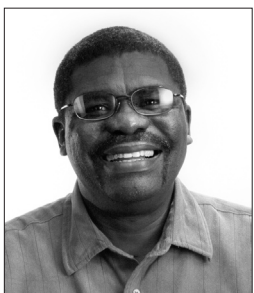




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## COMPARISON OF PARKING REQUIREMENTS IN ZONING AND FORM-BASED CODES

### ROB HANANOUCI AND CORNELIUS NUWORSOO

The authors present some of the results of Rob Hananouchi's senior project at CRP, supervised by Dr. Cornelius Nuworsoo, which compared parking requirements of traditional zoning regulations to that of smart-codes. Using the new Miami code as a case-study, they conclude that parking requirements in both types of regulations are not that different, but that the smart-code does promote a reduction of parking near transit stations and corridors to encourage the use of public transport.

There is a growing recognition of the negative effects of rapid suburbanization, also known as urban sprawl, that has dominated the development of urban areas for the last several decades. Many suburbs suffer from a lack of nearby services, a characterless urban form, and a dependence on automobiles for travel. To address these issues, urban planners, architects, developers, and policy makers have considered encouraging a new type of urban growth that focuses on including a variety of housing types and services in complete and compact neighborhoods. To create these communities, some urban planners are considering form-based codes to guide and regulate development. Form-based codes are a method of regulating development to achieve a specific urban form. Form-based codes create a predictable public realm by primarily controlling physical form, with a lesser focus on land use. This is in contrast to existing development regulations, known as zoning ordinances, which typically focus on land use with fewer controls on form.

While form-based codes attempt to address urban sprawl and automobile dependency through land use regulations, urban planners also recognize the need to consider transportation policies in tandem with land use. Similar to how land use regulations impact how transportation decisions are made, transportation policies also impact the urban form. Since the 1920s, transportation policies have aimed to create infrastructure to support the automobile, including wide streets and large parking lots.

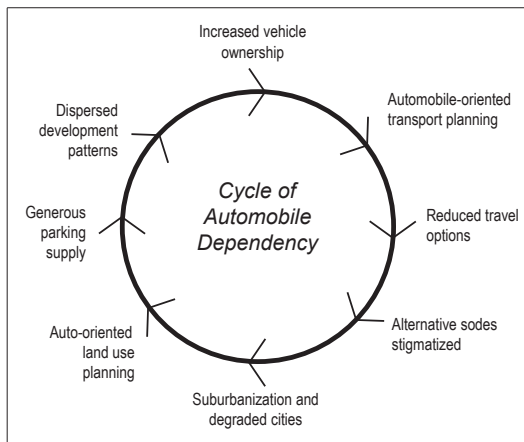
Issues that are now widely acknowledged about transportation policies include the realization that minimum parking requirements result in an excessive parking supply that frequently is free. The abundance of free parking encourages automobile use and contributes to automobile dependency. Large parking lots deteriorate neighborhood character, increase the distance between origins and destinations, and decrease the viability of

alternative transportation. Litman (2008) refers to these issues within the context of an automobile dependency cycle: "a generous parking supply is one component of a cycle that increases automobile dependency to the detriment of alternative modes of transportation" (Figure 1). Form-based codes may provide an opportunity for a more appropriate parking supply by more accurately determining requirements by urban context and use. The "urban transect" (Figure 2) is a gradient of urban form ranging from natural and rural zones to urban core. Form-based codes commonly apply the urban transect to regulate development based on their context (Parolek, Parolek & Crawford, 2008; City of Miami, 2009).

#### Note:

This article is based on Rob's senior project research on parking requirements in the Miami 21 form-based code. Information was presented at the 89th Annual Meeting of the Transportation Research Board, Washington, D.C., 10/2010.

**Figure 1**  
Cycle of Automobile Dependency.  
(source: Litman, 2008)



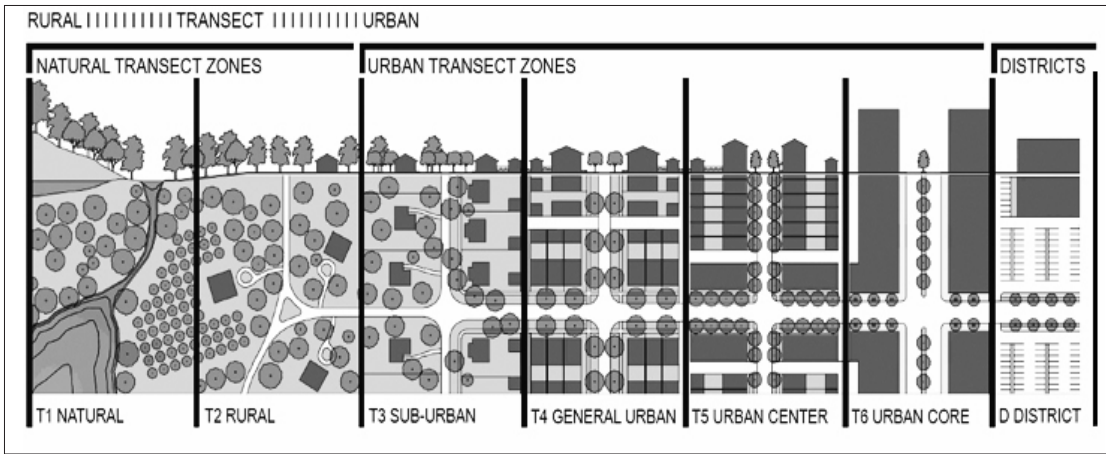


Figure 2  
Urban Transect Graphic. (source: Parolek, Parolek & Crawford, 2008)

**Case Study: Miami 21**

This study particularly focuses on the parking policies in the City of Miami’s proposed Miami 21 Zoning Code is a form-based code.<sup>1</sup> The Miami code is chosen as a case study because it is one of the first city-wide in the United States, it will replace a conventional zoning ordinance, and it applies to a major, rapidly growing American metropolis. Guided by tenets of new urbanism and smart growth principles, it is primarily based on Duany Plater-Zyberk and Company’s smart-code model (DPZ, 2009). Therefore, this study evaluates both the Miami 21 code and the SmartCode. We also considered the models presented by Parolek, Parolek, and Crawford (2008). Figure 3 is a sample from the Miami 21 Form-Based Code which regulates building and parking placement in addition to typical development codes that regulate building size and parking supply.

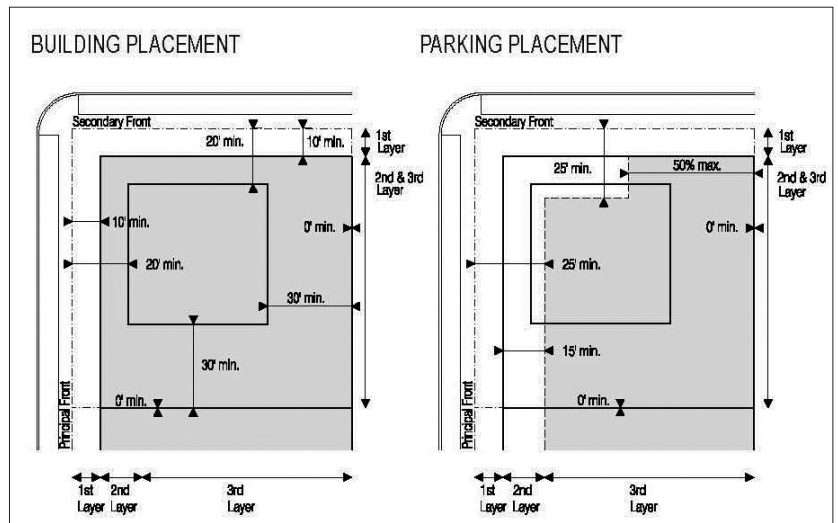
<sup>1</sup> The Miami 21 code was approved by the City on 10/22/09 and will take effect on 5/20/2010. It is available at <<http://www.miami21.org/>>

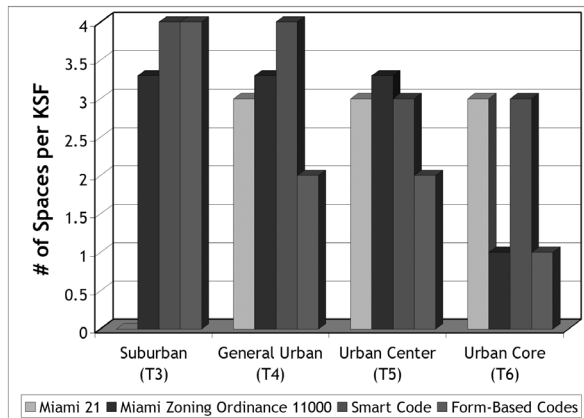
Figures 4A, 4B, 4C and 4D show comparative parking requirements by the various development codes for key land use categories. Additional details are included in Table 1.

Figure 3  
Example of building and parking placement from the Miami 21 Form-Based Code. (source: City of Miami, 2009)

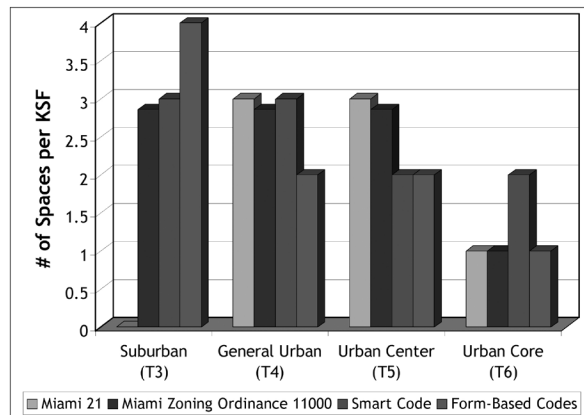
**Findings**

There were four major findings from our study. First, that parking requirements in the Smart Code and the Miami 21 form-based code are relatively consistent with parking requirements in Miami’s Euclidean zoning ordinance. Second, that parking requirements decrease from the Suburban transect to the Urban Core - however, the decrease is marginal and does not greatly change from existing requirements. Third, Miami 21 provides parking requirement reductions near transit stations and corridors, which may reduce vehicle use and encourage transit use in these areas. Four, Miami 21 does not address additional parking management strategies, such as parking maximums in the urban core transect.

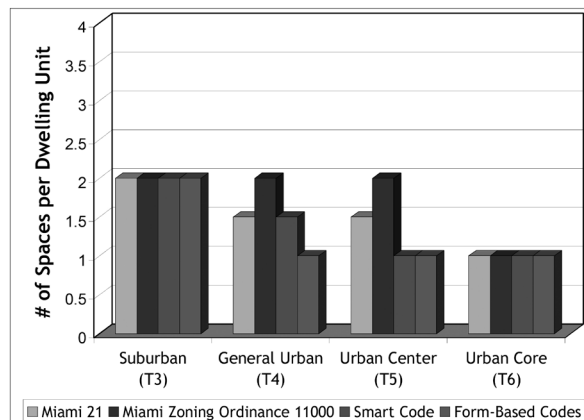




**Figure 4 a**  
Parking Requirements Comparisons,  
Commercial Development



**Figure 4 b**  
Parking Requirements Comparisons,  
Office Development



**Figure 4 c**  
Parking Requirements Comparisons,  
Residential Development

### Recommendations

It is recommended that future studies (a) examine parking policies in other form-based codes, (b) research the use of parking based on the urban context, price, and use to supplement existing parking studies solely aggregated by use, and (c) investigate the potential for integrating parking demand management measures into parking policies and form-based codes.

**Table 1: Parking Requirement Comparisons**

Zoning/District		Miami 21 (Form-Based Code)	Miami Zoning Ordinance 11000 (Euclidean Zoning)	Smart Code (version 9.2)	Form-Based Codes
Sub-urban (T3)	Commercial	N/A	10 spaces per 1000 SF for restaurants, bars, etc.; 4 spaces per 1000 SF of discount retail; 3.3 spaces per 1000 SF for all other	4 spaces per 1000 SF	No greater than 4 spaces per 1000 SF
	Office	N/A	2.86 spaces per 1000 SF	3 spaces per 1000 SF	No greater than 4 spaces per 1000 SF
	Residential	2 spaces per dwelling unit	2 spaces per dwelling unit	2 spaces per dwelling unit	May be appropriate, but not necessary
General Urban (T4)	Commercial	3 spaces per 1000 SF	See Suburban Commercial	4 spaces per 1000 SF	No greater than 2 spaces per 1000 SF
	Office	3 spaces per 1000 SF	2.86 spaces per 1000 SF	3 spaces per 1000 SF	No greater than 2 spaces per 1000 SF
	Residential	1.5 spaces per dwelling unit	1 space per 1-bed unit; 2 spaces per 2-3-bed unit; 3 spaces per 4-bed unit	1.5 spaces per dwelling unit	No greater than 1 space per unit
Urban Center (T5)	Commercial	3 spaces per 1000 SF	See Suburban Commercial	3 spaces per 1000 SF	No greater than 2 spaces per 1000 SF
	Office	3 spaces per 1000 SF	2.86 spaces per 1000 SF	2 spaces per 1000 SF	No greater than 2 spaces per 1000 SF
	Residential	1.5 spaces per dwelling unit	1 space per 1-bed unit; 2 spaces per 2-3-bed unit; 3 spaces per 4-bed unit	1 space per dwelling unit	No greater than 1 space per unit
Urban Core (T6)	Commercial	3 spaces per 1000 SF	1 space per 1000 SF	3 spaces per 1000 SF	Max of 1 space per 1000 SF; require shared parking
	Office	T6-24, T6-36: 1 space / 800 SF T6-60, T6-80: 1 space / 1000 SF	1 space per 1000 SF over 10,000 SF	2 spaces per 1000 SF	Max of 1 space per 1000 SF; require shared parking
	Residential	1.5 spaces per dwelling unit	1 space per dwelling unit	1 space per dwelling unit	Max of 1 space per unit; require unbundled cost
Comments		All requirements are minimums	All requirements are minimums	From Duany Plater-Zyberk	From Parolek et al. (2008) Form Based Codes, pp. 52-53

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