POLICY SUGGESTIONS TO ENHANCE THE FUNCTIONS OF ROADS AS PUBLIC SPACES IN URBAN REGENERATION PROJECTS

YI CHOE/DINSONG JI YOON SIK, KIM DYUNG Sook, LEE KYUNG HWAN

This study aims to propose policies for the expanded utilization of the functions of road as public spaces in urban regeneration projects as an effort to address such implications. It has been proposed as a part of the first round. Regulators on such functions are analyzed through occurrence of road use changes, such as engaging them in management and planning. Policy suggestions are made to enhance the functions of road as public spaces in urban regeneration projects. Such functions should be proactively used in urban regeneration projects and examples from ventures in the four Deal (New Deal). Though recently emphasizes the case space in urban planning and related regulations, projects as being general in development basis and for urban of road, public land functions should be properly used as a tool of urban projects designed to improve quality of urban environment and also to increase understanding of urban activities. The potential of utilization of road use change should be examined. Case studies and examples of road space in urban regeneration projects are reviewed. The study proposes regulations and guidelines for the expanded utilization of road use change, including the case of road use change in urban regeneration projects.
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• The Effect of Built Environment on Walkability in Ho Chi Minh City Center District, Journal of the Korea Academic-Industrial cooperation Society, Volume 19(9), 2018
• A Study on Mobility Support Center Service Using Structural Equation Model, Journal of the Korea Academic-Industrial cooperation Society, Volume 19(7), 2018
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• Effects of Neighborhood Environment on Elderly’s Walking Route and Outdoor Activities : A Case Study of Nokbeon-Dong in Seoul, Urban Design, Volume 18(6), 2017
• Effects of changes in neighbourhood environment due to the CPTED project on residents’ social activities and sense of community : a case study on the Cheonan Safe Village Project in Korea, International Journal of Urban Sciences, Volume 21(1), 2017
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Summary

Analysis of the literature on the use of the public space functions of roads in urban regeneration projects and assessment of their status quo in case study regions show how insufficient the utilization of such functions is. Korea’s Road Act lacks a legal basis for the use of such functions in a way that prioritizes people and urban activities over motor vehicles. This is because of the dearth of guidelines on the application of the Regulation on the Criteria for Road Structure and Facilities (Article 17). Despite the inextricable relationship between roads and urban regeneration projects in project zones, central government offices have not reflected this and instead have implemented urban regeneration projects through piecemeal efforts receiving budgetary support.

This problematic situation demands a shift toward road policy that extends beyond the traffic function of roads to utilize their public space functions, developing person-oriented spaces for urban activity in accordance with special purpose areas and road functions. Regulations related to the Road Act should be amended to ease the implementation of urban regeneration projects and raise the synergy effects of land and transportation policy. Guidelines also needed for both urban regeneration and the use of such road functions are expected to contribute to boosting urban activities without discrimination and stimulating regional economies.

Korea’s Ministry of Land, Infrastructure and Transport (MOLIT) needs to form a cooperative system connecting departments tasked with roads, urban planning, and traffic while simultaneously providing budget to ensure a synergy effect on policy. Pilot projects for urban regeneration and using the public space functions of roads are also required. The MOLIT Road Policy Bureau must devise a budget support program for such functions in urban regions to allow them to raise city competitiveness and improve quality of life.
In 2009, the Ministry of Land, Infrastructure and Transport (MOLIT) added new regulations to reflect the public space functions of roads in addition to their traffic functions in the road design process. While the rules were intended to use road spaces to improve quality of life and support urban activities, their implementation has been anything but smooth.

**Figure 1. Functions of Traffic & Public Space of Roads**

<table>
<thead>
<tr>
<th>Traffic Functions of Roads</th>
<th>Public Space Functions of Roads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use by vehicles, pedestrians, and bicycles</td>
<td>Support for urban activities by incorporating pedestrian-friendly environment, cultural and information exchanges, public transportation, and urban greening spaces in addition to motor vehicles</td>
</tr>
<tr>
<td>Access to nearby buildings, etc.</td>
<td>Promotion of road value by reinforcing the public service aspect of road spaces, including improvement of quality of life, promotion of the regional economy, and urban reshaping</td>
</tr>
<tr>
<td>Vehicle parking</td>
<td></td>
</tr>
</tbody>
</table>

In advanced economies, the public space functions of roads are intended to stimulate inner-city economies, with road spaces designed to host urban activities in which were people are prioritized over vehicles, and as a policy approach for reshaping cities. For example, the Federal Highway Administration (FHWA) under the U.S. Department of Transportation (DOT) works with other agencies to implement “Complete/Great street” and “Main street” projects and the Livable Communities campaign in major cities. In Japan, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) has departments for roads, cities, and land cooperating in the implementation of the programs Transport Machizukuri (Community/Neighborhood Planning) and Area Management.

In Korea, urban regeneration projects are a crucial part of MOLIT’s effort to stimulate inner cities and help regional economies recover. This process necessitates an analysis of operational conditions in the use of the public space functions of roads and a determination of institutional constraints to devise a system requiring cooperation by MOLIT’s road, city, and transportation departments.

The purpose of this study is to suggest policy approaches toward the use of previously vehicle-centered roads as public spaces transformed into enrich daily living and quality of life for residents. One major aim is to devise an effective strategy to use the public space functions of roads in urban regeneration projects.

To this end, the study examined regulations on such functions and conducted a literature review to explore the use of road spaces in the Urban Regeneration New Deal (URND) project, associated problems, and other domestic and overseas benchmarks in the use of road spaces. Examples from ongoing urban regeneration projects were analyzed to assess the utilization of such functions and identify directions for institutional improvement. The two cities chosen as case studies were Gyeongju, Gyeongsangbuk-do, and Jeonju, Jeollabuk-do. External experts were recruited by the research team to pinpoint areas for institutional improvement.

“
In cases where quantitative analysis was not possible, analysis was based on questionnaires administered to residents of shrinking cities. Reflecting the regional distribution of shrinking cities selected for the study, cases were limited to four cities (Samcheok, Sangju, Gimhae, and Boryeong). It was conducted September 1–30, 2016, in the form of one-on-one interviews and online surveys.

"
CHAPTER II.
Public Space Functions of Roads and Limitations of URND Projects

This chapter examines the content and limitations of regulations on the public space functions of roads and the reasons for the lack of adequate reflection of such functions in Urban Regeneration New Deal (URND) projects. The results of a literature review also identified the characteristics of the utilization of such functions in Korea and abroad and their policy implications.

1. Public Space Functions of Roads

1.1 Article 17 of Regulation on Criteria for the Structure and Facilities of Road (Use of Public Space Functions of Roads)

This article says, “To improve resident quality of life, roads shall be designed as spaces for an improved pedestrian environment, culture and information exchange, accommodation of public transportation, and ecofriendly greening spaces.” The regulation signifies a transition in the government’s road policy paradigm of the late 2000s stressing the traffic function of roads toward policy measures prioritizing people, the environment, and quality of life.

Intended to present roads as spaces for raising convenience for regional residents and users, this regulation marked a major step forward in projects meant to improve public transportation and the pedestrian environment. It was introduced as a method of classifying the public space functions of roads and forming a dignified urban environment in conjunction with the beautification and landscape enhancement of cities (see Figures 2 and 3).
1.2 Constraints on Use of Public Space Functions Roads

The Road Act and other regulations lack a legal basis or implementation strategy for the utilization of the public space functions of roads. No planning context related to the use of such functions is included in the Road Act’s overarching regulations, and no detailed guidelines govern the use of the public space functions of roads between regions and within cities. In road planning and design, roads are still primarily considered the travel domain of vehicles, and perspectives on the accommodation of urban activities on roads are inadequately reflected. The promotion of policy toward using guidelines to rectify this problem has also been lacking since their establishment (see Figure 4).

Figure 2. Examples of Public Space Functions of Roads

Figure 3. Examples of Public Space Functions of Roads (continued)

Spaces for Accommodating Public Transportation


In cases where quantitative analysis was not possible, analysis was based on questionnaires administered to residents of shrinking cities.
2. Urban Regeneration New Deal Projects

Implemented by the Ministry of Land, Infrastructure and Transport (MOLIT) in 2017, the project framework of the Urban Regeneration New Deal (URND) has four goals: social integration, residential welfare, job creation, and restoration of urban competitiveness. Under this ambitious venture, local government-proposed projects are selected on a competitive basis to receive partial public support for related expenses. MOLIT assigns URND projects in 57 categories, providing menus on drafting proposals for each type to consult when formulating project plans. Conditions and problematic areas vis-a-vis the use of the public space functions of roads were examined for a range of cases.

2.1 [Residential Welfare] Targeting Residential Regeneration and Improvement of Community Infrastructure

Residential regeneration projects are limited to construction of public parking lots in project zones and thus fail to adequately consider software elements to improve the safety of students going to and from school. The streetside housing servicing project (Menu Item 2-6) is limited to support for construction costs in servicing the parking environment, though it should provide spaces for resident exchange and facilities such as pocket parks (see Figure 5, Residential Regeneration Type).

Improvement of community infrastructure (Menu Items 2-15 to 2-25) focuses on individual projects such as the building of public parking facilities and servicing of side streets, while ignoring road spaces that residents use daily. For example, operational systems for one-way roads and time-of-day restrictions on vehicular travel, which are crucial for children’s safety when traveling to and from school, have received insufficient attention from authorities.
Figure 5. Project Types of Urban Regeneration New Deal

2.2 [Job Creation] Targeting Servicing of Small Cities and Declining Inner City Areas to Promote Commercial Functions (Menu Item 3-3)

Consideration of the public space functions of roads for the sake of residents has been neglected in the process of setting a historical and cultural base for declining inner-city areas, improving residential quality, and raising infrastructure availability. While the type Small Provincial City Central Roadside Regeneration Project (Menu item 2-6) recommends the use of vacant spaces and area assets, this model’s effectiveness is limited to boosting the vitality of roadside areas through commercial facilities, improved landscapes, and the building of pedestrian-centered roads. What remains weak in road planning is the reflection of the public space functions of roads within the project zone. While the scale of the Small City Central Roadside project is set at approximately 300-500 meters per site, expansion of its framework must go beyond merely building more facilities over short distances under a more comprehensive plan that incorporates specific transportation axes, project zones, and roads (see Figure 5, General Neighborhood type).
2.3 [Urban Competition Base Type] Targeting Construction of Smart Cities (Menu Item 4-3)

Street building plans are confined to expansion of parking space and the provision of public transportation information; they glaringly lack a space utilization strategy amid the introduction of self-driving vehicles and other major advances in transportation. What is needed is a strategy for utilizing road spaces by applying advanced transportation technology to improve information and urban services directly perceived by residents, with a focus on declining and primitive roads (see Figure 5, Central Urban Area type).

2.4 Constraints on Utilization of Public Space Functions of Roads in Urban Regeneration New Deal Projects

The existing approach reflects a shortsighted perspective of comprehensively considering individual projects and raising the synergy effects of policy rather than individually implementing the public space functions of roads and urban regeneration projects for the same project zones. Urban regeneration efforts can present an opportunity to revitalize inner cities by effectively using such functions. The range of projects pursued in the road sector, however, are being implemented on a piecemeal basis rather than as part of an integrated planning framework.

Budget variance is a major reason urban generation projects and the use of the public space functions of roads are not pursued from an integrated perspective. Additionally, projects tend to get budget at different times, which means implementation timelines cannot be integrated and related departments do not discuss and jointly pursue projects. Moreover, project implementation must adhere to laws and regulations regardless of spatial utilization in road zones (the Road Act), standards for the placement of urban planning facilities, or those for comprehensive plan formulation. Achieving the ultimate goals of Urban Regeneration New Deal (URND) projects -- stimulation of regional communities, expansion of quality community infrastructure, and construction of safe urban spaces -- will require cooperation from relevant MOLIT departments.

A new concept of roads as bases for the generation of added value is needed, as well as finding ways to strengthen links between the public space functions of roads and URND projects. This requires a change in perception, with roads in general (or within New Deal projects) needing consideration as not just places for vehicular travel or physical servicing but also as bases for generating new social value.

“In cases where quantitative analysis was not possible, analysis was based on questionnaires administered to residents of shrinking cities.”
Figure 6. Constraints on Utilization of Public Space Functions of Roads in URND Projects

- Lack of menu for utilization of public space functions of roads for application to URND projects
- Inadequate two-way consideration between planning of roads and urban infrastructure
- Project zones considered on piecemeal basis rather than from general strategic perspective
- Inadequate cooperative system between departments that prevents progress in URND project goals
- Low awareness of public space functions of roads and their value

3. Domestic and Overseas Benchmarks for Promoting Public Space Functions of Roads

3.1 Utilizing Road Spaces: From Cars Only to Public Spaces for People

An example of the conversion of road spaces (zones) into person-centered, eco-friendly roads is Seoullo 7017, a former traffic overpass by Seoul Station that was transformed into a greenspace and pedestrian-only zone. Another downtown hotspot in Seoul, Gwanghwamun Square, exemplifies a road being used as a public square to establish a national “symbolic axis.” In Jeonju, Jeollabuk-do, Cheotmajung-gil (Welcoming Road) was substantially reduced in area and redeveloped as a space for public transportation, pedestrian travel, greenspace, and resident meetings and interactions. This project was part of a systematic effort to regenerate the urban area surrounding Jeonju Station, overcoming the regional disconnect caused by the broad (50-meter) roadway, and promote the city’s business district.
In the US, “Complete streets” have been converted into spaces for pedestrian traffic and interaction rather than accommodating vehicular traffic, along with “Main streets” in which a city’s traditions and cultural assets are used to reconfigure central road spaces to improve accessibility to older city centers. Jointly implemented by the US Department of Transportation, Department of Urban and Housing, and Environmental Protection Agency, the Livable Communities program converts road spaces into bicycle and pedestrian paths to shift mass transit options from cars to bikes and foot travel. The public space functions of roads are also being promoted in the US through the federal government’s Transportation Investment Generating Economic Recovery (TIGER), a budgetary support program whose measures seek to provide stable financial resources for economic stimulation and job creation.

3.2 Use of Road Spaces and Continuous Areas

Japan’s Area Management project involves the redistribution of road spaces to promote an area’s asset value. To add community infrastructure needed within cities, pedestrian traffic routes are built through roads and public squares as well as green zones and gardens. The goals of this approach are raising quality of life for residents and asset value, and the land, city and road bureaus of Japan’s Ministry of Land, Infrastructure Transport and Tourism (MLIT) are simultaneously implementing this project rather than through a piecemeal basis.
Figure 8. Overseas Examples of Utilizing Public Space Functions of Roads

<table>
<thead>
<tr>
<th>Area Management (Japan)</th>
<th>Total Design (US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Road Spaces &amp; Contiguous Areas</td>
<td></td>
</tr>
<tr>
<td>Expanding Public Space Functions of Roads</td>
<td>Parklet (San Francisco)</td>
</tr>
<tr>
<td>Activity Zone (New York)</td>
<td>Streetside artwork (Seattle)</td>
</tr>
<tr>
<td></td>
<td>Promoting resident interaction &amp; happiness</td>
</tr>
</tbody>
</table>

The “total design” method of the US reflects esthetic elements in road spaces, considering their links with a region’s natural scenery and cultural and tourism resources. Road value is being promoted in a manner promoting community activities and comfortable living in road spaces.

As an example of incorporating road spaces with the surrounding area, the La Défense neighborhood of Paris is on the periphery of the city center being regenerated as a business zone, with pedestrian walkways, squares, and parks positioned on the upper and lower portions of the road space and the establishment of a business zone and traffic node. In Japan, the “Champs-Elysees” in Tokyo’s Toranomon neighborhood, the Toyama Grand Plaza, is the outcome of residents and the private sector serving as factors in integrating road spaces with the surrounding area based on the Special Law on Urban Renaissance. In the Netherlands, the Cubic Houses in Rotterdam saw architects help build housing on the upper portion of a road, providing a space for residents to freely travel on the road’s surface and developing a tourist attraction in the city.

3.3 Planning Elements Associated with Public Space Functions of Roads

The promotion of the public space functions of roads has stimulated the role of residents in urban planning. In the US, “parklets,” created by converting portions of street parking facilities into recreational areas, are being used by residents as spaces for interaction and relaxation. Artworks reflecting a city’s identity are also being used to promote pedestrian safety in American cities and regions; such works also instill a sense of pride among residents and provide a striking visual impression and enjoyment to visitors.

Walktalk is another campaign in the US to promote contact between residents through stimulating dialogue and interaction between residents. Conversational settings are provided at road spaces to broaden the scope of conversation and interaction in daily life, thereby enhancing quality of life. Other programs include the creation of spaces to promote a better urban environment for residents, thus presenting evidence of an active response to improving quality of life beyond the public spaces created by roads.

Table 1 shows the aforementioned domestic and overseas examples of the public space functions of roads, along with their policy implications.
Table 1. Overseas Forms of Utilizing Public Space Functions of Roads & Their Implications

<table>
<thead>
<tr>
<th>Form</th>
<th>Major Programs</th>
<th>Policy Overview &amp; Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Utilizing Road Spaces</strong></td>
<td>· Seoulo 7017 (Seoul), Under Art Studio Road (Incheon), Yonsei Public Transportation-only Zone (Seoul), Cheotmajung-gil (Jeonju)</td>
<td>· Converting roads from vehicle-only spaces to venues for people-oriented urban activities&lt;br&gt;· Encouraging private sector involvement</td>
</tr>
<tr>
<td>Road Spaces &amp; Contiguous Areas</td>
<td>· Complete/Main streets, Livable Communities (U.S.)</td>
<td>· Stimulating central urban areas, establishing pedestrian spaces, &amp; encouraging urban activities&lt;br&gt;· Budgetary support programs (e.g., TIGER)</td>
</tr>
<tr>
<td></td>
<td>· EU CIVITAS Program</td>
<td>· Mitigating inner-city traffic congestion by sharing vehicle-centered road spaces with public transportation, bicycles, &amp; pedestrian walkways</td>
</tr>
<tr>
<td>Expanding Public Space Functions of Roads</td>
<td>· Area Management (Japan)</td>
<td>· Redistributing road spaces to set up additional pedestrian routes, green zones, and public squares needed in cities and promote asset value of area</td>
</tr>
<tr>
<td></td>
<td>· Total Design (U.S.)</td>
<td>· Promoting life value via road installations</td>
</tr>
<tr>
<td></td>
<td>· La Défense (Paris)&lt;br&gt;· Toranomon &amp; Toyama (Japan)&lt;br&gt;· Cubic Houses (Rotterdam)</td>
<td>· 3-D use of road spaces, expansion of public squares&lt;br&gt;· Integrated servicing with residents &amp; private sector as actors&lt;br&gt;· Development of tourism base using road space &amp; surrounding area</td>
</tr>
<tr>
<td></td>
<td>· Parklets (U.S.)</td>
<td>· Providing parts of street parking facilities as spaces for rest &amp; interaction by residents&lt;br&gt;· Use of relatively small areas as spaces for people</td>
</tr>
<tr>
<td></td>
<td>· Pedestrian safety &amp; identity artworks (Captain Vision Zero)</td>
<td>· Promoting sense of resident pride &amp; striking visual impression of city &amp; enjoyment to visitors via installation of symbolic artworks representing city/region characteristics</td>
</tr>
<tr>
<td></td>
<td>· Activity zones (New York)</td>
<td>· Raising pedestrian convenience &amp; foot traffic routes by limiting commercial publicity materials &amp; activities in pedestrian areas</td>
</tr>
<tr>
<td></td>
<td>· Promoting human connections via increased interactions (Walktalk campaign)</td>
<td>· Promoting quality of life &amp; happiness by providing settings for resident dialogue in road spaces</td>
</tr>
</tbody>
</table>

CHAPTER III.

Analysis of Use of Public Space Functions of Roads

A crucial task is to decide how the use of the public space functions of roads occurs in the planning process and why such use is not being promoted. For this analysis, the planning process was divided into the road and urban planning stage and the planning phase for existing urban regeneration efforts and project submissions as part of the Urban Regeneration New Deal (URND). Surveys were conducted through interviews with design experts and municipal officials in the target cities. Urban regeneration projects in Gyeongju, Gyeongsangbuk-do, and Jeonju, Jeollabuk-do, were selected as case studies for the analysis.

1. Road and Urban Planning and Design

The public space functions of roads in Korea are being insufficiently used in the planning and design stages for roads between regions. In the land acquisition stage for road building, only a road’s immediate area is purchased (i.e., lanes and sidewalks), and expansion of roads passing through cities is limited to acquisition of a minimum width of sidewalk area (two meters). Despite the need for such functions, they are omitted from the design process due to lack of available land for road construction.

Also preventing the application of these functions in the design stage is the lack of strategy for their use in a city’s master plan. For the public space functions of roads within cities to be promoted, they must comprise part of such a plan, with application guidelines for urban regeneration project zones according to road hierarchy and method of allocating such functions.
2. Ongoing Urban Regeneration Projects

2.1 Status of Utilization of Public Space Functions of Roads

Previous urban regeneration projects chiefly entailed the expansion of facilities and widening of sidewalks to create a more pedestrian-friendly environment. The lane widths and number of vehicles have been reduced and one-way lanes established to widen sidewalks.

The Gyeongju municipal government has built bicycle paths and expanded sidewalks (Taejong-ro) in its bid to build a “historic cultural city” per the Cultural Heritage Administration (CHA) and improve the street environment. Road widths (3.5 meters) have been restricted to one-way traffic, power lines have been repositioned underground, and street parking facilities have been established (Hwarang-ro). Mixed pedestrian and vehicle traffic streets have been designated on roads lacking pedestrian spaces (so-called Hwangnidan-gil and the area in front of the Daereungwon Tomb Complex; see Figure 10).

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Figure 9. Status of Public Space Functions of Roads in Road and Urban Planning/Design Process and Suggested Improvements

<table>
<thead>
<tr>
<th>Category</th>
<th>Status</th>
<th>Suggested Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Acquisition for Roads</td>
<td>• New construction: Limited to acquiring minimum road width</td>
<td>• Draft guidelines on use</td>
</tr>
<tr>
<td></td>
<td>• Expansion: Limits to purchasing urban land</td>
<td></td>
</tr>
<tr>
<td>Road Zones &amp; Building Lines</td>
<td>• Strict boundaries preventing mutual consideration</td>
<td>• Comprehensive consideration of business &amp; road zones</td>
</tr>
<tr>
<td>Basis for Utilizing Public Space Functions of</td>
<td>• Lack of guidelines for application in urban/street planning</td>
<td>• Integration of installation standards across regulations</td>
</tr>
<tr>
<td>Roads</td>
<td>• Discrepancy between Regulations on Criteria for the Installation and</td>
<td>• Inclusion as planning element in urban master plans</td>
</tr>
<tr>
<td></td>
<td>Management of Urban and Gun (County) Planning Facilities and Criteria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>for the Structure and facility of Road</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lack of related strategy in urban master plans</td>
<td></td>
</tr>
</tbody>
</table>
### Figure 10. Major Roads in Gyeongju Urban Regeneration Projects (2007 & 2017)

<table>
<thead>
<tr>
<th>Road Name</th>
<th>Year 2007 Description</th>
<th>Year 2017 Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taejong-ro (General National Road 4)</td>
<td>The four-lane road has been retained, power lines repositioned underground, a parking facility built nearby, and pedestrian and bicycle roads added.</td>
<td>The four-lane road has been retained, power lines repositioned underground, a parking facility built nearby, and pedestrian and bicycle roads added.</td>
</tr>
<tr>
<td>Bonghwang-ro</td>
<td>The two-lane road has been narrowed to a single one-way road and the sidewalk expanded.</td>
<td>The two-lane road has been narrowed to a single one-way road and the sidewalk expanded.</td>
</tr>
<tr>
<td>Jungang-ro</td>
<td>Lanes have been reduced and converted to one-way traffic; sidewalks have been expanded. An adjacent side street is used for roadside parking and a pedestrian-only street has been designated.</td>
<td>Lanes have been reduced and converted to one-way traffic; sidewalks have been expanded. An adjacent side street is used for roadside parking and a pedestrian-only street has been designated.</td>
</tr>
</tbody>
</table>


In Jeonju municipal authorities have mainly focused on the Jeonju Hanok Village area as part of a project to build a “traditional cultural city” (CHA). A range of elements have been integrated for use in building a city tourism base including specialized downtown streets, pedestrian spaces, sights, and small streets (see Figure 11).
In cases where quantitative analysis was not possible, analysis was based on questionnaires administered to residents of shrinking cities. Reflecting the regional distribution of shrinking cities selected for the study, cases were limited to four cities (Samcheok, Sangju, Gimhae, and Boryeong). It was conducted September 1–30, 2016, in the form of one-on-one interviews and online surveys.
2.2 Strategies to Promote Public Space Functions of Roads

Promotion of the public space functions of roads requires eliminating obstacles between pedestrian routes and buildings (stores) and setting spatial functions suited to each city’s characteristics. This means expanded and effective utilization of roads and public squares and the use of design standards that better reflect street chic. Ensuring the continuity of pedestrian movement should be the top priority in limiting the widths of road zones, and utility poles and masses of objects should be removed from the roadside.

Because of the constraints on road zones accommodating central roadside urban regeneration efforts that utilize regional assets and the use of the public space functions of roads, a solid foundation is needed to ensure regular use, incorporating elements such as surrounding buildings, squares, and vacant lots. Rules and standards for road building should also come through the integration of installation standards for roadside signage, cultural heritage, power distribution boards, communication infrastructure, and transportation infrastructure.

Achieving the chief goals of urban regeneration -- job creation and the promotion of commercial functions -- requires a people-centric road system capable of sustaining human activities. This suggests an urgent need for general guidelines from the central government as well as regional tips capable of reflecting each area's characteristics.

2.3 Institutional Improvements for Use of Public Space Functions of Roads

An integrated system should supervise the operation of related duties within municipal departments tasked with urban regeneration and roads. In addition to integration of related budgets based on individual laws, basic plans should be developed per transportation axis or city through individual projects, and pilot programs incorporating this are needed. Because of the complex array of departments handling urban regeneration projects and use of the public space functions of roads (i.e., in Gyeongju’s case, tourism and conventions, future industry, ecofriendly buildings, cultural heritage, and road division), even one project to reposition power lines underground requires separate discussions. Additionally, a system or authority is needed for comprehensive processing, with a consistent system devised by a dedicated organization covering the project planning, implementation, maintenance, and management stages.

A comprehensive planning system for business zones and cities is needed in lieu of urban regeneration projects; for example, an integrated and simultaneous implementation method could be utilized for projects to improve the road environment, side street, and residential climate rather than piecemeal execution. The promotion of the public space functions of roads should also target integrating business zones into unified transportation axes.
The required institutional improvements at the road management and operation stage include the expansion of organizations in charge of planning, execution, and post-management of urban regeneration projects. As most New Deal projects depend on budgetary support from MOLIT and other government offices, the system needs a dedicated agency for integrated management.

**Figure 12. Summary of Conditions in Use of Public Space Functions of Roads in Urban Regeneration Projects**

<table>
<thead>
<tr>
<th>Category</th>
<th>Major Content</th>
<th>Actor(s)</th>
</tr>
</thead>
</table>
| Using public space functions of roads | • Implement development projects including walking streets and culture cities  
• Restricted to project zones with low connection to adjacent areas or at city level → General plans at transportation axis/city level | MOLIT |
| Strategy for Promoting Public Space Functions of Roads | • Limits even to acquiring additional sidewalk width  
• Separate bicycle & pedestrian paths detract from spatial efficiency  
• Lack of comprehensive approach to urban infrastructure installation → Flexible use of road spaces; sharing & consideration for road spaces on daily or weekday basis | MOLIT  
Local government |
| Institutional Improvements to Promote Public Space Functions of Roads | • Separate or conflicting standards for roads & urban planning facilities  
• Lack of guidelines on use to consult or apply for public space functions of roads  
• Low emphasis on people & urban activities in favor of vehicles → Provide options for use of public space functions of roads (guidelines) public space functions of roads | MOLIT  
Local government |
| Road management/maintenance stage | • Lack of consistent implementation system from planning stage → esginate authority to supervise public space functions of roads or urban regeneration | MOLIT  
Local government |

3. Proposals for Urban Regeneration New Deal Projects

3.1 Central Street Model Submissions in Gyeongju

Projects planned for Gyeongju include a general market road, mixed market, guidance platform for youth entrepreneurship, and support for cultural activity in and around the neighborhoods of Hwango-dong and Seongdong-dong (Seongdong Market west of Gyeongju Station and contiguous areas to the east covering a combined 215,000m²). The area allows access to nearby UNESCO World Heritage sites (e.g., the Daereungwon Tomb Complex and the Wolseong District) and pedestrian spaces (within 30 minutes). Projects for public space functions of roads incorporate elements such as pedestrian view improvements, placement of symbolic artwork, and the building of walking streets and safe and vibrant commercial side streets.

Constraints on the use of such functions have emerged in submitted projects. The building of symbolic and walking streets has focused on improving the pedestrian environment and sidewalk blocks and installing artworks at market gates rather than more regular use of such functions. No related strategies have established for areas such as suitable assignment of such functions for business zones. Within such zones, publicly supported projects are implemented based on schedules different from those of other municipal departments in Gyeongju. In addition, the city has not considered a comprehensive approach featuring a cooperative inter-departmental system within its municipal government.

Figure 13. Images of Zones in Submitted Projects for Gyeongju

<table>
<thead>
<tr>
<th>Roadside stores at Seongdong Market in front of Gyeongju Station</th>
<th>Wonhwa-ro in front of Gyeongju Station</th>
<th>Area in front of Gyeongju Station</th>
<th>Side street in Seongdong Neighborhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image](127x250 to 227x323)</td>
<td>![Image](251x250 to 351x323)</td>
<td>![Image](376x250 to 475x323)</td>
<td>![Image](513x181 to 592x322)</td>
</tr>
</tbody>
</table>

3.2 Seohak-dong Art Village in Jeonju

The campaign to build an arts village around 45, Seohak 3-gil in Jeonju’s Wansan-gu consists of improvements to both residential welfare, the pedestrian-friendly environment and job creation components. Given the self-initiated personal networks of cultural and artistic practitioners there, the area has strong potential to emerge as a cultural village. Major projects include the streamlining of basic community infrastructure, building of a smart city base, and the establishment of a “safe high-tech village.”

The chief obstacle to projects submitted to Jeonju is lack of consideration for the interactive and interchange functions of roads as public spaces in the implementation of side street servicing and building of village gardens. While the focus is on vacant or unused facilities within a project zone, linked projects by the central and Jeonju municipal governments are also included, along with a long-term implementation schedule extending to 2030. While activity has been established in areas north of Jeonju Stream such as Namgu Market and Hanok Village, a comprehensive system is needed to implement urban regeneration strategy linked to nearby areas south of the stream.

Figure 14. Use of Public Space Functions of Roads in URND Projects

<table>
<thead>
<tr>
<th>Category</th>
<th>State of Use of Public Space Functions</th>
<th>Actor(s)</th>
</tr>
</thead>
</table>
| Examples of New Deal project submissions (menu) | • Limited to Residential Regeneration/Urban Economy Base menu examples  
• Inadequate reflection of demands according to special purpose areas, road function hierarchy → Draft guidelines according to special purpose areas & road hierarchy | • MOLIT |
| Central Urban Area model (Hwango-dong/Seongdong-dong in Gyeongju) | • Public space functions of roads not considered for overall project zone  
• Limited to pedestrian environments, sidewalk block improvements, & market art installation rather than comprehensive consideration of Gyeongju Station (including discontinued lines) & squares → Set implementation guidelines for using public space functions of roads; link project to adjacent urban regeneration projects | • MOLIT  
• Local government |
| General Neighborhood model (Seohak-dong in Jeonju) | • No consideration of links with existing roads and other projects, including side street servicing and village garden building  
• Lack of strategy for urban regeneration & revitalization in candidate & neighboring area → Set implementation guidelines for public space functions of roads per special purpose area & road hierarchy | • MOLIT |

CHAPTER IV.
Policy Suggestions for Utilization of Public Space Functions of Roads

1. Basic Directions

To begin with, national road policy needs a paradigm shift. Road spaces must be used as settings that emphasize human interaction and accommodate a variety of urban activities from the perspective of “consideration” and “sharing.” While the designation of vehicle lanes and traffic functions has been emphasized for road zones, these spaces should serve as a community base that prioritizes people and promotes a range of urban activities and the municipal economy rather than remain exclusive paths for vehicular travel.

Second, the Road Act and other regulations should be reinforced to promote the public space functions of roads, which must be utilized in a way inextricably integrated with daily life.

Third, guidelines on such functions must allow their easy application under a variety of forms and conditions. The resulting guidelines must be easily usable in all areas: the hierarchy of road functions, the regions where the roads are located, support for urban activities, and policy support from the central and local governments.

Fourth, a synergy effect on policy should be sought between urban regeneration and the use of public space functions of roads. Instead of taking the approach of piecemeal projects, a pilot program of comprehensive implementation within project zones should be conducted, and a system should be established for integrated management of government-supported projects and budgetary support from the road sector.
2. Amending Related Regulations

2.1 Include Basis for Using Public Space Functions of Roads in Road Act

The Road Act should reflect a new paradigm in road policy that shifts the focus of road spaces from vehicle access and convenience to the prioritization of people and urban activities. The concept of “starting from the edges” should be introduced in road design, with spaces for pedestrians, bicycles, and user recreation and leisure established first on the periphery before vehicle lanes.

A system under the Road Act is also needed to comprehensively cover areas prescribed in other rules and laws governing the standards for the selection, structure, and installation of city and county planning facilities when the public space functions of roads are reflected in urban regeneration projects and New City plans.

Recognition should also be extended to exceptional provisions in the occupancy and use of roads and forms of public infrastructure in road appurtenances as part of urban regeneration projects. Items on the use of such functions should be included in the Comprehensive National Road Network Plan and Road Construction and Management Plan.

2.2 Amending Regulations on Criteria for the Structure and Facilities of Road

New art installations should be included among the public space functions of roads as a means of establishing a city’s identity, along with parklets and other recreational spaces and activity zones that set pedestrian routes for residents to avoid disrupting flows. To ensure smart cities, new provisions are needed for spaces that incorporate advanced information and communications technology (ICT).

Another recommendation is the creation of road design standards that are flexible and allow a wide range of choices in crossing composition, use of surrounding land, and urban scale (e.g., population and city functions).

Guidelines should be quickly drafted for the use of the public space functions of roads. Specific forms of such functions should be categorized with the inclusion of standards for their application, presenting a wide range of means of transportation (e.g., walking, biking, and mass transit), forms of sharing, widths, cross-sectional compositions, and case studies of road spaces to allow selection of the proper solutions to suit regional conditions.
In major content, guidelines should include general rules; types of public space functions of roads; possible forms usable in candidate regions (categorized into mandatory and optional types); planning standards for traffic infrastructure placement and prioritization and the establishment of minimum sidewalk widths; rules and relationships for governments; and standards for the selection, structure, and content of city and county planning facilities and those for post-management and maintenance.

Table 2. Major Content of Sample Guidelines for Utilizing Public Space Functions of Roads

- General rules
- Forms of public space functions of roads
- Possible forms of use by candidate region
  - Types of public space functions of roads by road hierarchy, special-purpose area (mandatory & optional)
- Installation of traffic infrastructure & related priorities
- Planning standards to ensure minimum sidewalk widths
- Relationship with other regulations
  - Regulation on Criteria for Installation and Management of Urban and Gun Planning Facilities, Manual on urban regeneration projects
- Standards for post-management and maintenance

2.3 Setting Guidelines for URND Projects

The public space functions of roads should be included in the examples (menu) of Urban Regeneration New Deal (URND) projects, with rules and standards shared for the use of such functions through the inclusion of road zones among project regions. Policymakers should also devise strategies for using such functions in city master plans and transportation axes. This could form the basis for devising basic strategies incorporating such functions in such plans and transportation axes rather than the piecemeal approach adopted for URND projects. The synergy effect from projects should be maximized through a strategic cooperation system linking URND projects with the utilization of such functions.
CHAPTER V.

Conclusion

The purpose of this study is to identify strategies for devising MOLIT's policy so that the public space functions of roads, which are inextricably linked to urban regeneration, are effectively reflected in the implementation of urban regeneration projects. The authors sought to recommend how to promote such functions in a way that prioritizes people and urban activities over traffic convenience, thus encouraging urban regeneration projects designed to promote convenience in communities and revitalize their economies.

The use of such functions means effectively utilizing roads and the land surrounding them and supporting urban activities rather than simply expanding the dimensions of road spaces. Accordingly, the road policy paradigm must be steered away from its focus on vehicles and toward the perspective of “consideration” and “sharing” to support people and urban activities. Rather than simply being spaces for vehicles, road zones must serve as venues for prioritizing people, supporting urban activities, and serving as community bases to revitalize area economies.

For institutional improvements, the legal basis for the use of such functions should first be established within the Road Act. A foundation for road occupancy and use should be set for infrastructure pursued through urban regeneration projects, and the promotion of road assets and value as a policy approach is needed in road construction and management plans, with the inclusion of content on plan formulation.

Second, regulations on road structure and facility standards should be amended to form guidelines according to urban special-purpose areas in which roads are located, road hierarchy, and use of surrounding land. Diversifying application and design standards for the public space functions of roads could enable the building of road spaces that consider people and permit the sharing of means of transportation.

Third, promotion of such functions within urban regeneration projects will require revision or replacement of guidelines on Urban Regeneration New Deal (URND) projects. Strategies should be developed to utilize such functions in city master plans and transportation axes, with an innovative approach involving the simultaneous pursuit of road expansion with raising resident convenience through a strategic cooperation system linking these plans. To encourage this, the central government should consider pilot projects that simultaneously reflect urban regeneration and utilization of the public space functions of roads.

A limitation of this study is its failure to set guidelines on urban regeneration and use of such functions. Thus more research is needed for the proper pursuit of pilot projects and setup of a budgetary support program.
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POLICY SUGGESTIONS TO ENHANCE THE FUNCTIONS OF ROADS AS PUBLIC SPACES IN URBAN REGENERATION PROJECTS

YI CHOONYONG, KO YONGSEOK, KIM GYEONG SEOK, LEE KYUNGHWAN
POLICY SUGGESTIONS TO ENHANCE THE FUNCTIONS OF ROADS AS PUBLIC SPACES IN URBAN REGENERATION PROJECTS

YI CHOSUNG, KO YOUNGSOO, KO EUNSEOK, LEE KYUHWAEN

This study seeks to propose policies for the expanded utilization of the economic and social public spaces in the urban regeneration projects. In the process of road design and urban regeneration projects, the guidelines related to the use of public space in the roads are very important. The guidelines should be designed to reflect the characteristics of the project regions and the function of roads in the urban regeneration projects. The guidelines should also be tailored to the needs of the residents and the local communities. The guidelines should be designed to incorporate urban activities into road spaces and thus raise the quality of life for residents. Regulations on such functions are analyzed, and proposed policies are suggested in this study. The proposed policies will be used as a reference for urban regeneration projects in the future.