Designing for Life in Our Urban Open Spaces:
A Recipe for the Creation of Meaningful and Useable Public Space

A Fifth Year Landscape Architecture Terminal Project
by Kevin Joseph Osburn
Ball State University, Muncie, Indiana
May 5, 1990
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A good urban open space is...

... one which, in some way, is appropriate to the person and his or her culture, makes him or her aware of his or her community, the past, the web of life, and the universe of time and space in which these are contained.

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Preface

An admiration and respect for the beauty and power of our natural environment has always been an important part of my life. As a child, I was fortunate enough to experience a wide variety of natural environments, which was a major reason why I chose landscape architecture as my career. Throughout the five years of my professional studies, I have learned the importance of the environment in our lives. I have learned to work in harmony with the natural forces which sustain our existence, and I have learned to sensitively design and plan the land to accommodate human activities. Travelling to different areas of the world has enabled me to observe how other cultures utilize and plan their land. These experiences have opened my mind to the greater opportunities that exist in my personal design expression. I believe that, through the field of landscape architecture, I have an opportunity to offer society a better environment in which to live.

The potential contribution of landscape architecture to our urban environments is an issue which I have become interested in over the past couple of years. Although the solutions to many urban design problems are, by their nature, more design oriented than ecologically oriented, the design principles involved are the same; the charge is to sensitively respond to a variety of forces, be they man-made or natural, that are acting upon a site in order to meet the needs of the users of the site. Too often in our urban environments, this response has not resulted in the satisfaction of the users' needs, as evidenced by a large quantity of well-intended, but rather unused urban spaces. This project, then, is devoted to gaining a clearer understanding of the creation of life in urban open spaces and to defining a more appropriate response to our design of these spaces. The hope of the project is that the effort put forth will make a contribution, be it great or small, towards creating more meaningful and useable public spaces.
Acknowledgements

An investigation of the important considerations when designing spaces for people is an issue that several distinguished authors have undertaken in the past and whose collective body of works were extremely instrumental to the development of this thesis:

Kevin Lynch and his books, *Site Planning* (1972) and *A Theory of Good City Form* (1981), were essential to the development of an overall framework for the site design criteria to be discussed, as well as in defining the initial direction of the entire thesis project; although the major ideas in these books were developed nearly two decades ago, their significance to urban space problems is even more relevant today.

William Whyte, this country's foremost observer of people in the urban environment, has written numerous books (including *City: Rediscovering the Center*, 1988, and *The Social Life of Small Urban Spaces*, 1987) and conducted several innovative studies on the issue of accommodating people and their behavior in public spaces; his work is full of insightful, pithy observations that give the designer specific recommendations on what and what not to do.

Jan Gehl is a Danish architect whose book, *Life Between Buildings: Using Public Space* (1987), is one of the most thorough and useful examinations of the public life that occurs in our urban environments; his comprehensive look at the activities that occur in "the space between buildings" gives a designer's perspective of the same kind of issues that William Whyte discusses.

Other authors who were researched, including Christopher Alexander, Grady Clay, Ann Winston Spirn, and Mark Francis, contributed greatly to the development of the thesis and in defining the issues to be addressed.

I would also like to thank the people who have helped me throughout the course of the project, whose assistance has been very much appreciated:

Malcolm Cairns, assistant professor of Landscape Architecture, Ball State University, for his guidance, advice, and "just do it" attitude;

John Russell, professor of Landscape Architecture, Ball State University, for his encouragement and support that enabled me to establish a firm background for the project;

Dr Ron Spangler, assistant professor of Landscape Architecture, Ball State University, for his daily encouragement and patience during the last semester;

and Eric Fulford, associate, Rundell Ernstberger and Associates, for his valuable input at the commencement and the conclusion of the project.

Last, but not least, I would like to thank Dr James Marine and the Office of Undergraduate Research Grants at Ball State University for their financial support, without which the completion of the project would not have been possible.
Introduction and Background Information

The public square has always been an important commercial, social, and religious center in the urban environment; it has been at the heart of ancient Greek and Roman cities, medieval towns, and later provincial villages and the modern metropolis. Although the appearance and amount of urban spaces have changed drastically over time, their basic function has not. Urban plazas should be amenities; most are not. Crowds throng the most successful, filling every sittable niche at lunch hour; the failures are deserted (Spirn, 1984). Success of the urban space is integrally linked to the relationship between the people of the city and the space itself; unfortunately, this relationship is usually a minor consideration in the design of most urban spaces.

William Whyte, perhaps the foremost observer of people and how they behave in the urban environment, suggests that it is difficult to design a space in the city that will not attract people. According to Whyte, it takes real work to create an ineffective space; people enjoy the excitement and activity of being in urban spaces with other people. Contrary to the thinking of many designers in the past, who believed people use urban open spaces to escape from the life of the city, Whyte maintains that people use them to partake of the life of the city; here is the one place where designers have the opportunity to celebrate the exciting cultural mixing of our urban environments. Although there is much more to successful spaces than comfortable benches and shade trees, Whyte proves through his insightful studies that, with a little thoughtful observation and common sense, designers can create open spaces that are used and enjoyed by people and add to the life of the city (Whyte, 1988).
In the United States, there currently seems to be a reawakening, or, more appropriately, a realization, of the need for quality, people-oriented spaces in our urban environment. This realization is well overdue. In the past, American cities have not been successful at creating great urban spaces because the emphasis was placed on the building; too often, our open spaces were what was left over after the erection of a skyscraper - a grand, concrete open space that merely provides a setting for the "interesting" building which sits upon it. Open space was meant to serve the building and not the people who would walk through and attempt to use the space. Urban designers are now beginning to realize that the space between, near, and around buildings is just as important as the space within them. As Danish architect and urban designer Jan Gehl reminds us, there is a public life that takes place on this landscape between buildings; we need to better understand and plan for this life if our cities are to become the lively and healthy places we want them to be (Gehl, 1987).

Americans have seen the great tradition of European public open spaces; they are inspired by the vibrance of the Italian piazzas, the grandeur of the French gardens, and the charm of the English commons. This inspiration has led designers in this country to create an idealized or romantic form of these classic public spaces; this approach has led to the assumption that, with the appropriate physical elements (i.e. the bench, the fountain, the planting,...), the intended behavior and social life would simply follow, as observed in Europe. To their (and our) great displeasure, this was not the case, as many of today's public spaces are not successful. (Francis, 1989)

In Europe, these spaces worked, and continue to do so, for several reasons, most of which are not prevalent in American cities: plazas are a part of European culture, a part of the urban framework,... However, there is much to be learned from these classical examples of urban open spaces; for example, how do people use and
experience a space, why do they come to that space, how do you design with people in mind? The life of European plazas contains lessons that we must first learn and then apply to our own cities, in designing new urban spaces and in, re-evaluating old ones.

One of the most important lessons to be learned from our past experience is that, in the design of public spaces, we can no longer afford to begin with a physically based definition of a public space; instead, we must realize that the physical design of a public space requires a deep understanding of public life and public culture. As Gehl pointed out, public life does not just simply happen but needs to be carefully crafted and nurtured through design and management. (Francis, 1989) Similarly, architect Kevin Lynch suggested that spaces should not merely support the activities that occur within them, but they should visibly support them; he asserted that action can be clarified and expressed and its emotional mood and proper conduct visibly reinforced. (Lynch, 1972) Therefore, it appears that urban designers need to rediscover the meaning of design and its relationship to human behavior. As one expert says, design seeks the question of its effect on behavior. Design is also an effect of behavior; it is a physical manifestation of our response to the range of factors that constitute our environment. (Von Eckardt, p.66)

Across the country, cities are beginning to realize the importance of "people-oriented" urban space. The "back-to-the-city" movement of recent years and the failure of many urban spaces are forcing cities to re-evaluate and redesign their public environments. This trend means more opportunities for the landscape architect, but what does the profession know about making a good public space? How can we be sure we do not fail again? A holistic, humanistic, and adaptable new approach to the design of public places is needed; one that is able to address and express the lessons that we have learned from our past. There is obviously much more to the design of public space than the provision of basic amenities. There is a
need to understand the social life of places, the effects the design of a place may have on public behavior, the outside factors that contribute to the success of a space, the meaning of public space, and the politics and prevailing attitudes towards public space.

It is clear that we have reached the first phase of awareness of public space in America - appreciation - but it is not clear whether we will reach the second, where humane public space is integrated into our urban network (Holtz-Kay, 1989).
Project Statement

The intent of this project is to address the need for quality, user-oriented open space in American cities through the development of an approach to urban design that defines the considerations necessary for the creation of meaningful and useable public spaces. The roots of this approach lie in the studies conducted by several distinguished observers of public life and public space. These studies were primarily conducted on existing built environments by evaluating their inherent design ability to successfully meet the needs and demands of the users - the general public. While these studies have dealt with existing spaces, there has been very little application of their findings to proposed spaces, which is the ultimate reason for conducting such investigations - the improvement and continued, preferential public use, of our future urban landscapes.

Thus, the method employed to carry out this project involves a set of performance standards, or design criteria, developed from various theories and observations on urban spaces from some of the leading experts in the field of urban design; this set of performance standards will then be applied to the design of a major urban space in the city of Indianapolis, Indiana. Upon completion, the design can then be evaluated based upon its articulation of the design criteria (or how well it conformed to the standards) and, more importantly, the validity and significance of the design criteria will be established according to the apparent success of the design.
Methodology

Researching the different "theoriticians" of urban life and urban design, I discovered two things: one, that although each author had a unique approach to the problem of designing successful urban spaces, there were certain universalities or similarities in what they were saying; and, two, the ideas of most of these authors were the result of studies and experiments on existing urban spaces and, therefore, had yet to be applied or formulated as a set of criteria for the design of new spaces. Subsequently, I saw the opportunity for the creation of such a set of criteria to be used by the designer in the design of public open spaces. The set of criteria which follows were developed under the following conditions:

1) The criteria are intended to be universal and applicable to the design of any urban open space.

2) The following list is not meant to be comprehensive; it will undoubtedly be altered, improved, or expanded as we gain a better understanding of our urban spaces and the public life for which we design.

3) The criteria are intended to be used as a checklist for the designer during the design process; they are a tool for examining and evaluating the perceived effectiveness (in terms of the space as a "place for people") of the design by determining the degree to which the design is meeting the established criteria.

With these conditions in mind, the following is a condensed version of the criteria for the design of public open spaces, which I call "key ingredients of a good urban space," and the authors whose ideas they represent.
Key Ingredients of a Good Urban Space:

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A more intensive explanation of these "ingredients" is given below to illustrate the specific aspects of each ingredient and the considerations involved in their application. Each ingredient is prefaced with a short description, followed by a list of more detailed considerations.

A.) A Sense of Place: Kevin Lynch

"Sense" refers to the clarity with which a place can be perceived and identified; the join between the form of the environment and the human processes of perception and cognition.

"Sense of place" refers to the identity of a place; the extent to which a person can recognize or recall a place as being distinct from other places, or, having a vivid, unique, particular character of its own.

1.) A good place should be accessible to all the senses:
   (a) the play of light
   (b) the feel and smell of wind
   (c) touches, sounds, colors, forms that engage the perceptions of all of the inhabitants of a place.

2.) Intense familiarity or a special form can create a sense of place; when form and familiarity work together, the emotional result is powerful, for example, a familiar prototype reinterpreted through form and material.

3.) A characteristic visual expression can contribute to giving a feeling of a sense of place and, therefore, inspire people to be in the space.

4.) Place identity is closely related to personal identity, as personal memories, feelings, and values, are easily associated with sensible, identifiable places.

5.) A memorable physical setting will reinforce a special event; occasion and place
should reinforce each other to create a vivid present.

6.) A dominant building can act as a theatrical backdrop that imparts an identity and drama to a space; it can also exert an influence on the life of the space through its activities and functions.

B.) Behavioral Settings: K. Lynch

...are locations where spatial form and human behavior are repeatedly associated; involves how the relationship between the look of a place and the activities of a place can stabilize and heighten those activities.

1.) Spaces should not merely support the activities that occur within them - they should visibly support them. Action can be clarified and expressed; its emotional mood and proper conduct visibly reinforced.

2.) The Program for a structure or settlement should properly be the set of desired behaviors and the spatial qualities appropriate to them, rather than a statement of quantities of space by type; it should be assumed that action is given, while space is the dependent, responding variable. However, action can also adapt to a space: space suggests action as well as constrains it. A program should focus on general and predictable behaviors such as movement, social intercourse,... rather than on the finer details of action. Behavioral flexibility is an attractive feature in any new place.

3.) The site plan can support or suppress the visible activity of people by:
   (a) concentrating or mixing the locations of activities
   (b) providing places for meeting, celebration, and mutual observation
   (c) exposing circulation flows to the sight of the viewer
   (d) in general, providing ways in which human action can leave its trace on the inorganic landscape.
4.) A place's spatial and temporal pattern should match the customary behavior of its inhabitants; this "behavioral fit" of a place is intimately dependent on culture: the expectations, norms, and customary ways of doing things. Often we are too concerned with the functional, quantitative aspects of design with little regard for the qualitative aspects that determine the behavioral fit; fit deals with place and actual behavior.

C.) Legibility of Space: K. Lynch

An urban open space should be both readable and perceptible to its inhabitants; it is this quality that determines the degree to which an individual can perceive and experience the particular activities, functions, and feelings a place has to offer.

1.) Orientation (the overall structure of a place) - poor orientation means lost time, wasted effort. The orientation of a place should provide security and pleasure, as well as enhanced access to a space, in order to enlarge the opportunities to participate in or experience the space.

In outdoor space, it is important to remember that the elements that make up space are constantly changing (light, color, sound, enclosure - overhead, alongside, underfoot) and are more subject to growth, decay, and alteration. Consequently, outdoor space is looser and less defined; therefore, an external spatial environment should be a clear and connected whole in order for its orientation to be perceived and understood.

2.) Spatial sequence (direction toward a goal) - a series of arrivals is more interesting than a single approach because it not only provides a progression of spatial experiences, but it allows for the creation of versatility, adaptability, and organic wholeness in a design.

(a) each spatial event should prepare for the next one without completely
foretelling it, so the observer receives each as an ever fresh but coherent development that is part of a larger whole.

(b) the site should be a coherent succession of spaces or textures or objects, in which each part relates to the next, but in which there is a constant play of variation on the same theme.

(c) A chain of spaces should seem to be part of one extended whole.

(d) the earliest step of site planning should be to analyze the visual consequences of spatial form when seen as a sequence (see also transparency).

3.) *Viewpoint* - the cumulative effect of views is more important than merely a single view; the sequence of views and spaces is crucial (for example, a hint at a major view, succeeded with an intimate view, repeated with a dominant foreground, a disappearance, a reappearance,...).

(a) The eye can be directed through framing, repetition of form, a focal object, contrasting the foreground with the background, and/or creating attention through the subdivision of views.

(b) The connection of point to the whole can be achieved by symbolic echoes of shape or material; the purpose of this type of connection is to make a powerful statement outdoors through the establishment of simplicity and readability over a large scale.

4.) *Continuity depends on important transitions* - joints, corners, gateways, decision points on a pathway, upper edge of objects at the skyline,...; these transitions must be articulated if spaces are to be readable and coherently joined.

5.) *Transparency* - the degree to which one can directly perceive the operation of the various technical functions, social activities, and social and natural processes that are occurring within a place; the "readability" of a place. For example, can you actually see people at work, eating, playing, etc.? Can you
hear the waves strike the shore, touch what is for sale, see when a parking lot is full? This transparency of processes conveys a sense of life - functions that are presented immediately to the senses help us to understand the world. The environment should have a readily apparent form at a distant glance, yet reveals new features, processes, and organizations when experienced more closely.

6.) *Motion* - the form of the motion of the space must be decided upon; it can be direct or indirect, fluid or formal, smooth or erratic, delicate or brutal, divergent or convergent, purposeful or whimsical.

(a) Rhythm and direction should be supported by the form of all visible elements
(b) changes in plan should coordinate with changes in section
(c) spatial dimensions should be reinforced with light, color, texture, and detail
(d) the use of spatial manipulation should be used to express depth (i.e. the overlapping of distant objects with closer ones; the smaller size and texture of objects that are farther away; the bluish color of distant surfaces; the convergence of parallel lines,...)
(e) objects should be used to express, clarify, or heighten the visual sense of motion of self upon the landscape or the dancing and suggestion of the landscape.

7.) A *comparison of spatial forms and feelings*: These spatial forms and their relationships to one another are important tools of the designer when planning the spatial experience of a site. For example, the intimacy or constraint of a small space and the exhilaration or awe of a great opening are universal sensations. Even more dynamic is the transition between the two: the powerful sense of contraction and release.
(a) the awesomeness of great size and simple form versus the pleased interest
evoked by diminutive scale and intricacy
(b) the aspiration of tall, slender verticals versus the passivity and
permanence of the horizontal line
(c) the closed, static appearance of circular form versus the dynamism of
projecting, jagged shapes
(d) the protection of low, cavelike space versus the freedom of the prairie
(e) the feelings evoked by fundamental human shelter elements (door, roof,
windows, balconies,...) or by basic natural materials (rock, earth, water,
plants,...).

Once a readable space is established, it can have a strong emotional impact on the
observer; only through the careful consideration and articulation of a space's
orientation, visual sequence, transparency, continuity, motion, and spatial
relationships can the designer achieve the spatial experience appropriate to the
particular setting.

D.) Scale: K. Lynch, Jan Gehl

The scale relationship must be decisively intended and carried out, whether it is that
between an urban open space and the sky; a space and its surroundings; or an
individual and his surroundings (in this instance, scale can be measurable or
superhuman in size). This relationship should be realized and established according
to the desired effects of the design.

1.) Some "human" dimensions: one can detect a man at 4000'; recognize him at 80'; see
his face at 45'; and feel in direct relation to him at 3' to 10'. Up to 40' feels
intimate; up to 80' is still human in scale. Most successful spaces have not
exceede 450' in the smaller dimension. External enclosure is most comfortable
when the walls are 1/2 to 1/3 the width of the space enclosed; if the ratio falls below 1/4, the space ceases to seem enclosed. Also, it feels unpleasant if the sight at eye level is ambiguous.

2.) The design of a space can assemble activity by dimensioning urban spaces, namely streets and squares, realistically in relation to the sensory ranges of people and the number of people expected to use the space; the intensity of an experience will be increased with reduced size. Conversely, dispersing of activity is achieved by overdimensioning areas for few people and activities.

E.) A vocabulary of external spaces: K. Lynch

There are certain types of external spaces that are clearly identified by a short phrase, the mere mention of which gives the designer a clear understanding of the physical form and identity of the space; the following is a list of such spaces which can be referenced by the designer when designing or redefining space and to stimulate the invention of new spatial types:

Physical forms for space, such as a vista, court, slot, maze, tunnel, avenue or axis, canopy, free-form, hemicycle, park, bowl, crest, slope, valley, or honeycomb.

Natural landscapes, such as a prairie, marsh, forest, meadow, or dune.

Human or historic spaces, such as an English cottage, the Italian piazza, college quads, the French place, a cathedral close, English gardens, formal gardens, romantic parks, streets, avenues, waterfront promenades, an arcade, a terrace, parkways,...

F.) The Ground Plane: K. Lynch

Rarely do designers consider the impact of the ground surface upon the perceptual form of a space; it is important to note that the ground plane is the only continuous surface and, therefore, has important implications on how one experiences a space.
1.) the textural finish of the ground plane should be a source of delight and set the general visual character and scale.

2.) the ground plane should impart sensations of touch as well as sight.

3.) it can be a harmonious, unifying element or a dominant surface element that communicates principle patterns and the directions of the plan.

4.) the patterns and rhythms of surface activity should be expressed in the textural pattern of the ground form (see also behavior settings).

G.) Planning for People: Jan Gehl, William Whyte

The important activities of the urban environment (called "life between buildings" by Jan Gehl) take place on foot - only on foot does an activity and its situation function as a meaningful opportunity for contact and information in which the individual is at ease and able to take time to experience, pause or become involved. The creation of these "on foot" activities is a product of the number and the duration of individual events - a high level of activity in a certain area can be stimulated by both ensuring that more people use the public spaces and encouraging larger individual stays. Simply stated, something happens because something happens - the establishment of life between buildings is a self-reinforcing process. A good urban open space should provide for and accommodate these pedestrian-oriented activities in an effort to create and maintain their presence, for as long as possible, within the space.

1.) Walking:

Walking is probably the most common activity in the urban environment, as it is the most convenient mode of circulation. There are many different behavioral aspects to walking that the designer must consider not only when planning an urban space but
its approaches as well:

(a) The acceptable distance one will walk is determined not only by the physical
distance (see location), but also the experienced distance; this is the interplay
between the length of the walk and the quality of the route.

(1) a walking network of alternating street spaces and small squares has the
psychological effect of making distances seem shorter.

(2) A pleasant walk should contain worthwhile spatial contrasts; for example,
the quality of experience of a large space is increased greatly with an
approach through a small space.

(3) It is more pleasant to walk along the edge of a space than through the
middle of it; this is due to the feeling of spatial diversity, the receiving
of two varied experiences at once - a detailed view on one side, an
expansive view on the other. The edge also affords a greater feeling of
security and protection than the middle of a space.

(b) When walking, there is a tendency to follow the shortest route possible.

(c) When there is walking between buildings, street sections should be dimensioned
according to the number of users, so that pedestrians move in an intimate,
clearly defined space and don't drift about.

(d) Changes in elevation require a change in the rhythm of walking; therefore,
vertical connections should be easy and free of complications. In general,
then, ramps are preferred to stairs.

2.) Sitting:

As William Whyte says, "people tend to sit the most where there are places to sit."; the
amount of linear feet of seating space accounts for the popularity of most urban
spaces; however, designers must also address the qualitative variables of seating,
such as comfort, practicality, and locations of seating.

(a) Sitting opportunities are a prerequisite for outdoor stays of long duration and
other resultant activities, such as eating, reading, sleeping, talking, seeing, etc.

(b) Sitting activities take place only when the external conditions are favorable and the designer chooses locations more carefully than those for standing.

(c) The edge effect applies as well to sitting: on the edge one's back is protected, view is unobstructed, and the localized climate is usually more favorable. Placement guided by thorough analysis of spatial and functional qualities of location.

(d) Each area of sitting should have an individual identity and a local quality.

(e) Each area of sitting should be placed where there is intimacy, security, and good microclimate.

(f) To choose to sit is to enjoy the advantages a place has to offer; orientation, view, events, activities, protection from sun, wind, etc. should all be parts of the sitting experience.

(g) The type of seating is important; comfort, practicality, accessibility should all be the major design criteria when designing seating areas. Primary seating should be placed in carefully chosen, strategically correct locations to offer as many advantages as possible, while secondary seating, such as walls, steps, planters, etc., will be needed when the demand is great.

(h) Steps, when properly designed, make ideal sitting spaces, especially for groups. People like to arrange themselves at angles of about 45 degrees because it's comfortable for eating, talking, etc. The corners of steps or the ledges abutting them are popular places to sit. A good space should provide this design versatility in its steps.

(i) Where pedestrian flows bisect a sittable space is where people will sit; although this is a theoretical conflict, it is not a functional one. In this case, the congestion is an amiable one; circulation and sitting are complementary, not
conflicting.

(j) Socially and physically, benches are best when they are generously proportioned.
(k) People like to look at other people, but they don't like to be looked at.
(l) Chairs: the possibility of choice is as popular as the exercise of it.

3.) Standing:

(a) For any stops of long duration, the key is there must be a good place to stand.
(b) The edge effect applies to standing as well: the preferrable places to stand are along the edges of spaces because this location provides the best opportunity to survey a space and keep one's distance from others. Here, one is less exposed; you can see and not be seen. Interesting building facades with niches, holes, gateways, and stairs are popular places to stand; this type of edge can also offer shade.
(c) Within larger spaces, objects such as fountains, sculpture, bollards, planters, lightpoles, benches, trees or even trash containers, are the centers of standing; they become resting places on a small scale. A good space will provide these "localized centers" and consider the actions associated with standing in their detailed design; the design of detail plays an important role in the development of staying possibilities in public places.
(d) When people stand and converse, it is usually within or just to the side of the main flow of traffic; well defined spaces, like steps or borders are also popular.

4.) Seeing:

(a) The possibility of seeing is related to distance between observer and object (see scale).
(b) The possibility of seeing is also a question of overview, field of vision, and unobstructed sightlines (for example the Piazza del Campo in Siena).
(c) Lighting is important in a space for a feeling of security and enjoyment at all times.
(d) Signs are necessary to explain and direct activity; they can add interest. The task is not to suppress, but to clarify and regulate the flow of information so that the priority signs aren't missed and accurate information is transmitted easily and expessively.

5.) Hearing:
The sound of people is a valuable and important asset to the general ambiance and psychological well being of an urban place. A space should provide for pleasant sounds, such as the sound of music, fountains, conversation, children, etc., to make a walk and its spaces interesting and exciting. The strategic planning of the activities that make these sounds near areas of heavy pedestrian use will also help to drown out the unpleasant noises of the city (traffic, construction, etc.).

6.) Talking:
(a) Conversation with strangers occurs when all parties are relatively at ease, occupied with same thing, or engaging in the same activity; acquainted persons need a reason not to converse, while unaquainted people require a reason to do so.

(b) Triangulation is a process by which some external stimulus provides a linkage between people and prompts strangers to talk to one another as if they were not. Examples of triangulation include a pleasing view, a skyline scene, an interesting sculpture, musicians, street performers, etc. The evidence of triangulation is the sign of a great place.

(c) Distance regulates intimacy; the distance between participants in a conversation is reduced if the mutual interest or intensity is increased (relates to triangulation); the converse is also true. Thus, a certain type of space is needed for the initiation, establishment, and backing out of conversations.
H.) Location: W. Whyte

People are most interested in other people; in order to draw people a space should tap a strong flow of them.

1.) The best location for an urban open space is near the "100% center" of an area, that is the area of the city where most of the people are. People ought to walk to a space, but they usually don't if it is too far; an effective radius is about three blocks, which encompasses an area from which 80% of the users will come.

2.) An urban space must be seen in order for it to generate use and activity; this refers not only to the larger context of a space, but to the more human scale of the adjacent sidewalk as well. Sightlines both into and out of a space are important for visual connection and security.

I.) Relationship to the Street: J. Gehl, W. Whyte, Christopher Alexander

A plaza's relationship to the street is one of the most critical design factors; the easier the flow between the street and the plaza, the more likely people will come in to tarry and sit. Physical and visual barriers at the junction of these two spaces should be eliminated.

1.) Planning a space for easy access for the handicapped will make it easier for everyone else, too (i.e. drinking fountain heights, walkways, seats with backs, etc.).

2.) The corners of the plaza usually have the most activity because these are the natural pedestrian gathering places in the urban environment; a good space will not segregate them, but encourage and create activity in these locations.

3.) The sidewalk should become a part of the plaza, in some way, so that the
distinction between the two is not readily apparent (see transitions). The effective use of design elements, such as trees, paving, planters, and steps, will enable this condition to occur.

4.) It is important to note that the activities and events of a space grow inward from the space; as Christopher Alexander suggests, "if the edge fails, then the space never becomes lively."

J.) Transitions: W. Whyte, K. Lynch

A good urban space provides transitions between different types of spaces, or behavior settings, that provide some sort of mutual communication and help people to learn from and interact with one another in a place. Ambiguities at the edge is needed so a person can move at will between settings or linger while deciding to do so.

1.) Doorways, steps, and margins of activity areas are sensitive and necessary places that provide transitions.

2.) Impulse use can be created through transitions or overlaps that are easy and subtle, such as steps between a space and the sidewalk that are gradual and inviting. A good space beckons people in; you shouldn't have to make a decision to enter, it should be instinctive.

3.) The invitation of activity can be created by transitional zones that are neither public nor private and, therefore, function as connecting links because they place the public environment in easier relation to the private.

K.) Secondary Use: W. Whyte

To attract secondary use, a place should offer visual enjoyment and a diversity of activities to passers-by; being able to see what's going on is inviting. Furthermore,
the knowledge that the plaza is there will allow it to become part of the image of a much wider area, thus becoming a subtle draw of people.

L.) Temporal order: K. Lynch
By contrasting the new with the old, we feel the depth of time. A good space saves evidence of its previous occupation, especially that which conveys a sense of intimate human use or of profound symbolism.

M.) Functions that are appropriate to an urban open space: Jan Gehl
The integration of various activities and functions in and around public space allows the people involved to function together and to stimulate and inspire one another (a classical example of this integration is the compact medieval city with an interwoven pattern of activities, an interesting contact surface, and an integration-oriented city structure.)

1.) small-scale commercial and service establishments
2.) activities of a cultural nature, for example, public administrative offices, community halls, youth centers, libraries, theatres, concert halls, cafes, bars, and, ideally, residential - the goal should be the creation of 24 hour activity.

N.) Destinations: W. Whyte
A good space should provide things or places that the individual can seek out naturally and use as a motive or inducement to go out; for example, outings to particular places, unique vantage points, pubs, cafes, places to meet friends, etc.; these are all important creators of activity.
O.) Programming: Jan Gehl, W. Whyte

The programming of events that establish a strong relationship between groups of people and the use of the space is the key to a place’s success. The design of urban open spaces must take this into consideration.

1.) Features such as electrical outlets, water lines, and lighting that can accommodated a wide variety of events are important components to the ultimate success of a space and cannot be overlooked.

2.) Skillful programming of a space can expand the hours of usage of the space past the normal 8 to 5 workday; furthermore, entertainment events, bars, residences, etc. can extend the life of a place in the short and long runs.


Water is an extremely versatile and exciting element when used in creative ways by the designer; it can affect sound, smell, sight, and touch in ways that no other design element can. There are many features to consider when designing with water:

1.) If water is provided in a space, there must also be access to it; it is not fair to deny access to such a natural and magnetic attraction. Water is to be felt and not just seen and heard.

2.) The sound of water masks street noise, as well as that of nearby conversations.

3.) Some descriptive terms and uses of water include ocean, pool, sheet, jet, torrent, rill, drop, spray, cascade, film.

4.) Some terms for the motion of water are trickle, splash, foam, flood, poor, spurt, ripple, surge, run.

5.) Water can be combined with light and sound; its sound and movement is enhanced by its form and character.
6.) It can be used in ways to express its intimate connection with life.

7.) It has an intricate, repetitive, fluid movement, an inherent suggestion of coolness and delight, a broad range of form and changeableness, and reflective qualities that can all be an attraction for people and activities.

8.) It can evoke moods of gaiety, serenity, sorrow, mystery, majesty, contentment, and voluptuousness.

9.) It is an attraction for play as well as contemplation.

10.) Moving water gives a sense of life, still water of unity and rest.

Q.) Food: W. Whyte

If you want to seed a place with activity, provide food; it is a major attraction of people, who, in turn, attract more people. Cafes with tables and chairs placed in strategic locations can offer stunning visual effects to a place.

R.) Plant material: K. Lynch, W. Whyte

When using plant material, consider groups of plants and the general character of planted areas and the use of colors, textures, and outlines to be played against one another. Choice of materials should be influenced by their fit with the setting: relationship of shapes to buildings, shapes to ground, and apparent harmony with climate and native vegetation. Planting appearance must be imagined at the beginning, as well as at maturity, and in all seasons.

S.) Microclimate: W. Whyte

The establishment of a comfortable microclimate within a space is a very important consideration when trying to attract people and maintain their presence in an urban space.

1.) Trees provide an important localized shade.
(a) they should be closely related to seating space, as the best places to sit offer good view of passing scenes as well as a tree to sit under or next to.

(b) guy wires, planters, planting beds, etc. that keep people from getting too close to the tree should be avoided.

(c) planting in groves allows a pleasing combination of both sun and shade.

2.) We need more trees in the urban environment for their aesthetic and functional qualities as well as their climactic benefits (i.e. reduction of heat and glare, cleaning of the air, etc.)

3.) The amount of sun that is desireable in a space is largely dependent upon time of year; however, the quality of the experience in a space is always greater with sun because then one has a choice between sun, shade, or in between. The best time to sit under a tree is when there is sun to be shaded from. Therefore, the more southern exposure, the better.

4.) Sun and warmth bring people outdoors. This fact has important implications on the design and use of space: minor design features on marginal days can be the difference between use and non-use of the space (i.e. access to sun, protection from winds, rain, etc.).

5.) The provision of semi-outdoor spaces, such as arbors, arcades, trellises, and pavillions, is the mark of an urban open space that can lessen or overcome the non-desireable effects of bad weather days.
Site Description

Now that the criteria have been outlined, the next step is to apply them to the design of an actual urban space; the space that I chose to use for this "experiment" is in downtown Indianapolis, Indiana. The space is located directly adjacent to the north side of the historical Union Station railroad terminal (built in 1888), which is the heart of the city's historical wholesale district. The presence of the first union station in the United States established Indianapolis as a major railroad city, leading to the development of the vigorous wholesale trade, several small industries, and most of the city's principal hotels during the late 19th and early 20th centuries, as the city soon became known as "the Crossroads of America." The Station itself is a magnificent building designed by Thomas Rodd of Pittsburgh in the Romanesque Revival style; the building features pink granite from Missouri, brown stone from Pennsylvania, pressed brick facades, and a 150-foot tall clock tower that that remains a dominant element on this area of the city's skyline.

Currently, the area is undergoing a significant amount of revitalization and development; in the past five years alone, Union Station has been transformed from an abandoned railroad terminal to a vibrant commercial complex of shops, restaurants, nightclubs, and a hotel; the Pan Am Plaza is now a major open space directly to the west of Union Station and the project space; and the Omni-Severin is a new luxury hotel that bounds the space on its north side. Also exerting an influence on the project space is the proposed Circle Center Mall Complex, whose entertainment district will be located to the north of the site, and the South Meridian Street corridor of restaurants and nightclubs to the east of the site, which is the current heart of the city's nightlife.
A Conceptual Discussion

The concept that emerged for the design of the space was based on the city's historical relationship with the railroad and the "Crossroads of America" theme. This concept began to express itself on two levels:

1) The railroad's relationship to the landscape was one of man's dominance over nature, made possible by the technological advancements of the industrial revolution. The railroad was the first form of transportation that was not affected by the natural restrictions that limited other modes of transportation; there seemed to be nothing the railroad couldn't overcome as it travelled across the mountains, rivers, wetlands, and plains of America. In addition, for the first time, the railroad offered travellers a complete view of the American landscape within a relatively short period of time; in essence, it was a "window of America" which opened up to view a large variety of American landscapes.

2) The word "crossroads" implies a variety of things, including a place of meeting, arrival, and departure; a juncture; a point in time and space where systems converge and overlap. Therefore, the meaning of the word "crossroads" was expanded to include this layering idea.

These two conceptual levels became the physical vocabulary for the space that helped me to integrate and respond the various contextual influences, mentioned above, acting upon the space. On one hand, there was a need for the space to respond to the immediate urban context of which it was a part, namely the Pan Am Plaza, Union Station, and the Omni Hotel; on the other hand the space needed a uniqueness of form or an element of distinction that began to add some life or spirit to
excitement to the space that would encourage people to stay in the space and use it. I felt that there was a danger of the space becoming a "pass-through" space that people used merely as a means to get to another place (which is the current condition of the space); I wanted the space to become a legitimate space within the city that people came to use for the unique benefits or experiences it has to offer. A design response that creates a formal setting in the space, such as a forecourt character to Union Station, would not be a space that was designed primarily for the accommodation of people; it would be an exterior setting that is subservient to a building.

The issue, then, became to maintain the formal, axial relationship and visual connection to Pan Am Plaza while, at the same time, not allowing this relationship become the major form determinant of the space, as this would seem to produce a physical form that encourages a person to pass through the space without stopping to experience it. Therefore, I saw a need to establish a layering of the more formal geometry of the urban form with a more free-flowing or organic geometry that responded to the need for the space to develop its own unique attributes and character. This "layering" of geometries is the physical expression given to the aforementioned conceptual idea of a crossroads as a place where systems come together and overlap.

Consequently, the major features of the space began to respond to these geometries and, at the same time, express the first conceptual idea of the railroads relationship to the landscape. An arcade across the center of the space, responding to the axis established by the Pan Am Plaza fountain, symbolized a segment of railroad track that proceeded in its typically linear manner across the various features of the landscape. A fountain, whose genesis occurs directly in front of and centered on the Union Station entry facade, symbolized a river or stream in all its forms and processes as it meanders across the landscape. A carpet of green on the south side of the arcade recalls the flat, expansive fields of the Midwest, while a hardscape plaza
on the north side of the plaza is made up of the elements of the typical urban environment. Thus, the formal geometric response connecting the space to the urban context became the arcade and the pavement patterns in the space, while the free flowing, organic geometry that added an element of distinction, attraction, or raison d'être became the fountain element, which begins in the center of the space, flows throughout it, and ties the space together (see figure 1.).

**figure 1.** Site plan showing the major elements of the Union Station space and the "entry spaces" leading up to it.
The Application of Certain Site Design Criteria

Although some of the previously mentioned site design criteria (see "Key Ingredients of a Good Urban Open Space") were used in the design of the Union Station space more extensively than others, all of the criteria are relevant and have some degree of application in the design. The nature of each criteria varies from those that are more applicable at a general, conceptual level to those whose application is concerned with very detailed design considerations. The task of the designer, then, is to utilize and apply the criteria at the various stages of the design process, depending upon each criteria's application to the particular project. The design that is to be illustrated here represents a design in the midst of that process of applying, examining, and evaluating the criteria. Therefore, it will become apparent that while certain criteria have been applied and articulated rather prominently upon the design of the space, there are other criteria that must undergo further articulation and refinement in order to have an effective impact on the space; this articulation and refinement constitutes the next several steps that would occur in the design process. What follows is an informal discussion of certain criteria and how they were utilized in the design of the space.

A.) Sense of Place:
How is the place accessible to all the senses—toucches, sounds, colors, forms? Is there a characteristic visual expression? Is there a dominant building present that imparts an identity to the space?

In relationship to the design of the Union Station space, this criteria was most
effectively applied at the early conceptual stages of the design where the overall identity and character of the space was being investigated and decided upon. At a very early stage it was realized that the presence of Union Station exerts a major influence on not only the identity of the space, but the life and activity of the space as well; it was important that this influence be expressed and articulated in the design. The translation of this influence into physical form can be seen in the materials used throughout the space, as well as in the detailing of certain design elements, which is reflective of the detailing to be found on the Union Station building. These materials, namely certain types of stone and cast ironwork, are used in a variety of different applications in the design in an effort to give the space a unique visual expression that relates to that of the building; such uses include the split face pink granite and brownstone used in the arcade columns and in the materials used on the fountain and the cast iron arches of the arcade (see figures 2 and 3). Furthermore, these materials and details are presented in human scale: directly to the eye and to the hands, in design elements such as benches, walls, steps, trash receptacles, and paving patterns that people interact with when they are in the space. A further refinement of the application of this criteria would be to examine the detail of all design elements to be provided in the space in order to carry out the identity of the space to the last detail.

Another aspect of "sense of place" that cannot be overlooked is the interaction of all the design elements of the space that give the space a form that is distinct from other spaces and a quality that is uniquely its own (figure 3). This goes back to the "crossroads" concept for the space, which came directly from the historical identity of the area and suggested a particular physical form or structure for the space.
figure 2.) Streetfront elevation of arcade showing stone and cast iron usage.

figure 3.) Enlarged plan showing interaction of major design elements
C.) Legibility of Space:

Transparency - How "readable" is the space? Does the space have a readily apparent form at a distant glance, yet reveal new features, processes, and organizations when experienced more closely?

Spatial sequence - To what extent does one feel a coherent succession of spaces? Does one space connect to the next to form a larger whole?

Viewpoint - How is the eye directed throughout the spaces? Is the eye able to view the space as a whole or does it appear as separate entities? How is a point in the space visually connected to the whole?

Motion - How is motion expressed upon the landscape, or, in the design of the space? Do the elements of the space support this motion?

When approaching the space from a distance, the transparency of the space's form is established by the axis one can perceive from Meridian Street to the Pan Am Plaza fountain and which is enhanced by the arcade across the center of the space (see figure 4.). One can also readily perceive the overall structure and form of the street spaces that lead into the main space; they have a very enclosed, linear quality that is created by the building facades and trees on the sidewalks. This linear motion is enhanced by the rhythmic progression of trees along the sidewalks and the paving patterns, giving a well defined, perspective-like view in one direction and a segmented, framed view as one looks in another direction. At a closer look, one begins to see the detailed design of these spaces (paving materials and colors, street furniture, building facades,...) that ties the spaces together; the image established by the detailed design relates a point in the space to the image of the larger whole.

As one enters the major space, the arcade gives the feeling of being on axis and part of the larger continuum of space. As one progresses through the arcade, one perceives the feeling of being in the midst of a very different looking space: a space
that, except for the arcade and certain other features, has an organic, flowing motion to it; quite a contrast to the spatial qualities that one had previously experienced when approaching the site (figure 3.). One begins to feel two different types of motion in this space: the formal, processional motion of the arcade and the more informal, relaxed motion of the fountain. Furthermore, the central fountain element, which can be seen from the distance, reveals itself slowly as being part of a larger organization or system - that of the flowing stream (see figure 5.). Consequently, although the spatial experience has varied, the overall image established by material use and detailed design has not; one is able to perceive the succession of spaces and sense their connection.

figure 4.) Aerial perspective of the major space looking west to the Pan Am Plaza from the Jackson street approach
G.) Planning for People: How are the various pedestrian activities (walking, standing, sitting, seeing, hearing, talking) accommodated in the design of the space? How are the various edge conditions articulated?

When walking, it is important to remember that the space is perceived as a sequence; therefore, it is important to have spatial variety along the walk that make it interesting; if a walk is interesting and exciting to experience, it will seem shorter and much more enjoyable. The "walk" of this design occurs in a series of well defined spaces that enable one to experience, at a close glance, the functions and activities of the place. The "streetfront" walk occurs in the space between the curb and the facade; the experience of this walk will vary with the spatial definitions of the street and the functions within the adjacent buildings and the activities they create. The element that relates the various street walks together is the detail design of the
spaces (see figure 6.). The walk through the major space can occur underneath the central arcade or in a more informal, less hurried or directional fashion on the fountain walk that winds through the space. There is also a short walk through a grove of trees with benches placed under them that precedes the eastern entrance to the major space (figure 3.). Hence, there is an attempt to provide a variety of walking experiences within the space that present the various activities present in the space to the passers-by.

![Figure 6: Plan of sidewalk space](image)

Activities such as standing and sitting require a more careful design treatment that will enable a person to experience the advantages a place has to offer. The key point to remember is that there must be a good place to stand or to sit; this implies not only comfort but location in relation to the activities of the space. The edge and the creation of edges are of primary importance in standing or sitting situations (see
"edge effect"). In the design of this space, all of the edges are sittable, for the most part, including the edges of the arcade and the fountain; the design of the building facades even encourage sitting and standing, with the provision of low walls, railings, and little niches (see figures 7. and 8.). There is a variety of seating types provided, from steps to benches to moveable tables and chairs; the placement and orientation of these sitting spaces is directly related to the various activities of the space and the flows of circulation through the space. The placement of street furniture, such as lightpoles, trash receptacles, benches and trees along the street provide important localized centers for standing (see figure 9.).

**figure 7.** Illinois Street elevation of space directly in front of Union Station
figure 8.) Perspective of street level treatment of proposed building on north side of Jackson Street.

figure 9.) Street furniture details
I.) Relationship to the Street: How is the transition between street and plaza achieved? To what extent is the importance of the space's corners and edges recognized?

The plaza's relationship to the street is one of the most critical design factors of any urban open space design situation; if someone on the sidewalk can not see into the space or does not feel a part of it in any way, there is little chance that the space will be used. In this design, every attempt was made to strengthen the relationship between plaza and sidewalk and to, in effect, make them seem as one. There are no physical restrictions that inhibit the flow between the two and the view into and out of the space is relatively open at the edges. There are elements such as paving patterns and site furniture that are extended out onto the sidewalk (and even into the street) that tie the spaces together.

An attempt is also made to create and accommodate activity at the edges and corners of the plaza - in essence, to tap into the pedestrian activity of the sidewalk, for these are the areas from which the passer-by will perceive and experience the space. There are certain edge conditions, such as steps and tables and chairs for seating, that front upon the sidewalk; this offers the pedestrian a place to sit and rest while viewing other people along the sidewalk (a popular activity of any urban setting). At one corner of the space, an amphitheatre type of space is created to take advantage of this "theatre of the street" quality and to provide an area for vendors or performers; at another corner, an open view of the plaza and all its features is presented directly to the pedestrian and the paving pattern of the fountain walk element is extended across this corner and into the street. At another corner is placed a grove of trees with seating underneath to enable a comfortable seating experience at this edge (see figures 3. and 10.).
figure 10. Illinois Street elevation showing street front treatment.

A further refinement of these areas would involve looking at their design in detail, now that the basic spatial relationships have been decided upon, and examining the various alternatives that are aimed at improving the plaza - street relationship by creating and accommodating the activities of people in these areas.

P.) Water: How is water used in the space? What are its various expressions in the space? How accessible is it?

In this space, water is used to create activity and visual excitement in the space; thus, it becomes one of the major features or attractions of the space. It is a continuous element that pervades the space. Beginning its flow from the central fountain in the center of the space (see figure 11.) and meandering to the edges of the space, the fountain is expressive of a stream as it progresses across the landscape and the various forms that the water can take as a result of this progression. The fountain is intended to be entirely accessible to the users of the space with certain edge conditions that encourage both active and passive involvement (see figure 12.)
Just as the arcade becomes an edge within the space that accommodates human use, the fountain becomes a more ambiguous edge that flows throughout the space and links the entire space together.

Figure 11.) Central fountain element

Figure 12.) Plan of the entire fountain displaying various uses of water
Conclusion

This thesis has intended to, first, identify the criteria necessary to design successful urban spaces and, second, to illustrate how these criteria can be applied during the design process for an actual site. It must be emphasized that the criteria are intended to be used in a process-oriented manner by the designer as an instrument for continually refining the design. Therefore, the illustrated case study design represents an interruption of a "design in process" to examine and evaluate the impact and effectiveness of the criteria to this point; subsequent steps are necessary to fully resolve the intentions of the criteria with the conceptual design. Consequently, it is not just the final design that is important to this study, but the decision making process that produces a final design. The "key ingredients of a good urban open space" are intended to act as an aid, a recipe if you will, for this decision making process that outlines several important design considerations and the variety of options available in making design decisions.

Public spaces are the essence of the city; they are the places that give a city its identity. The creation of meaningful and usable urban spaces is a problem that many designers have struggled with in this century and throughout history. Although there have been many theories proposed on how best to design an urban open space, there remains a serious lack of quality spaces in which people can experience the people, activities, and life our cities have to offer. The continued growth of our cities will cause the need to improve and revitalize our city centers to become more functionally and economically essential; the provision of public places that accommodate the activities of the people and express a city's vitality is an important step in this process - a step that can add a new wrinkle to the face of the city and establish a unique presence to be felt by generations to come.
Literature References


