed to the agency.

Who leads?

Agency staff people are most likely to lead non-traditional events. If informal presentations are required, agency staff or consultants may handle them. Project management staff led a trolley tour for the Denver, Colorado, Regional Transportation District and the Houston, Texas, Transit Alternatives Analysis/ Draft Environmental Impact Statement.

Non-traditional meetings are also led by community residents. The Boise, Idaho, MPO asks members of its civic advisory committee (CAC) to host and lead non-traditional meetings. CAC members meet with civic organizations and attend neighborhood events to speak on the long-range plan and how people can become actively involved in it. The community perspective helps participants understand an agency's work. (See **Civic Advisory Committees**.)

Community residents can assist agency participation in non-traditional events. Familiar neighborhood faces encourage other neighbors to ask questions and participate. Community members can work jointly with agency personnel in staffing exhibits. (See **Speakers' Bureaus and Public Involvement Volunteers**.)

What do they cost?

Costs vary. If only the place is changed, costs are likely to be reasonably low. Labor-intensive events are expensive. One-day events may require two agency representatives to staff a booth and field questions from community residents.

Staff people are not always required at special exhibits. Although it is useful for them to be on hand, they are necessary only if large crowds or many questions are anticipated. If an issue is especially controversial or complex, it is best to have staff accompany the exhibit. Otherwise, the display can include telephone numbers to contact for further information.

Costs climb for lengthy events such as State fairs. The Los Angeles MTA needed 25 people to staff a county fair booth that operated from 10:00 A.M. to midnight for 28 days.

Operational costs are incurred. Staff time, space rentals, equipment, event scheduling, graphics, advertising in newspapers, videos, and VCRs are possible cost elements. For bus tours, there may be rental fees. The local transit authority donated the use of the bus for the Boise, Idaho, MPO bus tour.

How are they organized?

An agency defines the objectives for the event. The agency's public involvement goals guide in selecting the site and format. Staff may brainstorm ideas to flesh out the format. Community leaders and groups with experience at sites such as fairs are good sources of advice.

Sites that are open at convenient hours raise attendance. Non-traditional times for meetings may help people schedule time to attend. Special evening or weekend hours are frequently used to appeal to people who are unable to attend meetings or exhibits during regular working hours or weekdays. The Metropolitan Council of the Twin Cities area of Minnesota is transforming certain meetings into open houses where people can come and go according to their own schedules. (See **Open Forum Hearings/Open Houses**.)

Agencies increase participation by informing the local media of an event and its schedule. For certain events, it is appropriate to work with others who are in charge of publicity.

Exhibits, format, and coordination of staff are instrumental in a successful event at an unusual site. Participation in seasonal events such as State or county fairs sometimes requires reservations months in advance. Securing the availability of a facility ahead of schedule ensures better preparation and organization.

Agencies choose the most appropriate method of providing information. A wide variety of methods are available to use in unconventional sites:

- **Booths or tables are used to give and get information.** These booths are staffed, if possible, so people can talk with agency representatives. These conversations can explain agency goals and elicit community comments.

- **Kiosks also offer a method of both giving and getting information.** Interactive displays can provide information people may find useful. Displays can also be set up to record comments or survey customer attitudes. The Colorado DOT has used interactive touch screens in shopping centers. (See **Interactive Video Displays and Kiosks**.)

- **Props help stimulate dialogue in non-traditional meeting places.** In preparing its long-range transportation plan, the East Central Wisconsin Regional Planning Commission used props such as renderings, photos, engineering designs, and videos to help participants visualize scenarios of managed growth, maximized density, and minimized infrastructure development. Videos and slides were used at local sites in the process of preparing a long-range transportation plan for the Little Rock, Arkansas, Metroplan. For the Eastside Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report process, the Los Angeles MTA placed the alternatives in color and on small (11″ x 17″) boards, which were easy to carry and pass around at meetings. Participants could hold the boards at close range and discuss them at length.

- **Videos may be shown at special sites** or lent for wide distribution. They outline issues, define the need for participation, and set the stage for a meeting. They can be re-run at meetings as a basis for discussions. The Wisconsin DOT uses videos at meetings to explain a project's goals for the coming years, along with materials or resource people who are available for questions. (See **Interactive Video Displays and Kiosks**.)

- **Portable exhibits can take the place of staff** and still enhance the distribution of agency information. An agency prepares stand-alone visuals for displays to bring information to new groups of people to broaden participation. These visuals include boards, photographs, renderings, kiosks, interactive displays, videos, or maps. Portable exhibits are set up in public buildings, malls, or other locations where they can be read by passers-by. It is important to find locations where a display can be monitored by security officials, so that it will not be defaced or destroyed.

- **Mobile exhibits can be mounted inside a vehicle** used to travel around a State or region. With permission, it can be stationed at nearly any location, including malls, universities, or local public buildings. The Arizona DOT uses a mobile facility to inform the public in sparsely-populated areas. The Washington, D.C., MPO used a "vision van" to publicize its visioning effort and gather survey information.

Informality aids in attracting people to agency events or displays in any setting and is particularly important at non-traditional sites. Displays or events that allow one-on-one interaction are less intimidating for people who tend to shy away from meetings in traditional locations. Informality also helps a transportation agency's message and materials become "part of the landscape" rather than an intrusion into community territory.

Technical descriptions are not usually required. Unconventional sites fit with non-technical explanations. Discussing engineering concepts or environmental impacts in ordinary terms is challenging to staff but rewarding in terms of improved public understanding of agency goals.

Evaluation of the success of unusual events aids future outreach efforts. Agencies need to carefully assess how variable factors such as time of day, location, access by public transportation, or nature of the event affected its impact, so that future planning can capitalize on those that contributed to its success and avoid those that detracted from it.

How are they used with other techniques?

Non-traditional meetings and exhibits supplement other public involvement programs. Different locations with special props spark new interest in active community people or attract new participants into an outreach meeting. At new sites, charrettes, focus groups, or visioning may be used as lead-ins to discussing complex issues. (See **Charrettes; Focus Groups; Visioning**.) CACs may want to travel to new sites for their meetings. (See **Civic Advisory Committees**.)

What are the drawbacks?

Staffing can be expensive. Staff and equipment costs climb for long events, such as State fairs that last 10 days or more. Props, videos, and interactive computers require on-site technical assistance to set up equipment.

Unusual meeting sites and approaches may be intimidating to potential participants, especially groups not traditionally involved in the decision-making process. An agency needs special effort to gain their confidence and participation.

Weather conditions are a factor in selecting an unusual meeting site. A rain date may need to be scheduled for outdoor meetings. The East Central Wisconsin Regional Planning Commission avoids outdoor meetings during the summer when air conditioning is more comfortable.

The number of exhibits to be displayed may be restricted at a new site because of space limitations. Agencies may not have all the exhibits necessary to answer a specific question thoroughly. The Denver, Colorado, RTD experienced exhibit limitations because it could not bring all the visuals and boards to a meeting on the trolley.

People may not be interested in interactive displays. The Florida DOT turned proposed interactive mall and turnpike plaza events into "exhibits only" when they realized passengers were, in general, not interested in getting detailed information while stopping at commercial centers on the turnpike. Another State DOT reports that while many people passed by and casually looked at its displays at a State fair, the staff doubted that many viewers were really engaged or gleaned much from the experience. An agency needs to carefully define its objectives in choosing unusual venues and design its presence to accomplish worthwhile aims that justify the costs and the effort.

Popular exhibits often require extra preparation. Los Angeles MTA's Metro Red Line display cars have been an attractive feature at many community events. Preparations to display the cars required months of advanced notice to responsible MTA departments.

Varying meeting locations makes it difficult to maintain continuity and build on previous meetings. Interested stakeholders may lose interest if special efforts replace a known meeting pattern.

Are non-traditional meetings and events flexible?

Meetings sites vary, and events are tailored to specific sites. Agencies can determine whether to staff a booth or exhibit throughout an exhibition period, which varies from one day to more than a week. Flexibility is required if events are rescheduled due to weather conditions.

Traveling workshops offer the flexibility of a "pick up and go" presentation. Moving from one location to another on short notice is sometimes an advantage and makes materials more accessible to the general public.

When are they used most effectively?

Non-traditional meetings are effective when they coincide with pre-existing events.

Non-traditional meeting places help remote populations. People from rural areas are able to attend meetings that are not otherwise easily accessible. If meeting access for rural people is difficult or time-consuming, it is preferable to offer a multi-purpose stop such as an annual State or county fair.

Non-traditional events are important prior to major milestones. A series of events or exhibits before major decisions on projects or plans garners input from people who may not attend regular community meetings.

For further information:

- Ada Planning Association (APA), Boise, Idaho, (208) 345-5274
- Dallas Area Rapid Transit, Dallas, Texas, (214) 658-6112
- Denver Regional Transit District, Denver, Colorado, (303) 299-2401
- East Central Wisconsin Regional Planning Commission, (414) 751-4770

- Florida State Department of Transportation, Miami East–West Field Office, Miami, Florida, (305) 262-7033
- Kentuckiana Regional Planning and Development Agency, Kentucky, (502) 266-6084
- Los Angeles County Metropolitan Transportation Authority, Los Angeles, California, (213) 244-6891
- Maricopa Association of Governments, Phoenix, Arizona, (602) 254-6308
- Missouri Highway and Transportation Department, Jefferson City, Missouri, (314) 751-1685

Chapter 4.   USING SPECIAL TECHNIQUES TO ENHANCE PARTICIPATION

C.   FINDING NEW WAYS TO COMMUNICATE

Communication—especially interactive communication—is a major goal of public involvement. Face-to-face meetings are a traditional method of providing such contact, but changing technologies offer many new options for people to get information and provide input, comment, or support. New technologies—largely based on electronics—are accelerating and enhancing the communication process. They offer real-time methods of communication without relay, distribution, or recording delays. Often, they can better illustrate complex information, and can give people a stronger, more immediate sense of connection to the overall transportation planning and project development process.

Interactive technology does not replace traditional direct contact techniques. Rather, it needs to be well integrated with them in an overall public involvement program. A majority of people still prefer to talk on the phone to a live voice or present their views in their own handwriting or face-to-face. People feel excluded or unable to participate if they have no ready access, and many find computers or televisions more impersonal and distancing than traditional means of communication. Some minority, ethnic, low-income, or poorly educated individuals feel particularly uncomfortable with new technology.

Yet, as new communication technologies become more and more prevalent, their potential for public involvement blossoms. People can participate in large meetings without leaving their living rooms—via phone, special modem connections, the Internet, or satellite transmissions. They save travel time and cost because electronic communications are able to span long distances. Participants with access to computers, wireless devices (cellular phones or Personal Digital Assistants -- PDAs), telephone lines with special equipment, facsimile devices, or telecommunication devices can request transmission of documents or information or send comments to an agency. Specialized telephone and Internet services deliver pre-recorded answers or responses to common inquiries. Interactive techniques can also be used in conjunction with traditional meetings—by incorporating interactive displays, for instance, that show the steps in a process or describe a project. Or a computer technician at a public meeting can render concepts visually as public participants discuss them.

Several techniques can help improve communication in public involvement, as follows:

- Interactive television;
- Teleconferencing;
- Interactive displays and kiosks;
- Computer presentations and simulations;
- Mapping through Geographic Information Systems;
- 3D Visualization;
- Visual Preference Surveys;
- Handheld Instant Voting;
- Plan or Text Markup Software; and
- Remote Sensing Applications

INTERACTIVE TELEVISION

What is interactive television?

Interactive television is a person-to-person technique that allows two-way communication. Unlike conventional one-way television (TV) or radio broadcasts, most interactive TV enables viewers to respond by voice telephone or computer connected to an appropriate hosting service (Internet Service Provider, special on-line bulletin board, chat room, etc.). A further refinement of the technology uses sophisticated equipment, TV cameras, and special connections at both ends so that participants can see and hear one another. This kind of interactive TV is usually limited to small groups for long-distance conferences.

Interactive television is characterized as follows:

- A television broadcast includes telephone numbers or computer addresses to use in responding;
- Participants use telephones or computers to comment or ask questions; and
- Staff is available to record comments or respond to questions.

Electronic town meetings are a good example, because large numbers of people participate directly from their homes or other designated locations. A meeting, presentation, or panel discussion is held in a central location with an audience, while a TV crew records and broadcasts the proceedings over local cable. Home viewers phone in questions for discussion leaders to answer—a format similar to a talk-radio call-in program. The Southern California Association of Governments uses interactive television to reduce the distance the public has to travel to participate in meetings. Conferencing equipment is placed at central locations in each of the six counties it serves.

Why is it useful?

"A picture is worth a thousand words." Interactive TV provides direct or immediate knowledge of what transpired at a public meeting, which is useful for some people compared with a written summary document. Interactive TV helps people grasp a planning concept, understand complex programs, and absorb large amounts of information quickly. Television is an integral part of many people's lives. It attracts broader participation in a public involvement program. Electronic town meetings, for instance, may actively engage "couch potatoes" who would otherwise not participate in civic affairs.

Electronic town meetings increase awareness about a project or program. They are very useful for developing consensus across a broad range of participants. They provide a large segment of the population with direct, timely access to key decision-makers.

Interactive TV offers the immediacy of a "live" broadcast. During a broadcast, participants at home respond or participate via telephone. They then see and hear that their concerns are being addressed, and possibly respond further.

Town meeting audiences can convene in several locations. With interactive TV, large groups may take part at a central location while numerous individuals or small groups participate from homes or satellite meeting halls. The Central Puget Sound Regional Transit Authority (RTA) in Seattle held a Satellite Summit prior to adopting a proposed ballot measure on a major new transit system. From a central studio, the RTA board addressed audiences at five remote locations as well as home viewers via cable TV. Audience members at remote sites were able to pose questions and offer suggestions directly to the board. A videotape of the event was sent to local libraries for reference by those people unable to participate at broadcast time. (See **Video Techniques**.)

Informal surveys can be a central element in interactive TV. Viewers use telephones to register approval or disapproval on a specific project or issue under discussion. Results are tabulated and shown on the program, perhaps generating additional responses. (See **Public Opinion Surveys**.)

Does it have special uses?

Interactive TV is especially useful for public presentations. Information can be disseminated at regular intervals to the audience at their homes.

Interactive television can target a specific audience. Broadcasts can reach specialized audiences through non-English language or other special media channels or shows. Berks Community Television in Reading, Pennsylvania, is a two-way cable television program designed to reach seniors, a special use of the technology for a targeted audience.

A broadcast helps an agency reach a wider audience than it might otherwise find. It increases both awareness and inclusiveness. Traditional broadcast technology is used for limited educational and outreach purposes, but the incorporation of two-way communication through interactive technology expands the participatory aspect of the medium. To increase public participation in regional transportation planning, Orange County replaced a public hearing with a "Community Dialogue," sponsored by the Huntington Beach City Council Chamber. A talk-show format was used to interview transportation and land use planners about the impact of growth on the future of Southern California. Questions from an in-studio audience and call-in viewers were answered live on television. The show was run from 7:00-9:00 PM on a weeknight and simultaneously cablecast in nine different cities close to Huntington Beach. In addition, the cable company aired the program two more times during the day. The cable company estimated that more than 7,500 people watched the show.

A broadcast allows instant feedback that can be shared with the entire community. Because people participate from their own homes, they do not need to arrange for childcare or worry about transportation or proper appearance.

Who participates? And how?

An interactive TV program involves many people—particularly if the program is well publicized. Broadcasts on a major local or regional channel stand the best chance of reaching many viewers for a program on transportation planning or project development.

Cable TV subscribers are major users. Many public agencies have access to cable TV channels over which electronic town meetings may be carried. Any local person with access to such cable services and a telephone line may participate. Participation is limited in areas without cable access or if people do not subscribe to the service.

Viewers call the TV station during a broadcast to register an opinion or comment. Viewers may call repeatedly if they do not receive a response or if they feel that the response is inadequate.

Viewer responses are recorded on the voice track of a videotape of a program. As a program is being taped, a viewer calls in and converses with an agency person at the TV studio. The video equipment picks up both ends of the conversation. Responses may also be recorded, either automatically by an answering device or in person by agency staff answering telephone calls and recording responses in writing or on computer.

Viewer input may provide immediate feedback. Calls from viewers inform the studio and home audiences of preference responses, survey results, or participant concerns.

How do agencies use the output?

Viewer comments help an agency gauge the level of community interest and concern about transportation issues. Heated, lively debate and strongly worded comments signal a controversial topic and indicate that the agency needs to reach out in other ways to the full array of concerned parties.

Viewer feedback also helps an agency identify community perceptions about critical issues, impacts that are most sensitive, alternatives that are preferred or proposed, and ways to improve plans and make responsive decisions. In metropolitan planning, an agency can use viewers' comments to identify differences of opinion and needs in subareas of a region or among types of interest groups. To get a clear sense of how public opinion is changing over the course of a project, a record of comments serves as a benchmark that can be compared with past or future responses. Such reference points assist an agency in evaluating long-term program goals or objectives and reassessing meeting techniques.

Viewer input may be used to expand mailing lists. To increase the availability of transportation information, for instance, names and addresses of respondents are registered along with their questions and concerns. (See **Mailing Lists**.)

Who leads?

Skilled professionals are required. Interactive TV demands the special technical skills of studio crews and facilitators who coordinate feedback through a telephone company. Although conventional presentation needs and requirements of a public meeting come into play, a skilled moderator for the program is also required.

Agencies sponsor regular programs. Vermont Interactive Television shows live, two-way programs on subjects such as early childhood and family support meetings, technical mathematics, and Vermont history and government. It combines education with participatory technologies to bring together thousands of participants throughout a largely rural State.

What are the costs?

Interactive TV such as an electronic town meeting is expensive. The sophisticated equipment and skilled operator requirements raise costs. Contracting services are necessary for high-speed digital telephone lines to accommodate incoming calls and instantly tabulate data. An agency with access to a public TV channel may be able to reduce costs. For example, community access cable channels and/or schools with broadcast media facilities, both of which have public service missions, may be able to be used.

How is interactive television organized?

Cooperation from a local TV station is essential. A local station such as a local access cable channel or a local government or college station reaches most, if not all, homes in a broad area. A broadcast or town meeting event must be publicized on the station as well as in other print and electronic media so that people know when to tune in. A local TV station may also recommend a prominent media personality to moderate the program, keep discussion moving, and enliven the program. University stations might include student production of public meetings on interactive TV as part of the curriculum.

Technical assistance on broadcasting is essential. Local stations are likely to be conversant with interactive techniques or can help find the right contacts.

Comparison with a public meeting or hearing is useful as a starting point. Many public agencies are versed in the logistical requirements and strategic use of such meetings. (See **Public**

Meetings/Hearings.) A presentation of essential facts about the project or program provides a spring-board from which discussion takes place. However, incorporation of interaction affects the program format and shapes the agenda to reach out to a larger audience.

How is it used with other techniques?

Interactive TV supplements a broader outreach program. It cannot be an agency's sole means of communication with the public.   Due to costs and time constraints, interactive TV may accent or bring to culmination a larger effort to inform the public. However, it also can be useful as a survey of public reactions to an issue. (See **Public Opinion Surveys**.) It can function as a large-scale public meeting. (See **Public Meetings/Hearings**.) Savannah, Georgia, broadcasts several meetings on the same topic from different locations with trained facilitators and programmers. Home viewers call in to respond, adding a sense of dynamic energy to the process.

What are the drawbacks?

Perceptions of the meaningfulness of participation via TV vary. Participants may doubt that a TV program has lasting impact. As is true with any new technology, people sometimes resent its use, because they perceive it as a replacement for personal communication.

Imbalance is magnified by live TV. With any project or program, the danger arises that only one or a few interests will participate and that the dialogue will not accurately reflect the full array or relative strength of community opinions. Callers may want to grandstand a particular issue. Agencies can limit speaking times but cannot deny a determined individual the opportunity to speak. This emphasizes the importance of agency outreach to the full array of community interests.

Broadcast adds pressure for quick decisions. Television events often put decision-makers in direct contact with members of the community, and the community may want immediate decisions. One transit agency held an open house for a major investment study that was heavily attended by a community that opposed one alternative. The community group arranged for the meeting with agency and legislative leaders to be broadcast in a hearing format over a local TV channel. During the meeting, a speaker (with vocal support from the crowd) demanded a satisfactory decision from the agency and the legislators in two weeks, rather than the several months scheduled in the study plan.

Input from interactive TV, like that from informal surveys, is not statistically representative. Only interested people participate, and cable viewership in many areas is minimal. Broadcast responses supplement but do not substitute for more formal survey data as an accurate way to gauge public reaction. (See **Public Opinion Surveys**.)

Is interactive television flexible?

Interactive television is inherently flexible for verbal presentations. An agency spokesperson agency can update the community on a project or a planning process. Adding graphics to a presentation, however, requires additional time and effort.

Interactive TV is as flexible as other public meeting formats. However, the sponsoring agency is limited to times available on a station's program schedule.

When is it used most effectively?

Electronic town meetings are most effective at an important juncture when focused, relevant public input is needed. The Central Puget Sound RTA, in partnership with a local commercial station, presented

a two-hour, prime time program on its proposed rapid transit system. Moderated by a local media personality, the program showed features of transit systems from other cities. A 100-person audience was able to show approval or disapproval for various options via hand-held opinion meters that scored opinions on a scale of one to ten. A panel of experts and critics kept the discussion balanced.

Interactive television can continually update transportation information. A cable TV program can offer a telephone number to call for further information. Its use is especially valuable for conveying images or visual representations of ideas, including renderings and animations of existing and potential conditions.

Interactive television can build momentum for or against an improvement. This is particularly important when funding sources are in question. However, project opponents can also "hijack" that momentum. Political leaders who make budget decisions pay attention to high-profile events that reach a broad segment of their constituencies.

For further information:

- Southern California Association of Governments, www.scag.org
- Southern California Association of Governments Case Study, http://www.cerrell.com/casestudies/SCAG.html
- Alaska Department of Transportation, (907) 465-2171
- Berks Community Television, (610) 374-3065
- Central Puget Sound Regional Transit Authority, Seattle, Washington, (206) 684-1357
- Chatham Urban Transportation Study, Chatham County–Savannah, GA, (912) 236-9523
- Georgia Department of Transportation, (404) 656-5269

TELECONFERENCING

What is a teleconference?

A teleconference is a telephone or video meeting between participants in two or more locations.
Teleconferences are similar to telephone calls, but they can expand discussion to more than two people.
Using teleconferencing in a planning process, members of a group can all participate in a conference with agency staff people.

Teleconferencing uses communications network technology to connect participants' voices. In many cases, speaker telephones are used for conference calls among the participants. A two-way radio system can also be used. In some remote areas, satellite enhancement of connections is desirable.

Radio can also be a component of teleconferencing, especially in areas where there may be impediments to other methods of public involvement. For example, to address the need to involve the largest number of citizens possible when updating the STIP, the Alaska Department of Transportation often uses radio call-ins. This method helps gather input from areas in which no public meeting is held and from people in remote areas of the state that may not even have electricity.

Video conferencing can transmit pictures as well as voices through video cameras and computer modems. Video conferencing technology is developing rapidly, capitalizing on the increasingly powerful capabilities of computers and telecommunications networks. Video conferencing centers and equipment are available for rent in many locations.

Why is it useful?

Teleconferencing reaches large or sparsely populated areas. It offers opportunities for people in outlying regions to participate. People participate either from home or from a local teleconferencing center. In Alaska, where winter weather and long distances between municipalities serve as roadblocks to public meetings, the State legislature has developed the Legislative Telecommunication Network (LTN). As an audio teleconference system, LTN can receive legislative testimony from residents or hold meetings with constituents during "electronic office hours." Although its main center is in the capitol building, it has 28 full-time conference centers and 26 voluntary conference centers in homes or offices of people who store and operate equipment for other local people. The system averages three teleconferences per day when the legislature is in session.

Teleconferencing provides broader access to public meetings, as well as widening the reach of public involvement. It gives additional opportunities for participants to relate to agency staff and to each other while discussing issues and concerns from physically separate locations. It enables people in many different locations to receive information first-hand and simultaneously. (See **Public Meetings/Hearings**.)

A wider group of participants means a broader range of ideas and points of view. Audio interaction makes dialogue more lively, personal, and interesting. Teleconferencing provides an immediate response to concerns or issues. It enables people with disabilities parents with child care conflicts, the elderly, and others to participate without having to travel. (See **People with Disabilities**.) In response to requests from residents in remote rural areas, the Oregon Department of Transportation (DOT) held two-way video teleconferences for its statewide Transportation Improvement Plan update. Two special meetings were broadcast by a private non-profit organization that operates ED-NET, a two-way teleconferencing system. ED-NET provided a teleconference among staff members in one of the DOT's five regional offices and participants at central transmission facilities in a hospital and a community college in eastern Oregon.

Teleconferencing can save an agency resources. Without leaving their home office, staff members can have effective meetings that reach several people who might not otherwise be able to come together. Teleconferencing often enables senior officials to interact with local residents when such an opportunity would not exist otherwise, due to distance and schedule concerns. A teleconference may reach more people in one session than in several sessions held in the field over several weeks. It can be difficult to schedule more than two or three public meetings in the field within one week, due to staff commitments and other considerations. Teleconferencing can connect several remote locations saving several days or weeks of agency resources.

Teleconferencing should not take away from the value of face-to-face contact. While teleconferencing allows for multiple meetings in a short timeframe and can provide access when distances or other conditions limit the ability to travel, they should not be used as a substitute for in-person public contact.

Does it have special uses?

Teleconferencing is useful when an issue is State- or region-wide. The World Bank uses moderated electronic conferences to identify best public involvement practices from front-line staff. The discussion focuses around fleshing out and sharing ideas so that practitioners in different locations can learn from the experiences of others around the world.

Teleconferencing helps increase the number of participants. People may be reluctant to travel to a meeting because of weather conditions, poor highway or transit access, neighborhood safety concerns, or other problems. Teleconferencing offers equal opportunity for people to participate, thus allowing more points of view to emerge, revealing areas of disagreement, and enabling people to exchange views and ask questions freely.

Teleconferencing is used for training. It opens up training hours and availability of courses for people unable to take specialized classes because of time constraints and travel costs. The National Transit Institute held a nationally broadcast session answering questions about requirements for Federal major investment studies (MIS). Over 1,700 people met at 89 teleconferencing sites to participate in the meeting. Feedback from participants was overwhelmingly in favor of the usefulness and practicality of the session.

Teleconferencing is used for networking among transportation professionals on public involve-ment and other topics. North Carolina State University sponsored a national teleconference on technologies for transportation describing applications of three- and four-dimensional computer graphics technologies. They have been found helpful in facilitating public involvement and environmental analysis.

Who participates? And how?

Anyone can participate. Teleconferencing broadens participation with its wide geographical coverage. People living in remote areas can join in conversations.   Participation becomes available even for the mobility-restricted, those without easy access to transportation, and the elderly. Those with limited English proficiency may not participate without assistance. (See **People with Disabilities; Ethnic, Minority, and Low-income Groups**.)

Participants gather at two or more locations and communicate via phone or video. The event requires planning, so that participants are present at the appointed time at their divergent locations.

Participants should know what to expect during the session. A well-publicized agenda is required. It is helpful to brief participants so they understand the basic process and maximize the use of time for their participation.   For example, basic concerns like speaking clearly or waiting to speak in turn are both elements of a successful teleconference-based meeting.

How do agencies use teleconferencing?

Teleconferencing elicits comments and opinions from the public. These comments and opinions become part of a record of public involvement. Agencies should plan to record and provide access to public comments, as well as to respond to comments and community input and to address specific concerns.

Teleconferencing offers immediate feedback from agency staff to the community. This feedback is a special benefit for participants in both time savings and satisfaction with agency actions. To assure immediacy, agencies must have staff available to respond to questions at the teleconference.

An agency can tailor its efforts to respond to a range of needs or circumstances, with broad input from diverse geographical and often underserved populations. The Montana DOT will use a teleconferencing network in the state as it updates its statewide plan.

Agencies use teleconferencing with individuals or with multiple groups. The range of participants varies from simple meetings between two or three people to meetings involving several people at many locations. Simple meetings can be somewhat informal, with participants free to discuss points and ask questions within a limited time.

Who leads a teleconference?

A trained facilitator, moderator, or group leader runs the meeting. A moderator needs to orchestrate the orderly flow of conversation by identifying the sequence of speakers. A staff person can be trained to open and lead the teleconference. (See **Facilitation**.)

Community people can lead the conversation. The moderator need not be an agency staff person. If the teleconference is taking place at the request of community people, it is appropriate that a community resident lead the session. Agency staff members should feel free to ask questions of community people to obtain a complete understanding of their point of view.

Each individual meeting site must have a person in charge to prevent the conversation from becoming chaotic. A teleconferencing facility coordinator can train agency staff or community people to lead the process. Appointment of an individual to guide conversation from a specific site should be informally carried out. Community groups may want to have a role in this appointment.

What are the costs?

Teleconferencing costs vary, depending on the application. The costs of installing a two-way telephone network are modest. For complex installations, including television, radio, or satellite connections, costs are significantly higher. Hiring outside help to coordinate equipment purchases or design an event adds to the expense.

For modest teleconferencing efforts, equipment and facilities are the principal costs. Higher costs are associated with higher performance levels of equipment, more transmission facilities, or more locations. Agencies may be able to rent a facility or set one up in-house. The San Diego Association of Governments is building its own central teleconferencing facility to provide increased opportunities for the agency to use this technique.

It is possible to share teleconferencing costs among organizations. Many States have teleconferencing capabilities in State colleges. States may have non-profit organizations with teleconferencing capabilities. Outside resources include cable television stations or donated use of private company facilities. Agency staff time devoted to the event may be a significant expense.

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How is teleconferencing organized?

One person should be in charge of setting up a teleconference. That individual makes preparatory calls to each participant, establishes a specific time for the teleconference, and makes the calls to assemble the group. The same person should be in charge of setting an agenda based on issues brought up by individual participants.

Equipment for a telephone conference is minimal. Speakerphones allow several people to use one phone to listen to and speak with others, but they are not required. Individuals can be contacted on their extensions and participate fully in the conversations. While the basic equipment does not require an audiovisual specialist to operate, a technician may be required to set up equipment and establish telecommunications or satellite connections, particularly in more sophisticated applications.

Video conferencing needs are more complex. Basic equipment can involve:

- Personal computers;
- A main computer control system;
- One or more dedicated telephone lines or a satellite hook-up;
- A television or computer monitor for each participant or group of participants; and
- A video camera for each participant or group of participants.

More sophisticated facilities and equipment are required if a number of locations are interconnected.

An individual or group rents a private or public videoconference room in many cities. Private companies often have in-house videoconference rooms and systems. The Arizona DOT is considering establishing a mobile teleconferencing facility that can travel throughout the State. Many public facilities, particularly State institutions such as community colleges, have set up teleconference facilities.

Teleconferencing can kick off a project or planning effort and continue throughout the process. Teleconferences are targeted to a particular topic or address many areas, depending on the need for public input and participation.

Adequate preparation is critical to success and optimum effectiveness of a teleconference. The funding source for the teleconference must be identified and a moderator designated. The time and length of the teleconference must be established and an agenda prepared to organize the meeting's content and times for speakers to present their views. Participants should be invited and attendance confirmed. This is a critical step, since there is little flexibility in canceling or postponing the event—there just are no second chances. Also, less than full participation means that important voices are not heard.

It is important to provide materials in advance. These include plans of alternatives, reports, evaluation matrices, cross-sections, or other visuals. (See **Public Information Materials**.) For videoconferences, these materials may be on-screen but are usually difficult to read unless a participant has a printed document for reference.   A moderator must be prepared to address all concerns covered by the written materials. Preparation smoothes the way for all to participate in the teleconference. Without adequate preparation, teleconferences may need to be repeated, especially if all questions are not addressed thoroughly.

The technical set-up is crucial. Teleconferencing equipment and its several locations are key to the event's success. Equipment must be chosen for maximum effect and efficiency in conducting a meeting between a central location and outlying stations.

Equipment must be distributed well. Because equipment is needed at each site, housing facilities for equipment must be identified. If multiple parties will be attending a teleconference or videoconference from one location. seating may need to be arranged to maximize participation. A test-run of the equipment and the set-up for participants is important. The moderator may want to arrive early and practice using the equipment. Organizations can also subscribe to teleconferencing services. These

services have the ability to host numerous lines and allow participants to join in from any telephone with a correct dial-in number and passcode.

The moderator sets ground rules for orderly presentation of ideas. The moderator introduces participants in each location and reviews the objectives and time allotted for the meeting. Participants are urged to follow the moderator's guidance for etiquette in speaking. They should follow basic rules: speak clearly, avoid jargon, and make no extraneous sounds, such as coughing, drumming fingers, or side conversations.

The meeting must follow the agenda. It is the moderator's responsibility to keep the teleconference focused. In doing so, she or he must be organized, fair, objective, and open. The conference must be inclusive, providing an opportunity for all to register their views. The moderator must keep track of time to assure that the agenda is covered and time constraints are observed. It may be appropriate to have a staff person on hand to record action items, priorities, and the results of the teleconference.

How is it used with other techniques?

Teleconferencing is part of a comprehensive public involvement strategy. It can complement public information materials, smaller group meetings, open houses, and drop-in centers. (See **Public Information Materials; Small Group Techniques; Open Forum Hearings/Open Houses; Drop-in Centers, Public Opinion Surveys**.)

Teleconferencing participants can serve as a community advisory committee or task force meeting. It can cover simple items quickly, avoiding the need for a face-to-face meeting. For major issues, it is a way to prepare participants for an upcoming face-to-face discussion by outlining agendas, listing potential attendees, or describing preparatory work that is needed. (See **Civic Advisory Committees; Collaborative Task Forces**.)

Teleconferencing is a method for taking surveys of neighborhood organizations. It helps demonstrate the array of views within an organization and helps local organizations meet and determine positions prior to a survey of their views. (See **Public Opinion Surveys**.)

Teleconferencing is used in both planning and project development. It is useful during visioning processes, workshops, public information meetings, and roundtables. (See **Visioning; Conferences, Workshops, and Retreats**.)

What are the drawbacks?

Teleconferences are somewhat formal events that need prior planning for maximum usefulness. Although they require pre-planning and careful timing, teleconferences are conducted informally to encourage participation and the exchange of ideas.

A large number of people is difficult to manage in a single teleconference, with individuals attempting to interact and present their points of view. One-on-one dialogue with a few people is usually preferable. Widely divergent topics are also difficult to handle with a large number of people participating in a teleconference.

Costs can be high. Costs are incurred in equipment, varying sites for connections, transmission, and moderator training. Substantial agency staff time to coordinate and lead is likely.

Teleconferences take time to organize. Establishing technical links, identifying sites and con-stituencies, and coordinating meetings can be time-consuming. Materials need to be prepared and disseminated. However, teleconferencing saves time by being more efficient than in-person meetings, and the savings may offset staff efforts and other costs.

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Staffing needs can be significant. Personnel such as technicians and agency staff to set up and coordinate meetings are required. Training to conduct a conference is necessary. However, staff time and resources may be significantly less than if personnel have to travel to several meetings at distant locations.

Agencies need to consider the difficulties in accommodating people with hearing impairments or with limited English proficiency with real time translation. Teleconferencing should supplement, not replace, direct contact with community members.

Community people are alienated if a meeting is poorly implemented or if anticipated goals are not met. People need to be assured that the project and planning staff is mindful of their concerns. Technical and management difficulties, such as poor coordination between speakers or people being misunderstood or not heard, result in bad feelings.

Teleconferencing reduces opportunities for face-to-face contact between participants and proponents of plans or projects. It cannot replace a desirable contact at individual meetings between stakeholders and agency staff in local sites. Effective public involvement includes meetings in the community to obtain a feel for the local population and issues. (See **Public Meetings/Hearings; Non-traditional Meeting Places and Events**.) A teleconference supplements rather than replaces direct contact with local residents and neighborhoods. Video conferencing, by contrast, enhances opportunities for face-to-face exchange.

The goals of a teleconference must be clear and manageable to avoid a potential perception of wasted time or frivolous expenditures.

Is teleconferencing flexible?

Teleconferencing lacks flexibility of location and timing. A teleconference among several people must have a well-established location, time, and schedule, publicized prior to the event. An agenda must be set well in advance of the meeting, with specific times set aside to cover all topics, so that people at different sites can follow the format of the meeting. The New York State DOT held a teleconference/public hearing for the draft State Transportation Plan. The well-defined agenda scheduled registration and a start time that coincided with a one-hour live telecast from the State capital, which included a roundtable discussion with the DOT Commissioner.

Videoconferencing can be flexible if it is a talk arranged between two locations. With few people, it may be as simple to arrange as a telephone call. With additional participants, it becomes less flexible.

Teleconferencing offers opportunities for participants who can't travel to become involved. Enabling people to stay home or drive to a regional site offers flexibility in childcare, transportation, and other factors that affect meeting attendance.

When is it used most effectively?

Teleconferencing is effective when participants have difficulty attending a meeting. This occurs when people are widely dispersed geographically and cannot readily meet with agency staff. Teleconferencing also serves people with disabilities, the elderly, and others who may have difficulties with mobility. (See **People with Disabilities**.)

Teleconferencing is effective when it focuses on specific action items that deserve comment. Teleconferences aid in prioritizing issues and discussing immediate action items. Detailed, wide-ranging discussions may be more properly handled with written materials and in-person interaction.

Teleconferencing helps give all participants an equal footing in planning and project development. Teleconferences overcome geographic dispersal and weather problems to aid contact with agency staff.

For further information:

- Alaska Department of Transportation, Division of Statewide Planning, 907-465-6988, http://www.dot.state.ak.us/index.html?stwdplng/stip/need_stip.html~mainFrame
- Alaska Legislative Telecommunications Network (907) 465-4648
- Iowa Department of Transportation, (515) 239-1101
- Metropolitan Council, Minnesota, Jody Hoffman, (612) 291-6423
- Montana Department of Transportation, (406) 444-7692
- New York State Department of Transportation, (518) 457-5672
- North Carolina State University Institute for Transportation Research and Education, (919) 878-8080
- Oregon Department of Transportation, (503) 378-6526
- Savannah/Chatham County Metropolitan Planning Organization, (912) 236-9523

INTERACTIVE VIDEO DISPLAYS AND KIOSKS

What are interactive video displays and kiosks?

Interactive video displays and kiosks are similar to automatic teller machines, offering menus for interaction between a person and a computer. Information is provided through a presentation that invites viewers to ask questions or direct the flow of information. Viewers activate programs by using a touch-screen, keys, a mouse, or a trackball. Software used in interactive video displays and kiosks is highly specialized, storing information on hardware that allows retrieval of specific information based on directions from the viewer.

Interactive displays and kiosks:

- Deliver information to the user;
- Offer a variety of issues to explore, images to view, and topics to consider;
- Elicit specific responses, acting as a survey instrument;
- Enable the user to enter a special request to the sponsoring agency or join a mailing list;
- Are used in a variety of locations and may be either stationary or mobile; and
- Receive and store user input.

Interactive displays take advantage of evolving video and communications technologies. The Massachusetts Turnpike Authority has installed interactive tourist information kiosks at each of its ten rest areas. The kiosks have a constantly-running video designed to attract passers-by. During the loop presentation, viewers touch the screen to activate certain modules of information such as museums or other attractions by region or for any part of the Commonwealth.

Why are they useful?

If well-sited, interactive programs reach people who do not normally attend hearings or meetings. Visual communication is very powerful, delivering large amounts of information in a relatively short period of time. Interactive displays help people understand plans and complex programs. They raise public awareness about projects or programs and reassure people that their government is listening. A public involvement technique using interactive video may be very successful in attracting broader participation.

Strategic siting of interactive programs is imperative. They should be located where large numbers of people gather—for instance, in shopping malls, community colleges, and government buildings. They are placed where people naturally congregate to talk, shop, or socialize, or—in airline terminals—where they wait for arriving or departing planes. Displays are also set up at non-transportation special events. The Colorado Governor's Office initiated a program of touch-screen informational displays in shopping centers.

Interactive displays can supplement other methods of obtaining public input. If an interactive display is part of an open house, participants may be able to provide written comments based on the interactive display program. Kiosks in a shopping mall or other similar setting may be equipped with comment cards in a pocket or tray and a mailbox type container in which to deposit the cards. Project staff would collect these comment cards periodically. Agencies use feedback from interactive video displays just as they use public input obtained by more conventional means.

Interactive displays are useful in explaining a project and its implications. The New York State Urban Development Corporation developed an interactive video for public distribution to help explain the Miller Highway Relocation Project in New York City. The video offers highly-developed video images and animations to explain various project alternatives and their environmental implications. Users see the different alternatives from a variety of perspectives and enter their reactions. (See **Computer Presentations and Simulations; Visual Preference Surveys; 3-D Visualization**.)

Do they have special uses?

Interactive displays provide the public with access to areas that are distant or dangerous to visit. The Tennessee Valley Authority and the Florida Power and Light Company use video displays to illustrate the workings of nuclear power facilities.

Interactive displays elicit preferences from people who do not otherwise participate. Displays are used to collect comments and public input. They are useful for disseminating detailed information or generating interest in transportation planning. They are used to expand mailing list databases. (See **Mailing Lists**.)

Interactive displays complement staff availability. As agency resources become more scarce, the City of New York Human Resources Administration is expanding its use of interactive terminals to assist social service clients. Interactive terminals are appropriate as a primary or initial contact and cost-effective for answering requests for general information. For specific responses or more detailed information delivery, other public involvement techniques are probably required. Video displays should not be used to avoid face-to-face contact with the public.

Interactive displays can provide printed messages. Supporting machines record the information requested by a user from the screen and dispense it in printed form. Automatic teller machines are common examples. Rental car agencies provide driving directions to local destinations on video terminals with full-color maps of selected destination areas. The Texas Employment Commission now has 44 easy-to-use kiosks in public locations around the State with interactive displays that print out hundreds of job openings. The kiosks are already tapped an average of 60,000 times a month.

Who participates? And how?

People of all ages participate. Children, adults, and the elderly are encouraged to use displays, ask questions, and retrieve available information. Interactive displays in public places allow an agency to reach people who otherwise would not participate in transportation processes.

Interactive displays reach people at a variety of education or computer-literacy levels. Physical and program designs should encourage broad use, since children and some disabled people may not be able to reach or use equipment. Designs should facilitate ease of operation to encourage people without computer experience to interact with the program. The Arizona Supreme Court has developed interactive displays, called Quickcourt terminals, to assist people in understanding how to navigate through the judicial system. On-screen text is written at a fourth-grade reading level, and a narrator gives audio direction. Key words and numbers flash in synchronization with the narration to assist users with poor reading skills. In the first year of operation, almost 24,000 Quickcourt transactions were conducted, and only a handful of users had to seek further help.

Interactive displays are often multi-lingual. New York City installed 62 bilingual (English and Spanish) kiosks throughout the city to inform people about city services.

Interactive displays and kiosks provide an opportunity to search for information of specific interest to an individual user. Users interact by touching the screen. Software programs allow computers and video monitors to react to touch and respond with information or questions relevant to the user's request. These programs can lead a user through a great deal of available information to find a specific answer. The display and kiosk may also display a point of contact for further information.

Users find interactive displays in a variety of public places. The Arizona Quickcourt system has used locations such as shopping malls, schools, and government offices. Orange County, California, uses a movable kiosk display to show transit project information on a touch screen.

How do agencies use the output?

Interactive displays provide information from an agency to the public. This method of displaying information supplements other methods of dissemination, thus conserving staff resources. (See **Public Information Materials**.) The Smithsonian Institution added an interactive kiosk about transportation to an exhibit at the Museum of American History in Washington, D.C. The kiosk allows visitors to ask questions about public transit, commercial vehicle operations, traffic management, traveler information, and accident prevention. It gives information about transportation and, in doing so, exhibits the use of technology for a larger exhibit, "The Information Age."

Interactive displays collect information from the public for agency analysis. Output from an interactive display can be used to record preferences or to recognize and respond to specific participant concerns. It is also used to expand mailing list databases. (See **Mailing Lists**.)

Displays offer agencies flexibility in controlling and directing where a message goes. As with commercial video productions, specific audiences can be targeted. A program can be designed to appeal principally to adults who seldom go to public meetings or to parents of children who delight in observing different modes of transportation. When presentation information is developed to appeal to that audience, the interactive feature of a touch screen adds a means of collecting reactions from the audience. Targeted marketing by local governments, according to *Indiana Business Magazine,* has the potential to increase an audience's retention of information by 50 percent.

Who leads?

Software experts design and develop interactive displays. These sophisticated computer programs are usually produced by special contractors. Preparation, distribution, and maintenance of interactive displays, collection of stored data, and reprogramming of machines require special technical and logistical skills. One company is developing an electronic panning camera system that allows people in separate locations to view a scene from an infinite number of perspectives. These sophisticated techniques require special equipment and contact with vendors that market these tools.

What are the costs?

Costs associated with kiosks and interactive displays can be broken down into hardware, software, updates, and maintenance. Purchasing the hardware (e.g., enclosure, CPU, touch screen, keyboard, laser printer) and installing a kiosk (e.g., site negotiation, electrical and telecommunication connections) may cost an agency between $12,000 and $20,000 per unit. In most cases, agencies purchase kiosks, rather than lease them. They may however reprogram kiosks after a project is complete to fit a new information need.

The cost of software for kiosks is highly variable. It often depends on the complexity of the graphics and interaction screens and on whether or not information and photographs to be used are readily available. For a relatively simple interface and with pre-existing information and photos, software development could cost an agency approximately $40,000. More extensive graphics and sound, graphics that must be designed by the vendor, and original video footage would add significantly to the cost.

Costs to update the content of the video display or kiosk could range from a few hundred dollars for simple text-based changes to thousands of dollars for new, motion-based video screens. These costs could be avoided or reduced by having an agency manage the updates. If the kiosk design involves a central computer controlling the display and software created in a common development language like HTML, agency personnel may be easily able to make updates to the kiosk information.

Kiosks and interactive video displays also need regular maintenance including cleaning, refilling paper, and stocking extra parts for quick repairs. Agencies can reduce the cost of maintenance by

assigning on-site staff to be responsible for maintenance. Alternatively, the kiosk vendor may charge several hundred dollars per month for maintenance services. An agency also may have professional staff accompany interactive displays to assist users. The State of Vermont has an advanced computer-based survey instrument with full-color graphics, photographs, and video segments, accompanied by two to four survey attendants to guide respondents through a questionnaire. Such additional staffing requirements should be considered in the cost equation.

How are interactive video displays and kiosks organized?

Interactive displays are usually independent, free-standing installations. A television monitor is required, operated by either touching the screen or using a keyboard. Depending on the anticipated level of use, a touch screen is sturdier than most peripherals. Interactive displays are best situated in places where they will attract users. A minimal need is connection to a reliable power source for the electricity required by the monitor, the driver, and the computer. Displays are frequently linked to terminals in a central location that monitor their continued performance and reliability.

Interactive displays may be operated as a network of terminals, like automatic teller machines (ATMs) or the Arizona Quickcourt system. The Central Puget Sound Regional Transit Authority (RTA), in Seattle, has developed a fiber-optic based "Interpretive Display" formatted around a map of the region. The RTA uses it, without staff, to reach people in shopping malls and other high-traffic areas and get them involved.

The decision to use kiosks is highly dependent on the nature of the project, other public involvement techniques being used, community norms, and available resources. In the mid-1990s because of a confluence of computer technologies and public outreach needs, a number of projects employed kiosks as one of many outreach techniques. However, since that time, alternative forms of disseminating information have emerged (e.g., Internet, community-access television, etc.). In addition, because of the visual sophistication of the public, given the pervasiveness and societal influence of mass media and advertising, there may be expectations on the part of the public for high quality and completeness. The public may dismiss the visual content because the renderings or presentation are not developed to a comparable level of detail and quality they are used to viewing in the print and visual mass media.

Consequently, it is not possible to offer reasonable "rules of thumb" on key issues of number of kiosks, location, message content, etc. Because of the cost individual kiosks, if an agency is going to seriously consider kiosks or interactive video displays as part of a public involvement program, a separate study should be conducted to confirm expected use, types of information perceived to be valued by the public, candidate locations, message content and format.

How are they used with other techniques?

Interactive displays are stationary components of a larger outreach program. They cannot be an agency's sole means of public communication. Instead, they offer a dynamic and potentially absorbing method for expanding public involvement. Innovative use of this technology offers a new way to meet an old goal: sharing information with the public.

What are the drawbacks?

Any new technology involving machines may cause unease. People resent the use of machines as a perceived replacement for personal communication. Interactive displays, like ATMs, offer people added convenience and the appearance of one-on-one interaction. However, frustration with menu-driven machines and the tedium of struggling through pre-programmed displays alienate some people.

Software purchase is a high up-front cost. Moreover, the software package needs to be updated regularly to keep it fresh.

Maintenance costs are incurred. Screens get dirty, especially touch-screens, and may need daily cleaning if usage is high.

Potential vandalism is a factor in site selection, the type of equipment selected, and the location of the power source. The installation should be designed and sited to help its maintenance crew cope with defacement and abuse.

Liability issues may be associated with location of displays. Movable displays, in particular, should be insured to relieve property owners of responsibilities for incidents that occur where they are parked. Stationary displays should also be insured.

For further information:

- Bellcore, (201) 740-4762
- City of New York, Department of Information, Technology, and Telecommunications, (718) 403-8011
- New York State Urban Development Corporation, (212) 930-0431
- Portland Metro, Public Involvement Office, Portland, Oregon, (503) 797-1746
- Quickcourt, Arizona Supreme Court, Phoenix, Arizona, (602) 542-9300

COMPUTER PRESENTATIONS AND SIMULATIONS

What are computer presentations and simulations?

Computer presentations and simulations are electronic displays of information. Their power derives from a computer's ability to provide quick access to enormous stores of data and its capacity to display and rearrange images on demand.

A variety of computer media and methods are available for use in interacting with the public with computer-based information:

- **Computer graphics** aid public understanding through simplification of data or alteration of images. Computer-generated graphics show tables, graphs, diagrams, or charts in dramatic and understandable ways. They become part of printed reports and are shown on computer screens or television monitors. They can incorporate videos or video simulations of proposals, programs, or projects.

- **Digitized photographic stills** are photos that have been converted into computer data so they can be readily modified. They can portray the "before-and-after" of a proposed project from a single vantage point. This enables agencies or community members to consider a number of alternatives or fine nuances of detail when discussing a particular site and how a transportation project or program affects it.

- **Photo mosaics** use a computer to combine photographs. Individual photos of a site are scanned into a computer, then digitized and assembled into a single image as a basis for portraying existing or potential sites. As digitized photographs, mosaics are used in preparing video simulations.

- **Geographic information systems (GIS)** store data about sites at many different levels of detail. The data can be combined and presented in a great variety of maps, tables, or graphs to aid in understanding a proposal or project. (See **Mapping Though Geographic Information Systems**.)

- **Video brochures** are videotapes that explain specific projects or outline long-range plans. Tables, charts, and images are often incorporated into video brochures. They are designed and distributed to community members, and agencies deposit copies in local libraries for people to borrow and view at home on television.

- **Video simulations** are animations or moving images that convey a computerized view of real or potential changes. Generally displayed on either a computer or a television monitor, simulations can depict transportation projects both before and after construction or simulate a trip through a site. They allow a viewer to see a site as though standing in one location and making a 360-degree turn. They show the components of an agency's broad responsibilities, programs, or capabilities.

- **Visualizations** are applications of three- and four-dimensional computer graphics technologies. A number of agencies use this relatively new technology to facilitate public involvement and environmental analysis.   Usage is expected to grow rapidly as transportation departments seek more effective ways to design and communicate information about transportation to the public. (See **3-D Visualization**.)

Why are they useful?

Computer-generated images provide information in a stimulating, visual way. Images are more effective, immediate, and powerful than words in conveying a message. Visual images are universally understood and help surmount language barriers. Whether people are computer-literate or not, they readily respond to the visual images of computer presentations. With an image at hand, discussion among members of the community and relevant public agencies moves beyond conjecture to more substantial issues and concerns. (See **People with Disabilities; Ethnic, Minority, and Low-income Groups**.)

Computer presentations and simulations enhance interactive communication. Images are used to accommodate and incorporate community suggestions over a series of meetings. Community leaders explore "what if" scenarios and investigate the potential for change. Geographers at the University of Illinois have developed GIS systems for use by county planners. The system employs an interactive planning system that coordinates related information. On a computerized county map, users gain access to detailed maps or photographic images of a site. They sketch in suggestions and make copies of images, attaching text, audio, or graphic annotations. Users' suggestions are then compared directly to the original image.

Computer images convey complex information in easily-digested segments. Individualized pieces of data on demographics or economic impacts can be turned into graphics for participants to discuss. They can present environmental and esthetic impacts. Simulations can give a bird's-eye, pedestrian's, or passenger's view, standing still or in motion.

Showing a potential facility in a familiar context enhances understanding. Digitized photographic images help overcome misconceptions and serve as a check against distortion or misrepresentation by either promoters or critics. Digitized before-and-after photos have been used by the Connecticut Department of Transportation (DOT), the New York State DOT, and the Massachusetts Highway Department to demonstrate how high-occupancy vehicle (HOV) lanes would look if applied in specific corridors. The Finnish National Road Administration has used this technique in developing its master plan for Helsinki.

Do they have special uses?

Computer-generated visual aids can be a useful aid in resolving conflicts. New York's New School for Social Research used simulations to resolve a dispute between the Newark Water Commission and several New Jersey towns about growth in the city's watershed. The Commission, State, city, and town representatives and local civic and conservation groups reviewed computer models of various scenarios for preserving the watershed lands.

Computer graphics convey complicated information simply and attractively. Graphics are projected onto walls or screens, using a portable computer and projection equipment. Data, charts, and graphs from computer-based systems can illustrate data or survey results. The Lexington–Fayette Urban County Government (Kentucky) has used lap-top computers at public meetings to project tables, diagrams, and charts to explain travel demand models, level-of-service issues, and highway capacity.

Video simulations illustrate details of future projects. New York's Urban Development Corporation used video simulations to show community members that the Riverside South residential and park project could be enhanced by altering the elevated Miller Highway between 57th and 72nd Streets in Manhattan. A video kiosk with multiple choices showed the project from a variety of perspectives. Its use helped the agency and the community move the discussion beyond conjecture and toward concrete issues. (See **Interactive Video Displays and Kiosks**.)

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Computer illustrations facilitate discussion of details. Computer images are used to illustrate specific impacts and visual characteristics. Video animations or photo mosaics facilitate discussions concerning:

- Light and shadow issues;
- Perceptions of motion and movement;
- Architectural integrity; and
- Contextual suitability.

Computer images improve upon traditional scale models. Architectural scale models are limited in scope and context. They show one project alternative and cannot easily be used to portray a variety of alternatives. Scale models are delicate, do not travel well, and cannot be modified or rearranged without incurring large costs. Computer images, by contrast, have few of these difficulties.

Computer simulations reach a variety of audiences. The Portland, Oregon, Metro holds an annual Winter Transportation Fair with speakers, booths, and computer-generated exhibits and simulations about transportation. Child-care services for small children are available and include a popular computer simulation game about city planning.

Who participates? And how?

Technical committees, elected officials, community groups, and others use computer-generated illustrations as a presentation technique or work tool for public meetings, agency reports, or public documents. No computer skills are required to view a computer operator's products.

Computer-generated data and images communicate effectively to special groups. Community members with hearing disabilities are reached through annotated visual images with text. People with limited reading skills easily understand a videotape filled with images and an explanatory voice track. (See **People with Disabilities; Ethnic, Minority, and Low-income Groups**.)

People view computer-generated materials either at meetings or at home. They see them on a wall or on large video monitors at public meetings. They use interactive compact disks or video cassettes at home or at places such as public libraries and schools. People also receive computer-generated information through electronic on-line services or via cable or public television.

People review proposals and projects at their convenience; for instance, by viewing reports that incorporate computer-generated graphics or showing video animations on home monitor screens. Dallas, Texas, Area Rapid Transit (DART) produced a bi-monthly video news magazine with computer graphics for local cable television that reached people in 14 cities within its service area.

People discuss projects or plans based on computer-created images—for instance, long-range plans, special studies, and state transportation improvement plans. The University of Miami, Florida, Center for Urban and Community Design used a simulation model to help a community task force generate recommendations for a new residential design code. Concerned that a hurricane protection policy requiring new buildings to be raised six to eight feet above street level would result in the replacement of traditional bungalows with larger houses, the task force viewed a simulation to understand how changes in building height and setback would shape the character of new development.

How do agencies use the output?

Computers involve people in a public process, helping them understand the details and context of a specific transportation issue, an infrastructure project, or a transportation program. The use of computer imaging gets people energized, heightens a public meeting's activity level, and adds excitement. Most people react strongly to images, and images are often cited as the most memorable part of a presentation or report.

Images and graphics convey a great deal of information efficiently, so that agencies do not dominate a discussion in a public meeting. Computers can enhance information used in a planning process or explain the scope of a project. Use of photographs, drawings, diagrams, or graphs makes a point effectively and drives home its most important components. The Metropolitan Transportation Authority (MTA) in Los Angeles County, California used photographic images for the Wilshire/Vermont station on its Red Line. The MTA worked with University of California at Los Angeles design staff to show potential station designs and illustrate design concepts for public reaction and comment.

An agency can communicate quickly and receive rapid responses from participants. Presentations of data or study findings can be sent between departments, between agencies, and to participants in a process. Transmissions take place by exchange of floppy or CD-ROM disks or by modem via national and international networks. (See **On-line Services**.) Through such speedy transmission, agencies send out up-to-date information and keep themselves informed of quickly-developing issues or participants' concerns.

Who leads?

Agency staff often initiate and manage computer images for presentation graphics. Simple graphics prepared with common software packages are placed in documents or projected onto screens using either overhead projectors or a computer projection machine. The process uses now-familiar technologies, including computer-aided drawing and design (CADD), geographic information systems (GIS), and transfer of information to video tapes.

Sophisticated computer simulation graphics need specialized staff. Computer simulations are complex to create and may require the expertise of computer specialists, along with special equipment. Agencies may need to hire professional consultants who specialize in environmental simulation, computer graphics, computer animation, or digitized photographs. Environmental simulation labs at research institutions offer not only video simulations but also three-dimensional, virtual-reality presentations. These techniques can link changes in physical form to traffic, utility demand, and fiscal impacts.

What are the costs?

Computer costs are based on hardware, software, and staff time. Many agencies now have computer hardware available and assign staff to operate the machines. With computers on hand, agencies are able to take advantage of various appropriate software programs at nominal cost.

Staff time is required for learning software programs. While prices for software packages are relatively low, time for staff to learn and operate programs is often substantial.

Costs of computer materials for presentations depend on the complexity and sophistication of the presentation. A lap-top computer and a projection machine facilitate effective presentations but drive their cost up substantially. Agencies with limited budgets for presentations often transfer computer-generated images or text to printed materials or video.

Data costs dictate the usefulness of some applications. Sophisticated computer applications such as simulations are expensive, and their use may be limited to large, complex projects or issues. Simulations are relatively new and still costly, and the process of loading and manipulating appropriate data, formatting it, integrating it with other data, and meeting other programming requirements is labor-intensive.

How are computer presentations and simulations used with other techniques?

Computer graphics are integrated with other elements of a public involvement program. As with any presentation materials, the content of a presentation must be determined well before production of the graphics or simulation model. Materials are designed in formats that accommodate additions and changes due to public comment or suggestions. (See **Public Information Materials**.)

Computer graphics are used with many other public involvement techniques. GIS products, computer simulations, and travel demand forecasting models are used directly with community people. The products of these analysis tools—data or maps portraying population and employment information or transportation usage forecasts—provide useful information to the public.

Computer applications are used in surveys. University of California researchers used computer simulations to study the market potential of transit-oriented land development. Four development scenarios were simulated, with variations on transit access, commercial and retail services within walking distance, and community open space. They were shown to survey preferences of 170 residents of the San Francisco Bay Area. (See **Public Opinion Surveys**.)

Computer images can be part of an interactive display, whether stationary or mobile. Interactive displays for presentations and open houses use touch screens to get or give information. Computer images are central to messages or data agencies deliver on-line for inquiring participants. (See **Interactive Video Displays and Kiosks**.)

Media campaigns utilize computer-generated images and data. Public service announcements incorporating computer images are broadcast on television as part of an information campaign. (See **Media Strategies**.)

What are the drawbacks?

Illustration techniques should be used judiciously, since they are not appropriate for all projects or programs. Using such relatively new and impressive technology subjects an agency to criticism about spending limited public funds on expensive and flashy "toys." The Twin Cities, Minnesota, Metropolitan Council used GIS images in presentations, only to find that people were more interested in the data than the overall concepts illustrated. The Pennsylvania DOT found that the technologies may not be cost-effective in attracting interest and getting people involved.

Images are powerful, and they are sometimes misunderstood. For controversial subjects, computer images may suggest that an agency is biased toward one alternative. If illustrations are perceived as deceptive, the agency or the discussion process is open to question. If possible, an agency consults with people representing many positions prior to developing computer images or illustrations.

Computer illustrations usually show only two dimensions. Computer images give an idea of depth, but with some limitations. Simulations offer three dimensions, but some older programs have difficulty capturing the nuances of ambient light and depth of view. However, the technology continues to improve.

Agencies need to consider how to provide information to people who are sight impaired. (See **People with Disabilities**.)

Are computer presentations and simulations flexible?

Flexibility is usually related to software costs. While computer simulations can be designed for great variation and manipulation, some programs are quite limited or relatively static. More complicated software programs allow an agency to not only prepare images and simulations for public presentation

but also give some leeway to project designers and technicians working on-the-spot to accommodate design suggestions from the audience.

Once in place, computer graphics programs can be used repeatedly and in new ways. A complex transportation issue generates many potential solutions before reaching a set of final alternatives. Throughout this process, participants need help visualizing and understanding the characteristics of alternatives. Computer images potentially provide such visual aid.

Computer-generated images are used, modified, and re-used. Once the images and other computer materials have been made, agencies can be flexible in their use and distribution. The Orange County (California) Transit Authority made computer-generated images of alternatives for its projects. These images are used in video brochures available for borrowing. They are also used in mobile kiosks that bring interactive touch-screen programs to various areas of the county.

When are they used most effectively?

Visual images are effective at nearly any stage in a process. A visual depiction of possible changes in a transportation system can be used to acquaint community people with an agency's tasks. Computer images work especially well when used for people with limited language skills or for groups that speak several different languages.

Computer images have particular application to alternatives, helping people visualize potential impacts and operations. They are used in corridor studies, long-range planning, transportation improvement programs, or other program or project tasks. Visual communication is very useful at the beginning of a project or at a critical time when decisions are being made.

For further information:

- Center for Urban and Community Design, University of Miami, Coral Gables, Florida, (305) 284-2031
- Dallas Area Rapid Transit Dallas, Texas, (214) 749-3278
- Environmental Simulation Center, New School for Social Research, New York, New York, (212) 229-5408
- Environmental Simulation Laboratory, Institute of Urban and Regional Development, University of California, Berkeley, California, (510) 642-2961
- Lexington–Fayette Urban County Government Planning Division, Lexington, Kentucky, (606) 258-3160
- New York State Urban Development Corporation, New York, New York, (212) 930-0431
- Orange County Transportation Authority, Orange, California, (714) 560-5725
- Portland Metro, Portland, Oregon, (503) 797-1743
- Texas Transportation Institute, Texas A&M, (409) 845-1711
- Twin Cities Metropolitan Council, Saint Paul, Minnesota, (612) 291-6423
- Urban Innovations Group, University of California at Los Angeles, Los Angeles, California, (310) 825-4321

MAPPING THROUGH GEOGRAPHIC INFORMATION SYSTEMS (GIS)

What is a geographic information system?

Geographic Information Systems (GIS) combine traditional maps with layers of related information in an electronic format. A GIS assembles, stores, manipulates, and displays data that is identified by location and can relate information from different sources. Any variable that can be located spatially can be input to a GIS. Location may be annotated by x, y, and z coordinates of longitude, latitude, and elevation, or by such systems as ZIP codes or highway mile markers. A GIS can also convert existing digital information into forms it can recognize and use. In addition, census or other tabular data can be converted to map-like form, serving as layers of thematic information in a GIS.

A GIS stores maps and files layers of information in a way that makes it possible to perform complex analyses. For example, a GIS user can query a specific location, object, or area on the screen to retrieve recorded information about it from off-screen files. A GIS can also recognize and analyze the spatial relationships among mapped phenomena to determine adjacency (what is next to what), containment (what is enclosed by what), and proximity (how close something is to something else). It is also possible to assign values such as direction and speed to simulate movement through a network. GIS also has the ability to produce graphics on the screen or on paper that convey the results of analysis to people who have input to and make decisions about resources.

Some of the many broad uses of GIS include:

- Mapmaking – Incorporating the mapmaking experience of traditional cartographers into GIS technology for the automated production of maps.
- Site Selection – Analysis of multiple physical factors when they must be considered and integrated over a large area.
- Emergency Response Planning – Analysis of the impacts of natural disasters on surface structures, size of affected populations, and emergency response time and available routes.
- Simulating Environmental Effects – Realistic, three-dimensional "before and after" perspective views of the environmental impacts of a given project.

Source: Geographic Information Systems, U.S. Department of the Interior, U.S. Geological Survey,
http://www.usgs.gov/research/gis/title.html

Why is it useful?

GIS provides a richness of data that is unlike traditional paper maps. Complex information can be presented graphically in one place. In addition, GIS maps will typically have more depth of information. For example, while a paper map may show where toxic sites are located, a GIS map of the same information will often be backed up by a full database of information on those toxic sites. Information from a GIS may also be more current than a paper map. While paper maps may be updated on a regular schedule (e.g., annually), recent satellite or aerial photos could be digitized for GIS use to create "up to the minute" maps of an area.

GIS offers public involvement professionals flexibility in displaying information. Users determine how and at what levels associated information is displayed. As a result, maps can be quickly customized to a particular purpose. Maps can also be used interactively with the public to gather input and display the possible scenarios resulting from that input in a real-time setting.

GIS also allows conditions to be analyzed over time. For example, the San Diego Association of Governments (SANDAG) has been using GIS for over 25 years to assist in regional and local planning efforts. By working with its partners, SANDAG has developed cost efficient techniques to update its land use database on a regular schedule. SANDAG's GIS website also offers interactive maps that can be

customized to demographic, economic, transportation, and trans-border themes; downloadable GIS files, and access to printed maps.

Does it have special uses?

GIS can be used in participatory/collaborative mapping. For example, practitioners and community residents can collaboratively sketch community boundaries, as seen by local residents and identify important community assets and liabilities (e.g., cultural resources, historic sites, toxic sites). GIS also supports "what-if" scenario planning. Mapping of roads, bus routes, pedestrian paths and bikeways commonly can help assess those used and/or preferred by local residents. The results can be overlaid with current and proposed transportation projects for a quick snapshot of potential impacts and can be ultimately integrated with new projects. The following example shows the results of a GIS analysis done by the Orange County (CA) Transportation Authority (OCTA) to determine what effect a proposed change in bus service would have on accessibility to the new service. OCTA used a variety of information, including population density, land use, and "catchment" areas (i.e., the area from which potential riders would be willing to walk to and from the stop) to develop this analysis. The first figure shows population accessible to the existing bus system. The second shows the change in accessibility based on a proposed change. Additional examples from OCTA can be found in FHWA's Toolbox for Regional Policy analysis, Orange County Case Study,
http://www.fhwa.dot.gov/planning/toolbox/orange_overview.htm.
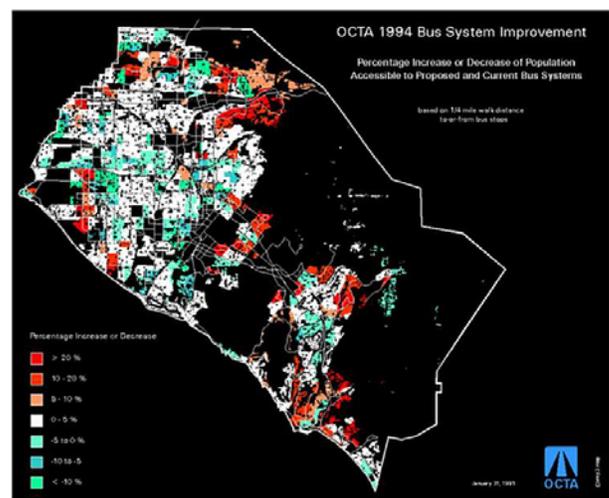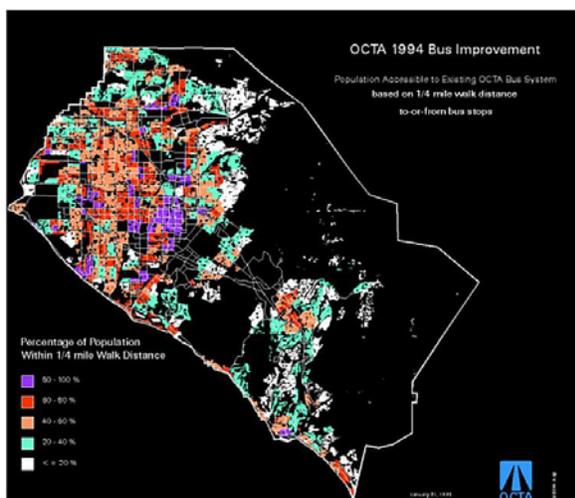
A GIS can be used to survey residents about their local environments (cross-link to section in guide on surveys). For example, a the National Science Foundation has funded a project at the University of Illinois at Urbana-Champaign to help in understanding of elements of local environments that are important to people's lives. Through a face-to-face interview, participants are asked to assess perceptions about a neighborhood's boundaries, services, strengths and assets, problems and deficiencies. The interview uses a GIS interactively to plot responses on a map and prompt follow-up questions, as well as to present study findings.

GIS also provides information to citizens about community information, services, and projects. On its communityWEBpages, the City of Vancouver hosts a "Projects and Construction" section that includes information about city initiatives, projects, development proposals, construction and roadwork. Information is searchable by community, department, project type, street name or location, and project dates. This information is also mapped using VanMap, a city-wide map application that also provides information on property lines, zoning information, sewer and mains, addresses, and public places.

Other examples of GIS used to provide information to the public include:

- "Seattle's Neighborhoods – A Graphical Guide to Services and Activities" maps neighborhoods by census tract. It provides information on City of Seattle services within tracts, as well as brief demographic information.
- North Central Texas COG Transportation Improvement Program Information System provides information about transportation improvement plan projects in the Dallas-Ft. Worth metropolitan planning area through an interactive map.
- The EPA Enviromapper maps various types of environmental information, including air releases, drinking water, toxic releases, hazardous wastes, water discharge permits, and Superfund sites. Maps can be created at the national, state, and county levels.

Who participates? And how?

GIS can be used interactively with participants at public meetings, open houses, and small group meeting. Practitioners may engage participants as a group or in a one-to-one setting. In addition, the GIS tool could be set up as a stand-alone interactive display for meeting participants to review and comment on proposed plans or analysis. GIS products could also be part of interim and final project or plan documents.

A GIS tool can also be part of a website. Like many of the community information services described in the preceding section, individuals who are computer-oriented are most likely to participate. Usage would be limited to those with access to computers and Internet connections. However the public would have the convenience of accessing information from their homes at any time. Agencies must publicize the availability of on-line material. (See **On-line Services**.)

A GIS may also be available for plan or text mark-up software. For example, GIS images of proposed routes or service corridors may be placed on a website and through appropriate mark-up software, the public would be able to comment from remote locations at prescribed review cycles. (See **Plan Or Text Mark-Up Software**).

How do agencies use the output?

Agencies can use GIS to gather community reaction and obtain community opinion on projects and plans. Through GIS, agencies may gain a better understanding of importance of neighborhood/community elements to public. GIS may also assist with joint-decision making and empathy building. Interactively mapping scenarios can help all parties better understand each other's interests and concerns.

Also, because of the electronic interchangeability of the GIS data files, agencies may save time and resources once a final concept is approved by using the same materials for the next stages of the project or plan development using materials developed, in part, for public involvement purposes.

What are the costs?

Costs to implement GIS systems may be high depending on the strategic interest and information technology resources of the agency. In some cases, a project may already have a GIS component. In addition, agencies may have the necessary hardware and software, as well as professionals trained in GIS on staff and available to assist in its use for public involvement. If not, staff training or hiring consultants may be necessary.

GIS does involve a substantial time commitment on the part of the agency. Depending on data sources available, maps may have to be generated for intended purposes. In most case, information for public display would need to be customized to the particular project.

If a GIS is to be available via the Internet, some type of outreach may be beneficial to advertise the service and ensure return on investment. In addition, set-up and/or licensing costs may apply.

How is it used with other techniques?

GIS can be used to:

- Enhance public meetings, small group meetings, open houses, conferences, and workshops by conveying complex information in manageable layers of information (See **Public Meetings/Hearings; Small Group Techniques Open Houses; Conferences, Workshops, and Retreats**.);
- Facilitate activities like brainstorming, charrettes, and visioning to develop better, community-based concepts (See **Brainstorming; Charrettes; Visioning**.); and
- Provide additional features to and comment opportunities through on-line services (See **On-line Services**).

What are the drawbacks?

As mentioned above, cost and training may be a drawback to using GIS. If the hardware, software, and personnel capabilities do not exist in the agency, or are not being currently employed on the project, significant costs can be incurred to purchase computer equipment and train staff, or hire consulting expertise. The availability of datasets and compatibility of data may also impact the cost of using GIS.

Because of its electronic format, GIS has the potential for mass media appeal and distribution. However, agencies must take care to ensure that false impressions are minimized through accurate representations.

If a GIS tool is to be web-based, project staff needs to consider that the use of on-line services is limited due to access, expense, and skill requirements (See **On-line Services**). As a result, web-based GIS should be used with other public involvement techniques (i.e., meetings, other on-line services).

When is it used most effectively?

GIS is most effective when there is:

- A need to convey complex information graphically;
- Information that can be tailored to particular users or audiences; and
- Support or complementarities from other public involvement techniques.

For further information:

- San Diego Association of Governments GIS Resources, http://www.sandag.org/index.asp?classid=21&fuseaction=home.classhome
- FHWA's Toolbox for Regional Policy Analysis, Orange County Case Study, http://www.fhwa.dot.gov/planning/toolbox/orange_overview.htm
- FHWA's Toolbox for Regional Policy Analysis, San Francisco Case Study, http://www.fhwa.dot.gov/planning/toolbox/sanfrancisco_overview.htm

- FHWA Transportation Case Studies in GIS, http://tmip.fhwa.dot.gov/clearinghouse/docs/gis/
- "Neighborhood Evaluation using GIS", Dr. Emily Talen, University of Illinois at Urbana-Champaign, http://www.urban.uiuc.edu/faculty/talen/GISweb/summary.html
- City of Vancouver, communityWEBpages
  http://www.city.vancouver.bc.ca/community_profiles/index.htm
- "Seattle's Neighborhoods – A Graphical Guide to Services and Activities"
  http://www.pan.ci.seattle.wa.us/don/neighmap.htm
- North Central Texas COG Transportation Improvement Program Information System
  http://dfwinfo.com/trans/tipins/index.html
- EPA Enviromapper, http://maps.epa.gov/enviromapper/
- Community University Regional Consortium for Regional Environmental Justice
  http://www.danj.org/~gelobter/cucrej/
- Integrated Approaches to Participatory Development http://www.iapad.org/
- Hillsborough Project http://www.eos.ncsu.edu/eos/info/ce400_info/roundabout/index.html
- "The World of E-Planning", Karen Finucan, Planning, July 2001, pp 4-9. Also provides a reference to the public access GIS in Milwaukee and a public participation website for Indianapolis.

3-D VISUALIZATION

What is 3-D Visualization?

Three-Dimensional (3-D) Visualization is a process in which flat images are enhanced or manipulated by an artist to impart the illusion of depth. 3-D visualization may be still, i.e., no motion associated with the image, or may include motion, in which case the technique is usually referred to as 3-D animation.

Flat images, such as illustrations, photographs, films, and graphics in a display area or on a computer screen, can be manipulated through one of several techniques to create the illusion of depth. These techniques include special viewing lens worn by the viewer to make flat images appear with depth. Computer illustration and animation techniques can also provide depth to an image through special techniques of shading, perspective, motion, and possibly sound. When using a computer-based technique, it is possible to select certain viewing points or environmental conditions to examine the images or objects of interest. For example, a 3-D visualization of a project may be created using a morning, mid-day, and evening context to get a sense of the scale, utilization, and appropriateness of a proposed project in a community setting. All of these techniques have the intended effect of making the objects appear to be "life-like", extending flat images out of the paper, print, film, or screen on which they appear.

Three-dimensional (3-D) animation, the dynamic version of 3-D visualization, creates the illusion of motion by viewing a succession of 3-D still images or computer-generated still images. Prior to the advent of computers, animation was achieved by videotaping or filming a sequence of still images or painted sequences one at a time on plastic or paper surfaces. When played back, the sequence of still images give the impression of motion. When first used, computers controlled the movements of the artwork and the camera using this traditional method. Now computers create the artwork and simulate the motion effects.

Why is it useful?

Many individuals visually perceive the world and the objects in three dimensions -- length, width, and depth. Because this is a natural state of observing and viewing our world, information conveyed with this technique does not require extensive translation or adjustment from our normal visual mode of sensing. The advertising industry for years has relied heavily on visualizations (and increasingly 3-D visualizations) to convey messages about products or services, educate the public, or encourage purchases.

3-D visualization are able to convey in a succinct manner the forms and shapes of an interim or final project design or concept. This enables the public to better understand the implications of a potentially complex project or plan and enhance their ability to provide review and comments.

Does it have special uses?

People perceive the world and objects in three dimensions. Accordingly, information conveyed with 3-D visualization does not require familiarity, training, or extensive translation or adjustment on the part of the public.

Computer animation can be used to create special effects and to simulate images that would be impossible to show with non-animation techniques, such as the look and feel of walking through a community after a large-scale facility such as a replacement bridge or new transit system has been built. Computer animation can also produce images from scientific data. It has been used to visualize large quantities of data, such as those gathered through remote sensing applications such as weather systems

(See **Remote Sensing Applications**). Computer animation can also be used to create a sense of the operations of a proposed facility or system, including representation of vehicular and people movement in a project study area.

Who participates? And how?

Almost anyone can participate in the use of 3-D visualization. However, agencies using this technique should consider alternate methods for involving people with visual impairments.

The technique can be used during various stages of a plan or project. Typically 3-D visualization is used after a set of solution options or alternatives have been sufficiently defined and greater insight into the environmental, community, social, and visual impact is desired.

Because many of the 3-D visualization technique now involve the use of computers, the 3-D products may be shared over a wide range of media outlets, including the Internet, kiosks, CDs, display tables, VCRs, TV programs, and similar means. Static displays, such as special display boards, may be used at public forums. This static format provides the opportunity for a project representative to offer an explanation of the technique and solicit comments from viewers. On the other hand, 3-D visualization, when coupled with sound, may allow for a self-standing display, requiring no project representative. Self-standing displays may be used in kiosks, on the Internet, or on appropriate broadcast media (as PSAs, for example). (See **On-line Services; Interactive Television; Interactive Video Displays and Kiosks; Public Information Materials**.)

How do agencies use the output?

3-D visualization is a natural way of viewing the potential effects and outcomes of a proposed plan or project.   The visualization may also be used to create a futuristic or a "desired outcome" vision for a project or plan, which is not necessarily tied to any proposed solution idea. In either case, once the public has had a chance to understand and review the 3-D visualization, agencies may use the technique to:

- Gather community reaction.
- Obtain community opinion on projects and plans.
- Be a catalyst for further discussion, analysis, or refinement of a proposed alternative.
- Be the basis for an honest and valid sample of community opinion.

What are the costs?

While commercial software is readily available to support 3-D visualization, highly skilled techniques and specialized computer equipment are needed to develop quality 3-D visualizations. The costs may range from several hundred dollars to several thousand, depending on the number of 3-D visualizations required, the extent of animation, and the resolution, source materials, and complexity of the images being developed.   Because this is such a specialized skill and the visualization equipment is somewhat unique for these visualization functions, consultant services are usually required.

How is it used with other techniques?

3-D visualization can augment a variety of other techniques. It is especially useful when describing a complex alternative or plan, in which case it can augment text-based or other image-based techniques. 3-D visualization is also useful in providing a baseline or common reference point for soliciting public opinion and comment on a project or plan. (See **Briefings; Public Meetings/Hearings; Open Houses; Conferences, Workshops, and Retreats**.) 3-D visualization may also be used for brainstorming concepts or creative activities, such as a design charrette or community visioning exercise. (See

Brainstorming; Charrette; Visioning.) Depending on the acceptability and appropriateness of the 3-D visualization, it may become a "logo" or shorthand representation for a particular project or plan.

What are the drawbacks?

3-D visualization is a costly and potentially time-consuming technique. Care must be taken to ensure that the investment is beneficial to the overall public involvement goals. Because of its electronic-format, it does have the potential for mass media appeal and distribution. However, agencies must take care to ensure that false impressions are minimized through accurate representations. In addition, proper use of this technique is required to effectively gather accurate and representative public comment.

When is it used most effectively?

3-D visualization is used most effectively when a small number of complex plans or project alternatives are under consideration for review and/or selection. The visualization, when used in conjunction with other techniques, provides a context for enhanced public understanding, review, and comments.

For further information:

- Washington State DOT – Design Visualization. www.wsdot.wa.gov/eesc/cae/desvis.htm
- University of Wisconsin Forest Visualization Project.
  www.landscape.forest.wisc.edu/Projects/projects.html
- Engineering News Record article on 3-D visualization and public involvement.
  www.enr.com/new/coverstry_81301.asp
- Taking architectural views to the community with 3D Visualization.
  www.datacad.com/news/articles/hmfhfin.htm
- TxDOT Project: Cross-town Interchange Public Involvement Features 3D/4D Visualization.
  http://www.dot.state.tx.us/insdtdot/geodist/crp/xtown/xtown.htm
- Maglev Corridor Transit Project – Baltimore-Washington proposed project using advanced magnetic levitation technologies. http://www.bwmaglev.com/
- Honolulu Rapid Bus Transit project – Summary document with maps and photos of the BRT concept and proposed project. http://www.oahutrans2k.com/factsheet.pdf

VISUAL PREFERENCE SURVEYS

What is a visual preference survey?

A visual preference survey is a technique that assists the community in determining which components of a plan or project environment contributes positively to a community's overall image or features. As the name implies, the technique is based on the development of one or more visual concepts of a proposed plan or project. Once the visual concepts are developed, they are used in a public forum or other specialized public gathering to provide the public with an opportunity to review, study, and comment on their preferences for the features depicted by the visual representations. Typical uses of visual preference surveys include helping the community define the preferences for architectural style, signs, building setbacks, landscaping, parking areas, size/scope of transportation facilities, surfaces finishes, and other design elements.

The format for the preference survey can be a written ballot, a structured set of self-administered questions, a facilitated discussion, a focus group format, an open semi-structured forum, or used as part of another preference collection approach, e.g., handheld/instant voting techniques.

Why is it useful?

Visual preference surveys are helpful since they provide the public with a broad and relatively inexpensive range of options for depicting community features for a proposed plan or project. The actual technique may rely on sketches, photographs, computer images, or similar techniques to provide the basis for participants to rate or assess each visual depiction on a preference scale, such as a five-point scale. As a result, participants can express judgments and possibly reach a consensus about a visual design, architecture, site layout, landscape, and similar design features, which may be incorporated in the goals, objectives, design guidelines, enhancement/mitigation measures, and/or recommended standards for a study, plan or project.

Does it have special uses?

Visual preference surveys can assist agencies in the understanding and development of:

- Community and urban design features
- Transportation sub-area or corridor studies
- Transportation alternatives development and analysis
- Large-scale regional planning efforts
- Visioning exercises (See **Visioning**)
- Design charrettes (See **Charrettes**)

Who participates? And how?

Public participation will be dependent on the type of visual preference survey technique employed. For example, if a focus group format is used, then some public selection process must be used to include a set of individuals who are representative of the views and interest of the larger community. At other times, the visual preference survey may be included as part of a public hearing or public meeting process, with one of several "stations" or display areas containing the visual options. At the display area some means of collecting feedback from interested viewers will be needed, such as responses to a structured interview administered by staff or the completion by the viewer of a preference rating form.

How do agencies use the output?

The results of the survey will provide insights and direction to the agency on the preference of the sampled group.   Based on the objectives of the survey and the representation of the community in the sampled group, the agency may make key decisions on the preferred types of project design features, studies, or plans. The results of the survey are also helpful in focusing community opinion on projects and plans, being a catalyst for further discussions, helping to educate the public about the design or plan choices, and offering an alternative form of collecting public or community opinion and feedback. Because of the visual basis of this technique, concepts and survey results are easily conveyed in the mass media.

What are the costs?

The cost for the visual preference surveys are usually a few hundred to a few thousand dollars, depending on the range of visual options to be displayed, the desired sample size, and the method(s) of collecting and analyzing public preferences. This techniques can be implemented using agency personnel and resources or through consulting services.

How is it used with other techniques?

Visual preference surveys can complement other survey techniques. (See **Public Opinion Surveys**.) It can also be used as part of a wider set of techniques to help educate the public about key features of a project or plan and to assist in the development of ideas or concepts. Consequently, visual preference surveys can be used in conjunction with public meetings or hearings, activities involving vision development, design charrettes, and focus group discussions or small group meetings. (See **Public Meetings/Hearings; Visioning; Charrettes; Focus Groups; Small Group Techniques**.)

What are the drawbacks?

Visual preference surveys are time consuming since they will require the development of one or more visual renderings of options or design features under consideration.   This set-up time may require several weeks of preparation, depending on the availability of data, the skills of the artist, and the desired size and level of detail for the visual rendering.

Agencies using this technique will need to consider alternative methods for involving people with visual impairments. (See **People with Disabilities**.)

Because of the visual sophistication of the public, given the pervasiveness and societal influence of mass media and advertising, there may be expectations on the part of the public for high quality and completeness. The public may dismiss the visual content because the renderings or presentation are not developed to a comparable level of detail and quality they are use to viewing in the print and visual mass media.

It is also possible for the public to develop false expectations based on the visual rendering. Agencies need to ensure that a designer's visualizations are true.

When is it used most effectively?

Visual preference surveys are most effective when major design feature decision needs to be made. The technique is also valuable in helping to build a community consensus and momentum on a preferred design or study approach. Because of its visual nature, this technique is also most effective when complex issues and concepts can be depicted visually.

For further information:

- "Shaping Dane" Pilot Project, Citizen-Based Land Use Planning in Dane County, Wisconsin, Electronic Planning Facilitation, http://www.lic.wisc.edu/shapingdane/welcome.html
- UrbanSim software based simulation model, Paul Waddell, 206-221-4161, pwaddell@u.washington.edu, http://www.urbansim.org/
- Envision Utah, http://www.envisionutah.org/
- FHWA's Toolbox for Regional Policy analysis, Envision Utah Case Study, http://www.fhwa.dot.gov/planning/toolbox/utah_application.htm
- Florida House Institute for Sustainable Development, Tools for Community Design and Decision Making, Inventory of Place-Based Planning Tools, http://www.i4sd.org/tools-2.htm
- City of Mankato, MN Urban Design Framework Manual, Visual Preference Survey (Chapter 2), http://www.ci.mankato.mn.us/urbandesign/chapter2/2.php3

HANDHELD/INSTANT VOTING

What is handheld/instant voting?

Handheld/instant voting is a means by which participants may express a preference for an issue or idea under consideration and have their preferences recorded, usually anonymously and instantaneously. In typical public involvement practice for example, participants are provided a paper feedback form or ballot to indicate a preference for one or more alternatives of a plan or project. These paper ballots are collected and tallied at a later time with the summary results usually shared with the public through a newsletter, report, website posting, or other means. Improvements in technology allow for more advanced tally techniques, such as an optical scanner, to automate and reduce tabulation errors. More recent technical advances have allowed participants the opportunity to cast their preferences via handheld devices, sometimes using wireless communication systems at a specially arranged location. Some companies are beginning to develop Internet-based instantaneous voting approaches, which allow for a decentralized collection of votes. Wireless companies with their cellular phones or PDAs now allow mobile users to connect to the Internet or e-mail providers and cast preferences for products and services.

The handheld/instant voting technique is not widespread, primarily due to cost, but may offer a dramatic improvement in the ability of agencies to collect public preference, especially if electronic voting systems are employed in other forms of democratic processes, such as local, state, or federal elections. Past efforts have been attempted in on-line voting (Cube system tried in Columbus, Ohio during the mid-1970's), but did not success due to technical awkwardness, lack of trust in an accurate vote tally, and minimal social acceptance of this form of democracy.

Why is it useful?

The advantages of the direct-recording electronic systems, where the participant (voter) does not fill out a paper ballot and simply touches a screen or pushes buttons, is that there is no voter intent problem (was a ballot marked correctly), the preferences are captured quickly, and physical presence at a public involvement site/event is not required, only some form of electronic access and validation of the voter. In addition, handheld voting allows for immediate feedback and quick iterations and refinements. Some experts believe the electronic voting systems could enhance the democratic process by enabling referendums or preference surveys to be conducted more often and at less cost. Some studies have indicated the lack of public involvement may be due to the inconvenience of going to the public involvement site, which would be overcome with a handheld/instant or electronic voting system. On the other hand, despite elaborate software safeguards against hackers and fraud, even electronic voting techniques must first gain enough public trust in the techniques security for them to be effective. Most tests so far have involved computers in public buildings with access monitored by vote monitors.

Does it have special uses?

Handheld/instant voting is useful when seeking preferences quickly from an audience. However, care must be taken to understand the nature of the voting group so that results are carefully analyzed and inferences correctly drawn about preferences for more general populations or groups.

Who participates? And how?

Participants in handheld/instant voting techniques may be selected to be representative of a special subpopulation (e.g., a community-based survey) or representative of the more general population (urban, suburban, rural communities in a metropolitan area across all demographic characteristics). At other times, there maybe no pre-selection or screening of voters and those who have access to the devices or

voting sites are allowed to cast a preference. The choice of technique and who participates depends on the objectives of the public involvement process.

A typical use of handheld/instant voting involves having the audience express preferences to several scenarios. They press buttons corresponding to questions associated with the scenario, using a preference scale to respond to a question, e.g., high to low, like to dislike, one to five, etc. The questions have been carefully selected and sequenced to allow analysts to infer preferences and/or special interests among the scenarios and discussion topics. From the voting, reports may be provided instantaneously or only votes collected instantaneously, with the results presented at a later time through a pre-arranged feedback mechanism. More sophisticated methods allow for the real-time adjustment of subsequent scenarios based on the immediate responses of voters.

Other types of handheld/instant voting techniques would allow the public to express preferences through touch screens on kiosks or similar computer-aided devices.   The preference results would typically be downloaded to a central tally location periodically (hourly, daily, etc.) depending on the polling location of the kiosk, perceived interest in the topic, and cost.

In any case, issues of voter fraud, double counting, and ease of access will need to be addressed. Some techniques use identifying numbers, letters, or similar techniques.

How do agencies use the output?

The results are used in a manner similar to those of conducting a survey or preference expression technique. In general, the output allows for a means of rapidly getting public (or some subpopulation's) reaction to a project or plan, obtaining community preferences for selected scenarios, helping to educate the public about a particular project or plan, and encouraging participation through the fundamental democratic principle of voting.

What are the costs?

Handheld/instant voting systems are expensive, costing anywhere from a few thousand dollars up to several thousand dollars for each portable (wireless) unit.   Vendors do provide rental systems, but the costs usually can be several hundred dollars per user, depending on the intended use, number of voters, duration of the rental, and the complexity of the survey. Technology advances will help drive these costs lower.

How is it used with other techniques?

Handheld/instant voting can be used with other parts of the project or plan development cycle to improve the agency's understanding of community preferences. Whenever the public involvement process calls for the expression by the public of a preference for an idea, options, or alternative, handheld/instant voting is a candidate technique.

What are the drawbacks?

Drawbacks of the handheld/instant voting technique include:

- Potentially high initial cost or rental cost;
- Only takes the opinions of those voting, which may cause for skewed interpretation of preferences and results; and
- Participants may be reluctant to use the devices for fear of new technology, accuracy, anonymity, or similar factors.

When is it used most effectively?

When a rapid response of preferences is required.

For further information:

- Characteristics of a good electronic voting system. http://www.acm.org/crossroads/xrds2-4/voting.html
- The case of electronic voting. www.wired.com/news/politics/0,1283,40141,00.html
- Transportation Blueprint for the 21st Century: MTC Forum Involving Electronic Voting. www.mtc.ca.gov/projects/blueprint/bp_findings.htm
- Internet Voting Technology Alliance for Public Involvement. www.iap2.org/PINlinks/pinlinks.html

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PLAN OR TEXT MARK-UP SOFTWARE

What is Plan or Text Mark-up Software?

Plan or text mark-up software is a computer application that allows the user to provide comments, notes, hyperlinks, or other text or graphical modifications to an existing drawing, plan, document, graphic, or other form of electronic media. As visual renderings become more computer-based, a software application that allows for easy mark-up of visual concepts or text is desirable as a public involvement technique. Such a software tool would enable the public to directly comment on plans and ideas without detailed knowledge of the underlying visualization or text generation software. With advances in telecommunications, the mark-up software can be done remotely and through individual feedback or through structured group activities.

Why is it useful?

The plan or text mark-up software would allow for multiple reviewers to comment in an efficient and effective manner, usually from a remote location, on current plans, concepts, visuals, and ideas. Because the technique is computer based, it is available just about anytime from anywhere. Therefore, it provides an opportunity for a large number of individuals with access to the software and source documents or images to provide feedback and comment.

Does it have special uses?

It provides a means for a large segment of the population comment on current plans or ideas. It is a technique that may complement more traditional methods of convening a public meeting or discussion forum, helping to attract public participants who may not be able to participate due to distance or time constraints.

Who participates? And how?

Comments could be accepted from anyone who has access to the plan or text mark-up software. The software could be made available through on-line services or the Internet at little or no cost and could be developed and configured to operate on a variety of computer systems, e.g., Javascript.

To participate, a commenter would have to have access to the source document or images and have access to appropriate mark-up software that can operate with the source documents or images. Once this compatibility and connectivity is established, the commenter would provide one or several rounds of comments on the source materials. These comments would be reviewed and considered by the agency that would periodically receive the comments electronically. The agency would need to implement a plan for document version control and tracking.

How do agencies use the output?

Agencies would be able to collect public comments electronically on plans or other source documents associated with a project or plan. Because commenters provide their reactions in electronic form, an automatic record of participation is generated and provides an audit trail of public comments for future reference, as needed. Moreover, several cycles of comments can be gathered with successive cycles containing an updated version of the document or plan. This technique provides a direct means of gather public comment from those who wish to and are able to respond.

What are the costs?

There is an initial setup cost for establishing the protocols and procedures for the management of the electronic documents. The mark-up software would also have to be purchased and made available to users, usually through an Internet connection. The costs for the software may range from several hundred to several thousand dollars, depending on the formats and software used to generate the reference documents or plans. In some cases the text mark-up software is already available as part of a computer operating system. For example, Windows 2000 provides NetMeeting software which allows for text or plan mark-up in a group setting. After the initial setup expenses, the primary operating costs become the staff time required to manage the comments and updates to the electronic documents which have been made available for review and comment.

How is it used with other techniques?

Plan or text-markup software is not helpful when starting to develop a document or image, but instead can better assist the agency when soliciting comments and feedback on more mature concepts and ideas contained in the document or images. Consequently, the plan or mark-up software can be used after face-to-face meetings or activities in which initial concepts and trust have been developed. The software then provides an efficient means of maintaining public contact and gathering comments and feedback as the project advances. While this is an efficient means of collecting feedback, it should be consider as one of several techniques to be used, since face-to-face meetings are still invaluable for unambiguous communications and maintaining community interest and trust.

What are the drawbacks?

In addition the potential high costs of the software, there may be a "learning curve" for the commenter based on his experience with the software and the document or images on which comments are offered. If this learning curve is too steep or the software is not "user friendly" the commenter may get frustrated and not provide feedback due to technical difficulties. Moreover, the comments are received primarily from those who are able to work with the software and may not be a representative sampling of the general public. Therefore, interpretation of the comments will need to be done carefully.

When is it used most effectively?

Plan or text mark-up software is effective when used in conjunction with other feedback techniques. Plan or text mark-up software can also be used with small groups, such as advisory or technical panels, and with stakeholders. (See **Small Group Techniques; Civic Advisory Committees; Collaborative Task Forces**.) It should be used selectively since it is highly dependent on the software skills and capabilities of the commenter. Therefore it should not be the primary means of gathering feedback, but as a complementary approach to reach special audiences who may not be able to comment through conventional means.

For further information:

The evolution of plan or text markup software is episodic. Text software has existed for approximately 25 years on personal computers and has incorporated increasingly sophisticated means of editing and "redlining" text. Recent efforts have been devoted to plan mark-up languages, but the multitude of graphic (plan) formats, the increased technical complexity of graphics software, and the computer processing needs have not allowed plan mark-up software to advance to the same state as text mark-up software.

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Using most modern day text software, an authorized user is able to redline or mark-up electronically the text during reviews or edits. The changed text usually appears in a different color or format. Upon saving, other reviewers may also mark-up the text, including edits from previous reviewers. All changes are usually tracked by different colors and/or formats and include author and time/date stamps. After a review cycle of the text is complete, the original author can see and review the marked-up text and accept, modify, or reject the proposed changes. These text mark-up features are usually included in the basic text software.

Recently, plan mark-up software is emerging in one of two forms. The first form is similar to text mark-up software. An authorized user is able to modify the plan through special editing tools, which are displayed on the plan as different colors and/or formats. As with text mark-up, several reviewers are able to provide graphical comments on the same original plan. Upon review, the original planner or designer is able to selective accept, modify, or reject the proposed changes. The second form is more interactive and allows several planners or designer to collaborate with one another over the Internet. In this configuration, plans are stored in a central computer (known as a server) and reviewers with authorized access are able to view and edit the plans using specialized software. Software achieving both of these features has been announced, but no commercial available and certified products have been identified to date.

REMOTE SENSING APPLICATIONS

What are Remote Sensing Applications (RSA)?

Remote Sensing Applications (RSA) refer to the combination of hardware and software that allows for the processing of information about land, water, or an object, without requiring any physical contact between the sensor and the subject of analysis. The term remote sensing most often refers to the collection of data by instruments carried aboard aircraft or satellites. However, remote sensing is also conducted through a land-based network of environmental sensing stations maintained by a variety of federal, state, and local agencies. Such remote sensing may track weather conditions, measurements of air and water conditions and quality, or other specialty data.   Remote sensing applications are commonly used to survey, map, and monitor the resources and environment. Examples of images taken from remote sensing, organized by categories such as agriculture, human dimensions (e.g., environmental impact, population), land surface, and oceans, can be found at NASA's Visible Earth site, **http://visibleearth.nasa.gov/.**

There are several different types of remote sensing devices and applications. Many systems take photographs with cameras, recording reflected energy or images in the visible spectrum. Other systems record electromagnetic energy beyond the range of human sight, such as infrared radiation and microwaves. Still other systems employ a network of distributed electro-mechanical sensors and a central location for collecting, transforming, and summarizing the remote sensor data.

RSAs are varied and include archeological research, geologic investigations, mapmaking, meteorology, mining, volcanic activity, oceanography, and atmospheric and aquatic studies. Once data has been collected, verified, and stored, RSAs may be able to develop summaries and trends for the subject of analysis or topic of interest. For example, information about air quality for a metropolitan area could be collected and summarized by specialized RSAs. The analysis could provide information about compliance with federal air quality standards and the range of feasible transportation projects for that area. Another common use of RSA is photogrammetry or the science of taking measurements from photographs or other types of images to make physical maps, including topographic maps. The maps are generally developed from photographs taken by a special camera on an airplane.

Why is it useful?

RSA is valuable since it provides a means of collecting and analyzing environmental data at low cost and relative convenience. As a public involvement technique, RSA is useful to help the public understand the past and current environmental conditions in a particular study area or region. RSA also provides first-hand access to data that may be used to help educate the public, build confidence in other analytic methods, and foster a more active public role in the project or plan development.

Does it have special uses?

Because of the potential large-scale coverage of RSA techniques, the public is able to develop a firsthand appreciation of the macro and micro environmental features of a study area which would not have been possible until recently. Depending on the availability of quality data, a RSA could be useful in the various stages of a project, such as issue identification, development of options, and the selection of a preferred course of action.

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Who participates? And how?

RSA are usually developed and managed by agencies. However, special interest groups may also use basic data from remote sensors to analyze and summarize their findings. Data sources are becoming increasingly available and without cost on public websites.

To conduct a remote sensor analysis, one needs access to the data and the conditions under which the data was collected. The data is then processed through specialized software, which has been developed and tested by experts. The results are verified, summarized, displayed, printed, and/or summarized for further interpretation and use. A variety of these collection and analysis activities are conducting between commercial firms and academic or non-profit organizations. For example, ESRI (a private firm engaged in GIS systems) maintains a Conservation Research Program that provides industry-academic-nonprofit collaboration on a variety of environmental and community remote sensing projects. These projects range from studies in conservation biology to environmental justice assessments (e.g., http://www.conservationgis.org/links/justice.html.)

How do agencies use the output?

Products from RSAs are used in four primary ways:

- To educate the public about baseline environmental conditions and trends;
- To analyze and develop findings of community and environmental impacts of a proposed plan or project;
- To assist in displaying or conveying complex environmental information; and
- To obtain public comments or reactions.

What are the costs?

Because of the specialized nature of RSAs and the extent of the sensing network, the costs can vary significantly. Some data and information can be low cost because data and analyses are available through specialized Internet sites. If analyses or findings are not available, then RSAs may need to be developed to meet a specific project need. Sometimes this expertise is available within an agency. Consequently, the costs may vary from a few hundred dollars to several thousands, depending on the objectives of the RSA, the level of precision required, and the complexity and scope of the sensing data and subsequent analysis.

How is it used with other techniques?

RSAs complement other environmental data collection techniques. RSA is most effective when macroscale surveys of environmental data are required and the hardware and software for data collection, analysis, and reporting have been developed and verified. The data and findings can be used to assist or augment other public involvement techniques such as using reports and display materials to impart a baseline knowledge of environmental conditions, identifying issues/concerns, developing solution alternatives, selecting among alternatives, and communicating/displaying data, information, and knowledge.

What are the drawbacks?

RSA techniques are relatively straightforward, but the complexity of the process from sensing data to the communicating of findings is highly complex and may not be "transparent" to a non-specialist. This may create some issues of credibility and validity of the findings. Also, the cost of RSAs may be relatively high, although increased use of RSA during the past 20 to 30 years has helped to lower the user costs.

When is it used most effectively?

RSA are most effective when the technique is somewhat familiar to the public, e.g., weather sensing, the analysis process is relatively intuitive and straightforward, and the findings contribute to additional understanding and interpretation of the issues or discussion topics at hand.

For further information:

- The National Aeronautic and Space Administration's Observatorium offers education resources about remote sensing. http://observe.arc.nasa.gov/nasa/entries/entry_7.html
- "Remote Sensing Imagery: Making Sense Of Available Data," by Alex de Sherbinin, Environment, Volume: 44 Number: January 1, 2002.
- Integrated Global Observing Strategy is a major partnership of data providers and data users focused on atmospheric, oceanographic, and land-based observations. See http://www.igospartners.org/
- NASA's Visible Earth provides an excellent array of imagery grouped conveniently into categories such as agriculture, biosphere, human dimensions, and oceans. See http://visibleearth.nasa.gov/

Chapter 4.   USING SPECIAL TECHNIQUES TO ENHANCE PARTICIPATION

D.   TAKING INITIAL ACTION STEPS

In an era of many distractions and competing interests, agencies need more varied and effective ways to grab the public's attention and engage them meaningfully in planning activities. Here are some steps agencies can take to use special techniques:

1.   **Evaluate whether special techniques are needed and why.**
      Perform a self-evaluation of the agency's public involvement efforts to determine if a representative cross-section of the community is responding and being heard. Decide if special techniques are necessary to increase participation or meet a need not being addressed by standard methods. Keep in mind the overall strategy of the public involvement program.

2.   **Determine which special techniques are appropriate.**
      Define the specific purpose to be achieved. Explore the array of techniques available to determine which one fulfills that purpose for the intended audience. Assess the interest it might arouse. Seek the advice of participants who are already knowledgeable about agency proposals. Survey a sample of community people or hold a focus group to flesh out their reactions. If interactive technologies are being considered, assess whether the intended audience is likely to be put off or drawn in by them.

3.   **Assure the necessary funding.**
      Budget staff time, equipment, supplies, and other monetary costs—even the smallest events incur them. Determine if they can be met within existing budgets. For larger ventures where private funding assistance is needed, develop a cost proposal for potential sponsors, carefully explaining the event and projecting its anticipated benefits to the community at large.

4.   **Evaluate the approach with community advisors.**
      During early phases of planning a new venture, seek suggestions from community members or key people. As the date for starting a public involvement process draws near, solicit additional comments on the details of the approach. After a venture is launched and as a guide to future innovations, assess both its positive and negative impacts with community advisors.