THE ROLES OF INTERLOCKING BLOCKS ON THE FORMATION OF LANDSCAPE "ITAKURA NEW TOWN"AS A TYPICAL MODEL

KEITAROU YAMADA, MACHIDA CORPORATION LIMITED
618 Komagata, Maebashi City, Gunma 379-2122 Japan
TEL +81-27-266-1211 FAX +81-27-290-4049 E-Mail machida@green.ocn.ne.jp
TAKAYUKI YOKOYAMA, MACHIDA CORPORATION LIMITED
YUTAKA ANDO, SECTION CHIEF, SUMITOMO OSAKA CEMENT CORPORATION
MASAO KUSANO, SECTION CHIEF, SUMITOMO OSAKA CEMENT CORPORATION

ABSTRACT

Basic plan for development of "Itakura New Town" is being eagerly conducted by Gunma Prefecture as one of its biggest project. The project is to develop total area of 218 ha with the projected population of 12,000 at Itakura town,about 60 km from the Metropolitan area.
With the fundamental concept of "Nature, Culture, and Comfort",a new station to be built in Nikko Tobu Line and new campus of Toyo University and other merchandise facilities have been commenenced its operation along with coming of new habitants.
The interlocking block pavement was adopted from our proposal aiming at creating the comfortable space where the people living in the town and yet visitors to the town can get relaxed. By employing the interlocking block,such space can be realized with maximizing its flexibility on designing incentive landscape.
Roads and intersections which are spreading in the town have various features. Roads were designed based on "image of water stream" so as to enable the walkers free from overcrowded mind. Intersections were so designed to have priority of the walkers safety by intentionally putting the Humped paving while providing the distinctive and innovative landscape design.
From the judgment for the performance of a cost, construction and safety, through the examination for the applicability of a dust as a bedding sand and chamfering of cut parts of block, it has been exerted to harmonizing to the surround environment and creating remarkable urban landscape.

1. INTRODUCTION

We consider that considerations and contrivances are needed to impart signing functions such as indicating danger, giving directions, guiding, and distinguishing zones or functions to provide various information to interlocking blocks themselves or structures and designs formulated by their use.
We further consider that interlocking blocks require evaluation about the cost, convenience in construction, safety and improvements as a material for the creation of a better environment for the community life. Particularly, modifications are needed to develop them into a landscape design material interacting with the local people, animals, plants, culture, and history beyond the level of simple fashion.

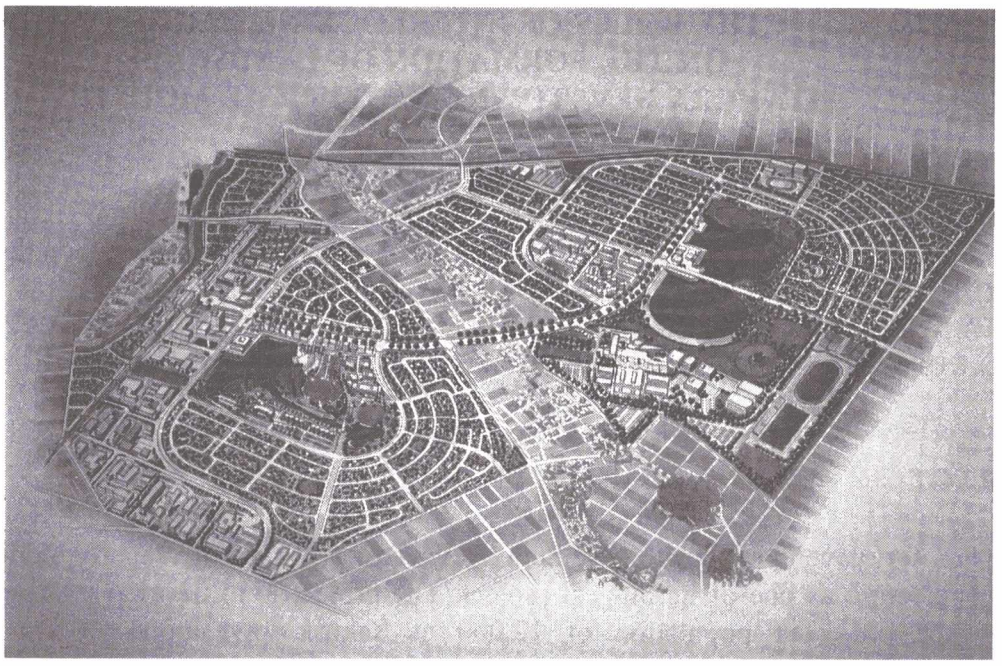

Photo 1 Image Figure of "Itakura New Town"

2. OUTLINE

2.1 Outline of construction

For exploration of new possibilities of interlocking blocks and creation of new home town for the 21st century, we first proposed interlocking pavement to the "Plan for the Development of Itakura New Town" drafted by the Agency of Public Enterprises, Gunma Prefecture in 1996 to create comfortable spaces and to develop large-scale designs.

2.2 Outline of the "Plan for the Development of Itakura New Town"

This project was not only for the development of Itakura Town but also a part of the general development project of the Gunma Prefecture. It was a wide-scale project encompassing a total area of 218 ha and a population of 12,000 centering around a new station to be built in Nikko Line of Tobu Railway Co. and Toyo University undertaken by mustering all resources of Gunma Prefecture.
With the fundamental concept of "Nature, Culture, and Comfort", the community was designed for comfortable living rich in natural beauty with emphasis on conservation of the landscape.

【Concept】
(1) A community in which nature of Itakura Town abounding in water and fresh verdure can be appreciated to its maximum.
(2) A community which can send out young culture partcularly from the campus of Toyo University.
(3) A community in which protection from natural disasters, landscape, and comfortable living are respected by measures such as underground installation of cables and development of green networks.

2.3 Introductory description of Itakura Town

Itakura town is located in the southern extremity of Gunma Prefecture, where it borders with Saitama Prefecture and Tochigi Prefecture. In addition to the convenience of being located about 60 km from the Metropolitan area, it can be an optimal base for leisure activities such as water sports including wind surfing, golfing, and visiting hot springs.
With two large rivers, i.e. the Tone and the Watarase, joining in the vicinity, lesser streams and creeks, and lakes and ponds, the town enjoys the only water-side landscape in the prefecture while it has had a historical background of suffering from floods.

3. PURPOSE

At the entrance to the new century, we aspired to cater for the changing life-style of people and associated diversification of their values through materialization of the concept of simultaneous pursuit for diversity and convenience in a high level of natural landscape using interlocking blocks for the construction of a new community with emphasis on the living environment.

4. PROPOSAL

4.1 Basic theme

To symbolize the physical and spiritual closeness of Itakura New Town to waters and forests and to promote rich communication among people and with nature.

4.2 Symbol street (Photo 2)

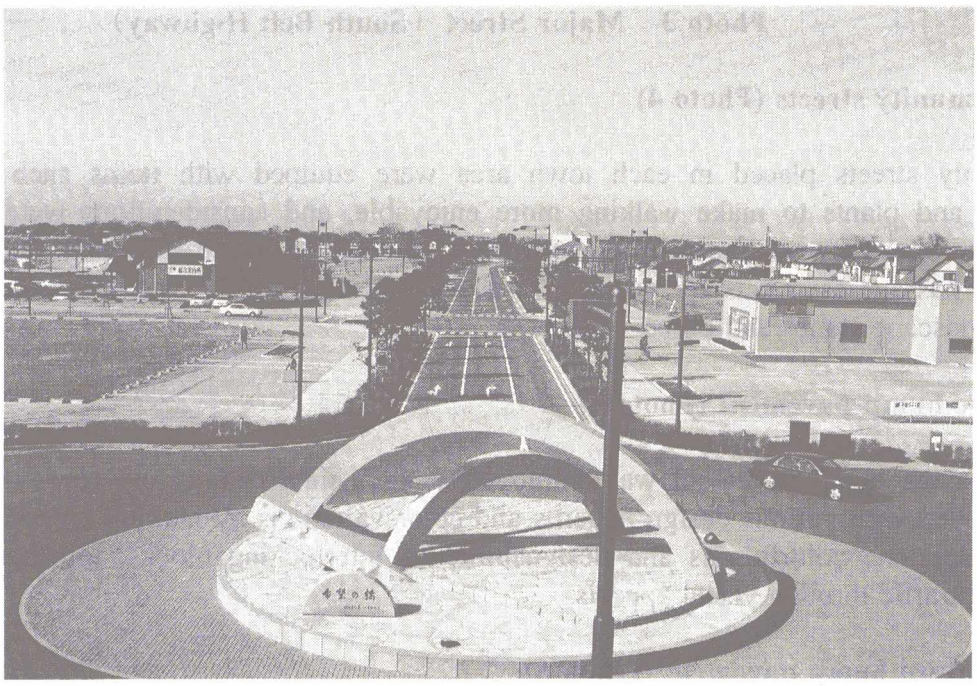

Photo 2 Symbol Street

The 40 m wide symbol street that starts from the new station was paved with interlocking blocks after images of water flows to create a refreshing and cordial space that imparted the whole town a sense of comfort and luxury. The design is generally spacious with modifications in the construction pattern depending on the situation particularly in approaches to public buildings.

4.3 Major streets (Photo 3)

Each of the major streets, which are main routes of transportation, was designed after images of water flows and provides comfortable and safe access to the community.



Photo 3 Major Street (South Belt Highway)

4.4 Community streets (Photo 4)

Community streets placed in each town area were equiped with items such as street furniture and plants to make walking more enjoyable, and considerations were made to create harmony between the streets and houses by rich use of streams and plants. The safety of passage as streets for pedestrians as well as automobiles was guaranteed by the use of landscape stones and curbs.

4.5 Image hump pavement (Photo 5)

Unique image hump pavement was employed at each intersection, and town areas were distinguished with various design patterns and color variations by making extensive use of the characteristic colorfulness and designability of interlocking blocks, together to slow down the traffic through visual appeals.

4.6 Mount-up hump pavement (Photo 6)



Photo 4 Community Street



Photo 5 Image Hump Pavement of Intersection

Appropriate elevations (mount-ups) were installed to the pavement of roadways to curb the speed of the traffic due to bumping and reduce the danger of pedestrians.

4.7 Mount-up hump pavement for pedestrian crossings (Photo 7)

A paint that reflects the headlight of the automobile was sprayed over the surface of interlocking blocks used for paving of pedestrian crossings, which were further highlighted



Photo 6 Mount-up Hump Pavement

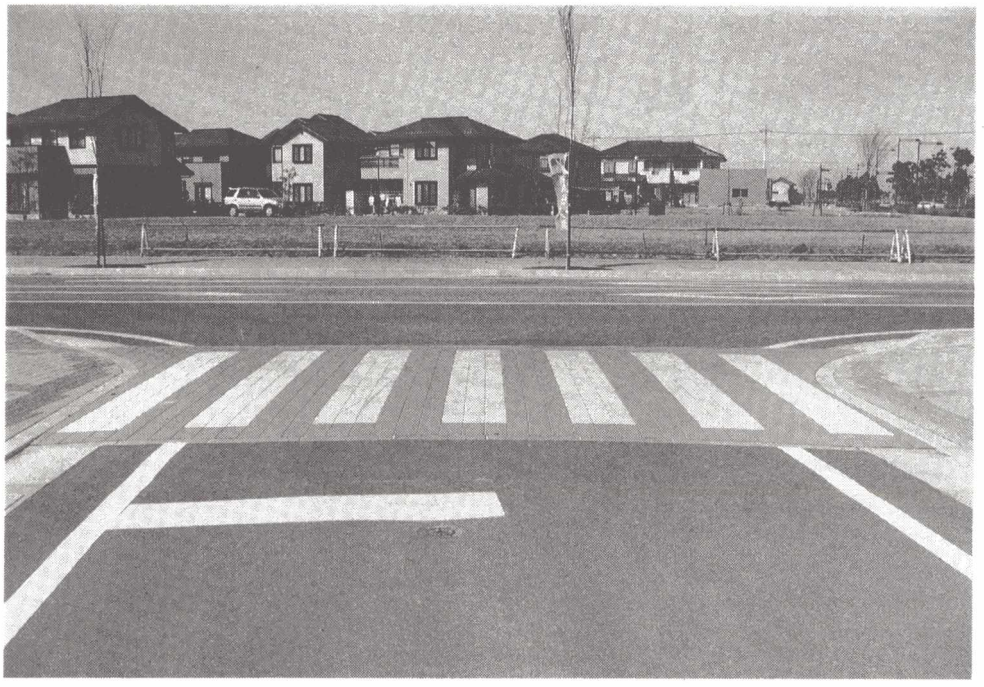

Photo 7 Mount-up Hump Pavement for Pedestrian Crossing

by the coloring of adjacent areas. The crossings were also mounted up for a speed-deterring effect of bumping. This type of pavement was used before intersections with the belt highway or major highways and in roads around the elementary school sites.

4.8 Arrangement of permeable interlocking blocks (Photo 8)

Permeable interlocking blocks were arranged in the area of the intersection bordering the



Photo 8 Arrangement of Permeable Interlocking Blocks

pedestrian's lane, which was distinguished also visually using different colors.

4.9 Median strip (Photo 9)

A mount-up as well as a green-based design using interlocking blocks of 5 different colors for visual distinction was applied to the median strip. As a result, a sense of pressure could be expressed in the median strip, and a speed-deterring effects could be obtained.

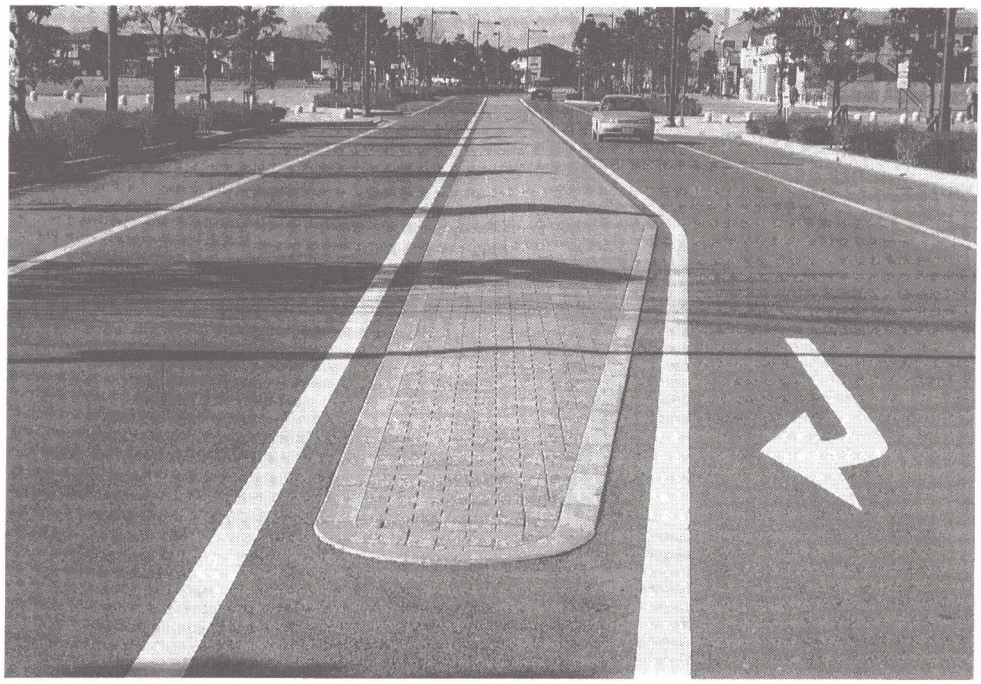

Photo 9 Median Strip

4.10 Use of circular arrangements (Photo 10)

Interlocking blocks were arranged in a circular pattern at the closed end of T-shaped intersections. The sense of space and beauty expressed by the curve maked the intersections unique ones.



Photo 10 Circular Arrangement of T-Shaped Intersection

4.11 Vegetated humps in roadways (Photo 11)



Photo 11 Vegetated Hump in Roadway

A vegetated zone was prepared in the roadway part of the highway surrounding the town to apply some pressure and slow the traffic particularly in straight parts, where automobiles tend to speed along even near residential areas.

4.12 Contrivances in construction (Photo 12)

Complicated designs naturally affect the construction by requiring additional works such as cutting the ends of interlocking blocks. Even in such cases, the safety of pedestrians was considered by bull-nose troweling or other techniques.



Photo 12 Contrivances in Construction

4.13 Others

In advancing the policy of pole-free streets, the convenience of interlocking blocks was recognized in removal or restoration of electric poles.

4.14 Summary

The merits and characteristics of interlocking blocks were utilized, and the purpose or the meaning of the design in relation to the environment and history of the town were considered. Closeness to people's living, creation of a community and region with spiritual richness, comfort, and pleasantness that remain long in one's memory, and a community where a wide range of people feel at home and live together were imaged in designing the town.

5. FUTURE DEVELOPMENT

Presently, the construction of the new town has begun as commercial facilities have been

opened serially, construction of the infrastructure including roads and parks is smoothly progressing, along with the core events of the beginning of the operations of the new station of Nikko Line of Tobu Railway Co. and Toyo University. The area around the station is the face of the town and has a large traffic of pedestrians. Therefore, highly designable materials that are easy to walk on and are resistant to ware should be used. Interlocking blocks are considered to be an optimal material with such qualifications.

6. FUTURE PROBLEMS

(1) The recent frequent occurrence of natural disasters such as earthquakes has enhanced people's interest in prevention of damage due to natural disasters. Manufacturing of safe products and construction of communities with disaster-proof functions are required.
Also, as the population of elderly people is increasing, how to establish communities in which the weaker in the society such as people with disabilities as well as the elderly can live together with healthy people has emerged as an issue.
To realize such living,
·Consideration for blind and amblyopic individuals
·Consideration for making slopes, steps, and elevations more perceivable
·Consideration for people using wheelchairs and baby carts
for example, are needed. The development of products that can meet these demands is needed.

(2) With changes for greater diversity of values and a more uniquely individual life-style, creation of communities friendly to unique people with a background of local history and culture, is desired.
Designing of landscape that provides health, comfort, amusements, and spiritual richness
·People have become more inclined to recreation, and the needs for activities oriented to mental and physical health, nature, culture, and self-realization and those that require actual involvement and participation, in particular, are increasing.
Creation of a safe, free, and pleasant community with its unique color, shape, and smell
·Border-less living environments with no specific preference concerning age, sex, race, or nationality are desired. Especially, as many students of the Department of International Regions, Toyo University live in the neighborhood of Itakura New Town, the area is highly motivated to international communication and collaboration.

7. CONCLUSIONS

Streets that have expressions simply of color, shape, and design are tasteless. Interlocking blocks are no more than a material to create comfortable spaces, and landscape designing is considered to require consciousness to, preservation of, and assimilation with the environment, history, and culture as important factors. We hear that there is the motto that a street ("rue") is not a road ("route") among French people engaged in urban planning. This phrase makes us imagine scenes of Paris, where people have the special privilege of walking to enjoy the city. We believe that towns built on such a concept have the attraction to inhabitants.