URBAN DESIGN:
A Definition, Approach and Conceptual Framework

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At least since the 1960s, the practice of urban design has emerged as an important discipline within the city planning and design professions. Originally conceived as a method of urban form giving that combines planning, architecture and landscape architecture, urban design principles and methods have evolved into a distinct and useful discipline. There are many descriptions of the scope and character of urban design activities, including a concise and largely accurate YouTube video at https://www.youtube.com/watch?v=W6pSa81qDok. However, descriptions of urban design activities do not necessarily yield an operational definition. Although much has been written about the theoretical and pragmatic aspects of urban design, a clear definition and concisely stated conceptual framework of the discipline appears elusive. Most definitions emphasize the notion of urban scale physical form giving, but de-emphasize or ignore, the distinct methodological and process related activities as well as the fundamental values that drive urban design work today. (See Kasprisin. Urban Design: The Composition of Complexity, 2011. P. 10-18). The characterization of urban design is further complicated by the broad spectrum of activities that it encompasses, ranging from individual streetscape improvements and design guidelines to large scale multi-modal development projects, community plans and even regional systems. Additionally, urban design is often practiced by teams of professionals with a wide variety of specialties and perspectives.

When, as a member of the University of Washington Department of Urban Design and Planning Professionals Council (UDP PC), I discuss the subject with students and am asked: Just what is “urban design?”, I find myself grasping for a succinct definition. And, when I am confronting a complex urban (or rural) challenge in my practice, I often experience the need to reach back for a conceptual framework to ensure that my efforts are rational, productive, and just.

Fortunately, during the 1970s, I had the opportunity to study under Professor Meyer Wolfe at the University of Washington College of Architecture and Planning. In his lectures on urban design, he identified urban design’s defining features, principles and application methods organized around a participatory public decision-making process. It is this integration of ideas that provides a definition and conceptual framework for the practice of urban design. Many of the ideas that Wolfe combined into his conception of urban design came from other sources and were consistent with general thinking on the subject that was emerging at that time. However, I will maintain that the clarity of his unifying vision (that is, the combination of principles and methods implemented through a public process) has proven to be a basis for the professional activities for a whole generation of urban designers, at least in the Northwest US. And, I propose that as the complexity of the field increases and design activities become more challenging, it is helpful to review and re-emphasize the core precepts behind both our academic and professional efforts.

Because Wolfe’s work was largely unpublished, there is not a robust record of his teaching. Most substantial is a monograph he and R. D. Shinn titled Urban Design in the Comprehensive Planning Process, but this extended work does not succinctly communicate the strength of his ideas, which merit a review at this time. Therefore, this paper is intended to articulate the fundamental characteristics and approach of the urban design discipline to students curious about the field as well as professionals engaged in city building activities. While most practitioners will be familiar with much of the material, I will argue that it is often helpful to periodically step back and consider the larger framework in which we work. The paper also suggests how some emerging and profound new ideas and research can be incorporated into this framework to substantially upgrade our current practice.
Background

According to Aristotle, the world's first urban designer was Hippodamus of Miletus who in the 5th Century BC laid out Piraeus (the Port of Athens) with a rational street grid system and a central plaza. Hippodamus wrote up his ideas in the highly influential text, *Urban Planning Study for Piraeus*, and later went on to plan the new city of Thurium. As is advocated in this paper, Hippodamus integrated his urban form ideas with social, functional, governmental and cultural aspects of his society; so he clearly merits the title “urban designer” under the definition discussed below. Ever since, at least through Roman, Renaissance and Baroque eras, architects, planners, and philosophers have proposed, modeled, and sometimes achieved rational urban form interventions to improve their cities. (See Bacon: *Design of Cities* (1976) and Giedion: *Space, Time and Architecture* (1941)).

Modern urban design theory emerged in the late 1920's in response to worsening health, housing, transportation and other urban problems. In 1928 Le Corbusier and other architects and planners established the Congres Internationaux d'Architecture Moderne, or CIAM to explore topics and models for modern, rational city building. As its name implies, CIAM was largely driven by architectural considerations but with rational city form as the objective. Members conducted regular congresses and argued issues such as whether dense urban forms such as Corbusier's *la ville radieuse* or dispersed, garden city models proposed by the English contingent were more appropriate. The discussions were predominantly philosophic and technocratic – experts opining on what a city should be based on theory and conjecture rather than an informed understanding of the relationships between people and their environments. Unfortunately, when applied, these new modern urbanism models failed to produce the utopian results that were promised. Particularly in large scale urban renewal and infrastructure projects, the theoretical models and architectural concepts resulted in barren, inhospitable developments and intrusive, neighborhood crushing freeways.

Recognizing the shortcomings of these theoretical urban design models, as well as the limitations of centralized land use and transportation planning in general, writers such as Jane Jacobs (1961), Edward T. Hall (1966), and Lewis Mumford provoked discussion regarding the effects of the physical environment on community life. Bernard Rudofsky (*Streets for People*, 1982), Gordon Cullen (*Townscape*, 1961), Edmond Bacon; *Design of Cities*, 1976) and others demonstrated that the composition of buildings, streets and open spaces is more important to our perception of urban qualities than single architectural monuments. Behavioral scientists and astute writers such as Robert Sommer (*Personal Space, The Behavioral Basis of Design*, 1969), and Claire Cooper Marcus (*Housing as if People Mattered: Site Design Guidelines for Medium-Density Family Housing*, 1986). William H. Whyte studied the behavioral aspects of public spaces (*The City, Rediscovering the Center*, 1988), and later translated the findings into operational guidelines for New York' plazas. Kevin Lynch: (The Image of the City, 1960), Donald Appleyard (The view From the Road, 1964), Christopher Alexander (A Pattern Language: towns, buildings, construction, 1977), Ian McHarg (*Design with Nature*, 1969), and other architects and landscape architects developed methodologies that enabled designers to conceptualize and manipulate larger urban forms and landscape scaled elements.

(For a more detailed and analytical description of the evolution of modern urban design theory, see Eugen L. Birch, From CIAM to CNU: The roots and thinkers of modern urban design in Companion to Urban Design, Editors. Bannerjee and Loukaitou Sideris, 2012)

Together, the perceptions, research techniques and methodologies from the 1960s and 70s formed a strong foundation for urban design theory and practice. But there was another piece to the puzzle. The discipline was still seen as a
top-down, expert driven exercise. If urban design was to be successful in translating a wide range of public objectives into physical development actions, there needed to be a participatory, consensus building process in which the impacts of physical design options could be evaluated relative to public goals and values. Authoritarian, single-visioned city building as practiced by autocratic governments (or by Robert Moses) would not do in our society for a number of reasons. For one, the results of such an approach, at least in America, verged on the destructive. For another, public decision-making in the United States is a multi-party effort with different constituencies and interests vying for prominence. To reach positive public decisions, it is necessary to engage those parties and build a consensus around common interests. People should be invited to participate in the decisions that affect them. It was also imperative that urban design actions be strategically coordinated into ongoing comprehensive planning efforts,

No one tackled this issue more directly than Professor Meyer Wolfe, who developed a theoretical framework for incorporating urban design in the compressive planning and political decision-making processes (See Wolfe and Shinn, Urban Design Within the Comprehensive Planning Process, 1970). The definition and approach advocated below are based largely on his teachings at the University of Washington. It is my intent to demonstrate that his paradigm he and others developed over 50 years ago is still a valuable way to explore the theoretical and professional aspects of urban design. I will also propose some ways those ideas can be expanded to address contemporary and emerging challenges.

Urban Design: From Definition to Approach

As articulated by Professor Meyer Wolfe, Urban design is the manipulation of the physical environment, in a way that

- Pursues multiple objectives,
- For multiple clients (including affected members of the public), that
- Addresses the way people perceive and behave in their surroundings,
- Considers the implications of form-giving actions (including the environmental and ecological consequences) at a range of scales (sometimes from the individual to the regional), and
- Is conducted through an explicit public decision-making process that:
  1. Offers the public the opportunity to participate in the process in a meaningful way,
  2. Identifies goals and objectives,
  3. Analyzes existing conditions,
  4. Explores alternate concepts and solutions,
  5. Evaluates those options with respect to project goals and public values,
  6. Selects the preferred alternative or combines preferred elements into a synthesized concept, and
  7. Includes an implementation strategy.

This is a powerful definition for three reasons. First, it carries a set of implicit values that all applicable urban design activities should pursue. That is, to be signified as urban design, an activity must be conducted in an inclusive public process that addresses the multiple objectives of those who are affected. This balancing of various interests should lead directly to the pursuit of fair and equitable solutions. By emphasizing effects on human perception and behavior,
practitioners will hopefully avoid some of the inhuman and dysfunctional spaces that have been created in the name of city planning. And, considering a proposed action's impacts at a range of scales, will help urban designers connect their efforts to larger (and sometimes more intimate) physical and environmental implications as well as broader policy objectives.

Secondly, the definition proposed above provides a useful checklist for designers, planners, engineers and other practitioners to use so that they are addressing urban design's inherent values noted above. While it may seem superfluous to pursue “urban design” for its own sake, tracking activities relative to the definition’s key elements will help to keep the project focused on relevant policy goals and physical objectives.

Third, by describing a rational participatory process through which to pursue the discipline, the definition provides a clear methodology for applying urban design concepts. This aspect will be discussed in the section describing an explicit public decision making process.

COMMON URBAN DESIGN ACTIVITIES

Figure 1 below and on the following page illustrates some of the activities that are traditionally considered under the purview of urban design. Most of them are conducted by teams of professionals, usually led by an architect, landscape, architect or planner with urban design expertise.

Figure 1a, Some typical urban design projects.
Figure 1b, Some typical urban design projects.
TOWARDS AN APPROACH:

While the discussion above attempts to cordon off urban design as a discreet discipline, it must be acknowledged that such a bright line definition is very porous – that many of its defining activities and principles are common with other city building, planning and design activities - and that many of these same activities are integrated into other planning efforts addressing a broader range of public goals. This is one reason many definitions of urban design focus on the physical aspects of urban form as the most important definitional identifier.

However, a distinct urban design approach which includes the elements and process described above is still needed within the spectrum of urban planning and design fields for the reasons noted above. Namely, an urban design approach carries with it fundamental principles and responses to human behaviors, provides a process and conceptual framework for implementing those principles, and allows more expansive use of the tools that urban design brings to a physical planning challenge.

A CLOSER LOOK AT THE TERMS

Before exploring the detailed features and implications of each of the definitional elements, it is useful to consider the terms “urban” and “design” more closely.

What Is Urban?

The term “urban” has been a serious limitation on the practice as it implies both that urban designers only consider intense urban environments or pursue the objective of urbanizing of everything they touch. Of course, this is far from the truth. Urban design has proven useful in rural areas (See Randall Arendt Rural by Design, 1994) and provided assistance achieving environmental resource management goals. (See Figure 5.) However, a suitable alternative nomenclature has been elusive. “Community design”, favored by many, implies a certain scale and focus of activity. “Civic design” tends to mean large public infrastructure, and “environmental design” skews the term toward environmental protection. So, urban designers, especially those working in smaller communities have taken to explaining how the term is applied to their specific situation. For my purposes here, urban and the purview of an urban design approach includes all environments directly influenced by humans.

What is Design?

There are several dictionary entries for the verb “design”.

1. To create, fashion, execute, or construct according to plan, 2. To conceive and plan out in the mind. (Merriam Webster On-Line Dictionary)
2. To make or draw plans for something (Cambridge Dictionary).
3. To plan and fashion artistically or skillfully, 4. To form or conceive in the mind. (Webster’s Unabridged Dictionary of the English Language).

Implied in these definitions are four aspects of the design process that characterize urban designer’s work and make it a critical component of the planning and design community.

First, design requires the assembly and integration of various individual elements.
In professional practice this plays out in urban designers being responsible for integrating, for example, the land use, transportation and physical elements of an emerging transit oriented development or the environmental, recreational and community development elements of a waterfront project. This propensity to integrate various physical and conceptual elements
exhibited by most urban designers is the reason they are often chosen to lead projects such as transit station area plans, downtown plans, waterfront redevelopment plans, etc. In terms of comprehensive planning, this integrative approach often can be useful in organizing the various planning elements such as land use, transportation and housing. Sometimes a separate urban design element can help the public understand how the other pieces fit together as a comprehensive strategy, which given urban design's emphasis on implementation, is another added benefit.

For example, on the Walla Walla, Washington Comprehensive Plan update in 2018, the urban design team used a “visual structure map”, illustrating aspects of the city's urban design character to elicit public input at early public open houses. While there were other stations at the open houses for transportation land use, etc., it was the urban design table that most engaged the public and resulted in a greater range of interdisciplinary ideas. The team used input from that and other public sessions to craft an urban design element that portrays the way other comprehensive plan elements function together as a cohesive strategy leading to specific actions such as priority street improvements, design guidelines, and economic revitalization efforts.

Second, design can provide non-binary solutions to problems that would otherwise create conflicts among affected stakeholders. Because design is typically an iterative process, with initial schemes being refined throughout the process, urban design activities offer a more flexible approach. That is, design solutions are most likely to provide win-win solutions because they usually involve a number of parameters that do not involve binary solutions. This capability is also important in the principled negotiation process described by Fisher and Ury in Getting to Yes: Negotiating Agreement Without Giving In (1981). For example, when determining the size of a park, there is often a range of options and the decision can be made on participants’ objectives rather than a binary yes/no decision or compromise solution.

Third, training in the manipulation of physical forms generally leads urban designers to think visually and spatially. This tendency is not only realized in physical design, such as in a town center layout, but also is useful in communicating non-physical ideas, such as complex procedures, organizational relationships and integration strategies. Such visual thinking is often a crucial counterpoint to the linear written material prevalent in many professional activities. For example, in a conference room meeting, I recommend that urban designers sit with their backs to the white board, so that when necessary, they can turn around and sketch a quick diagram that illustrates the key points being made. More often than not, such a diagram helps to frame the discussion and ultimately the project's direction. The example in Figure 3 from a controversy regarding transfer of development rights illustrates the usefulness of visual tools.

Fourth, the design process adds complementary modes of thought to city planning activities. In his influential book, The Reflective Practitioner: How Professionals Think in Action (1983), Professor Donald A Schon describes a process he calls “reflection in action” that professionals often
use when confronting a problem or complex task in their work. The essence of this activity is to consider the problem, propose a solution, evaluate that step, and modify it to better fit the problem. In a sense, this is simply the iterative trial and error process. But, Schon makes the point that what distinguishes “reflection in action” from a simple iterative process is that the practitioner reflects on what she is doing while they are doing it. (Cognitive scientists might call this a “recursive function” necessary for higher order cognitive skills (See Douglas Hofstadter: Godel, Escher, Bach, An Eternal Golden Braid, 1979.) Schon describes the reflection in action process within the context of a number of professional disciplines, but spends much of the book analyzing the mental process in a case study of a school design. The aspects of that process most relevant here are:

1. Framing and reframing the problem; that is, as the designer pursues a specific set of objectives, occasionally stepping back to see if there is another way to view the problem. For example, when attempting to visually unify a long street corridor with different development characters, a typical method might be to add a unifying element such as a uniform planting of street trees or distinctive light standards. But, another way of framing the issue might be to look again at the objectives and to recognize that what is really important is that the corridor’s design character be unified and visually cohesive. Another way to accomplish this might be to allow the different corridor segments to express their own character but accentuate the transition between the segments so that continuity is achieved through thoughtful integration of urban design elements at that transition point.

2. Exploring solutions by holding some elements or aspects constant while proposing new configurations or elements. As noted above, this iterative function allows for interactive public engagement.

3. Judging outcomes relative to the original objectives, which will keep the process centered as the practitioner widens both the framework and the solution options.

4. Artistry, meaning that the practitioner employs and integrates a repertoire of models, ideas and experiential intuition to develop potential moves that address the problem. Lee Copeland, former dean and professor at both the University of Washington and the University of Pennsylvania as well as a practicing architect, notes that the creative design process involves combining rigorous analysis with knowledgeable intuition and that intuition is a necessary element in moving from an analytical understanding to design solutions.

5. Articulating both problem and solution in a compelling way. If this can be achieved, the conceptual basis for the work is substantially complete.

And, this way of thinking not only promotes the development of more refined solutions to
specific challenges, but taken across the spectrum of professional disciplines, it becomes an experiential research methodology for upgrading professional knowledge. Schon contrasts this approach to a more rigid “application of theory” model in which universities and research institutions hand off academically produced information to practitioners who are expected to implement it. His argument is that insights gained from reflection in action are a very important complement to the formal theory-to-application model and should be incorporated into the growth of professional knowledge.

The point here is that because many urban design activities, such as site planning, street design, building form studies, etc. are by their very nature “reflective”, the urban design approach provides a gateway into Schon’s experience-based method to increase professional knowledge and is a good venue for upgrading the broader range of city and environmental planning efforts. More immediately relevant to individual projects, this reflective process invites collaboration among diverse stakeholders who can jointly review the results of preliminary steps in the design process and suggest modifications as the solutions evolve.

The Mill Creek Town Center planning process offers an example of how such a reflective (or iterative) design process resulted in a successful community centric development even though implementation took over a decade and required numerous iterations and modifications. In the mid-1990s the City of Mill Creek initiated a planning process to develop a much needed town center to serve its growing residential community. Through an open and interactive public process in accordance with urban design principles, the planning team developed a physical scheme with an ambitious implementation strategy. But, because of fluctuating economic conditions, property transfers, and other changes that affected the project’s feasibility, development took about 10 years and the original scheme was reconfigured to meet the new development context. Happily, the City’s and developer’s teams were able to work collaboratively and reflectively to evolve a project the met the community’s original goals and the award winning town center was finally developed.

Figure 4. Left: Hypothetical layout illustrating the Mill Creek Town Center Plan objectives. Right: Town Center redevelopment. Note that the actual development is double the size of the original plan and included larger retail buildings but retained the original plan’s pedestrian oriented core..

To summarize, the cognitive processes inherent in the act of design can make a unique contribution to teams addressing complex problems in city building efforts.
A Closer Look at the Elements of Urban Design:  
With Notes on Emerging Challenges and New Ideas

This section considers the definition’s elements in more detail and explores their implications for today’s practice. There are several sections that digress from the primary topics, but, hopefully they amplify the salient points and provide useful insights related to professional urban design and planning practices. Many of the examples are culled from my experience as a professional architect and urban designer.

MANIPULATING THE PHYSICAL ENVIRONMENT

First, it should be clear that “manipulating the physical environment”, encompasses a broad set of activities in a wide range of physical settings. “Manipulation” may include direct physical design and construction, regulatory measures to guide physical changes over time, economic and community development efforts, regional growth strategies, and institutional measures such as funding programs that ultimately result in physical actions. The Urban Waterfront Policy Analysis example in Figure 5 demonstrates that urban design techniques can be used to address broad policy objectives even if there is no direct physical action.

Similarly, the term “physical environment” is to be broadly interpreted and include intense urban settings, but also local communities, suburban centers, small towns, and rural areas. And, urban design tools have also been very useful in addressing ecological planning and restoration in both urban and wilderness settings.

Figure 5. The Urban Waterfront Policy Analysis included all the elements of the urban design approach: pursuing multiple objectives (environmental protection, priority for water oriented uses and public access to the shoreline) for multiple clients, addressing issues at a range of scales, and establishment of an inclusive process for waterfront planning. Even though no site specific design was involve the project led to numerous waterfront developments throughout Washington State.
PURSUE MULTIPLE OBJECTIVES

Given the immediacy of numerous challenges currently facing cities – transportation gridlock, housing shortages, homelessness, gentrification, etc. – it is not surprising that planners are directed to focus on single purpose projects targeted to specific needs. In many ways, such responses are appropriate and necessary. However, an urban design perspective that incorporates multiple objectives and form-based measures can facilitate achieving the original objective by leading to a more comprehensive approach.

For example, the City of Seattle has recently adopted an ambitious mandatory inclusionary zoning process that increases the development capacity of private lands in exchange for affordable housing requirements. Under the program, property owners will benefit from an “up-zone” that substantially increases their development capacity in exchange for providing affordable housing as part of the development or a fee in lieu which the City can use to develop affordable housing off-site. Several community groups raised issues related to the impacts of larger development to neighbors who now face the loss of privacy, sunlight and views due to the increased bulk of new development – not to mention the need for more open space and public infrastructure to accommodate the influx of new residents. Although this program was established under the title, Housing and Livability Agenda, the City decided not to address the livability aspects of the program through any measures such as design guidelines, streetscape improvements, or increased multi-modal transportation or open space needs. This was a lost opportunity, but the program successfully proceeded to adoption, and hopefully such measures will be added over time to address the increased intensity of development.

Similarly, urban designers should assertively champion, for example, a consideration of community building and urban form objectives during transit station planning, or street typologies that account for adjacent land uses and building forms; issues that are not considered in transportation specific street classifications or even “complete street” models.

ADDRESS THE OBJECTIVES OF MULTIPLE CLIENTS

One way to illustrate the importance of balancing the objectives of all people affected by an urban design action is to contrast the urban design approach with large site master planning, which is typically initiated by a single entity for its specific and individual purposes. It may be that the property owners master planning their properties engage the public, but in the end, they will typically gravitate to their own interests – a perfectly valid thing to do, but it is not urban design as defined here.

This difference is illustrated by the Virginia Mason Medical Center (VMMC) Institutional Master Plan which is required and must be approved by the City of Seattle before the before any major changes to the medical center’s campus can be initiated. At first the VMMC master planners focused on the complex’s internal workings with scant regard for community interests. When community members voiced strong opposition to this approach and threatened to derail the Institutional Master Plan process, the VMMC added an urban design team whose task was to faithfully engage the public and address their concerns. The team negotiated with community members to mitigate impacts due to proposed construction and improve the public realm in and around the campus. After several rounds of exploring trade-offs and design solutions (in the reflection-in action-mode noted above), the community endorsed the Institutional Master Plan proposal so that VMMC could begin implementation.
A Challenge: Fair and Inclusive Public Engagement

Of course, public engagement of this sort has almost become the norm in community planning activities. Professionals have developed numerous techniques to elicit comment and work with groups toward common goals or to successfully resolve conflicts. But, too often, especially in diverse communities, these public input efforts do not adequately engage underrepresented populations who are unable or reluctant to participate in public meetings. Too often, the recommendations to public officials that emerge out of public engagement processes are shaped by those with the capabilities to make themselves heard while others, generally those with fewer resources, cannot or choose not to participate. This can be a severe limitation on the profession’s ability to provide for fair public policies and actions.

In the past, many designers and planners working with the public assumed that if people were interested in a specific issue, they would participate. We know now that this is not necessarily true and that new outreach methods must be employed. Many people experience barriers to actively voicing their interests, including: lack of time, language difficulties, distrust of government, lack of transportation, and cultural disposition. If we want equitable solutions, we must provide equitably accessible participation, and that means finding new ways to engage a broader spectrum of the public. While there is no magic bullet to address this challenge, the avenues below seem promising.

NEIGHBORHOOD ORGANIZATIONS

Cities are finding that official staff-initiated outreach activities for individual projects are both costly and time consuming; and that they are often unsuccessful. An alternate and previously used approach, more common in Seattle during the 1970s through the 1990s was to assist local community organizations (councils, community improvement clubs, etc.) and enlist them to be an active part of outreach efforts. Local groups, such as PTAs, churches, schools, etc. with their social and organizational connections can get the word out and encourage participation more effectively than city staff, although staff support is also critical. The key is to ensure that the community groups are truly representative of their communities. If they could so demonstrate, the groups received City support and resources.

This place-based approach has garnered and lost favor from time to time, but at present, it appears that proximity and the social connections within a community do matter. That means that
urban design, which addresses social interactions in the public realm, is important in the larger public engagement effort. While the value of local organizations’ efforts has been demonstrated by the results of physical improvements – a new park here, an improved development proposal there – a real benefit is that these organizations can serve as an on-going conduit for communication and collaboration between individual community members and public officials. These connections are especially valuable when a local issue or concern arises.

SOCIAL INDICATORS

A number of municipalities and local governments across the nation are using GIS based information systems to analyze social indicators related to human health and safety, economic stability, education attainment, non-English speakers and quality of life factors (See, for example: King County, Washington’s The Determinants of Equity Identifying Indicators to Establish a Baseline of Equity in King County at: https://www.kingcounty.gov/elected/executive/~/media/4FF27039534048F9BC15B2A0FFDDE881.ashx?la=en ) And, the City of Seattle has recently developed an analysis identifying neighborhoods most vulnerable to displacement. (at: https://www.governing.com/gov-data/seattle-gentrification-maps-demographic-data.html)

Such analyses can identify trends and geographic hot spots that require special attention regarding community outreach.

COORDINATION WITH SOCIAL SERVICE PROVIDERS.

Too often, the role of organizations providing social and health services, such as human and mental health, children and youth programs, housing, etc. is not included as part of urban design projects, probably because urban design is so focused on physical design. However, there are quite a number of overlapping objectives, and greater collaboration should be initiated. This is especially true when attempting to outreach to and address the needs of under-represented groups. Social service providers can more easily identify those populations where their clients come from and the best way to engage them in the public process.

Two Clients: The future and the Earth.

There two tacit clients whose interests must be articulated during the public decision-making process: future residents and the Earth. It is the urban designer’s (or planner’s if they are leading the project) responsibility to speak for those ‘clients’ if no one else does. One way to address the needs of future individuals is, during the visioning or objective defining steps of the project, require that, for at least a part of the session, participants imagine themselves as a young person for the applicable time frame in the future and role play what their values might be. The exercise will not necessarily result in a valid
prediction of the future, but it will help people to consider longer term objectives and not just current issues.

One of the most effective ways to address environmental concerns is to simply present a characterization of the project area’s ecology, along with the environmental threats and enhancement opportunities. There are a widely expanding number of ways to illustrate this in a way that “tells the story of” what makes the ecological system work, why it is important, and what actions would either degrade or enhance ecological functions. The Open Space Assessment Tool described in Figure 13 is a useful example of emerging techniques in that effort.

ADDRESS THE SENSORY ENVIRONMENT:
UNDERSTAND AND CONSIDER THE WAY PEOPLE PERCEIVE AND BEHAVE IN THEIR SURROUNDINGS

In shaping the human environment, whether that includes the design of streets, compositions of buildings, pastoral parks, neighborhood centers or small towns, urban designers must understand and address how people and collections of people perceive and act within their environments. This is a core urban design capability not often addressed by other disciplines. Urban design research has produced very useful insights when considering a person’s immediate surroundings. However, there are other, broader aspects of human behavior, especially collective human behavior at a variety of scales, that should be considered. More specifically, urban designers and those initiating research on this topic should consider the following aspects of the human-environment relationship.

Perception: Human responses to the sensory environment

This topic addresses questions such as:

• What makes a street seem to narrow? What makes it perceived as a cohesive and comfortable space?
• How do we perceive spaces through which we travel? How can we design a roadway or pathway that offers a pleasant sequence of stimuli?
• Where do our eyes fix in an intense urban setting? Are the upper stories of high rises in our perceptions? Or, do we focus our attention at eye level, mostly noting the streetscape and the first few floors of buildings on near-by blocks? And, what does that say about how we write design guidelines for urban settings?

Sommer (1972), Hall (1966), and others explored design issues related to human perception during the 1960s and 70s. One especially valuable paper, Scale in Civic Design (1953) by Hans Blumenfeld and partly based on Hermann Maertens’ 1877 book, The Optical Scale in the Plastic Arts, is still one of the most insightful and useful works on the subject. More recently, Jan Gehl has translated and added substantially to earlier work in his books: Cities for People (2010); and How to study Public Life, (2013).

A related aspect of human perception that deserves special mention is the way we perceive linear spaces as we move through them; in other words, our sequential experiences. This has special relevance when we design streetscapes, highways or pathways and is a good example of translating perceptual preferences into urban design parameters. Donald Appleyard was among the first to explore this topic in his paper, The View from the Road, (1965), in which he analyzed and annotated views as people travelled along a highway.
Another example of how to think about sequential experiences is to consider them as one would compose a piece of music. That is, think about the timing of various views and elements as one moves through a linear space at a given speed. This means providing a variety of experiences or points of interest that correspond to a person’s attention span or desire for a new experience. Contemporary movie cuts vary roughly from 2 to 3 seconds per shot for an action movie sequence to 5 to 8 seconds per shot for a slow-paced movie. Therefore, one can argue that an engaging pedestrian experience provides a person with a minor point of interest such as a doorway, storefront window display, or planter about every 4 to 6 seconds which, assuming that a pedestrian moves at about 3 miles an hour or 220 to 260 feet per minute, translates into about every 15 to 20 feet.

For years advertisers and some television producers have used a 30 second time frame as the optimal length to hold a viewer’s interest on a discrete message. While indications are the at this has been reduced to about 15 to 20 seconds in the past decade or so, it still suggests that in order to encourage a pedestrian to move along a corridor, providing some visual event or focal point every 15 to 30 seconds or about every 50 to 130 feet. This range of dimensions is consistent with the 50 feet to 100 feet width of small storefronts typical in a traditional American business district.
Linear sequences should also feature substantial focal points, landmarks or a change in view or spatial enclosure that give the corridor its identity, denote a larger corridor segment or serve to unify a corridor by defining its limits. For example, a strong element at one end of the corridor can act as a “terminus” providing a destination or a viewpoint.

Thus, the sequence of a corridor can be viewed at three scales: the experiential details that ideally occur every 4-6 seconds (15-20 feet) changes in views, character or spatial configuration that add variety every 15-30 seconds (50-130 feet) and more prominent focal points or landmarks that help define the corridor or accentuate key segments. See Bacon: (1967) and Blumenfeld: (1953) as well as Gehl: (2010). This analysis was used in evaluating Bellevue’s pedestrian Promenade. (See Figure 9.)

People’s behavior in a public setting

This addresses a wide range of topics and considerations, such as:

• What makes for a comfortable public space?
• What sizes and configurations are best for public plazas in certain conditions?
• How can we accommodate a wide range of users in a public space?
• How far will people travel to visit a public plaza for a workday picnic lunch? What will entice people to use a local neighborhood business district more frequently?
• What makes for safe bicycle and pedestrian movement? How do people behave in crosswalks, bicycle lanes, etc.? What is effective in encouraging bicycle ridership?

Ever since the 1960s researchers have studied people’s behaviors and preferences in public spaces. Some of the most prominent are:

• William H. Whyte. (The City: Rediscovering the Center, 1988)
• Claire Cooper Marcus. (People Places: Design Guidelines for Urban Open Space, 1990)
• Edward T Hall. (The Hidden Dimension, 1966 and The Fourth Dimension In Architecture: The Impact of Building on Behavior, 1975, (co-authored with Mildred Reed Hall).

More recently, Jan Gehl (Life Between Buildings: Using Public Space, 1987; Public Spaces, Public Life, 2004; Cities for People, 2010; New City Life, 2006; and How to study Public Life, 2013); Alan Jacobs (Great Streets, 1993), and others have added information. For example, both the Allan Institute (See Knight and Green (2016) and Arnis Siksnas (1996) have produced some very useful analysis of optimum block size. This latter is interesting because it compared the relative performance of different size blocks in several cities.

One behavior/environment relationship that merits special attention is the emerging research related to traffic safety, particularly for pedestrians and bicycles. Much of this is being conducted by transportation planners and addresses new street designs such as those in the NACTO’s Complete Streets Complete Networks: A Manual for the Design of Active Transportation, 2012. As engineers and urban designers begin to use these new ideas, it will be important to review the most current research regarding the safety and function of these new models – and perform case study analyses to evaluate their effectiveness.

Another area where new information can guide designers and planners is the connection between human health and the environment. It is now clear that walkable communities and access to “natural” environments, parks and even trees provide important health benefits. Besides providing guidance on specific projects, this also is an important rationale for advocating for more resources for better sidewalks, trails and open spaces.

So, there is a wealth of information on the subject. It seems that collecting, organizing, and cross referencing this information, perhaps in a pattern language or “wiki-like” format would be a valuable service.
Cultural behaviors and preferences

For the most part, urban designers have tried to be sensitive to local populations by accommodating or accentuating ethnic cultural activities and expressions through design. For example, designers have designed parks to accommodate ethnic festivals and the ways people from different cultures use space. This response to cultural behavior, associations and preferences might be broadened to consider culture in the larger, more inclusive sense. If culture is “the customs, arts, social institutions, and achievements of a particular nation, people, or other social group”, is the Silicon Valley “culture” a real thing? As America divides itself along ideological and political lines, are we also creating different cultures? How should urban designers respond, if at all? The issues surrounding gentrification certainly have to do with rapidly changing cultures in a given neighborhood.

Economic and functional behaviors.

On many urban design projects such as community plans, site development, transit oriented development planning, and other efforts where private development is an objective, economic behavior assumes importance because the market demand for various uses and the feasibility of site development will affect the type, size, location and configuration of what gets built. For the types of projects identified above, it is generally necessary to consult a real estate economist or development specialist to: 1) identify the development opportunities for new or re-development based on a market analysis, 2) evaluate the feasibility of different development types and sites by conducting pro forma analyses of scenarios created by the urban designer or architect, and 3) advise on regulatory measures, capital improvements and development incentives that would encourage the desired development.

While the results of these types of analyses are usually determined by the specific location and context (including the economic climate at the time) there are a few rules or thumb that urban designers can use to guide early
community development planning. For example, a useful condition to keep in mind is that structured parking becomes feasible when the price of land is equal to the square foot cost of constructing the structured parking. This, I have observed, is often the tipping point when it becomes feasible to replace single story auto-oriented development with multistory mixed-use buildings. And it can be the point where development becomes so economically advantageous that gentrification and displacement are threats.

There are a number of other land use/economic questions that often arise in urban design and planning work that merit some comprehensive research. For example, a common question arising in neighborhood planning is the amount and density of residential population necessary to support a neighborhood business district. When confronted with this question on several projects, an economist, Greg Easton, and I found little documented research on this topic and produced an informal monograph that provides some guidance to practitioners. http://www.makersarch.com/wp-content/uploads/2016/04/Creating_Walkable_Neighborhood_Districts_2009.pdf This analysis was prepared prior to the domination of internet shopping and should be updated, even though the types of businesses analyzed in the paper emphasize walkable services and businesses such as restaurants, yoga studios, and salons which still seem to be viable.

Behaviors related to locational preferences and accessibility.

Admittedly, researching and addressing the regional and sub-regional urban growth and circulation patterns seems a little far afield from the initial directive to link human behavior to environmental setting. However, these larger urban patterns are the result of human behaviors, preferences and movement. In Design with Nature (1969), Ian McHarg demonstrated regional scale efforts are an important part of the design professions’ purview, and the emerging geodesign tools are making his ideas even more powerful. (See A Framework for Geodesign: Changing Geography by Design by Carl Steinitz (2012)). And, given the rapid growth of metropolitan regions worldwide, understanding these patterns is of paramount importance if the planning and design disciplines are to be able to influence them. Addressing this topic does mean that urban designers must think in larger terms than what has traditionally considered urban design.

There are a number of design related concerns raised by the study of urban growth patterns. For example, the VISION 2040 Regional Growth Strategy adopted by the Puget Sound Regional Council (PSRC), emphasizes a polynucleated constellation of urban centers linked by multi-modal transportation corridors. However, in actuality, central Seattle has encouraged and absorbed the preponderance of employment growth, exacerbating transportation problems and housing shortages. (See Modarres. http://www.newgeography.com/content/004312-thinking-about-housing-northwest ). So, the question is, what tools can the planning and design professions bring to bear in managing intense urbanization in a more effective and equitable way. (See also the section on gentrification, displacement and equity, below.)

Other questions arise from transportation and access. In the 1970’s Yacov Zahavi noticed from looking at a broad spectrum of cities, a city’s geographic extent is limited by the time a person spends each day commuting to and from work. He found that, in general, the distance from a city’s outer limits to its core has traditional been limited to the distance a commuter or shopper can travel from residence to their work place or central market in 30 minutes. When the primary transportation mode was by walking, Zahavi found most cities were less than about 3 miles across. With the advent of transportation by horse, cities grew in geographic size, and with automobiles and high capacity transit, cities typically can reach 30 to 50 miles across; given a 30 to 50 mph average speed. (See Scale, The Universal Laws of Live and Death in Organisms, Cities and Companies, (2017), by Geoffrey West) Obviously, transportation and communication technologies will continue to drive human behaviors.
But, what are the next urban growth patterns that the professions should be preparing for? Does the average 30 minute commute time threshold still apply? Should it be a criterion for designing metropolitan regions? Will cities spawn a constellation of satellite centers as Joel Garreau described in *Edge City: Life on the New Frontier* (1991)? Will high speed rail produce the megaregional connections such as described in Robert Yaro’s 2011 article, *Why High Speed Rail is Right*, http://www.america2050.org/2011/02/why-high-speed-rail-is-right.html and already realized in the Washington DC to Boston corridor? Miller (2017) concludes. “As planners begin to design green carless communities and more cities ban automobiles from their centers, understanding and implementing the implied constraints of Marchetti’s constant (the relationship identified by Zahavi) becomes important to the functionality of the city.” Urban designers in particular must identify those physical development models that will help communities adapt to macro-scaled changes and create livable and equitable conditions.

One other aspect of transportation related behaviors is the time it takes for a person to access a particular discretionary destination, such as an entertainment venue, a friend’s house or a park. Experts in the tourism industry say that as a general rule of thumb, people will make a one-way trip to an attraction or destination that takes about one-fourth the time spent at that destination. Assuming that the rule of thumb applies for short trips – and this assumption should be verified as it is an important for planning in general – a person typically would be willing to travel ½ hour for a 2-hour movie or dinner at a special restaurant. But what if congestion and parking difficulties increase that same trip to 45 minutes or an hour? Does that mean a reduction in business for the movie-theater, opera house, or specialty restaurant? Such questions are significant for the structure of urban communities as well as the quality of life for their residents. They are questions for land use and transportation planners in general, but they also impact urban form at a variety of scales.

Social scientists, mathematicians, and urbanologists, as well as planners and designers are studying urban growth from a variety of perspectives. For example, Geoffrey West (2017) notes that from a mathematical point of view which examines the size and function based on both the theoretical “power law” and observed data, as cities grow larger they gain both an efficiency in per person infrastructure costs and economic and intellectual productivity. According to Miller, with every doubling of population, there is an effective 15% reduction in the need for new infrastructure and a corresponding 15% increase in human productivity, wealth and innovation. That is, every time the population rises 100%, infrastructure requirements rise only 85% but productivity rises 115%. Unfortunately, there is also a 15% increase per person in crime, pollution and disease. And these relationships hold true for the great majority of cities within a given national economic and regulatory framework. This means that there is an increased functional efficiency for larger urban centers, so one should not be surprised that population, resources and investment flow to our largest metropolises. This raises several questions, among them:

- Should society embrace this growth pattern? (The urban design question is. “What are the impacts of different macro-growth patterns on community livability?”)
- How can rapid urban growth be managed more effectively?
- What urban forms are most effective in leveraging the efficiencies and minimizing the negative impacts of urban growth at this larger scale?
- Are some urban morphological forms more resilient than others? Do some forms encourage social contact more effectively?

Another avenue of research involves mathematical analysis based on an emerging understanding of complex adaptive systems to explore these questions. Using complexity science tools, mathematicians and scientists are measuring physical parameters of different urban patterns such as network connectivity, fractal structure, visual variety, information density and land use diversity. They then relate those metrics to urban
design objectives such as resilience, accessibility, and livability. It appears that this work will be an especially exciting field of study for those willing to tackle the math – or team up with a friendly mathematician. (See Measuring the complexity of urban form and design (2018) by Geoff Boeing for a concise overview of this topic.)

GENTRIFICATION, DISPLACEMENT AND SOCIAL EQUITY

Gentrification and displacement are particularly thorny issues arising out of the economic and land use development patterns discussed above. Urban design projects such as street, park, and community facility improvements have traditionally been used to enhance the livability and economic activity of poorer neighborhoods. In periods of low to moderate growth such strategies have often worked well. Local residents and businesses have been able to take advantage of increased investment and realized its benefits. During periods of rapid growth, however, a project such as a main street improvement or a rapid transit station can attract large scale outside investment resulting in whole sale, up-scale redevelopment that changes the neighborhood character and may displace residents and businesses who cannot afford the increased rents and prices. (See How to Kill a City: Gentrification, Inequality and the Fight for the Neighborhood by Peter Moskowitz (2017) and Gentrifier by John Joe Schlichtman et.al. (2017)).

Acknowledging that economic, racial and social equity issues must be addressed at a more fundamental, societal level, urban designers must be more sensitive to the social and economic impacts of their projects, particularly in poorer, underinvested neighborhoods where public resources should otherwise be targeted. This will likely mean coordinating urban design improvements with a comprehensive suite of housing affordability, small business assistance and other measures to address the impacts of rapid redevelopment. Cities across the country are struggling to solve this issue, and it requires urban designers to remain sensitive to in their work. (See Seattle's Equitable Development Implementation Plan at: https://www.google.com/search?q=seattle+equitable+development+implementation+plan&rlz=1C1GCEU_enUS828US828&oq=Seattle+equitable+&aqs=chrome.2.0j69i57j0l3.12860j0j8&sourceid=chrome&ie=UTF-8 .)

In conclusion there are many current urban design questions and challenges arising from the human-environment relationship. It would be helpful if existing knowledge about the way people perceive and use public spaces, identify gaps in our understanding and direct research to those missing pieces. A better understanding of the way people perceive their surroundings would help urban designers design more attractive, functional and safer streets – and craft more sensitive design guidelines for new development. Urban designers and related disciplines should work closely with economists and transportation planners to incorporate the latest information from those disciplines, and the study of geo-spatial behavior is becoming more crucial as cities adapt to rapid growth patterns transportation constraints, the internet and other emerging transformative trends.

CONSIDER THE IMPLICATIONS OF FORM-GIVING ACTIONS AT A RANGE OF SCALES

In simplest term of, this element directs the urban designer to look beyond the project boundaries to identify both the positive opportunities as well as the positive and negative impacts of the design intervention. The Delridge Triangle design presents a straight-forward example of this notion. The initial project entailed the redesign of a triangular piece of land consisting of the remaining right-of-way left over from a “Y” shaped intersection. The planning team, consisting of community members, architects, planners and landscape architects, examined the City’s data and illustrated the fact that there was a park and open space deficit in the surrounding neighborhood and that the community itself was characterized by diversity
and a lower average income level. These facts made it easier for the community to articulate the need for a multi-use park that could be developed by closing an adjacent street and providing more funding than was immediately available. The resulting plan included not only a preliminary layout typical of a park design project and recommendations for landscaping and storm water improvements to nearby parcels similarly formed by the skewed street network, but also an implementation strategy that included an inter-departmental property transfer, and both short and long term funding measures.

The graphics for Puget Sound Regional Council’s (PSRC) VISION 2020 Regional Growth Strategy (1990) provide an early example of addressing a problem at both the regional and local scales. The issue facing PSRC at the time was communicating the intent of a new regional growth plan that focused growth into compact urban centers (an urban design concept in itself). The conceptual map in Figure 12 indicated the location and relative size of the proposed centers, but people had trouble understanding what those red circles meant. To address this communication challenge, PSRC had Jack Sidener draw some character sketches illustrating what the different types of urban centers would look and feel like. After 30 years of rapid growth in Puget Sound, it is difficult to imagine that the public would not have a clear notion of focused urban development, but at the time there were no existing examples to point to, and the illustrations were an important communication tool that helped people understand and relate to what seemed to be a futuristic vision.

A study to provide information in support of a council decision regarding the expansion of Snohomish County’s Southwest Urban Growth Area (SWUGA) boundary provides a second example of toggling between site and regional scales. The project entailed an environmental impact analysis (EIS) of various growth scenarios within an area being considered for urban development. The urban design team was tasked with developing and illustrating a spectrum of site development types to be used in preparing different growth scenarios for the EIS.

Our team also analyzed and made recommendations for the redevelopment of a highway corridor that ran through the project area...
and could be developed without much impact because it was already occupied by inefficient development. Another real contribution to the effort was the designers’ incorporation of the Open Space Assessment Tool (OSAT) which identified the ecosystem services, such as carbon sequestration, habitat, water and air quality, etc. for parcels in the proposed SWUGA expansion and within its regional context. This regional look at the SWUGA indicated that even though it was largely occupied by low intensity residential development, the area provided substantial ecosystem benefits that would be lost by expanding the urban growth boundary. Although it was clear from a local environmental analysis that the area contained very important stream and wetland corridors, the regional ecological assessment provided a valuable perspective. (See Figure 13.)

The kind of work described above will become more important as applications of new geodesign technologies emerge. Already, highly analytical and manipulatable tools are proving very useful. At the same time, planners, landscape architects and urban designers should incorporate the urban design approach whenever appropriate. Of course, Ian McHarg’s work exemplified this approach to landscape scale design, and The Regional Design Study sponsored by PSRC in the early 2000s demonstrated that the same urban design tools developed by Kevin Lynch and others are useful at the regional scale. The key will be to incorporate a process that facilitates the inter-jurisdictional collaboration and inclusive participation that regional solutions require.

The Open Space Strategy for the Puget Sound Region sponsored in large part by the Bullitt Foundation and continued by PSRC provides a third example of the use of an urban design approach applied at the regional scale. The project’s goal was to identify those highest priority regionally scaled actions (especially those that could not be accomplished by one jurisdiction alone) necessary...
to protect and enhance the region's ecological, recreational, visual and economic open space resources. The process involved a combination of analytical work and stitching together information from a variety of sources plus work sessions with experts in the field and community-based organizations. Among the key findings were the importance of watershed-based planning that crosses jurisdictional boundaries and the need to focus on river corridors and their floodplains where ecological assets, agricultural activities, transportation corridors and land development interests intersect. While neither conclusion is startling, the study also identified tools, individual actions and collaborative efforts to address the challenges inherent in balancing conservation and community development objectives. An urban design perspective was useful in this effort, not only for integrating the number of elements involved in regionally scaled open space planning, but also for illustrating the way the diverse activities could be combined into a comprehensive strategy.

USE AN EXPLICIT PUBLIC DECISION-MAKING PROCESS

As noted, earlier Wolfe emphasized a rational, inclusive, explicit (meaning well defined from the project's start) public decision-making process. Figure 15 is from one of his projects in Hawaii and documents his approach.

A few notes about public engagement

Before expanding on the steps in the process, it is important to discuss some ways that equitable and inclusive public input can be achieved. As figure 16 indicates, ideally, the public process should encourage input that is both broad and focused, so projects should incorporate a variety of opportunities for people to express their opinions.
The means of broad outreach and engagement can vary widely from community to community, depending on whether or not there are established community organizations, local, widely read newspapers, diverse ethnic populations, etc. The section directing urban designers to address input from multiple “clients” has discussed the difficulties in engaging some populations. Web based outreach is often effective and a web survey early in the process can both alert people to the project and engage them in a way that encourages further participation. Usually, a statistically valid survey, such as a telephone survey is too expensive for a local project.

Public work sessions and open houses are still a good method for attaining both broad and focused engagement. If outreach has been successful, participation will be representative of the larger community and attending participants, perhaps working in small groups, can focus on the specific questions or tasks of the particular work session. Open houses are better for allowing people to review materials than for interactive thinking or problem solving. Sometimes it is advisable to conduct an open house that allows participants to familiarize themselves with the materials and discuss it informally with their friends and neighbors, followed by an interactive work session.

Focused engagement can be achieved through a variety of means, however, the easiest is to work with a project steering committee at key points in the process; especially in formalizing objectives, generating alternatives and developing a preferred concept. In addition, a committee can review of materials prior to public dissemination and indicate how understandable they are. Encouraging committee members to outreach to their cohorts is an effective outreach strategy, and an active and committed committee can assist with implementation efforts after the plan or project is adopted. Individual interviews and special topic focus groups at which participants with similar concerns can discuss their priorities are also useful.

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**Figure 15.** A process diagram from Meyer Wolfe’s Urban Design Primer: Hawaii.

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**Figure 16.** Broad and focused public engagement techniques
Steps in a generalized public decision-making process

The following is a discussion of a generalized urban design and planning process. There are numerous variations on this general framework and the descriptions of the individual steps are merely suggestions based on experience. Figure 17 below is an update and simplification of Wolfe’s process diagram in Figure 15. The activities in each step are briefly noted below.

1. Meet with other team members to discuss scope of work, schedule, and project protocols. Shortly afterward meet with the project steering committee to introduce the team and committee members and discuss the project. It is also a good time for committee members to describe their interests and objectives concerning the project.

2. Conduct existing conditions research, including real estate market analysis (if included in the project) and identification of project constraints, environmental conditions and urban design setting. This work should result in a set of base maps with salient information portrayed on them, plus summaries of relevant non-geographic information that is easy for the public to understand.

3. Conduct initial outreach and Public Work Session #1. (PW#1) Ideally public outreach and surveys should be initiated shortly after the first committee meeting. Once these activities and the existing conditions analysis are complete, the first public workshop can be scheduled. One technique for this session that has proven successful includes the following:

   • Review the results of existing conditions analysis. This can be framed as a “mirror” for the community, describing the salient conditions, demographics, current projects and efforts, etc.
   
   • Facilitate a group discussion regarding goals and objectives. A useful format for this is to assign a “panel” of note takers write and illustrate participants’ comments on 8-1/2”x11” sheets which are then immediately pinned to the wall. This technique is much faster than a flip-chart note taker and the comments can be clustered according to topic. Later, participants can indicate priorities with dots.

   • In small groups working around tables, identify issues, concerns, and ideas and illustrate on the base maps. The results of all exercises can be compiled ready for the project steering committee meeting (Step 4) at which the alternatives are sketched. The nature of this exercise will vary depending on whether the project is a plan such as a neighborhood plan, regulatory measures, a physical design for the public realm or other urban design measure.
4. Sketch alternative scenarios or designs. It is often very useful to do this with the project committee in a charrette-like work session. The planning/design team should facilitate the session and add ideas and technical information as appropriate.

5. Refine and evaluate the alternatives from the sketches in Step 4. The evaluation should consider the technical issues that have arisen during steps 2 and 3. This is the step that transportation modeling, economic feasibility and environmental analyses are most beneficial. If an environmental impact statement (EIS) is part of the project, the analysis should meet State Environmental Policy Act (SEPA) requirements.

6. Conduct Public Work Session #2 to evaluate the alternatives. This session might begin with an overview of the alternatives during which participants register their comments on work sheets, instant response technology or web meeting technology; followed by small group discussions using work sheets to register group responses. The combination of the two exercises gives both quantifiable individual gut-level preferences and the results of groups more deliberately discussing the issues. It is important to stress that this exercise is not to pick a preferred alternative, but rather to identify the elements or aspects of the different alternatives that they prefer. Web-based surveys and other outreach techniques can be used to augment the work session results.

7. With the project committee, and based on the results of the evaluation exercises, surveys, etc., compose a preferred alternative. Wolfe called this the synthesis phase and involves the reflection in action/intuitive process noted earlier.

8. Refine and illustrate the preferred alternative and develop an implementation strategy. Framing a specific implementation strategy is often a challenging part of the project, especially if it is a plan that involves a variety of actions and participants. However, since a plan’s success depends on decisions and actions, implementation measures should be considered in Steps 5 and 7.

9. Conduct Public Work Session #3 to review and comment on the plan and implementation strategy, and to identify priorities. This work session can be an open house, perhaps with brief presentations at designated time slots. The results will identify any changes that should be made before the plan or project design is finalized.

10. With the project committee, review the public comments and make revisions as directed.

THE PROBLEM WITH THE RATIONAL URBAN DESIGN PROCESS

The above prototypical urban design process is a time-tested model for making rational public decisions, but there is one fundamental problem: people often do not act rationally. This results in a number of situations that hamper the pursuit of a logical course of action based on a public consensus. Hurdles to an equitable and rational decision include:

- Opposition to any change based on unsupported fear of loss.
- Poor communication – inability to understand or accept information.
- Mistrust of other groups or the agency proposing an intervention.
- Prejudicial bias against a group or type of proposed action (e.g: zoning change).
- Giving priority to one pre-selected interest over others.
- Political gain of those in power.

Many of these and other hurdles arise from the way human beings perceive and process information. As the preponderance of cognitive and social scientists have found, decisions made by human beings are influenced or determined by people’s subconscious rather than the conscious, “rational” part of their mental processes. Urban designers and planners would do well to better understand how these thought processes can affect individual and collective decision making. If these processes are understood, many of the hurdles described above can be reduced. The following is a brief overview of some of the most relevant
findings from social science research.

Most new cognitive science advances are based on a better understanding of the evolution, structure and functioning of the human brain. Ever since Descartes, philosophers and scientists have generally split the brain and its mental functions into two discrete components: 1) the “innate”, “automatic” and intuitive part responsible for regulating body functions and generating instinctual, subconscious and emotional behavior, and 2) the rational, deductive part governing conscious, deliberate thought. Cognitive scientists such as Antonio Damasio have found that the two parts function together and that instinctive and subconscious mental activities are necessary for logical thinking and planning. Therefore, survival based, instinctual responses, deep seated values and emotions play an often dominant but underappreciated role in nearly all mental processes. (Damasio, 1994)

The instinctive brain’s dominant role causes humans to frequently act in ways that would not be considered rational. For example, gut instincts, snap judgments and values determine behavior and opinions more than pure reasoning. And, all of us are predisposed to forming prejudices, preconceptions and group affinities.

Additionally, our automatic brain’s “instinctive” reaction is to favor the familiar. As Daniel Kahnemann has demonstrated in his book, Thinking fast and Thinking Slow (2011), our decisions involving risk are typically biased toward avoiding loss rather than achieving gain. If designers and planners consider themselves change agents (and ultimately part of their mission is to help the societies they serve respond effectively to emerging challenges), then this is bad news because it means that instituting meaningful and productive change is an up-hill effort. Most practitioners have come to realize this through experience, but surprisingly, the planning profession too often reinforce this sometimes “irrational” and counter-productive fear of loss or change. For example, just preparing an EIS that catalogues possible adverse impacts, “primes” public participants to think of a proposal in negative terms. Cognitive scientists have found that this kind of mental priming is not an insignificant effect (Kahneman, 2011). Planners can somewhat neutralize this tendency by focusing equally (and truthfully) on the negative effects of the “No Action” alternative or by an honest presentation of the alternatives’ relative costs and benefits rather than limiting the discussion to a proposal’s negative impacts. It may also be useful, when presenting a planning proposal to, for example, a city council for adoption, to tell them about the natural tendency to fear change. Note that they will likely hear a lot of fear-based criticisms of the proposal but that they will need to keep clear in their minds what the true implications of their decisions will be. This kind of warning may not carry the day, but at least it alerts the decision makers to this natural tendency.

Figure 19. The brain’s process to recognize a given stimulus is to compare it to patterns imbedded in its memory. This means that the brain naturally looks for patterns and “learns” by comparing a given situation to previous experiences.

Additionally, humans are hard wired to learn by induction; that is by drawing conclusions based on evidence, generally gathered through experience. This is because in order to recognize and understand what is seen, heard, smelt or
felt, people must compare the new sensations to existing mental images lodged within their automatic brain. This basic and automatic cognitive function of comparing and resolving new and existing mental images results in humans being amazingly adept at pattern recognition (finding common elements or themes in a series of events or items) and pattern completion (filling in the gaps of information to produce a complete picture of what is being perceived). Humans “instinctively” search for causal relationships and connections between events. (Kahnemann 2011) And, to add new information to their view of reality, they “inductively” fit new information into the patterned framework of previous knowledge and fundamental beliefs.

For the same reason, people also tend to prefer new information that fits with their existing preconceptions to the extent that they often reject outright demonstrated facts that clash with their notions based on experience. This is one reason that reiteration of scientific evidence, statistics, and extended logical arguments are not compelling to those whose heredity, upbringing, experience, and beliefs endow them with a mental framework that is at odds with the scientific arguments. This can make it difficult to productively discuss the merits of evolutionary theory, the dangers of global warming, the economics of tax policy or the merits of more compact mixed use neighborhoods.

The brain’s propensity for induction also means that humans find stories compelling. This is because the brain is constantly creating a storyline to understand the causal relationships of its surroundings. Consciousness, when you think about it, is in some sense the story that our mind creates to build a meaning out of the myriad of sensory stimuli. (Gazzaniga, 2011) For this reason people typically respond more to narrative stories and examples than to declarative facts. (Beinhocker, 2006) Stories are a powerful communication tool, and there are many ways that both designers and planners can use them to explain ideas, propose actions and describe outcomes. Stories told or augmented by pictures are particularly compelling.

Linguistics

On another cognitive science front, linguists such as Noam Chomsky and Steven Pinker have searched for clues about mental processes by analyzing the structure of language. They found, for example, that the way a speaker constructs a phrase can indicate how she views her status relative her colleague or the way her mind conceives of space, time and causation. (Pinker, 2007). George Lakoff and Mark Johnson have identified the fundamental importance of conceptual metaphors as the basic building blocks of our mental processes. For example, when we conceptualize “love” we tend to think and speak in terms of a number of metaphors, including: “Love is a journey”. “Love is health”, “love is madness”, etc. These metaphors not only help us better understand the concept of love, they “frame” the way in which we think about and act on that complex emotion. (Lakoff and Johnson, 1980) Lakoff has extended this notion of “framing” a concept through metaphorical language and shown that the use of metaphors can influence a policy debate. (Lakoff, 2004) For example, the phrase “tax relief” implies that taxes are an unfair burden and immediately “frames” the discussion in a way that favors the anti-tax advocate. While such metaphors are used in “rational” discussions, the fact that they act on our subconscious thinking mode makes them particularly powerful.

Urban designers can make use of this insight in their communication with decision makers and the public. One obvious way is to consider the metaphors they use to describe new concepts. For example, when describing the transformation of a commercial strip along a highway into a multimodal transportation spine with nodes of pedestrian oriented mixed use development, the phrase “linear community” describes a setting where people are linked to resources and attractions along a linear transit route rather than in a concentric pattern. But it also conveys the sense that the system is a real community with social connectedness and an identity.
Social Capital

Another important field of work relating individual behavior, culture and the resulting institutional fabric is provided by Robert Putnam in his book, *Bowling Alone* (2000). Putnam notes that effective societies typically exhibit a high level of what he terms “social capital” – the connections among individuals, the social networks and the norms of reciprocity and trustworthiness that arise from them. Social capital is generated by formal and informal social interaction and group participation at the local level. In an earlier study documented in *Making Democracy Work* (1993), Putnam found that increased social capital in a society fostered effective governance. He noted that during the past few decades, there has been a dramatic decline social capital and equated that trend to concurrent erosion in Americans’ trust in government, business and other individuals, conditions which threaten the nation’s social and political institutions.

If Putnam is correct, the interconnectedness of social capital is an example of individual behaviors, responding to an environmental change and creating a cultural shift that affects the nation’s institutional fabric. Putnam’s prescription for improving the country’s social capital includes better public transportation and zoning laws, and efforts to encourage voting and political involvement. (Putnam, 2000). Certainly there is work for designers and planners in this agenda.

**IMPLICATIONS**

Many of the ideas sketched out above are controversial, and the field is still emerging rapidly. But, taken together, recent cognitive science insights paint a new picture of human behavior that is somewhat at odds with the traditional rational planning and policy making process. How, for example, can professionals better communicate new ideas, propose transformational change, encourage different behaviors, and organize effective coalitions if people’s motivations are driven by subconscious predispositions rather than objective reasoning? Below are a few suggestions for employing behavioral science knowledge for better communicating, organizing and influencing behavior.

First, be aware of the way cognitive processes affect people’s perceptions, decisions and behavior. Simply being more sensitive of the way we define issues, prime people to think along certain lines, or frame the decision-making context can improve city building practices. Avoiding inadvertently reinforcing cognitive predispositions can help designers, planners and policy makers be more honest and even-handed in our communication. And, understanding the psychological dynamics of group behavior can improve our facilitation and organizational efforts.

Second, employ specific techniques derived from social science research. As cursory as it is, the above overview of a few recent scientific findings suggests a number of practical applications of this new knowledge. However, the individual techniques will be more powerful if they can be organized within the planning process. The table at the end of this article displays some of the techniques that may be most useful in

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**Figure 20. Social capital, that is, the connections and trust between individuals, affects people’s ability to collaborate and to trust public institutions.**
each of the design and planning process steps beginning with public outreach and goal setting through alternative formulation and evaluation, decision making, and implementation. The table is just the embryo of a more complete process-oriented framework for applying new behavioral science research. While designing and facilitating a participatory public planning process is as much an art form as a science, a methodological framework with the flexibility to adapt to a variety of situations and the ability to add new research findings merits further work.

![Table of design and planning process steps](image)

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**Figure 21. Some suggestions for the incorporation of social science research findings into the public planning and design process.**
Third, use the planning process to increase social capital. More active civic engagement and community involvement is often seen as a useful by-product of planning work. Planners are more likely to view adopted policy, implemented improvements and programs or even a colorful planning document as the real proof of a project’s success. But, given the importance of social capital in facilitating participatory democratic governance and supporting larger institutions and governments, it seems that long term public engagement in civic affairs should be considered a primary goal in its own right. Therefore, public participation in the planning process should also be geared toward increasing social capital by strengthening social connections within a community and fostering collaboration between communities and their local government. And, it may be appropriate to enact implementation measures to encourage ongoing public participation. For example, a neighborhood walkability program that allocates a small amount each year for pedestrian and traffic calming improvements might include a process in which community members must organize and identify high priority projects for funding. Figure 21 summarizes some ideas for incorporating recent social science research findings.

The Role of Urban Design

Urban designers can play an important role in the city/community building process in at least two ways: 1.) as a problem solving supporter of a larger comprehensive planning or infrastructure development effort, and 2.) as a leader or manager of a complex multi-disciplined professional team working on a complex project.

URBAN DESIGN IN A PROBLEM SOLVING SUPPORT ROLE.

Urban designers are often called upon to assist project teams with specialized expertise in physical form giving. In these instances, urban design is often used to solve a particular problem, add a dimension to the project, or resolve a conflict. For example, Washington State’s Growth Management Act (GMA) requires many of the state’s cities to prepare comprehensive plans that respond to certain objectives in the Act, including greater concentration of development (as opposed to urban expansion into rural areas), critical area protection, housing options, etc. While the GMA’s focus is on comprehensive planning, the Act has resulted in quite a bit of work for urban designers who are engaged in solving the numerous planning challenges presented by the Act’s implementation. Figure 22 identifies some of the GMA issues that required urban design solutions.

Figure 22. Urban design solutions responding to challenges presented by growth management activities.

Urban designers are also frequently called upon to support infrastructure projects such as highway corridor improvements, bridges, port developments, and other capital improvement projects. In this case urban design can be used
to enhance engineering structures with human scaled elements that enhance the project's visual appeal and/or pedestrian qualities.

Figure 22. A design for a proposed lid over the SR 520/ Roanoke interchange that helped satisfy the concerns of several adjoining neighborhoods and, at the city-wide level, reconnect portions of Seattle's historic Olmsted Boulevard and Open Space network. Although local transportation was the project's focus, the urban design elements were necessary to build a consensus among agencies and local residents.

**Conclusion**

In this extended article I have attempted to:

- Define urban design through the original concepts and practices articulated by Professor Meyer Wolfe at the University of Washington.
- Argue that a city and community building approach based on Wolfe's definition is a useful addition to the design and planning disciplines.
- Explore some of the current challenges and directions facing urban designers and related disciplines.

- Outline a public process for addressing urban design issues, with a few suggestions for specific steps and encouragement for those engaged in such a process to incorporate the insights of recent social science research.
- Describe the different roles urban designers may assume in building more vital, livable communities.

The Bibliography provides an ample reading list for those who wish to pursue these topics.
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