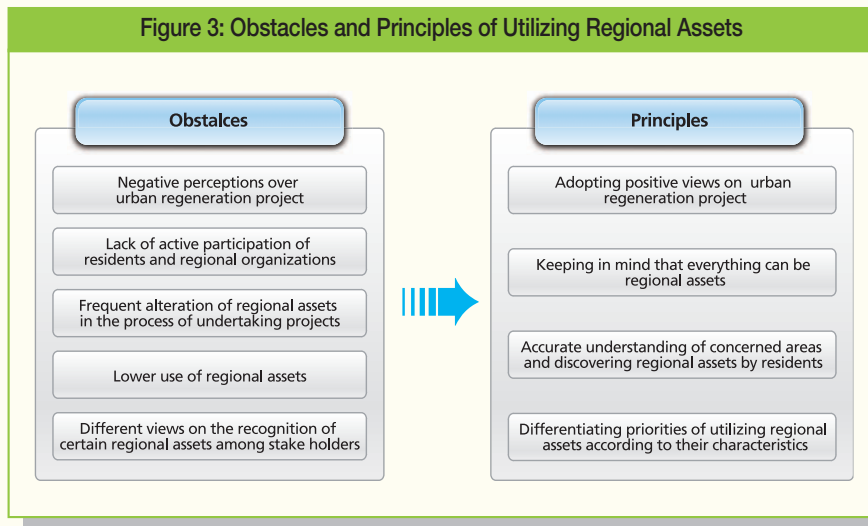


Figure 3: Obstacles and Principles of Utilizing Regional Assets



over effects could be diverse as well.

Third, exploring and utilizing regional assets should be based on accurate understanding of the regions concerned, and should solicit the active participation of their residents. What is also needed is to identify assets inside and outside of the region

seek proper strategies that help make better use of discovered assets.

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The Transit-Oriented Corridor: A Path to Green City Development

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The “low-carbon go green strategy” is now ubiquitous throughout the world. The strategy is meant for nations — their cities in particular — to develop higher levels of quality of life for their residents and secure a more competitive edge over their neighbors. The green city model demands a substantive range of requirements. Beginning with this “eco-city” model, the framework includes conditions to achieve sustainability and is further informed by recent efforts to reduce carbon emissions. In this context, the Korean government has decided to adopt the green city paradigm for all future domestic urban development.

However, the jury is still out on what specifically an ideal green city model should include. Very little research has been conducted on existing cases, nor

has there been a thorough assessment of the effects of green city efforts. Korea is no exception: there have been recent attempts at applying compact city and Transit-Oriented Development (TOD) methods, but it is still too early to identify any concrete results.

With this in mind, this research goal is to create a composite model, one that encourages creative land uses and emphasizes mass transit ridership. Specifically, the goal is to upgrade the traditional TOD models into a Transit-Oriented Corridor (TOC) model. We believe that TOC is the most effective method available to create green cities in Korea, as it works with existing TOD arrangements, and with minor adjustments, it fits the Korean urban context.

Regarding the TOD and TOC models, some major issues to consider are as follows. Just what

that residents think are the most valuable.

When utilizing regional assets, the prioritizing could be determined according to their characteristics. Although all the resources within a region could be regional assets, they are not equally important. Their value levels will vary according to their spatial location and management bodies.

Thus, it is important to

exactly are TOD and TOC? Specifically, should we differentiate between the two? In order to create a green city, what are the distinctive differences in the effects of TOD and TOC? And, another issue that we also consider is that what exact form a TOC would come in: urban revitalization or new town development. One may assume the effects would differ substantially.

Green City Policies in Korea, Europe, and the U.S.

Korea’s national policy on low-carbon green growth has recently progressed in various directions.

Particularly, land use reforms have facilitated green city proposals that aim at reducing energy consumption, emphasizing and encouraging the use of mass transit, exploring applications of new and renewable energy sources and the recycling of resources. With these goals in mind, our urban development strategy is aimed at forming a world-class model of the sustainable city that would ideally specialize in achieving a carbon neutral modus operandi. In Korea, many green city strategies to date have been implemented and materialized in the testbed city of Gangneung, a coastal city of the East Sea. Currently, there are 29 ongoing projects with an investment totaling US\$1

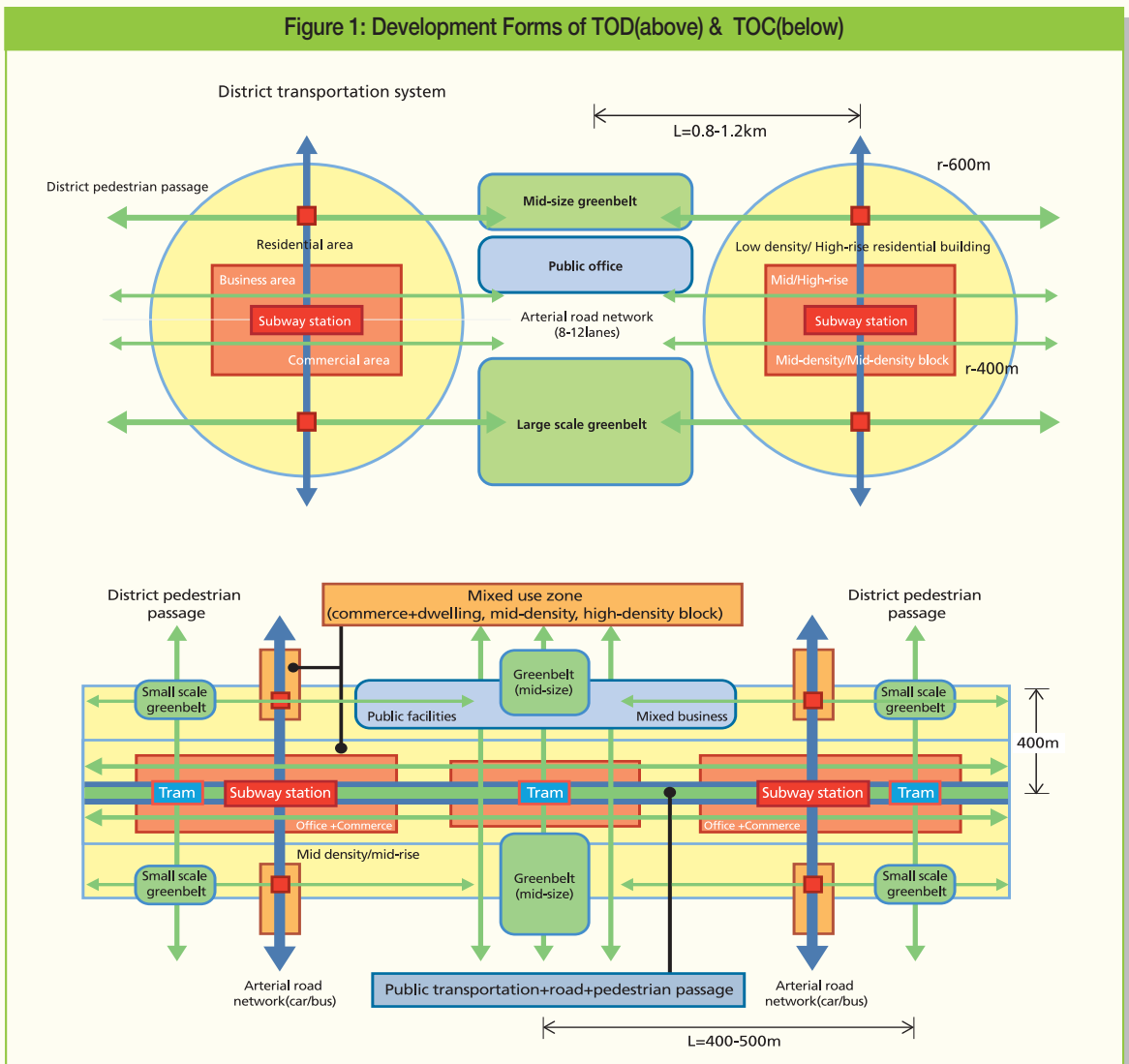


Figure 2: Land Use of Anyang City



Figure 3: Transit Accessibility of Anyang City



billion. If everything goes according to plan, the city is expected to achieve a 9.3% reduction in energy consumption along with a 36% decrease in BAU (Business As Usual) compared to current levels. Another focus of the current model is to establish city centers focusing on transit malls that serve as mixed-use transfer points, which would help improve the pedestrian environment while revitalizing the city centers.

This study has gathered numerous data to work with from the results of prior efforts in both Europe and the U.S. In the UK, public transportation accessibility levels have been assessed and well-informed policy reforms followed. The opening of the 34km long Dockland Light Railway has redefined the streetscape with both enhanced pedestrian amenities and a revitalized local economy. Dutch planners have connected city centers and suburban areas with tram lines, combining elements of compact city development and mass transit development to create an integrated long-distance commuter system. In Bremen, Germany, planners have instituted a tram system that covers 52% of the points of entry into the city center. In the process, several values have been added: increasing tourist activity and interest in longstanding historical and cultural assets within the city center, thereby ensuring their preservation status for years to come.

TOD plans have been tailored according to geographic location, size and many other development conditions to which design criteria and techniques must be tailored. In America, TOD considers various typologies such as center, district and neighborhood along with corridor type, among others, and their respective applied elements. One trait unique to American TOD development is the

parallel provision of affordable housing for the underprivileged. An added effect is that these residents in turn increase ridership and usage of the transit system that serves their neighborhoods.

Concept of the Transit-Oriented Corridor (TOC)

In brief, recent green city developments are not simply mash-ups of land use and high density: the strategies that have been implemented were carefully considered and take into account the importance of the local context. There are added simultaneous effects of urban revitalization and historic preservation. Of course there is a tendency to concern oneself with expanding the tram network and redesigning streets as the first order of business. But before that, there must first be an integration of the transportation system and land usage followed by formation of a workable plan.

TOD and TOC are quite similar, but there are some essential distinctions. The planning concepts of TOC proposed by this study are differentiated by the fact that they are based on an urban corridor space structure, with mass transit at the city center as a way of upgrading its core. While TOD's development aims at creating high density, TOC aims to achieve middle-density development, keeping in mind the importance of developing the local cultural and residential functions. The diagram below depicts the TOD and TOC planning models side by side. TOD's dot-form development area is definitely exposed. Dot-form development in TOD is spatially severed, while the corridor formed by TOC can be seen to have the opposite effect on development. TOC in principle preserves the status of existing high-density and mixed-use buildings;

new street designs and mass transit systems introduce additional beneficial effects. The figure below contains a land use schematization diagram: yellow for residential, orange for mixed use, red for commercial and green reserved for civic space.

The Effect of the TOC on the Green City: Traffic and Environmental Aspects

The model above represents our selected case study area of Anyang, a satellite city of Seoul with a population of 600,000. Five subway stations serve the city of 4,080 hectares. This study analyzed what effect a TOC planning model would have on the area and looked at green city elements on several dimensions to understand and analyze what types of effects have resulted. We then created models constructed on data we accumulated for the investigation: the public transport allotment rate and TOC planning elements; accessibility of public transport; probability of transit choice; and an analysis of the travel behavior of approximately 7,222 Anyang residents.

The reality of Anyang's urban spatial structure, its land use, and block configuration to public transport all came into sharp focus during this investigation. Comparing the data extracted from the new town development on the right and the existing city area on the left, this study discovered significant differences. The old and new areas are blocked off from sharing any spatial linkage because an industrial area divides the two. The image below shows the Anyang in its current implementation.

The diagrams below are a prediction of what may occur after applying this study's plan using the TOC model. They consist of before and after shots of transit accessibility, with a marked improvement seen in the after shots. Building a tramline, we anticipate, will strengthen intra-city linkages, and these tram routes will create opportunities for additional mixed-use buildings in the areas they serve.

Specifically, it is anticipated that after applying our TOC model, the population density will increase by 15%, mixed commercial use by 7% and public transport ridership by 6%. We also expected a reduction in CO₂ emissions of 30 million tons and increase in economic activity of US \$400 million.

The following are what we have encountered as limitations in this research. The TOC models tell us little about socio-political impacts. Additionally,

Figure 4: Land Use Before (above) & After (below) Applying the TOC Model

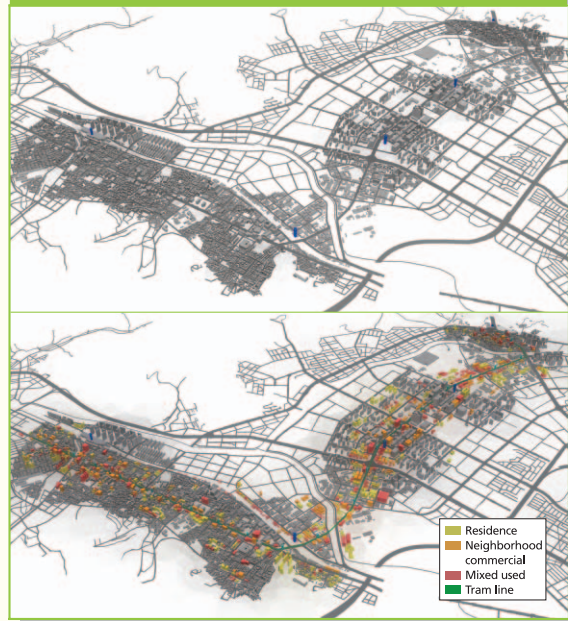


Figure 5: Accessibility to Transit After Applying the TOC Model



this study has not yet covered potential social conflicts that may arise in the course of development. To expand this TOC planning model, future research would need to go several steps further: identifying what other obstacles or issues with TOC or other related projects have arisen and how major policies in Korea or abroad have or have not resolved these TOC project-related conflicts.

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