

From Controlling Space to Controlling Time

A New Way of City Planning*

Linshen Wang

University of Jinan
Jinan, China 250022

Yong Fan

University of Jinan
Jinan, China 250022

Yixian Yin

Shandong urban and rural planning design institute
Jinan, China 250022

Bin Yang

University of Jinan
Jinan, China 250022

Abstract—This paper clarifies the relationship between urban space, urban planning and time, clarifies the importance and main position of time in urban planning, and recognizes urban space from the perspective of "flow". "Flow" finally comes down to a running state and a kind of interrelation, and further ascribes this state and relationship to a time problem, which establishes the innovative angle of view of "flow". The transformation of urban planning from controlling space to controlling time provides a new way for the traditional urban planning.

Keywords—urban planning; perspective of flow; planning time; control space; control time

I. INTRODUCTION

In recent years, with the rapid urban development, cities are also facing more and more urban problems. Traditional urban planning puts the perspective on space. However, it is difficult for traditional urban planning based on spatial perspective to solve various problems faced by the current cities. Therefore, it is urgent to find a new urban planning method. In the two aspects of previous theoretical and empirical studies, the intervention of "flow" is eventually transformed into a matter of time[1], which is probably in line with the essence of birth of "flow space" theory. Since time is so important when we understand urban space from a "flow" perspective, can urban planning shift from space perspective to time perspective? Or, more time system should be added in addition to the space content. According to the general conventions in academic research of planning major, the concept of "city planning" is divided into two phrases "city" and "planning", and then studied separately with "Chronemics" to propose a new urban planning idea.

II. 1. CITY AND TIME

A. Space and Time of City

City and time are a combination that is both simple and

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complex. The simple logic is that "Rome is not built in one day." while the complicated one lies in the subtle combination of the concepts of space and time from the perspective of physics and philosophy. Time and space are the absolute concepts as well as the basic attributes of existence. The connotation of time is endless forever and the connotation of space is unbounded forever. The interdependence between the two expresses the evolution order of things. Realizing them into the city, space and time of cities are interrelated rather than fragmented. However, we can also ask whether there is space of city first or time of city first. In fact, "city" itself is an "epigenetic" concept, which is used to define a certain spacial state on the geographical existence. The defined spacial state is insensible at that time. Of course, you can continue to ask whether the grass, trees, brick and tile of the city belong to space or time. It can be sure that no matter how small these small urban objects are, it will still be a space. However, its significance as a space may in some circumstances be far less than its significance as time. Of course, it still can't indicate that time and space is fused together. It may be more reasonable to use the description of space as primacy and time as secondness. This also conforms to the theory that all time can only be measured by the periodic movement of substance. However, it cannot be ignored that although the order of primacy and secondness seems to exist, the spatial state defined as "city" is the complete synchronization of time and space.

B. The Relationship between Time and Space of the City

No matter in macro scale or micro scale, the city is an objective space-time existence. Of course, what measures the time existence of city is essentially the notion or feeling of time that human behavior corresponds to. In contemporary society, commuting and living within a day are the most sensitive and intimate time experiences of mankind. The formation of this feeling of time lies in the transformation of people in urban space. Urban residents with different identity have different paths of space transformation. For the majority of them, the requirement on the transformation path is focused on shortening; for the elderly, their spatial transformation path is no longer the focus while the time

course in the same space becomes the focus. Fast or slow psychological feelings are corresponding to the activity behaviors with different purpose in micro-space. In short, any kind of people are associated with the space and time and obtain feeling from them. How to handle the relationship between time and space obviously should not be ignored.

III. PLANNED TIME AND TIME IN PLANNING

From the beginning, planning ignores time. In Howard's "Tomorrow"¹, he places the enormous and great planned time in such a slightly exaggerated and metaphorical term as "tomorrow". The reason why he doesn't seek the support of time is also related to the not yet forming perfect society system at the time. In modern society, the various systems have been perfected day by day, and urban planning began to have the practical ability within a certain time limit conferred by the system. However, it is not that simple to discuss the content about time in urban planning.

Planned time refers to the time involved in city planning as a system. Problem of planning deadline falls into this category. Specifically, this kind of time is divided into two aspects: First, it refers to the acting time of planning, which is specifically the time when urban planning plays the special role as a public policy. The longer the planning period is set, the longer the utility time will be. Second, it refers to the working out time of planning, which specifically refers to the time required by city planning from the preparation to the end of approval. However, both the acting time of planning and the working out time of planning will obviously affect the effect of urban planning to a certain extent.

The planning time, from "planned time" to "time in planning", is borrowed from the phrase in the way of "Theory of Planning" and "Theory in Planning"[2,3]. The "time in planning" refers to "the time planned by the plan." The core of urban planning is the spatial distribution of land and its auxiliary, or rather a configuration of spatial relations based on land. However, this spatial relationship configuration is inseparable from the time, and it even can be said that the spatial relationship configuration is the time relationship configuration. At the macroscopic scale, the handling of urban traffic is a kind of time allocation, which determines the efficiency of urban space. At the microscopic level, urban planning and design both process the time. Both the garden-like classic space of "winding path" and "deep courtyard", and the spatial form presented by super simplified space are processing time by stretching time or compression time. It seems that the circumstance of space as time can be reached. However, even a building may still be a time relationship. The index value of plot ratio for a certain plot given in controlled detailed planning is positively correlated with the developing area of building and given the time right, which is essentially time control.

Although urban planning is a configuration or control of space, urban planning cannot break away from time control from planned time to time in planning, and the factor of time plays an extremely important role in modern urban planning.

It can even be said that it controls space in time, but often not be taken seriously.

IV. FROM CONTROLLING SPACE TO CONTROLLING TIME

A. Transformation of Control Elements

In the current urban planning, the controlled element — space appears as a system. First, at the level of urban system planning, the controlled main space elements include the spatial relations between the construction land and the non-construction land, the spatial relations within various construction land and the spatial relations that determine the relationship of various types of construction land (various kinds of important infrastructure and public facilities). Second, at the level of master planning, the controlled main space elements are the relations among various types of construction land and the spatial relations (various types of traffic spaces) that affect this relationship, of which the concrete support is the relationship between building groups with different functions. In addition, it also includes the relationship between hard physical building space and the virtual ecological space such as mountains, water bodies and green bodies. Thirdly, at the level of control planning, the controlled main spatial elements are the three-dimensional construction rules for all types of construction land from plane to three dimensions. Fourthly, at the level of constructive planning, the controlled main space elements have become the relationship between buildings and buildings and the relationship between buildings and their surroundings.

In the traditional perspective, all of the above relationships are spatial relationships. These spatial relations are completely able to be transformed into a kind of time relationship. Time relationship is formed based on speed, sequence and length. The above-mentioned relationship between buildings and space elements such as land can precisely be defined by speed, sequence and length. For example, there will be different geographical distance between one building or a group of buildings and another one or another group of buildings and the construction and development time is different, which determines the contact between them needs more or less time. For example, a plot of land and another plot of land will be developed at different times, which determine the sequence in time track. As another example is that there is the length comparison of the construction time, function of time (i.e., before demolition) between some development projects and other development projects.

Therefore, all the time-related factors should be determined from an innovation perspective. In urban space, traffic is the absolute flow element support. All kinds of infrastructure allow almost all elements to flow (for the time being speed is not discussed), but the real material space cannot be carried and flow. In the first level, it is traffic that is directly related to time. In any realistic process of spatial displacement, the transformation of space must depend on some means of transportation, while the means of transportation determines the related time. Therefore, planning control needs to focus on the integration of means

¹ The name of book is "Tomorrow, a peaceful path to reform".

of transportation at all levels of the city. This is incompatible with the current urban planning where road traffic planning is merely an important independent system. Moreover, the focus of road traffic planning includes not only the external contents such as the current linearity and structure, but also the role of actual traffic capacity. On the second level, the passage of the city depends primarily on urban roads, but the urban roads do not constitute all the traffic. In the field of urban planning, the starting point of urban road planning is mainly its natural matching car situation, and the base of entire traffic needs to include a variety of ways such as non-motor vehicles and walking[4]. Moreover, the weight undertaken by the latter is equally important. Therefore, different levels of urban planning need to consider all means of transportation in an integrated manner. In other words, the planning of the slow-moving system, which is gradually being valued at present, should not only be limited to the urban planning level under the micro scale, but also should be emphasized from the macroscopic planning level such as the master plan. Extending according to this, the urban planning system may no longer be based on the spatial level for the division, but will be based on the time level. Of course, under the influence of pure geographical environment factors, it is probably still not able to completely escape the radius of the circle only by dividing according to the length of time. However, if the actual capacity of passage mentioned earlier is involved at this moment, it will break the spatial circle state of the time link. In other words, in the same time the space actually linked is not an average. At this time the beauty of space is no longer the only criterion.

B. The Evolution of Control Techniques

For urban planning, the premise of playing its role is that it transforms into policy tools after approval. No matter for controlling space or controlling time, there is no difference in the process of making the technological achievements "explicit". However, the stage before making it "explicit" through the system, i.e. the real technological process, can be improved. Describing space in the space is a summary of the current urban planning workflow. Departing from space and implementing it into space is not only a technical route but also a respect for the discipline core. How to control the time in space and even control the space in time is the innovative thinking required by the "flow" perspective.

From the perspective of "planned time", the overall planning in current planning system is the most time-sensitive. However, this sense of time is only reflected in the staging of space. In practice, the only statutory staging, if it is not to be separately prepared in the near future, is often annexed to long-term planning. Only in separate preparation, it will show a strong sense of time under the "supervision" of the recent constructed project library. If time is taken as the main line as in "Fig. 7", the age track should first be a foundation. On this basis, there are two operating platforms: one is the platform of entity orientation, i.e., the orientation of actual construction and entity space, which can continue to be divided into project orientation and layout orientation. The two focus on the local and the whole of the city separately. The other is the virtual-oriented platform, i.e., orientation at the levels of social, economic and environmental, which can continue to be divided into commonly used goals and problems.

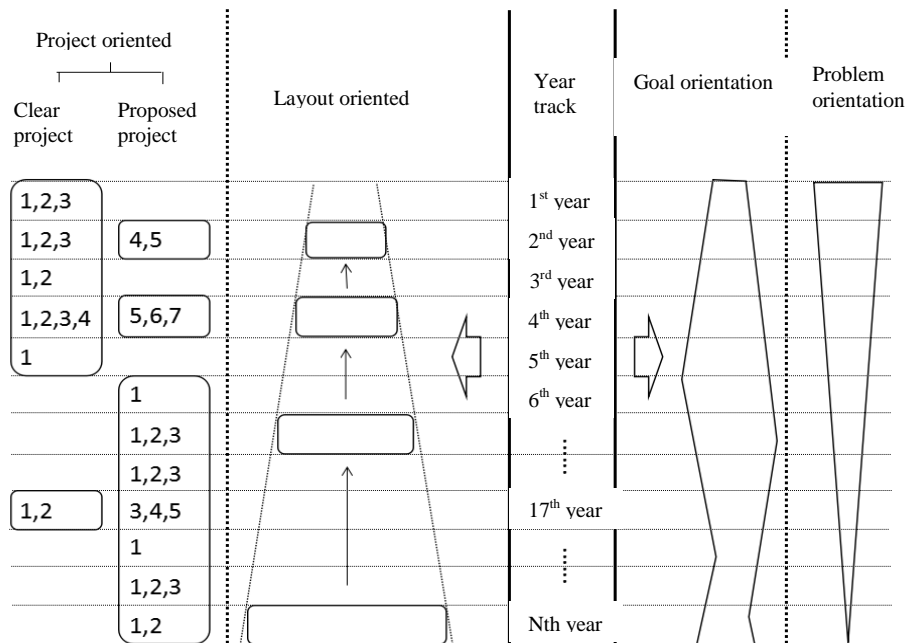


Fig. 1. City planning map based on year track.

In the project orientation, clear project and proposed project are taken as key consideration objects. Since the

planning year, projects that can be defined within the next five years or even longer can be carried out in close

^a. Source: self-painted

connection with the term of government. In five years from now, a clear project is likely to come from the implementation of upper development. Apart from the project can be clear after five years, there are proposed project based on other planning content. Whether it is a clear project or a proposed project, it should be consistent with the layout guideline of urban planning. Such layout orientation is a kind of time reversal spatial planning. What we need to do first is to give the city non-terminal but reasonable spatial layout assumption within a kind of "vision" scope based on the ecological footprint (i.e. the nth year), and then to carry out the irregular reverse to the near future. The "long-term perspective" here is longer than short-term, long-term and possible prospects in the current master plan, and the terms of "long-term" and "short-term" here are even freer. Or, here it can be said as "multi-phase" or "less-phrase" planning, but no matter how many phrases there are, they are completed based on the need time. Such needs include the transition from the status quo to the non-ultimate and reasonable "long-term prospects." In doing so, although the rigid outcomes (long-term and short-term) in the current legal planning system are missing, the rigidity of the results will be complemented from other angles because of direct involvement of the project. This project-oriented planning is also in full compliance with the trend of urbanization to a higher stage of development and urban planning and construction management toward refining. In the goal-oriented and problem-oriented, under ideal circumstances, urban issues that need to be solved by urban planning after the planning base year should gradually decrease, so the problem aggregation presents an inverted triangle. The goal-oriented aggregation presents a "tweaking" irregular body. The reason why it is the irregular body is also due to the limitation of the year track. If the goal is set within the framework of social, economic, cultural and ecological aspects, the system of goals must be rich, but it may also be broad. And if a goal is set based on time, there is the state where you will think about what goal should be achieved when the time is up. At this point, the formulation of goal will naturally put less emphasis on "surface" while pay attention to "point" while "point" is closely related with the time node. Therefore, in each term, the development goals will shift from a fixed large system to a pragmatic flexible system.

The essence of "controlling space in space" is to control the rationality of each system space in the city. For example, the usual practice is to divide the system into various types of construction land (land layout), road traffic, green landscape and various infrastructure, among which the layout of various types of construction land will further highlight residential land, public facilities land and commercial land according to actual needs[5]. The rationality of each sub-system is the same as the rationality between each sub-system, which is the pursuit of the planner. However, after pursuing the control of time, the urban spatial system becomes the cold object, and the human and all kinds of their behaviors connecting it become the living subject. The essential impetus that promotes all flows comes from the human[6]. In order to master the various laws of the subject, we must proceed from the characteristics of the subject itself.

In general, people will have different behavior at different times, so it is reasonable to carry out urban research or control according to morning, noon, and night or morning and evening peak and daytime peak. At the same time, it can also be divided according to the clothing, food, housing, and transportation of people and more life system. At this time, people-related "life flow"[7] has become the focus of attention. Different from the deliberate pursuit for space of "life circle"[8] ("circle" reflects a kind of space concept of doing things separately and balancing each other), "life flow" is more the concept of time because of the existence of "flow". Referring to the connotation of the concept of "life flow pieces" in the western movies in the 1960s, the composition of scene of life flow is likely an unconnected and disorderly world and "video recording" without choice or evaluation, with the most real and closely internal logic sense of life. However, from the enlarged spatial dimension, the urban "life flow" has different spatial forms, and all the "life flow" overlap under the same space.

In the time dimension, each "life flow" involves the difference of time, which will inevitably involve the sequence of time. All kinds of "life flow" are in the flow with time as the open line, and space is an unavoidable dark line. However, this can be the basis for the theory of conducting planning and control by controlling space with time from the perspective of "flow". On this basis, we pay attention to the "life flow" in the city, and the space will change from the "protagonist" to the "supporting role", but will not completely withdraw from the planning stage. On the one hand, as the support that satisfies the people's space displacement, the establishment of the transportation policy will inevitably involve the concrete material space problem. On the other hand, from the perspective of time, it is an alternative and novel planning technique to formulate the planning measures supported by space measures, to compress the compressed time to the maximum extent, and extend the extendable time appropriately.

V. CONCLUSION

The urban development in China is undergoing a transition from quantitative change to qualitative change. Urban planning must also face a new leap from quantity to quality. With the emerging urban problems, this precisely shows that the solution of urban planning problems cannot remain in the traditional space means. Spatial governance with traditional urban planning and design as the main body is only the shape of the spatial form of elite consciousness. Habitual lack of adequate consideration of time elements in spatial patterns[9], there is also a lack of corresponding policy for the control of time in the existing urban planning and design. Based on the flow perspective, it is of great significance to the traditional urban planning to change the original planning ideas, transform from the perspective of space to the perspective of time, make space change from the protagonist to the supporting role and use time to control the space, thereby formulating relevant planning measures to make up for the deficiencies of the current urban planning.

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