



Are The Urban Design Guidelines Similar To Form Based Codes.

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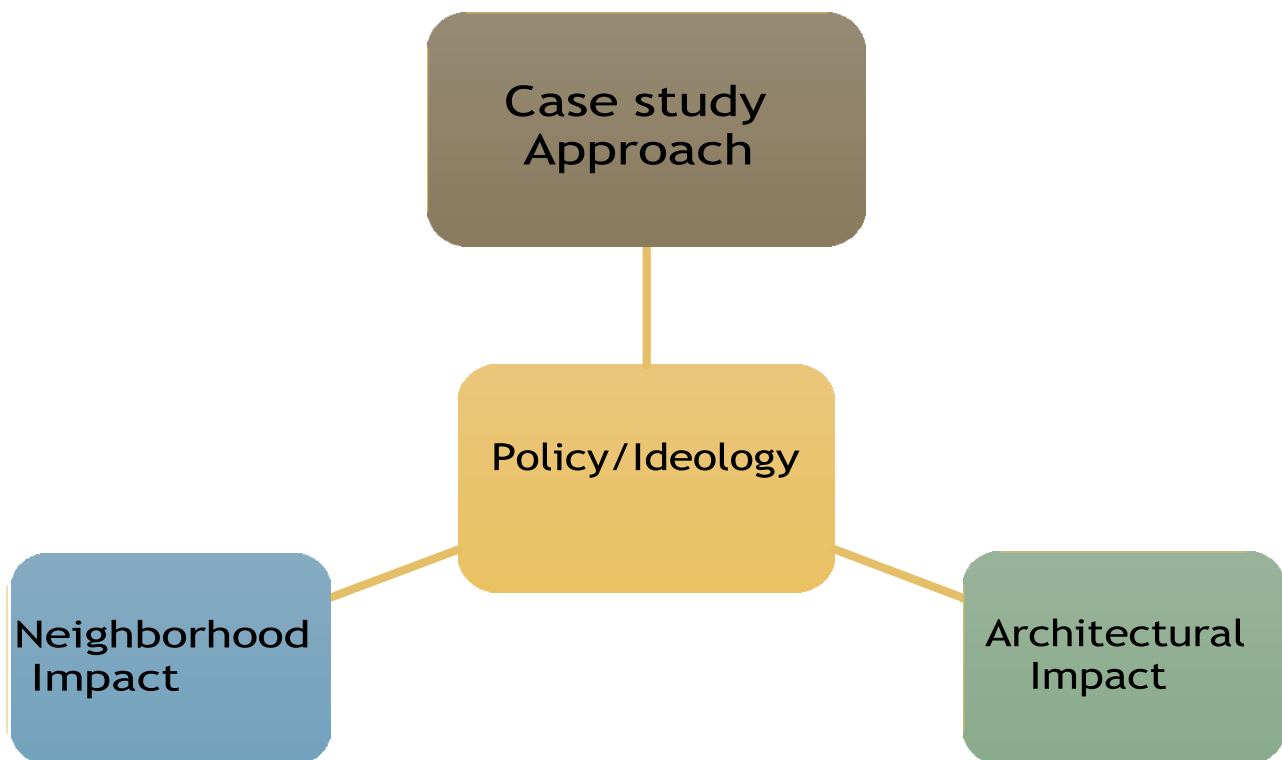
An Ideal Place

Many countries have started to take initiative in planning and designing places that are livable sustainable and forms identity of that place.

Many planners and philosophers have tried to achieve that vision of an ideal place for over decades now. In the last century Conventional planning or use based planning or we can also call it as Euclidean zoning have been the most common one.

Factors comprising to make a place ideal Source : Shweta Kapoor 2023

Approach:



New Urbanism

‘New Urbanism is a planning and development approach based on the principles of how cities and towns had been built for the last several centuries: walkable blocks and streets, housing and shopping in close proximity, and accessible public spaces. In other words: New Urbanism focuses on human-scaled urban design’. According to the Congress of the New Urbanism,[CITATION CNU22 \l 16393]

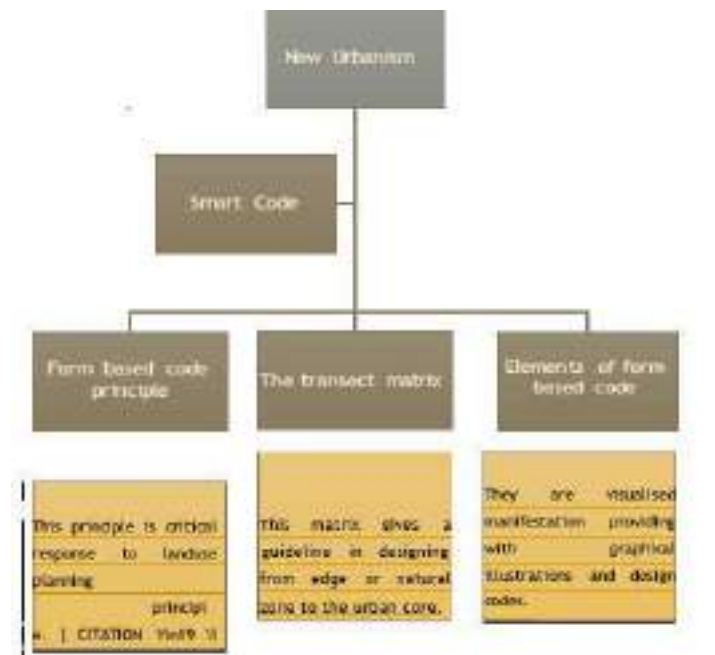


Table 1- New Urbanism Heirerchy Source : 2023

Form - Based Code

What is form based Code?

According to [CITATION For16 \l 16393] ‘A form-based code is a land development regulation that fosters predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code. A form-based code is a regulation, not a mere guideline, adopted into city, town, or county law.’

Conventional zoning

- In conventional zoning the city or town is divided in different landuse types such as residential, commercial, industrial, recreational, etc.[CITATION Pla \l 16393].
- Conventional zoning also known as Euclidean zoning was formulated keeping public health in mind, by separating residential and industrial zones.
- This planning guideline gained popularity in early 20th century and was practiced far and wide.
- But rapid urbanisation gave rise to urban sprawl and due to division of landuse dependency on automobile increased manifold times. [CITATION Yin19 \l 16393]. Thus, there was a need of a new planning methodology to replace this traditional zoning.

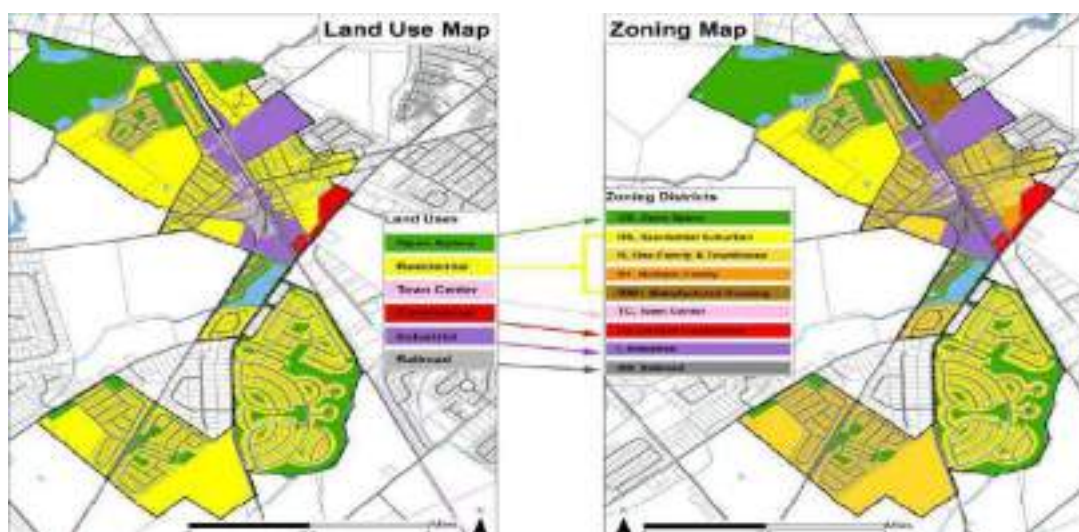


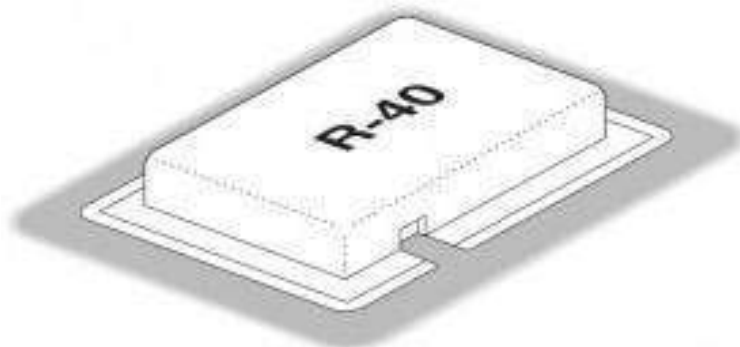
Figure 1 - Land use map vs zoning map

Source [CITATION Lan \l 16393 CITATION Lan \l 16393] : [CITATION Lan \l 16393 CITATION Lan \l 16393]

Form Based Code Principle

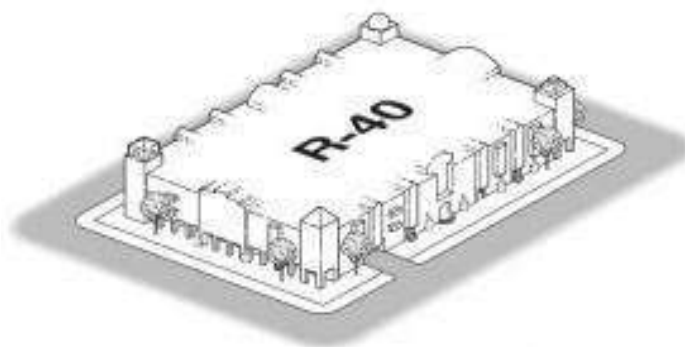
How conventional zoning designs a block or area?

- Density Use
- FAR (Floor Area Ratio)
- Building setbacks
- Parking requirements
- Maximum building heights



How Zoning design guidelines, define a block?

- Density Use
- FAR (Floor Area Ratio)
- Building setbacks
- Parking requirements
- Maximum building heights
- Frequency of Openings
- Surface Articulation



How Form- based code, defines a block

Street and building types

- Build-to lines
- Number of floors
- Percentage of built site frontage specified
- .

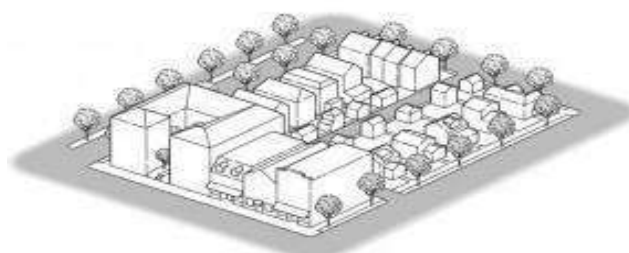


Figure 2 - Comparison between convention zoning, zoning design guildelines and form-based code

Difference between conventional/ Euclidean zoning and Form based code

	Euclidean Zoning	Form based code (FBC)
1	Giving an area or landmass certain Land use is a primary factor in Euclidean zoning.	Understanding the Physical form and the contextual need of the place are primary factors in Form based code planning.
2	District plan	Neighbourhood plan
3	Dependency on automobiles increased for eg. local business were placed outside residential zone.	Self sustaining neighbourhood led to increased walkability and reducing dependency on automobiles.
4	Landuse specific planning principle.	Mixed land use planning principle including walkability, easy access and compact plan.
5	Housing discrimination and racial segregation increased. [CITATION Pla \l 16393]	Mixed landuse planning decreased housing discrimination.[CITATION Pla \l 16393]
6	Plot ratio, density is taken into consideration in terms of the landuse whose outcomes can be quite unpredictable for different plot. [CITATION Yin19 \l 16393]	While setting standards and parameters such as frontage, building line, etc. the form is taken into consideration rather than generalised landuse rules. [CITATION Yin19 \l 16393]

Conventional zoning model vs Form based zone model



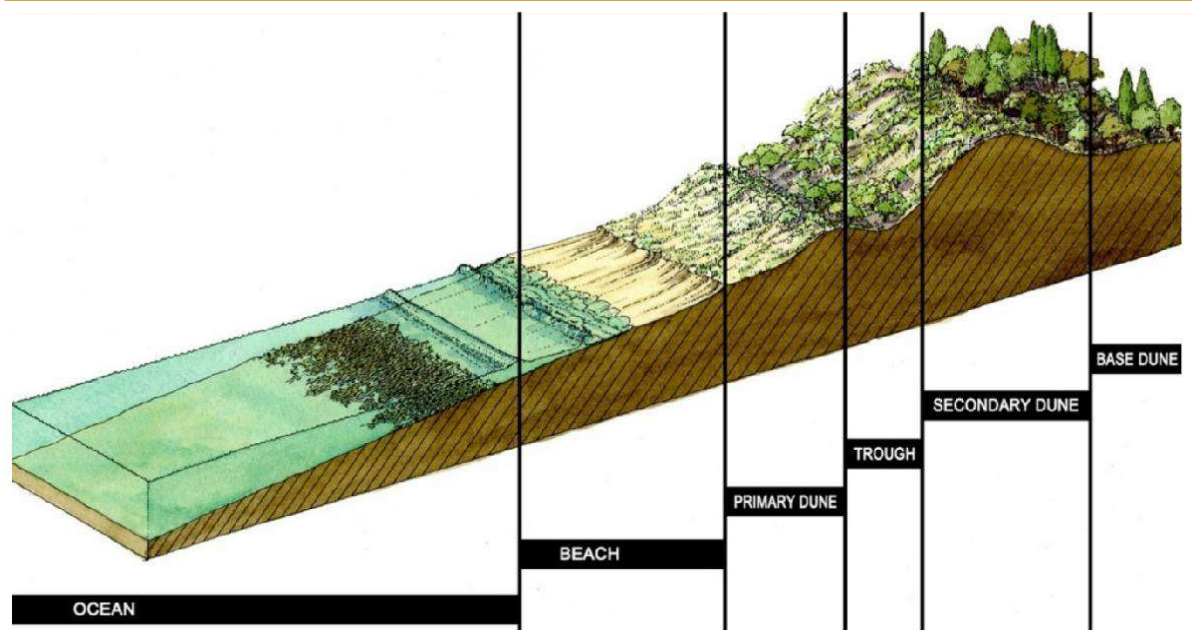
Figure 3 3 - Conventional Zoning Source : [CITATION Yin19 \l 16393]



Figure 4 4 - Form-based code Source : [CITATION Yin19 \l 16393]

The Transect Matrix

According to ecologists, the transition of ecosystem from one habitat to another depending on the characteristics of that ecosystem can be described as



Transect [CITATION Ste09 \l 16393].

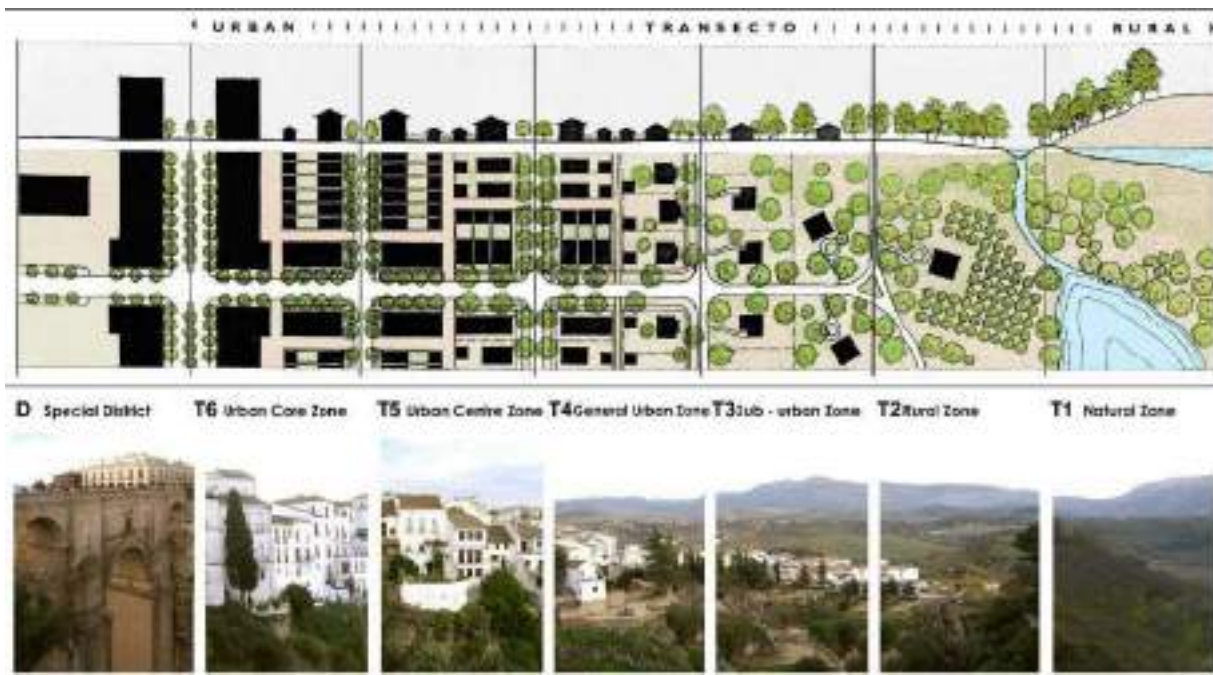
Figure 5 - Transect from ocean to dune in ecosystem Source :[CITATION The \l 16393]

Similarly, there is a transition from rural – to - urban settlement patterns. This transect gives rise to different zone types depending on the urban characteristics and hierarchical development of that zone [CITATION The \l 16393]. Thus, in 2003, Duany Plater Zyberk & Company, wrote standards for Transect based matrix which further formed the framework for Form based code.



Figure 6 - Standard Transect Matrix of Form based code Source : [CITATION Yin19 \l 16393]

Transect Matrix zone application in Europe



Ronda Spain

Figure 7 - Transect matrix zone of Ronda, Spain Source : [CITATION Cen \l 16393]

Pienza Italy

The figure below shows a gradual transect section of Pienza, Italy. The left side shows a gradual transition from T-2 zone to T-5 zone. But on the right side there is a drastic transition from T-5 zone to T-2 zone which at the city wall. Such transitions are quite intriguing and are very much similar to the central park in New York city. [CITATION Cen \l 16393]



Figure 8 - Transect section of Pienza Italy Source : [CITATION Cen \l 16393]

Hammonton, New Jersey

The figure below shows the Plan of Hammonton in New Jersey adopting form based code where they used transect matrix zoning, but changed the nomenclature of T- zones to district zones according to the city's need. Their transect zones are as follows.

- Gateway Crossroads (G3),
- Gateway Boulevard (G2),
- Gateway Avenue (G1),
- Near Town (D1),
- In Town Railway (D2),
- In Town (D3), and
- Main Street (D4),

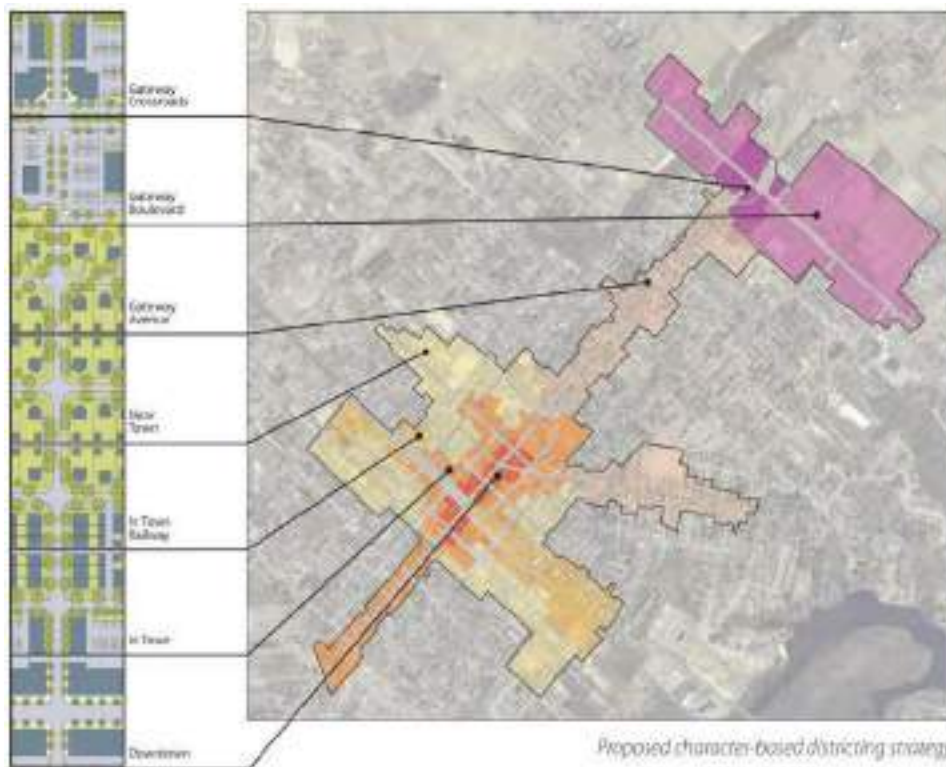


Figure 9 - Form based code, Regulating plan of Hammonton Source : [CITATION Sli12 \l 16393]

Elements of form based Code

Conventional zoning included standards mostly in text format on contrary to form based code which emphasizes more on graphical and pictorial representation while setting regulations & standards.

1. Regulating Plan

'A regulating plan is essentially a fine – grained zoning map combined with a street plan, keyed to a set of standards....Each street, block, or parcel must comply with illustrated standards in the FBC.' [CITATION Mar14 \l 16393]

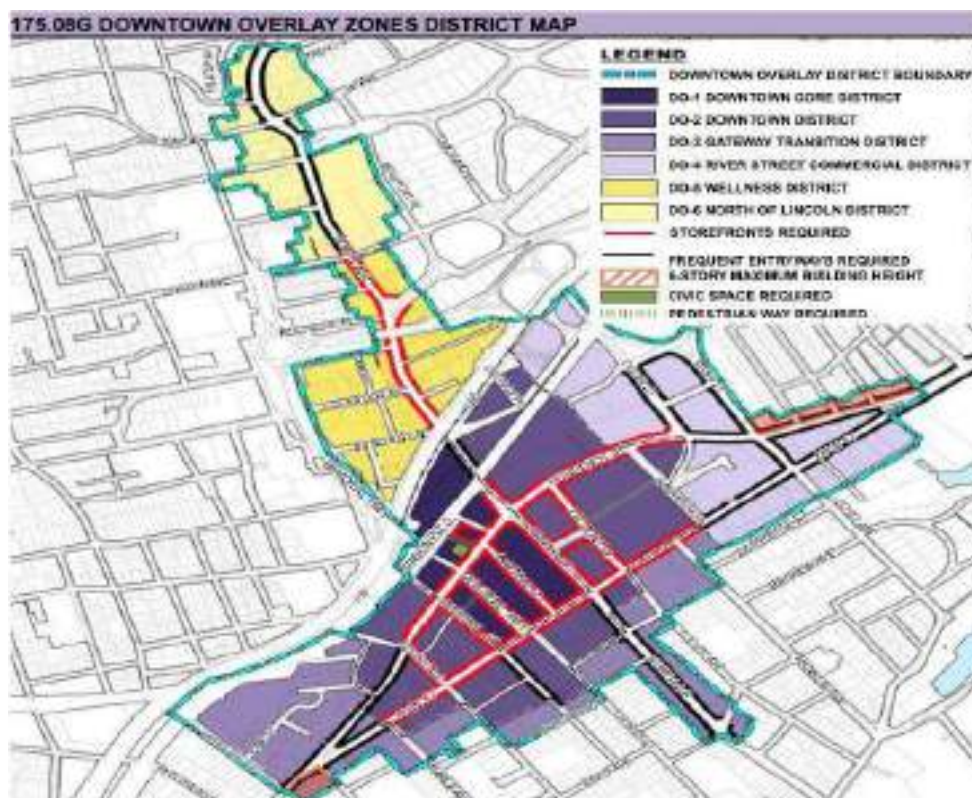


Figure 10 - Regulating Plan of City of Rochelle as a form based code, Source : [CITATION For20 \l 16393]

1. Public Standards

Public standards are generally applied to the designated regulating plan that encompasses everything that comes in public realm. The codes are generally applied to sidewalks, travel lanes, on-street parking, street trees, and street furniture. [CITATION For16 \l 16393]

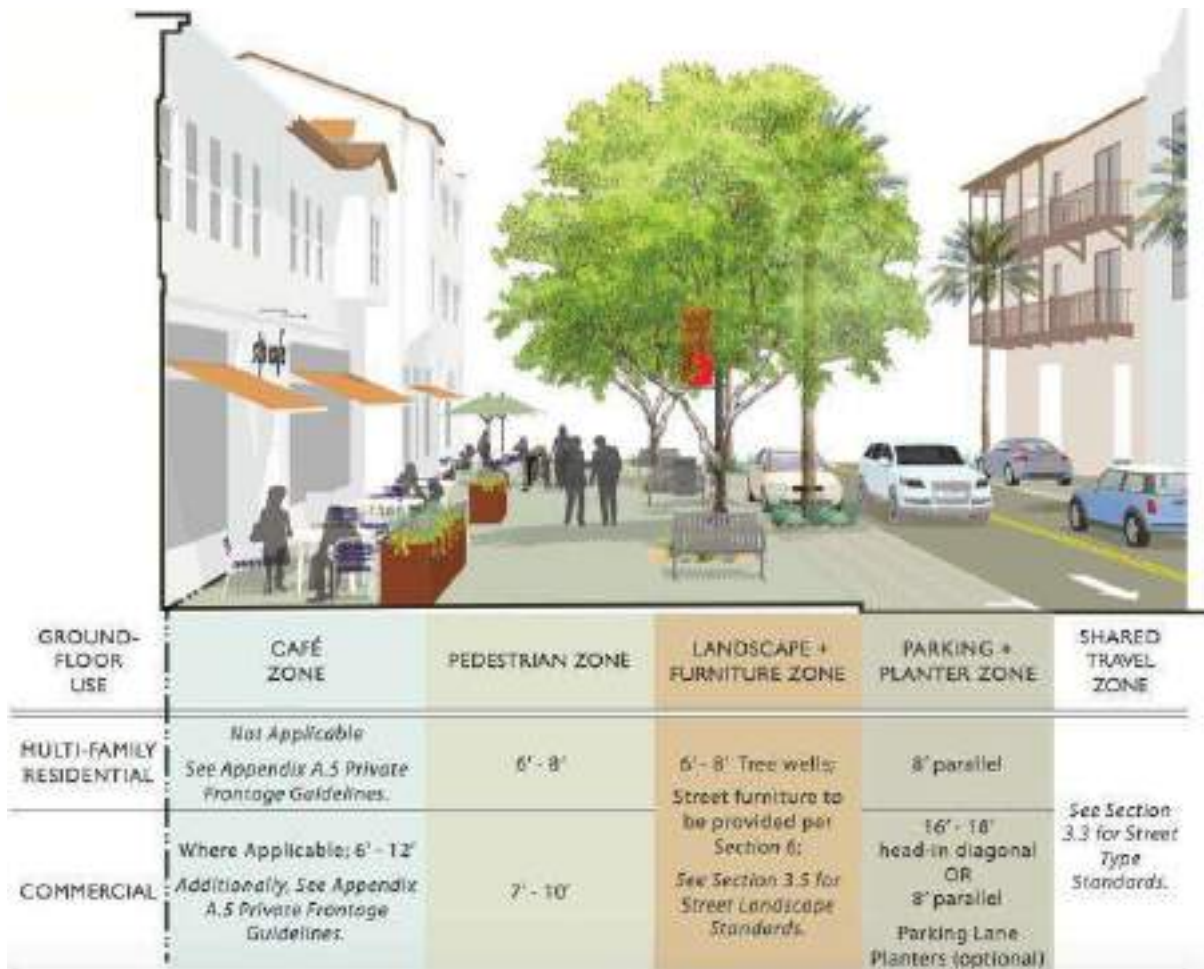
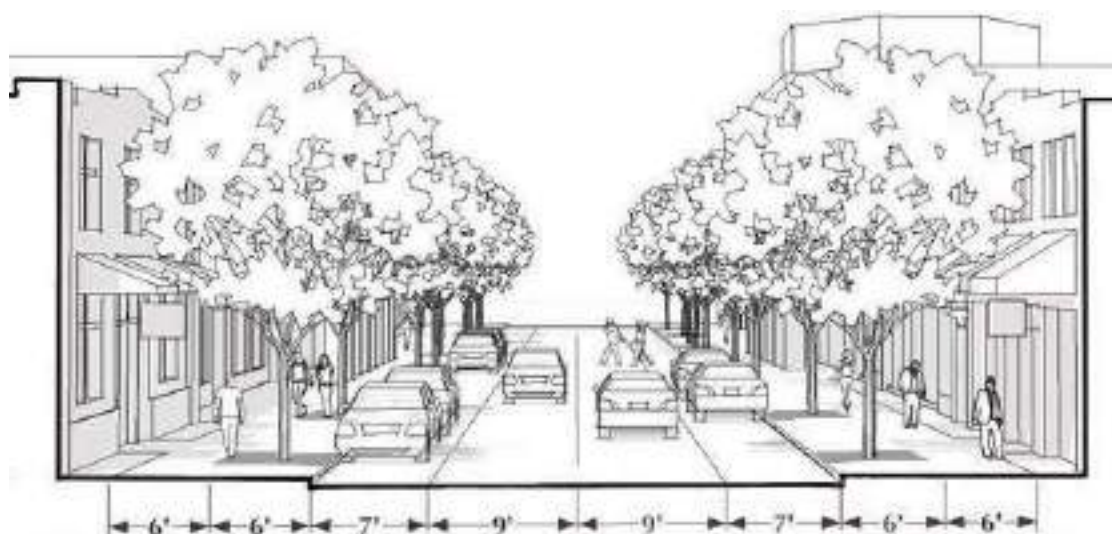


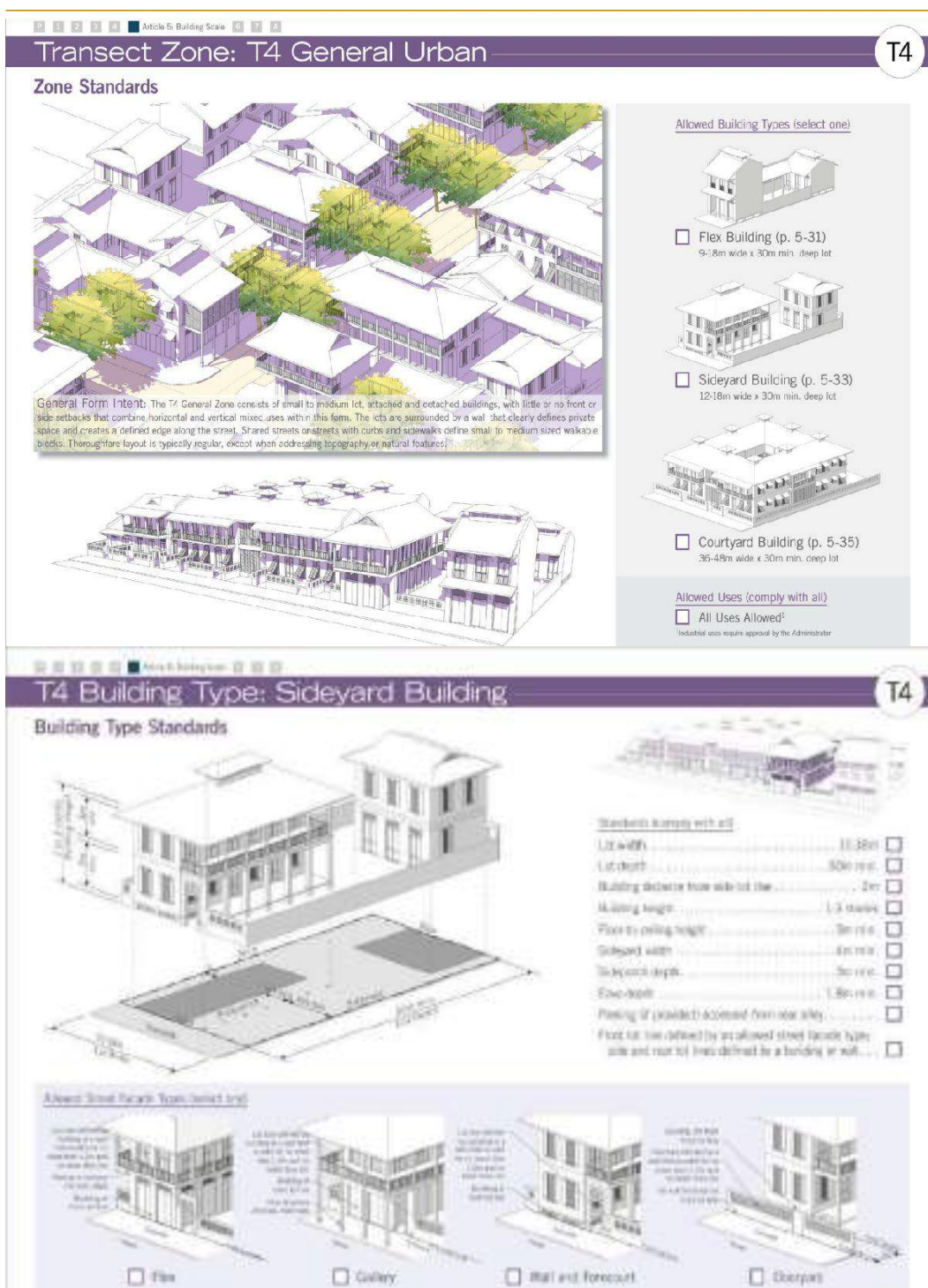
Figure 11 - Public standards in form based code,



Source : [CITATION Sma19 \l 16393]

Figure 12 - Schematic cross section of a mixed landuse street in florida, Source : [CITATION Mar14 \l 16393]

2. Building Standards



[CITATION Yin19 \l 16393]
 Figure 135 - Building Standards for Akanda Source : [CITATION Opt21 \l 16393]

The standards set for the form and configuration of the building is regulated in building standards. These standards may also include parking standards and their placements, allowed encroachments as well as building typologies too.

3. Administration

Administration outlines clearly defined application, project reviews and spells out how the process will occur. [

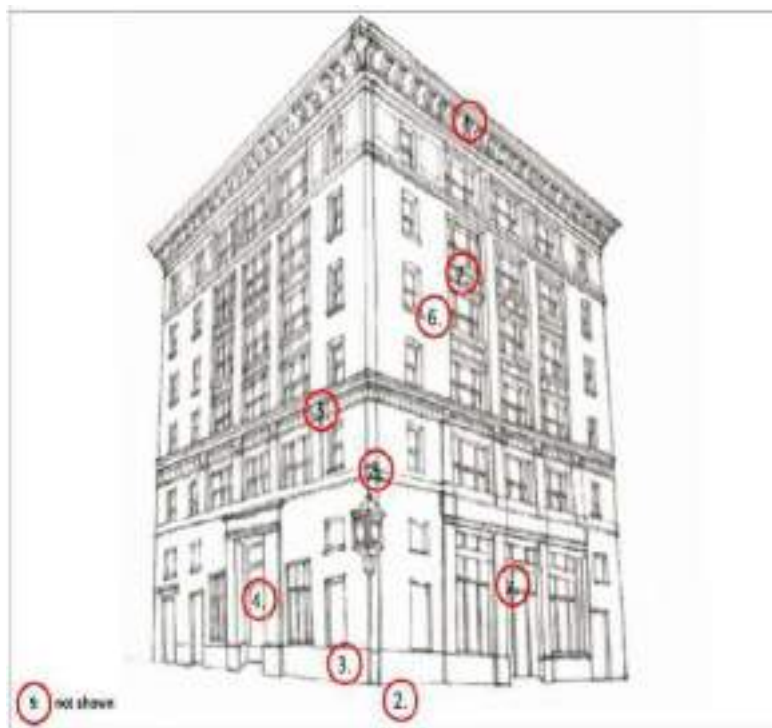
4. Definitions

The glossary consists of definitions of all technical terms contained in the code. [CITATION For16 \l 16393]

5. Other optional Cases

• Architecture

Architectural standards include guidelines drawn for exterior of a building where material and designs are provided as well. They can be applicable to most heritage towns, but they are not compulsory. Mostly architectural standards depends on the scope of the project as well as objectives laid by the community.



Key Characteristics

1. Roof - flat roof with projecting cornice or parapet.
2. Floor Plan/Elevation - simple, rectangular plans with L-shaped or U-shaped variations.
3. Base - articulated base by change in material, change in plane, or both.
4. Shading - recessed arcades & entries, balconies, or fabric awnings.
5. Form/Massing - 1 to multiple stories, with base, middle, and top. Vertically proportioned with corner towers common.
6. Walls - flat planes of stone, brick, or plaster, punctuated by deep openings.
7. Openings - large storefront openings at ground, vertically proportioned, with transoms arranged in rhythmic pattern. Upper floors include combinations of small and large openings relating to ground level openings. Serial or symmetrical composition are typical.
8. Articulation - base, middle and top of facade are clearly defined by changes in material and horizontal banding. Ground floor and/or building-pierced base receive most detailed attention. Other details include cornices, balconies, awnings.
9. Colors - public buildings are more reserved, with muted colors. Otherwise, the palette is open to interpretations.

• **Landscape**

'Some form-based codes include requirements to control the character and quality of the landscape within private spaces as it affects the public realm and the public good, such as requiring native species to address water usage, as well as screening parking lots from the street, buffering more or less intensive uses, and greening parking lots.' [CITATION Chi12 \l 16393]

Case study 1 – Miami 21 Code

Project details:

- Project size/area – 35,514 acres
- Client – City of Miami
- Date of Design – 2004
- Location – Florida, U.S.A.



Figure 15 - Location of Miami, Florida Source : (2023)



Figure 6 - Fisher Island, Miami Source :[CITATION ADE19 \l 16393]

'Miami was the first large American city to adopt SmartCode' [CITATION THE10 \l 16393].

Who wrote the Code?

Transect/Form based code was prepared by Duany Plater – Zyberk for the entire city of Miami which includes 37 square miles of land area. The document prepared for SmartCode provides both regulatory guidelines as well as solves liveability concerns which were difficult to achieve by old Euclidean zoning. [CITATION DPZ20 \l 16393]

How was the Code Adopted?

Miami adopted the Code in 2010 with a vision of smart growth and new urbanism. The city staff and code prepares held more over 100s of public hearings and review meeting before replacing the Ordinance 11000. [CITATION Yin19 \l 16393]

Why was the Code prepared?

- *The code was in response to rapid urbanisation and clash between development along corridors and preservation of low to moderate intensity or single family housing.*
- *This lack of planning provision resulted in physically incompatible, out of scale developments with no provision for reinvestment. [CITATION DPZ20 \l 16393]*
- *There was a need of transition in approach as the city started to lose its identity.*

Transect Matrix Plan of Miami 21 Code

Transect Planning within Form-Based Code

The transect matrix of Miami contains more zones due to its high density morphology. Designers have further sub divided T6 zone into T6-8, T6-12, T624, etc. The customised Transect matrix also specifies landuse. But unlike Euclidean these are workplace, Industrial & waterfront industrial.

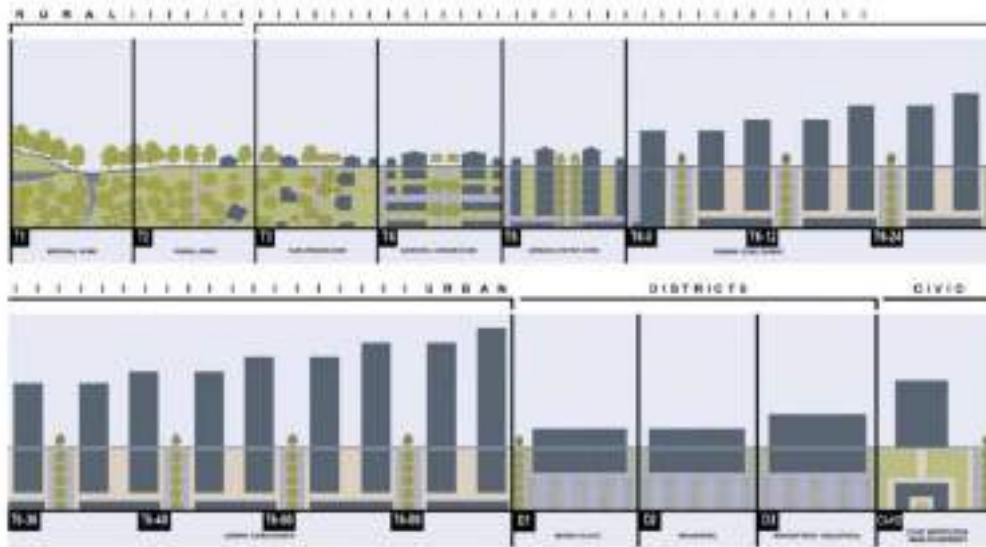


Figure 7 - Transect zone plan of Miami, Source : [CITATION The10 \l 16393]

Regulating Plan – Miami 21 code

- neighbourhood conservation district,
- waterfront design guidelines,
- a midtown overlay district,
- Miami world centre,
- Brickell city centre,
- design district,
- river landing,
- ransom everglades,
- Miami river
- Wynwood NRD -1
- MANA Wynwood
- Miami Jewish health



Figure 8 - Miami Transect Zone Plan, Source : [CITATION Yin19 \l 16393]

Building Standards

[CITATION The10 \l 16393] has provided with a detailed standards guide with respect to its transect zone. Below is the example of guidelines provided in T6-24 zone

ILLUSTRATION 5.6 URBAN CORE TRANSECT ZONES [T6-24]

BUILDING DISPOSITION		BUILDING PLACEMENT
LOT OCCUPATION		
a. Lot Area	5,000 s.f. min.; 100,000 s.f. max.	
b. Lot Width	50 ft min.	
c. Lot Coverage		
- 1-8 Stories	80% max.	
- Above 8th Story	15,000 sq. ft. max. Floorplate for Residential & Lodging 30,000 sq. ft. max. Floorplate for Office & Commercial	
d. Floor Lot Ratio (FLR)	T6-24a: 7 / 30% additional Public Benefit T6-24b: 16 / 40% additional Public Benefit	
e. Frontage at front Setback	70% min.	
f. Open Space	10% Lot Area min.	
g. Density	150 du/ac max.*	
BUILDING CONFIGURATION		BUILDING HEIGHT
FRONTAGE		
a. Corner Lot	prohibited	
b. Porch & Fence	prohibited	
c. Terrace or L.C.	prohibited	
d. Forecourt	permitted	
e. Stoop	permitted	
f. Shopfront	permitted (T6-24-L and T6-24-Q only)	
g. Gallery	permitted by Special Area Plan	
h. Arcade	permitted by Special Area Plan	
BUILDING HEIGHT		
a. Min. Height	2 Stories	
b. Max. Height	24 Stories	
c. Max. Benefit Height	24 Stories Abutting all Transects Zones except T2	

Table 2 - Building Standards for T6-24 zone

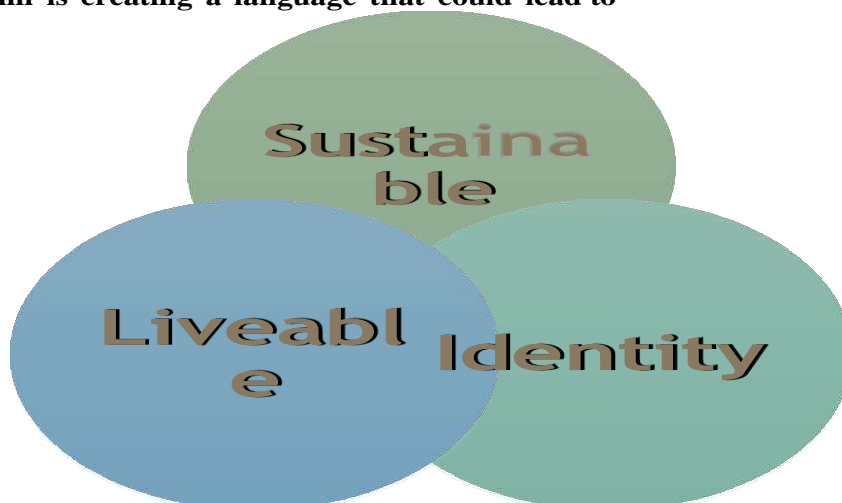
Source : [CITATION The10 \l 16393]

Public Standards

	SECTION		PLAN	
	LOT PRIVATE Frontage	R.O.W. PUBLIC Frontage	LOT PRIVATE Frontage	R.O.W. PUBLIC Frontage
<p>i. Common Lawn Frontage wherein the Façade is set back substantially from the Frontage Line. The front yard created remains unfenced and is visually continuous with adjacent yards, supporting a common landscape. The Setback can be densely landscaped to buffer from higher speed Thoroughfares.</p>				
<p>ii. Porch & Fence Frontage wherein the Façade is set back from the Frontage Line with an attached Porch permitted to approach. A fence at the Frontage Line maintains the demarcation of the yard while not blocking view into the front yard.</p>				
<p>iii. Terrace or Light Court Frontage wherein the Façade is set back from the Frontage Line by an elevated terrace or a sunken light court. This type buffers residential use from urban sidewalks and removes the private yard from public encroachment. The raised terrace is suitable for outdoor cafes.</p>				
<p>iv. Forecourt Frontage wherein a portion of the Façade is close to the Frontage Line with a portion set back. The forecourt with a large tree offers visual and environmental variety to the urban Streetscape. This</p>				

Table 3 - Few examples of Public standards Source : [CITATION Cit16 \l 16393]

How Form-Based Code in Miami is creating a language that could lead to



Sustainability –

- Incorporation of LEED building standards for buildings that are 50,000 square feet and above
- Energy substitutes and initiatives like Green Corridor Property Assessed Clean Energy (PACE) program and renewable energy resources have been incorporated for areas that are already developed.
- Miami Green Lab is an initiative started by the council under FBC ordinance where it serves as a green building resource center for community, it also imparts education on energy conservation, urban agriculture and green buildings.
- The FBCs also have made a code of ordinances where the city has adopted Tree masterplan to increase the overall health of trees, that set a goal of achieving 30% tree canopy.

Livability –

- Due to incorporation of FBCs the standard of living has been increased manifold times. Rick Bernhardt the former executive director mentioned that after adopting FBCs the economy of the place have also increased due to development and mixed use planning.
- Car dependency increases due to Form based code planning and zoning as it keeps the community convenience in mind.
- Sustainable cities also increases the livability of a place. And Miami has recently earned LEED Gold certification.

Identity –

Transect matrix planning helps to retain the character of the place and gives experiential identity to a place.



Before

Figure 9 - Transforming Blank wall (Before) Source : [CITATION The10 \l 16393]

Transforming Blank Wall



Figure 10 - Transforming Blank wall

(After) Source : [CITATION The10 \l16393]

Figure 7 shows how the blank walls and open parking areas which were abutting to the main roads have been completely transformed into a residential area. FBCs also promotes reconstruction of area that has a potential in transforming a neighbourhood.

Urban Infill Redevelopment



Figure 11 - Urban Infill Redevelopment, Source : [CITATION The10 \l 16393]



After

Figure 12 - Urban Infill Redevelopment, Source : [CITATION The10 \l 16393]

Green Corridors and urban infrastructural development helps in increasing the livability of the place.

Turning Development Outward



Befor

Figure 13 - Turning Development Outward, Source : [CITATION The10 \l 16393]



Afte

Figure 14 -- *Turning Development Outward*, Source : [CITATION The10 \l 16393]
The ordinances also mentions of designing a commercial place that is more welcoming and not leaving any place between road and the property. There are different by-laws that helps understand the frontages of lots and buildings.

Mixed-Use Corridors with Transit



Before

Figure 15 - *Mixed-Use Corridors with Transit*, [CITATION The10 \l 16393]



Figure 16 - Mixed-Use Corridors with Transit, [CITATION The10 \l 16393]

Building Communities



Figure 17 - Building Communities, [CITATION The10 \l 16393]



Figure 18 - Building Communities, [CITATION The10 \l 16393]

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Case Study 2 – Downtown Code for Nashville

Project details:

- **Project size/area – 388 acres**
- **Client – City of Nashville**
- **Date of Design – 2010**
- **Location – Tennessee, U.S.A.**



Figure 33 - Location of downtown Nashville, U.S.A. Source : (2023)

Why this case study?

case study is done to give an example on how a form based code can be applied only to a small part or the Regulating Plan.



Figure 34 - Downtown Nashville, U.S.A. Source: [CITATION Cve00 \l 16393]

Who wrote the Code?

Rick Bernhardt, former executive director, Planning Department, Metropolitan Nashville and Davidson County. He is also one of the board members of Form –ased Code institute as well as he was a chair member of planners force task for the Congress of New Urbanism.[CITATION Ros181 \l 16393].

How was the Code Adopted?

The Code was adopted in 2010, by means of community involvement and making them as key stakeholders and the city planning department. [CITATION Met | 16393]

Why was the Code prepared?

- The cities wheel – to – spoke planning pattern led to create a good connectivity to the the neighbouring cities.
- This pattern also led to increased dependency on vehicles.
- Nashville being one of the oldest music town it always faced the issue of urbanisation which led to sprawl development and the traditional zoning was being incompetent to the growing needs of the city.

Transect Matrix of Nashville

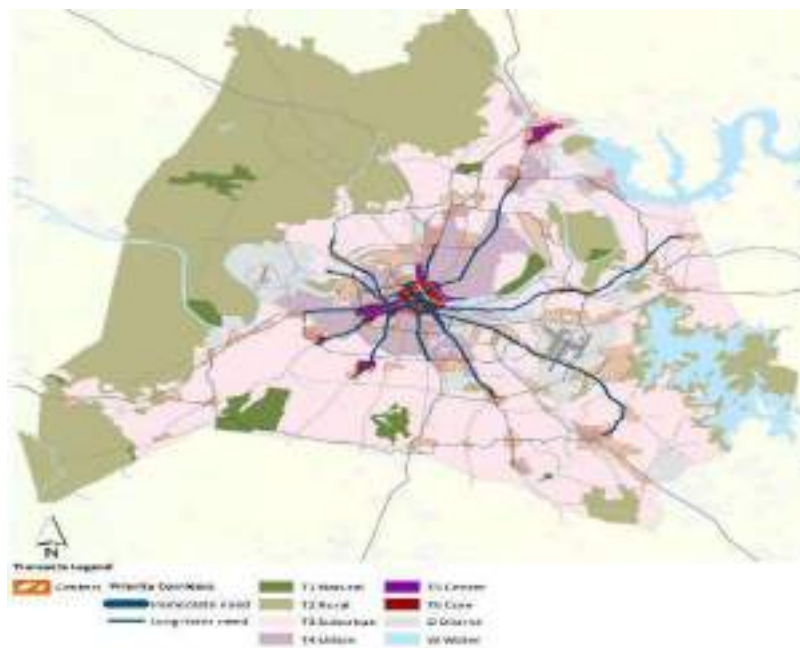


Figure 35 - Transect plan for Nashville Source : [CITATION Met | 16393]

The transect plan was adopted only for the core downtown area as shown below in Figure 36 - Transect Matrix for Downtown Nashville

Figure 36 - Transect Matrix for Downtndraw guidelines and code Source : [CITATION Met22 \l 16393



T6 – Downtown Encompasses all the downtown region.

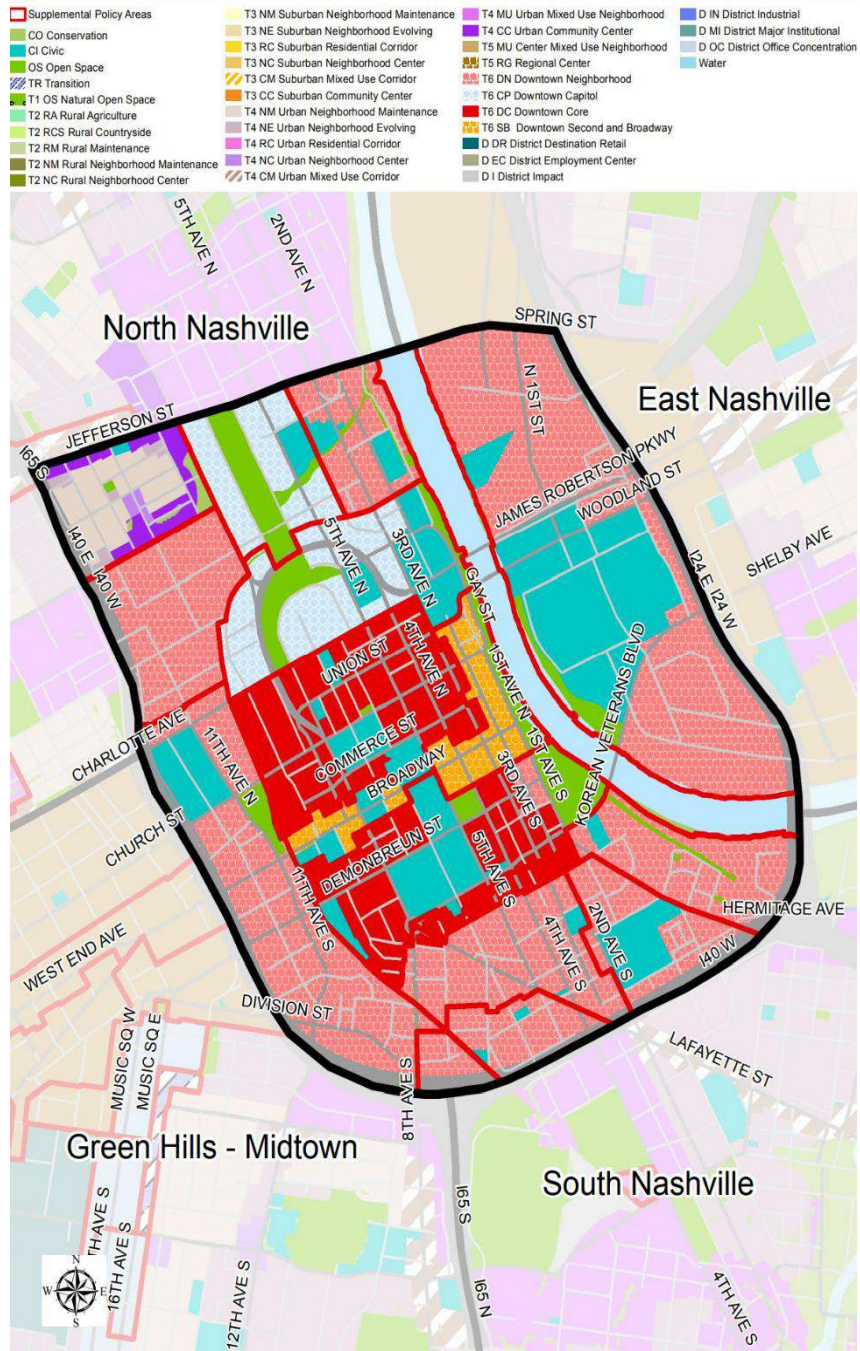


Figure 38 – Regulating Plan of Subdistrict Boundaries Source : [CITATION Nas17 \l 16393]

Regulating Plan – James Robertson Subdistrict

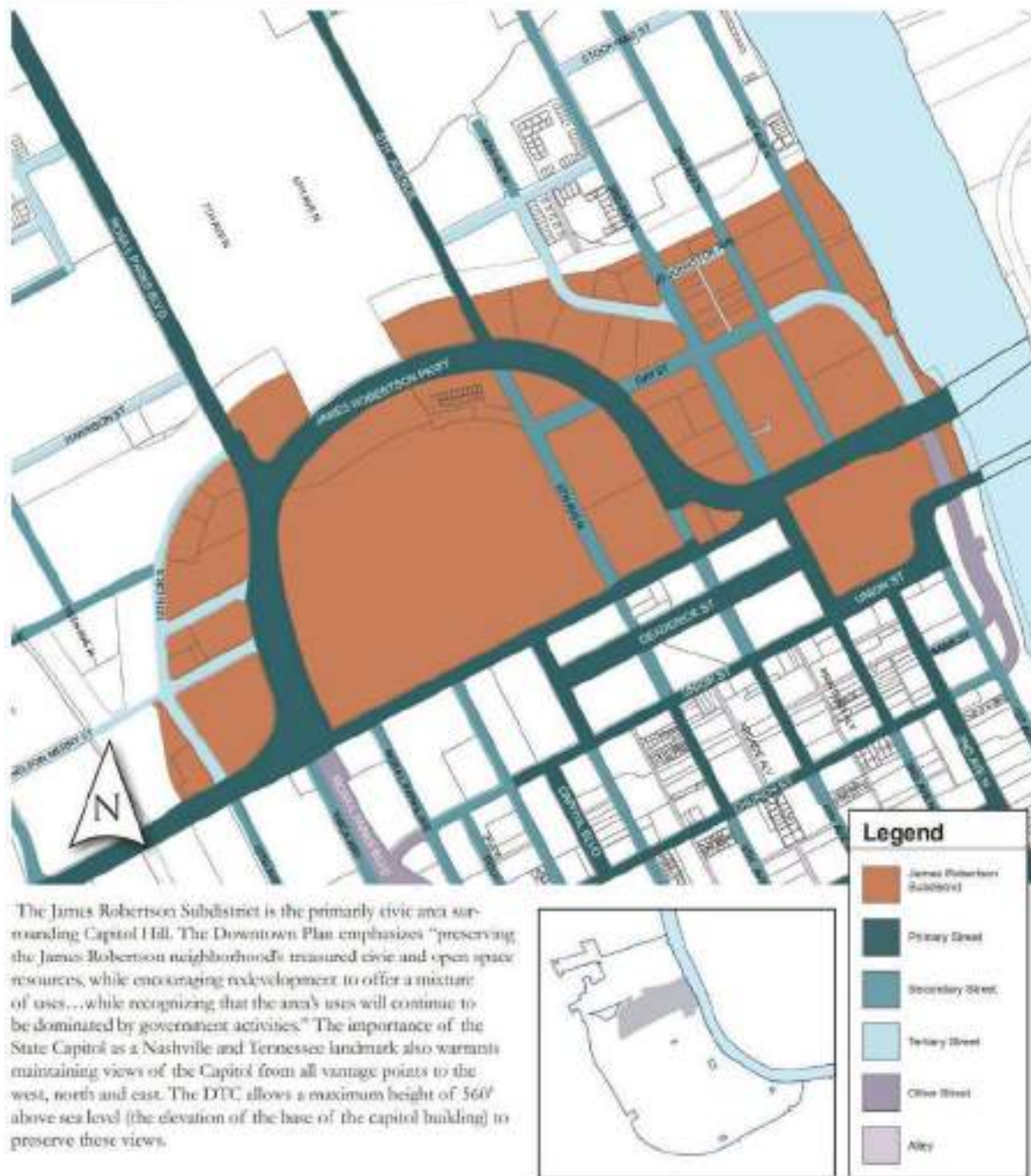


Figure 39 - James Robertson Subdistrict Regulating Plan

Building Standards

Frontage

A Allowed Frontage Types with Required Build-to Zone

Primary Street

▪ Storefront Frontage

- James Robertson Boulevard

West of 3rd Ave 20'-30'

East of 3rd Ave 0'-10'

- Charlotte Avenue 0'-10'

▪ Sloop Frontage

- James Robertson Boulevard

West of 3rd Ave 20'-30'

East of 3rd Ave 5'-10'

- Charlotte Avenue 5'-10'

Secondary Street

- Storefront Frontage 0'-10'

- Sloop Frontage 5'-10'

Tertiary Street

- Storefront Frontage 0'-10'

- Sloop Frontage 5'-10'

B Facade width

Primary Street 80% of lot frontage min.

Secondary Street 80% of lot frontage min.

Tertiary Street 60% of lot frontage min.

Remaining lot frontage may be used for pedestrian amenities and shall not be used for parking.

C Min. building depth 15' from building facade

A building liner is required surrounding parking structures on the all floors facing James Robertson Blvd.

Height

D Max. elevation of 560'

Step-back *

Step-back required for all buildings 8 stories or greater on all public streets and Open Space

E Step-back between 4th and 8th stories

F Min. step-back depth 15'

* see page 61 for full description

Sidewalk & Planting

Improvements to the sidewalk corridor according to the General Standards and the Major and Collector Street Plan.

Notes

Uses: page 55; General Standards: page 59

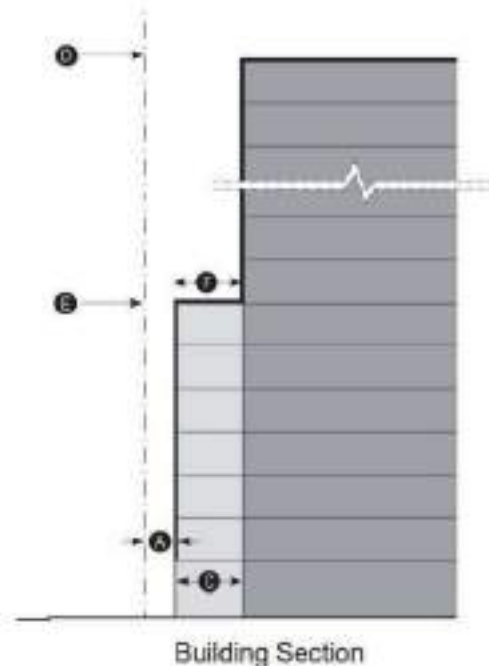


Figure 40- Building standards of James Robertson Subdistrict Source : [CITATION Nas17 \l 16393]

Public Standards

Stoop Frontage

A First floor elevation:	
Min.	18" from grade
Max.	5 ft from grade
B Min. ground floor openings	30% floor to floor
C Min. upper floor(s) openings	25% from floor to floor
Stoop	
D Min. stoop width	5 ft
E	Stoops may not extend beyond the front of the Build-to Zone.
F	Steps may extend beyond Build-to Zone, but may not encroach into the public Right-of-Way.

Notes

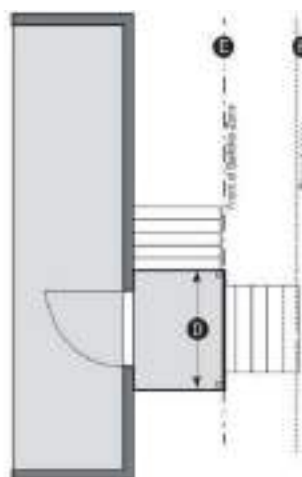
Greater first floor elevation allowed by modification for:

- Property with significant elevation change across the site at the street frontage.
- Development that incorporates below grade basement floors that are accessible from the exterior of the building.

Transition to first floor elevation may be accommodated on the interior of the building to allow for compliance with ADA accessibility requirements.

Entries shall not be recessed more than 4 feet from the facade of the building.

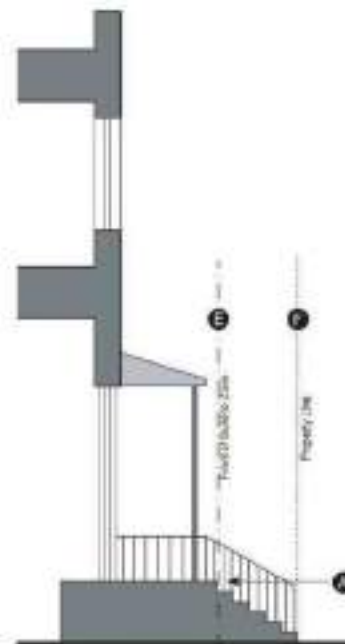
Doors shall face the street.



Plan



Elevation



Section

Figure 41 - Public standards for frontages and lots Source : [CITATION Nas17 \l 16393]



Vision plan of Nashville Downtown in 2040

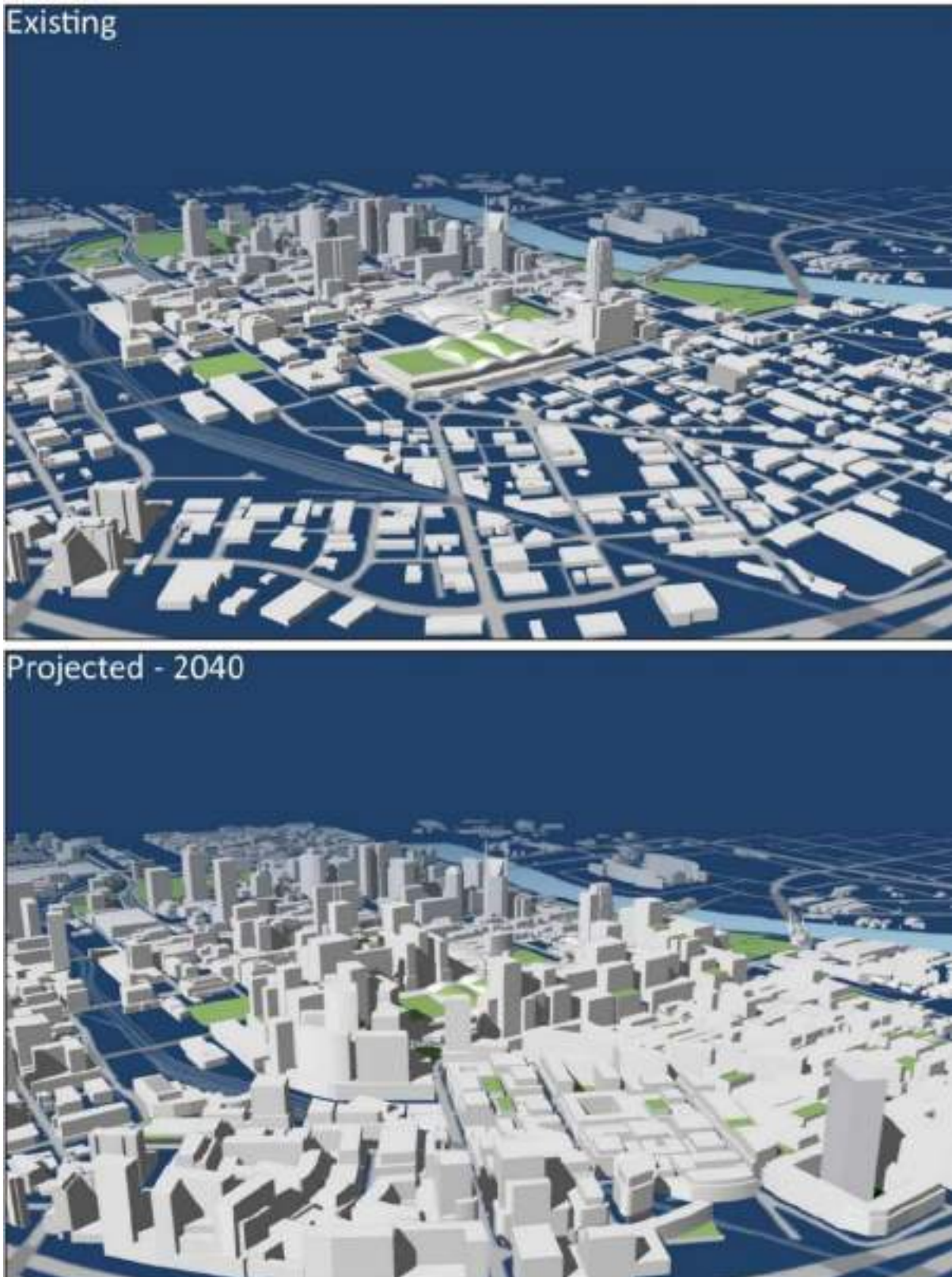


Figure 42 - Vision Plan of DTC 2040 Source : [CITATION Yin19 \l 16393]

Overview.

Miami – Architectural evolution

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