A METHODOLOGY FOR *THE IMAGE OF THE CITY*

Please place a checkmark (√) to indicate within a pair which element is more important or dominant than the other, and indicate the degree of importance. For example, in a comparison of the pair, paths-edges:

		Equally Important		Moderately More Important		Strongly More Important		Very Strongly More Important		Extremely More Important
Paths	_√_									
or						___√___				
Edges	____									

This example indicates that paths are strongly more important than edges in an assessment of theimageability.

Comments: Rationale for this assessment is given with reference to the characteristics of paths or edges as observed (seen) in the field (survey).

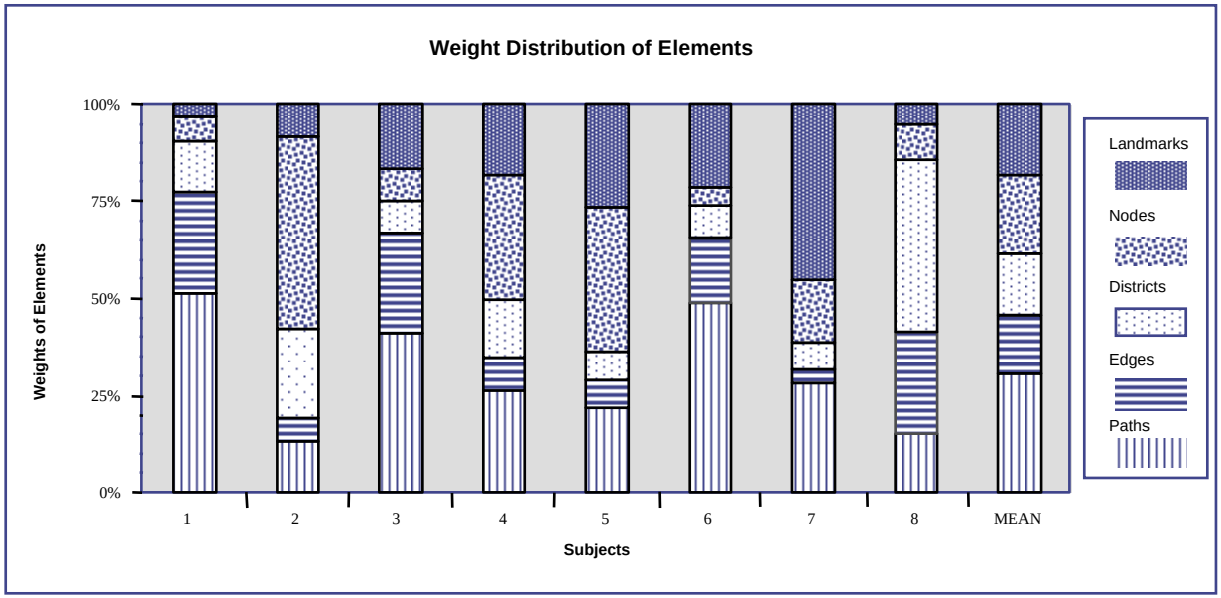
Please note the slots provided between the five point scale of importance so that the intermediate values between two adjacent judgments can be indicated also.

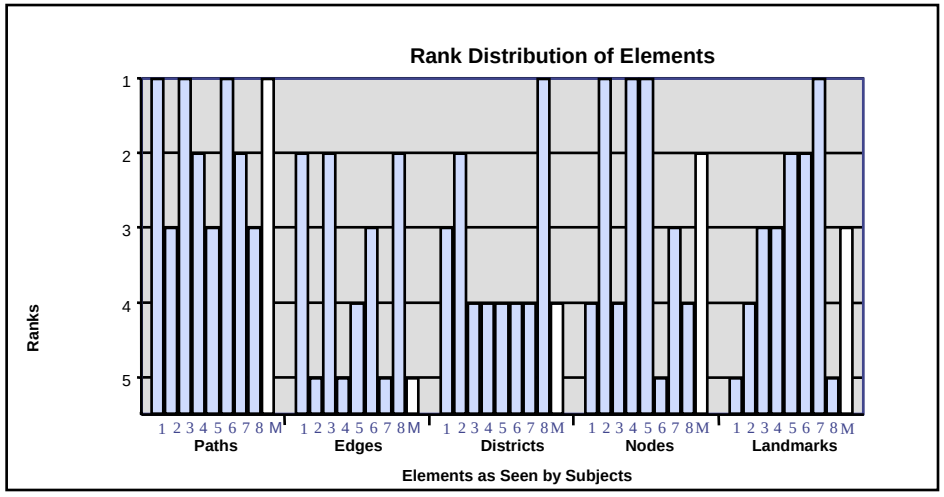
For example, in a comparison of the pair, paths-nodes:

		Equally Important		Moderately More Important		Strongly More Important		Very Strongly More Important		Extremely More Important
Paths	____									
or					___√___					
Nodes	_√_									

In this comparison, nodes are given more importance than paths (note the location of thecheckmark), and the scale of relative importance reflects a 'compromise',checkmarked in a slot between 'moderately more important' and 'strongly more important'.

A METHODOLOGY FOR *THE IMAGE OF THE CITY*





A NEW METHOD FOR SITE SUTABILITY ANALYSIS: THE ANALYTIC HIERARCHY PROCESS

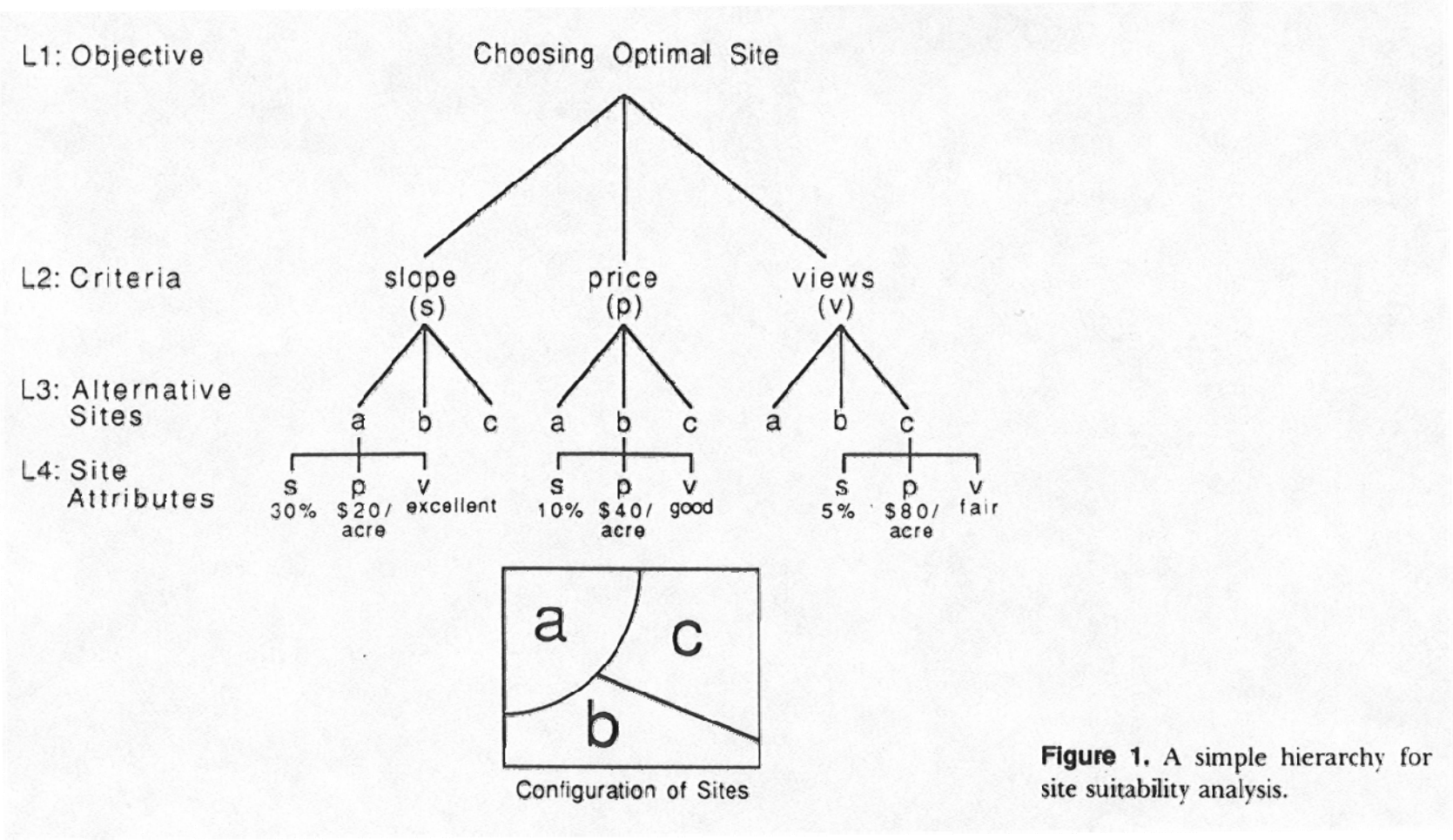
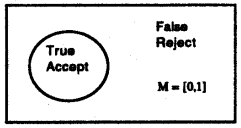


Figure 1. A simple hierarchy for site suitability analysis.

FUZZINESS IN GEOGRAPHIC INFORMATION SYSTEMS: CONTRIBUTIONS FROM THE ANALYTIC HIERARCHY PROCESS



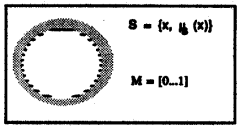
Boolean Probability Logic

An ordinary set defines crisp or exact boundary to include or exclude an element in the set.

An element is either included or excluded in a set.

Does not permit partial membership of an element in a set.

Membership functional values are restricted to two points (0, if element not in the set, 1 if element in the set):
$\{\mu_s(x) = 0$, if element x is not in set $S\}$
$\{\mu_s(x) = 1$, if element x is in set $S\}$.



Fuzzy Set Possibility Logic

A fuzzy set allows flexibility in defining variable boundary thresholds to a set.

The inclusion of an element in a fuzzy set is a matter of degree.

Permits partial membership of an element in a fuzzy set.

Membership functional values take the range of values between and including 0 and 1:
$0 \leqslant \mu_s(x) \leqslant 1$.

Figure 1. A comparison of ordinary and fuzzy sets.

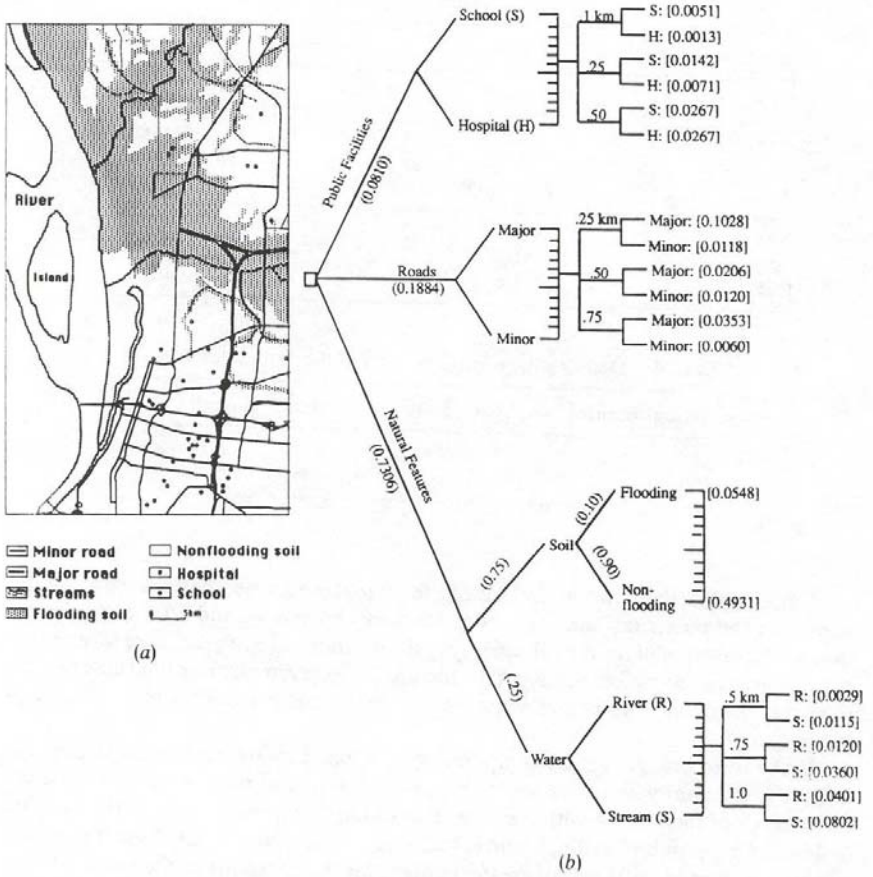
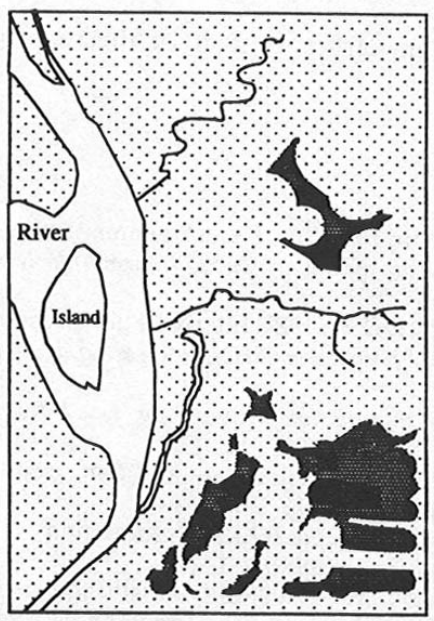


Figure 2. (*a*) Regional features. and (*b*) a hierarchy for land suitability analysis.

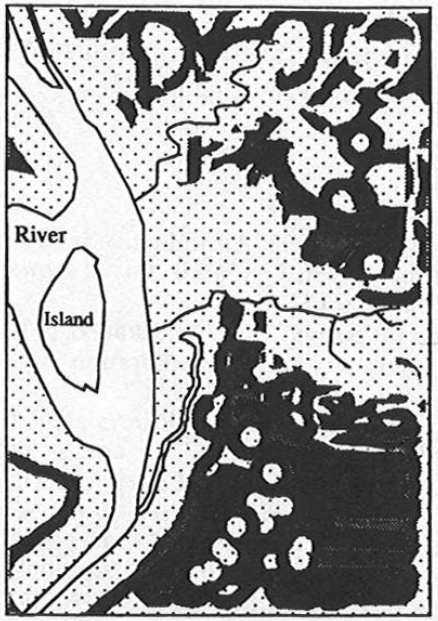
FUZZINESS IN GEOGRAPHIC INFORMATION SYSTEMS: CONTRIBUTIONS FROM THE ANALYTIC HIERARCHY PROCESS



Weighted-factor

(*a*)

less than 0.05 [16]
0.05 - 0.10 [2]
0.10 - 0.40 [1]
0.410 - 0.50 [1]
[no. of factors in the weight range]



Unweighted-factor

(*b*)

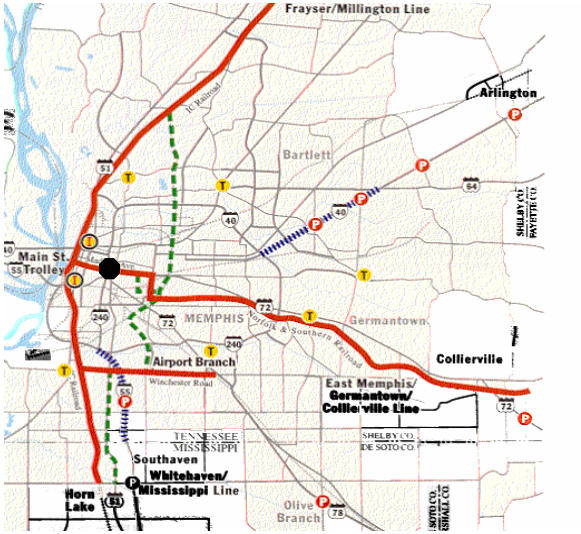
Least suitable
Moderate
Most suitable

0
1 1 km

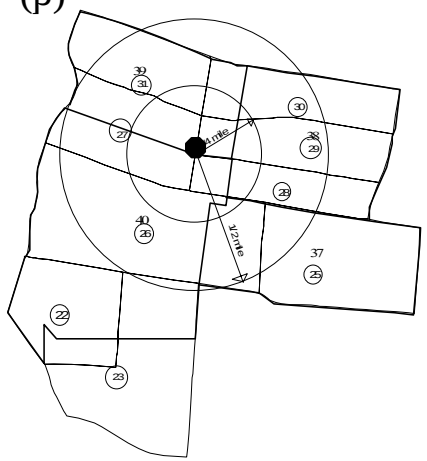
Figure 3. Land-use suitability.

TRANSIT- ORIENTED DEVELOPMENT SUTABILITY ANALYSIS BY THE ANALYTIC HIERARCHY PROCESS AND A GEOGRAPHIC INFORMATION SYSTEM: A PROTOTYPE PROCEDURE

(g)



(p)



Detail in (b)

Light Rail

Light Rail Alternatives

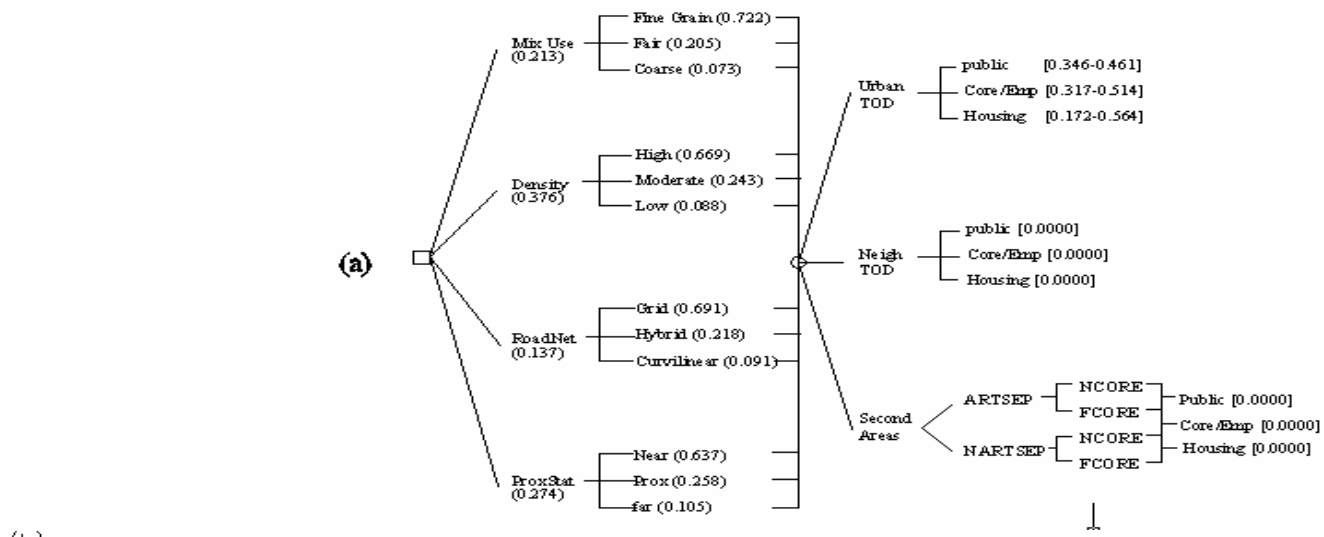
T Transit Centers

Census Tract Boundary

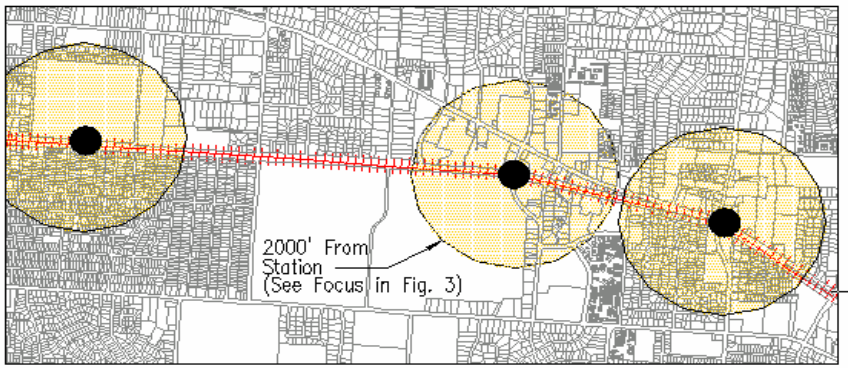
Traffic Analysis Zone

Traffic Analysis Zone Number in Circle

TRANSIT- ORIENTED DEVELOPMENT SUTABILITY ANALYSIS BY THE ANALYTIC HIERARCHY PROCESS AND A GEOGRAPHIC INFORMATION SYSTEM: A PROTOTYPE PROCEDURE



(b)



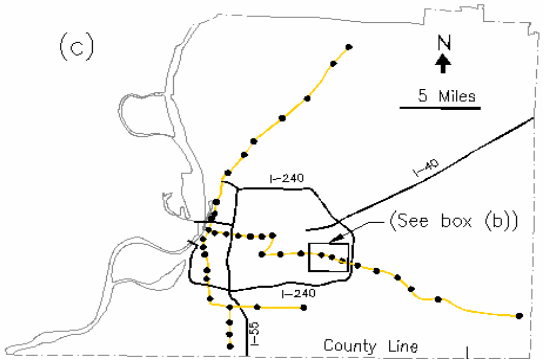


Figure 2. (a) A heirarchy for TOD land suitabilty analysis of a station area, (b) Proposed transit stations, (c) Regional LRT lines and stations

TRANSIT- ORIENTED DEVELOPMENT SUTABILITY ANALYSIS BY THE ANALYTIC HIERARCHY PROCESS AND A GEOGRAPHIC INFORMATION SYSTEM: A PROTOTYPE PROCEDURE

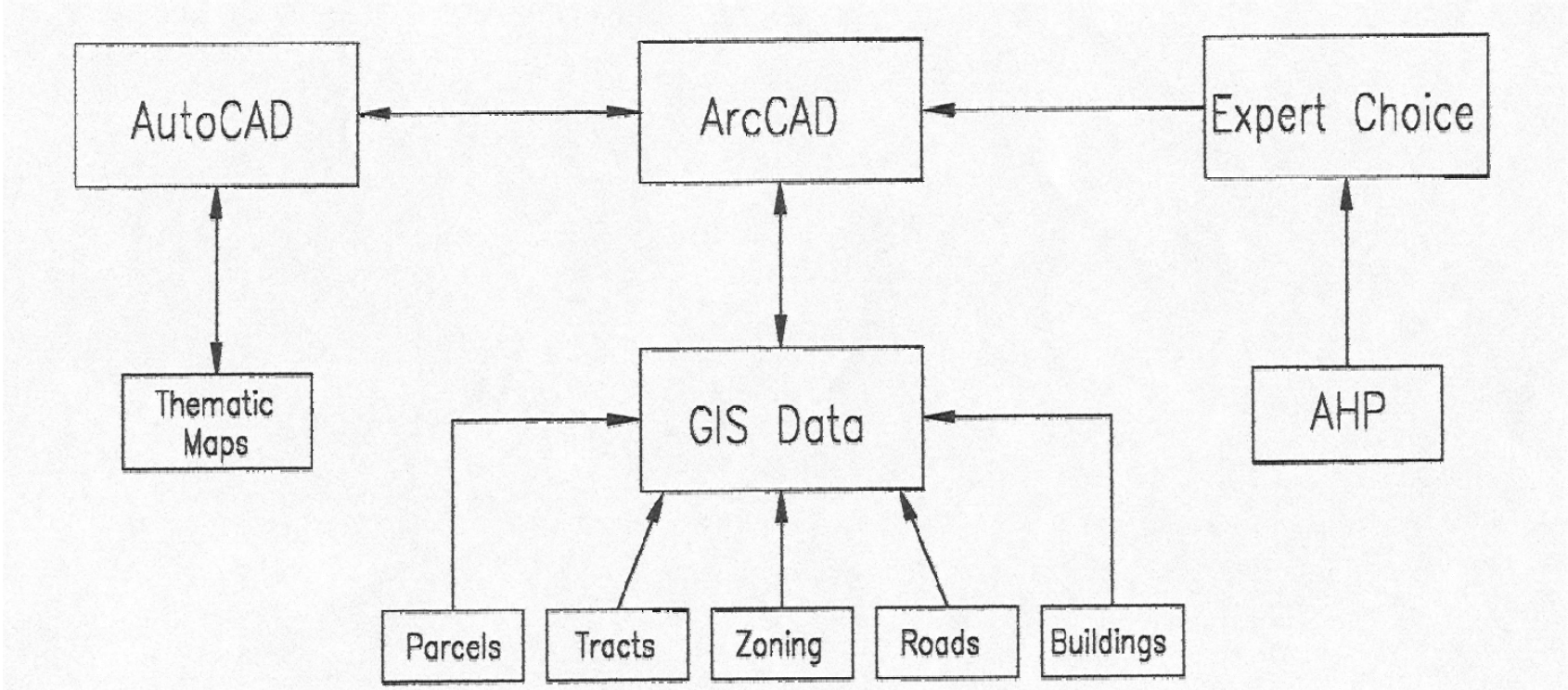


Figure 2. GIS Data and Software Application for TOD Suitability Analysis

TRANSIT- ORIENTED DEVELOPMENT SUTABILITY ANALYSIS BY THE ANALYTIC HIERARCHY PROCESS AND A GEOGRAPHIC INFORMATION SYSTEM: A PROTOTYPE PROCEDURE

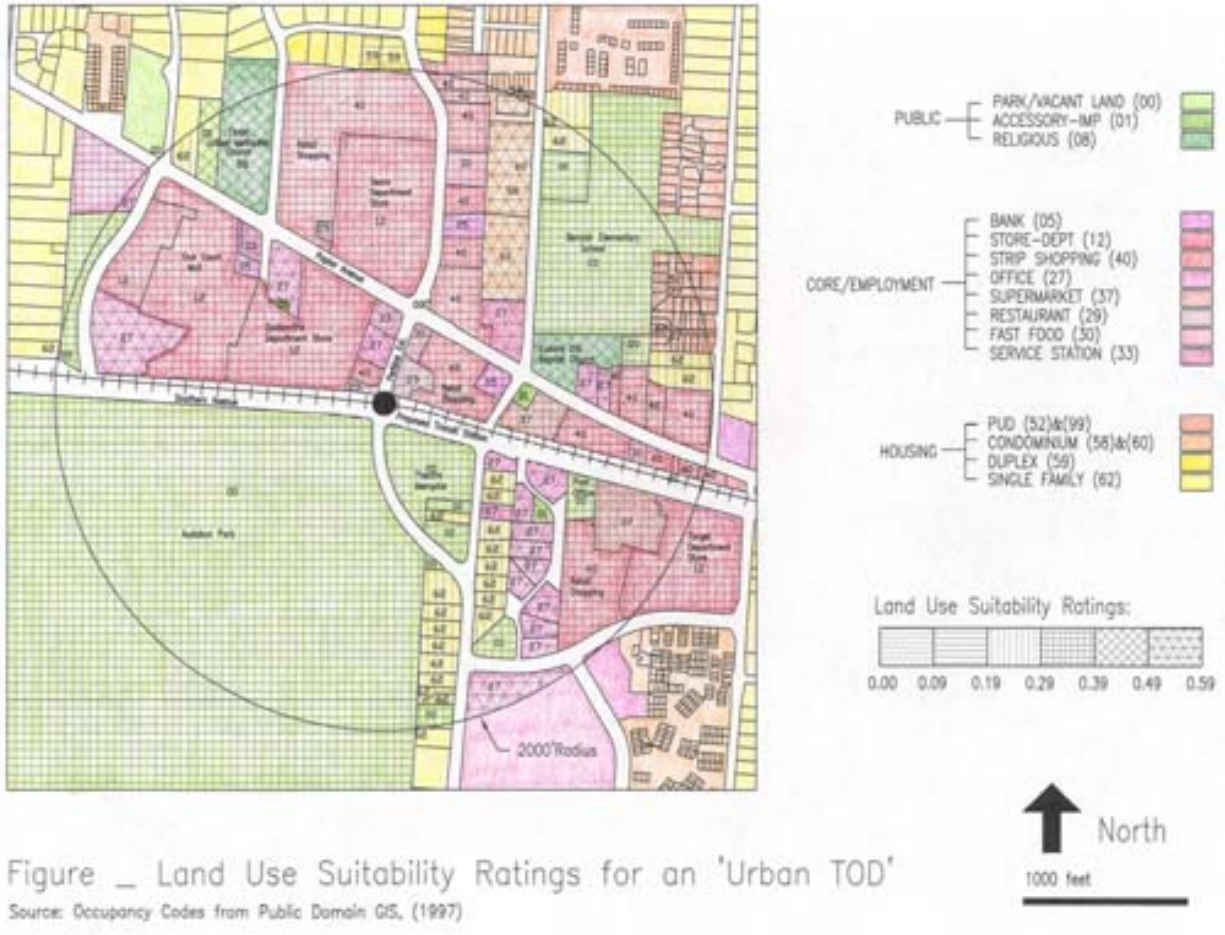


Figure _ Land Use Suitability Ratings for an 'Urban TOD'

Source: Occupancy Codes from Public Domain GIS, (1997)

TRANSIT STATION AREA LAND USE/ SITE ASSESMENT WITH MUTLIPLE CRITERIA: AN INTEGRATED GIS- EXPERT SYSTEM PROTOTYPE

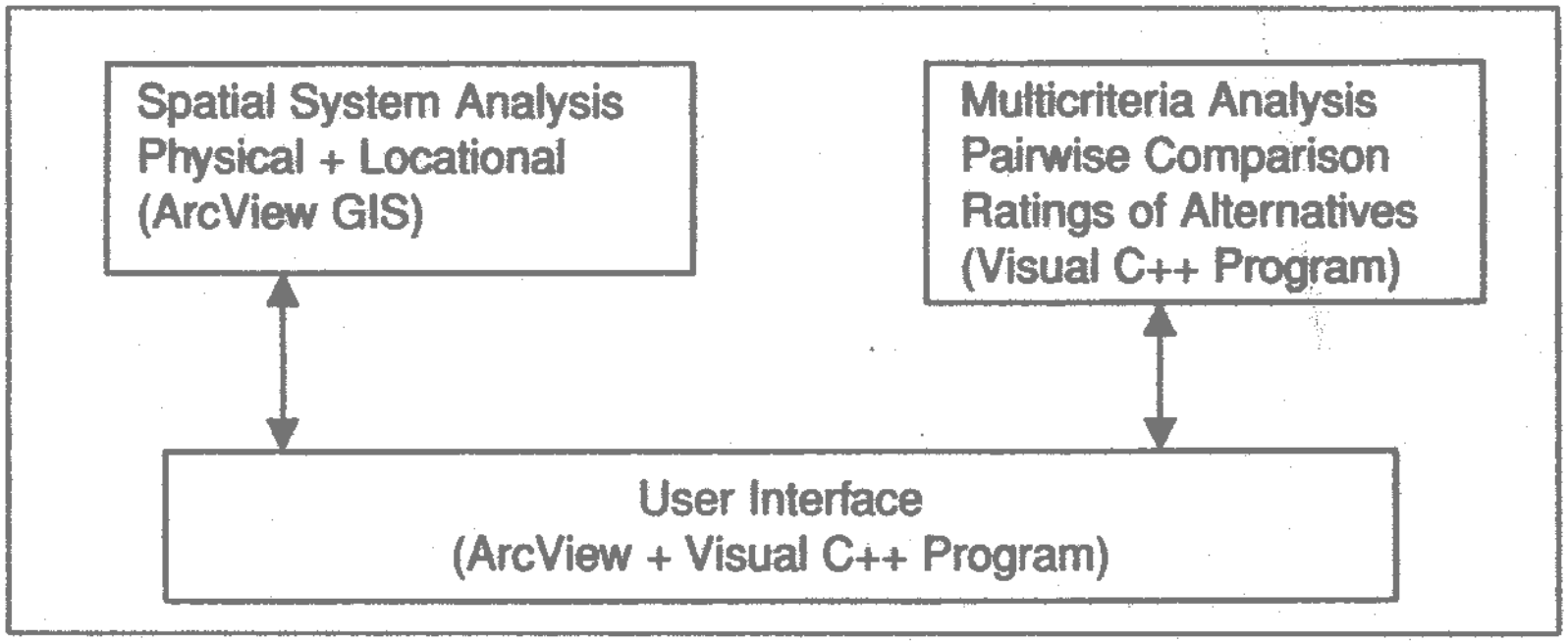
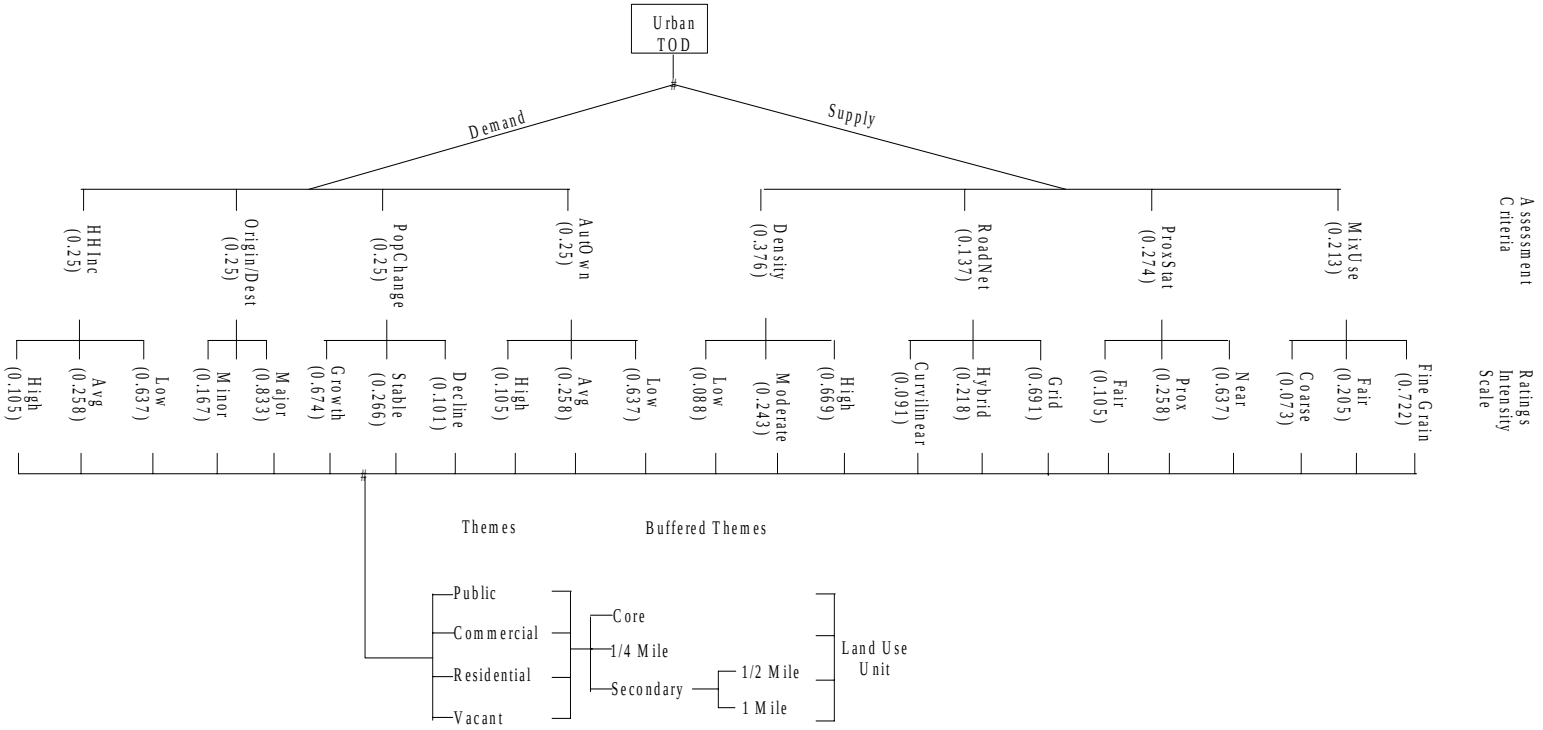


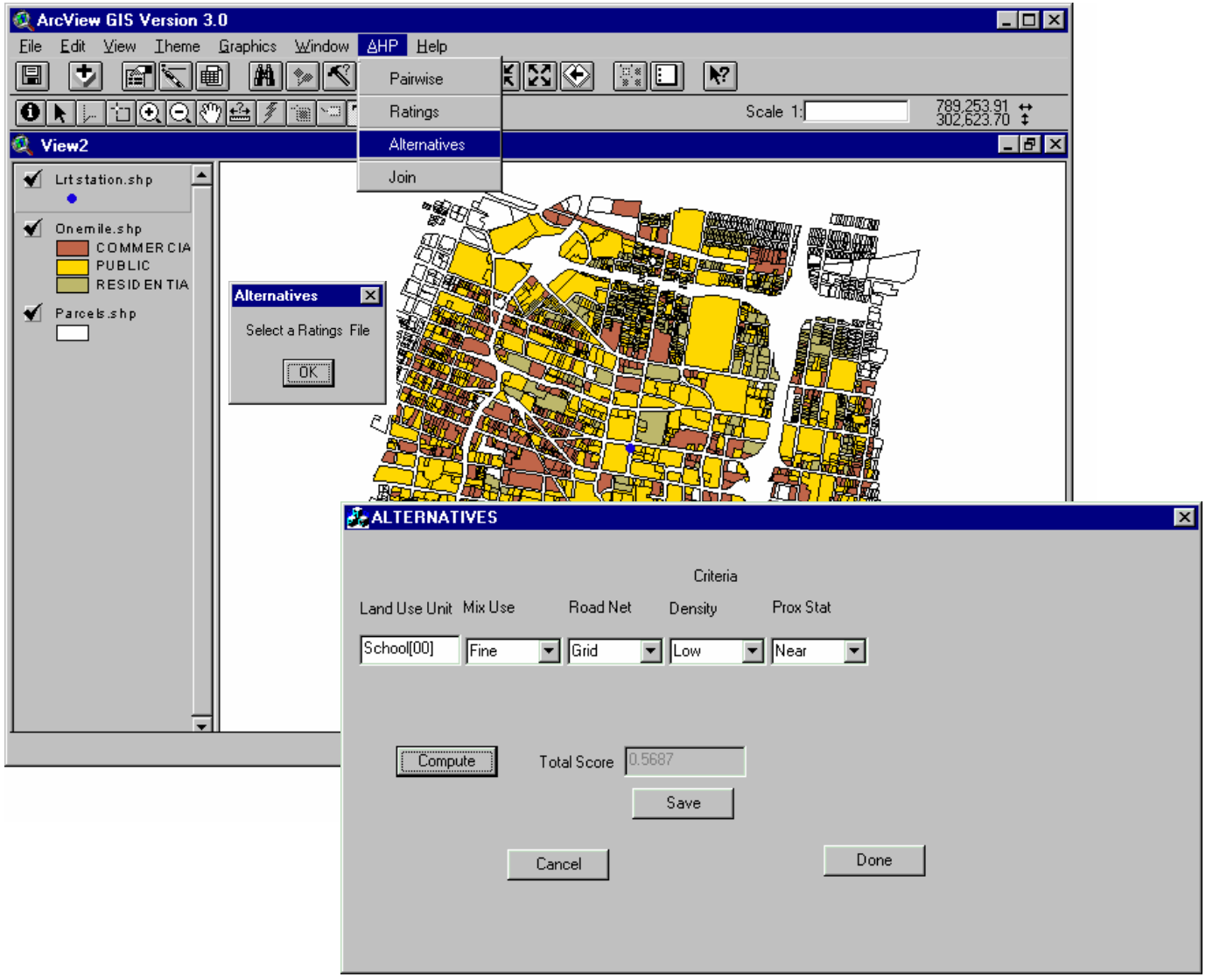
Figure 5. Software architecture

TRANSIT- ORIENTED DEVELOPMENT SUTABILITY ANALYSIS BY THE ANALYTIC HIERARCHY PROCESS AND A GEOGRAPHIC INFORMATION SYSTEM: A PROTOTYPE PROCEDURE



A Hierarchy for TOD Land Use Suitability

TRANSIT STATION AREA LAND USE/ SITE ASSESMENT WITH MUTLIPLE CRITERIA:
AN INTEGRATED GIS- EXPERT SYSTEM PROTOTYPE



TRANSIT STATION AREA LAND USE/ SITE ASSESMENT WITH MUTLIPLE CRITERIA: AN INTEGRATED GIS- EXPERT SYSTEM PROTOTYPE

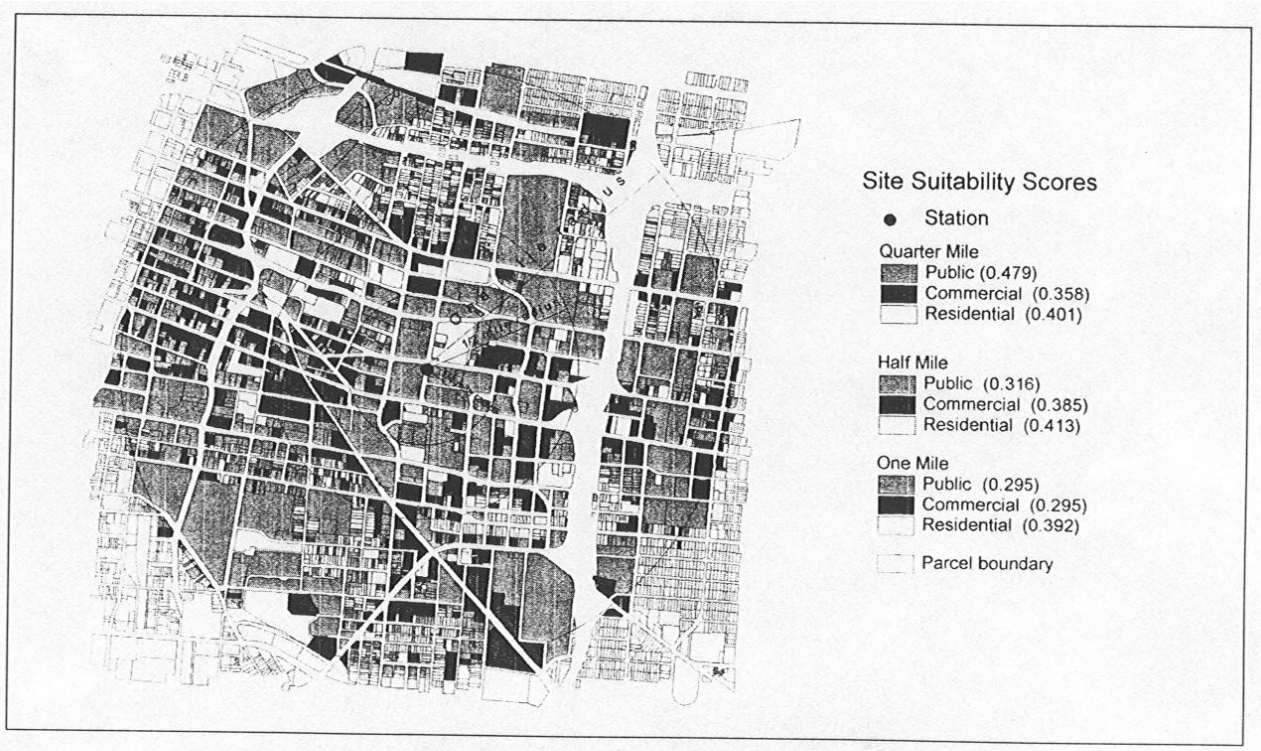


Figure 4. Land-use suitability ratings for an urban TOD by distance from LRT station (composite scores with supply and demand criteria)

THE NEW URBANISM:
AN ASSESSMENT OF THE CORE COMMERCIAL AREAS, WITH PERSPECTIVES FROM (RETIAL) LOCATION AND LAND-USE THEORIES, AND THE CONVENTIONAL WISDOM

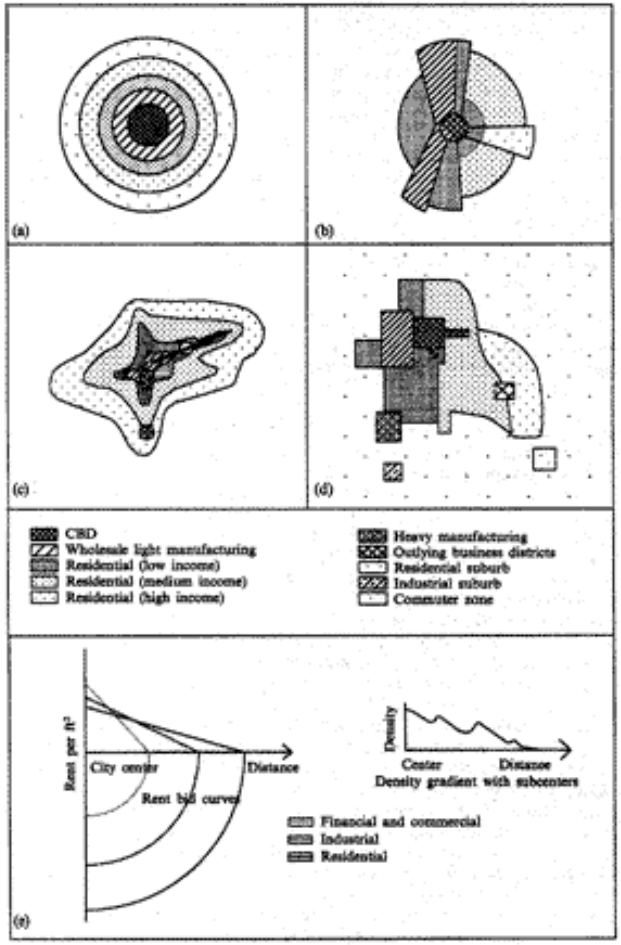


Figure 2. Theories of land use: (a) concentric zone, (b) sectoral, (c) land development along a transport axis, (d) multinucleated, and (e) bid rent (source: adapted from Barrett and Blair, 1982; Mayer and Kohn, 1959).

THE NEW URBANISM: AN ASSESSMENT OF THE CORE COMMERCIAL AREAS, WITH PERSPECTIVES FROM (RETIAL) LOCATION AND LAND-USE THEORIES, AND THE CONVENTIONAL WISDOM

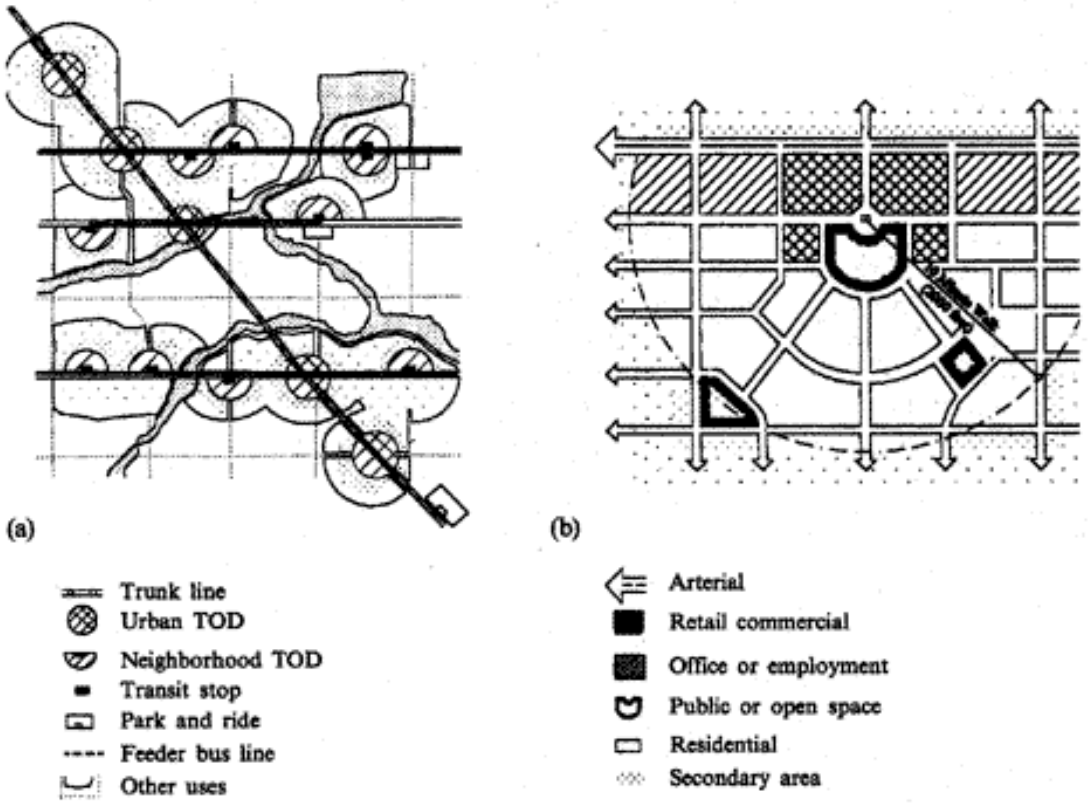


Figure 3. (a) The regional organization of transit-oriented developments (TODs) in a transportation network, and (b) organization of land uses in relation to transit station (source: adapted from Calthorpe, 1993).

THE NEW URBANISM:
AN ASSESSMENT OF THE CORE COMMERCIAL AREAS, WITH PERSPECTIVES FROM (RETIAL) LOCATION AND LAND-USE THEORIES, AND THE CONVENTIONAL WISDOM

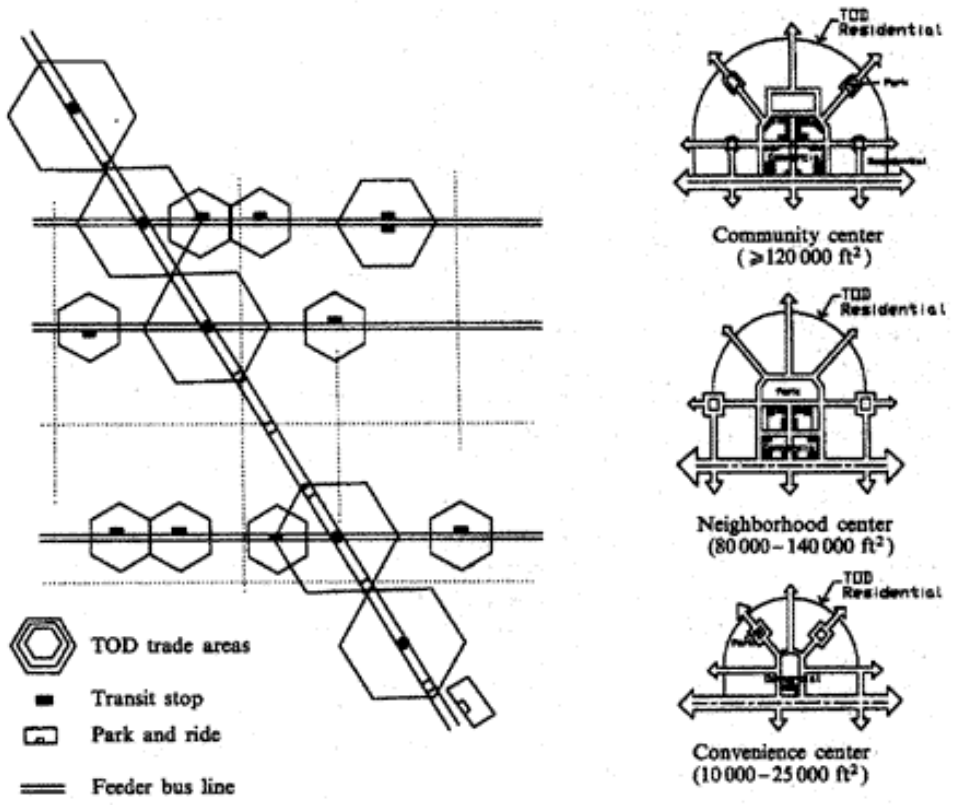


Figure 4. (a) A central place representation, and (b) classification of center by size and type in transit-oriented development (TOD) (source: adapted from Calthorpe, 1993).

THE NEW URBANISM:
AN ASSESSMENT OF THE CORE COMMERCIAL AREAS, WITH PERSPECTIVES FROM (RETIAL) LOCATION AND LAND-USE THEORIES, AND THE CONVENTIONAL WISDOM

Table 5. An assessment of transit-oriented development (TOD) and traditional neighborhood development (TND) by bid rent theory (BRT).

BRT	TOD	TND
Accessibility is a principle determinant of urban form	●	●
Accessibility is maximized at the town center, with availability of transportation networks	◉	◉
Market potential (access to producers and consumers) is optimum at the center	◉	○
Trips are uniformly priced, homogeneous landscape, free market economy, profit maximization	●	●
Residential and industrial uses reflect the accessibility of the center, traded off for the lower rental at the periphery	○	○
Concentric pattern of land uses	●	●
Retail activities at the center, housing at the periphery	●	●

Note: ● strong relationship; ◉ moderate; ○ weak relationship.

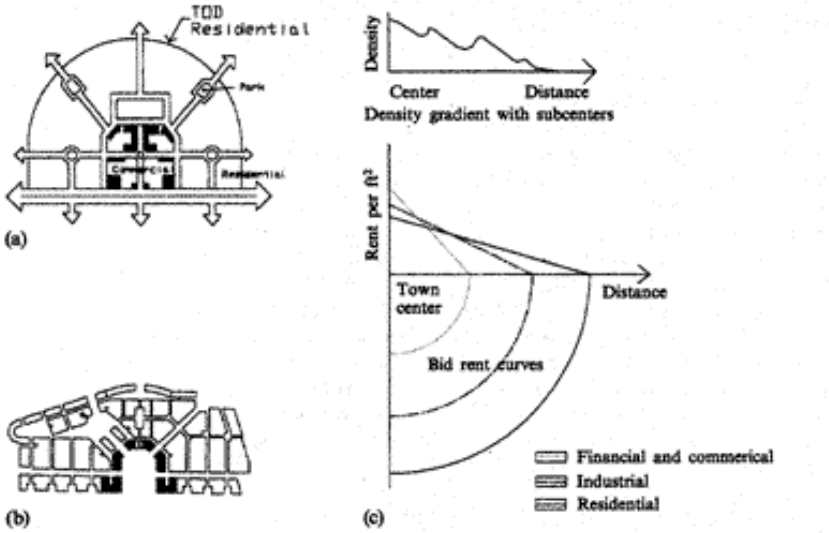


Figure 5. (a) The 'concentric' pattern of retail at the core, and residential at the periphery in transit-oriented development (TOD) (source: adapted from Calthorpe, 1993); (b) a similar pattern in Seaside (source: adapted from Katz, 1994); and (c) the concentric zone pattern from bid rent theory.

PLANNING PARADIGMS: CONTRADICTIONS AND SYNTHESIS

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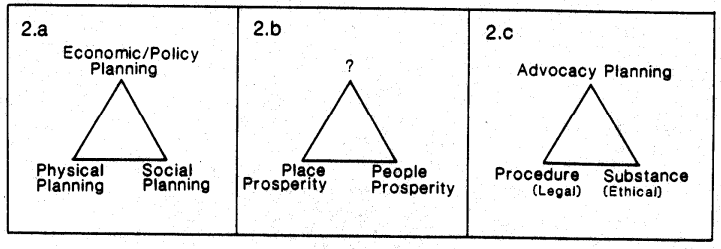

Figure 2. Toward a synthesis of Physical and social planning.

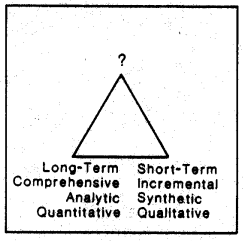

Figure 3. Dilemmas in the mainstream planning theory.

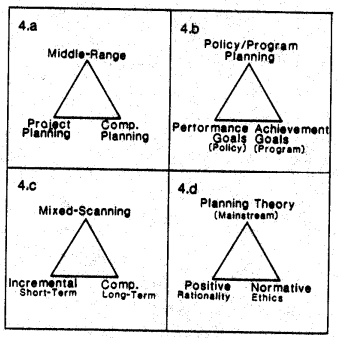

Figure 4. Synthetic responses within mainstream planning theory.

PLANNING PARADIGMS: CONTRADICTIONS AND SYNTHESIS

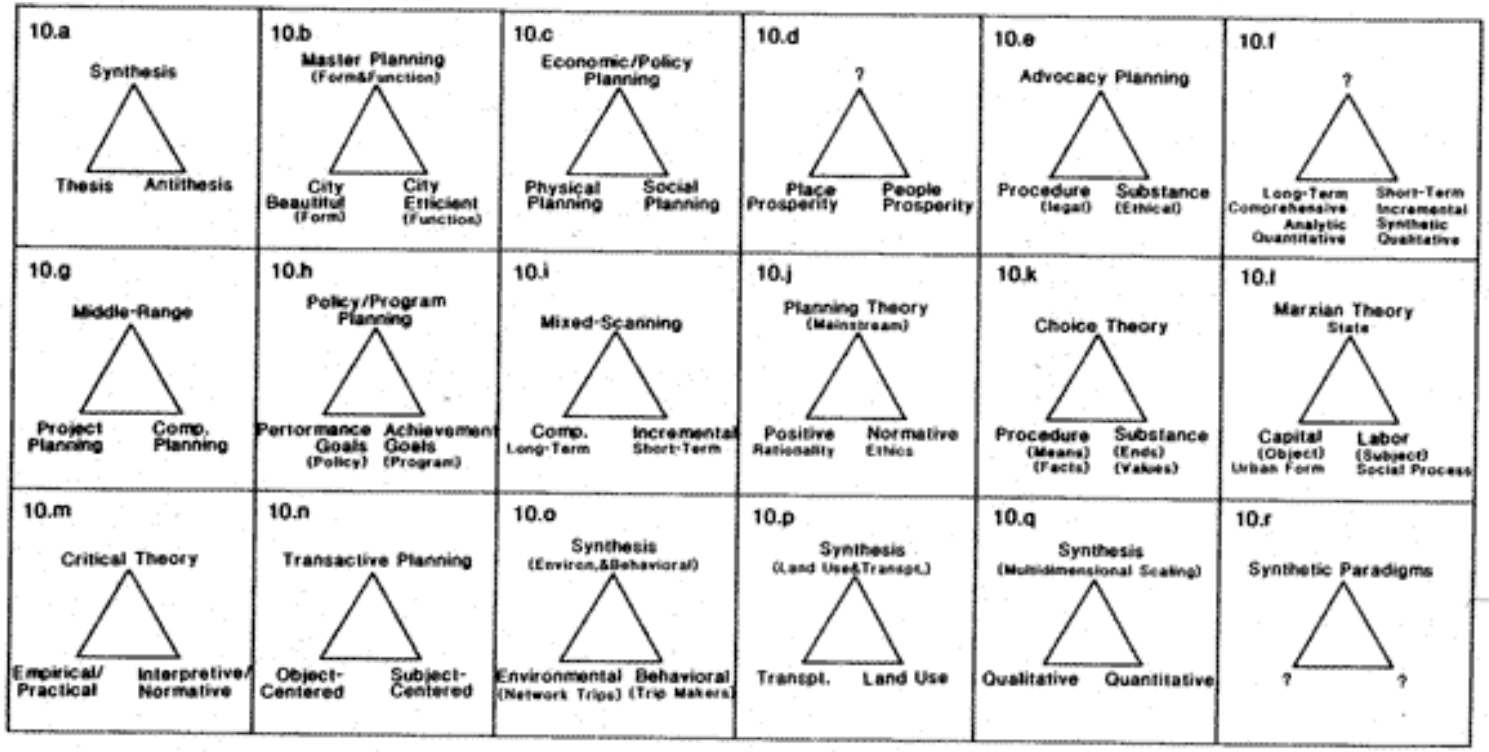

Figure 10: Dialectics of Planning Paradigm Development and Change: A Synoptic View.

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SOCIAL THEORY AND THE REGION: FROM THE REGIONAL PLANNING ASSOCIATION OF AMERICA TO THE RESTRUCTURING OF SOCIO-SPATIAL THEORY, WITH POLICY IMPLICATIONS

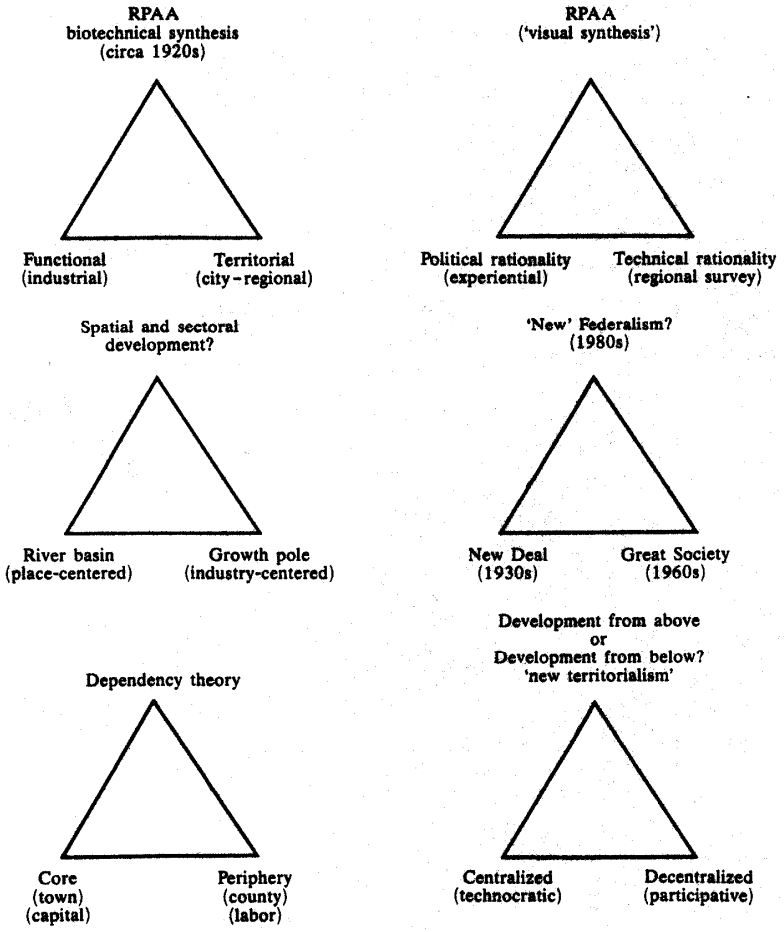

Figure 2. Dialectical synthesis in development paradigms.

SOCIAL THEORY AND THE REGION: FROM THE REGIONAL PLANNING ASSOCIATION OF AMERICA TO THE RESTRUCTURING OF SOCIO-SPATIAL THEORY, WITH POLICY IMPLICATIONS

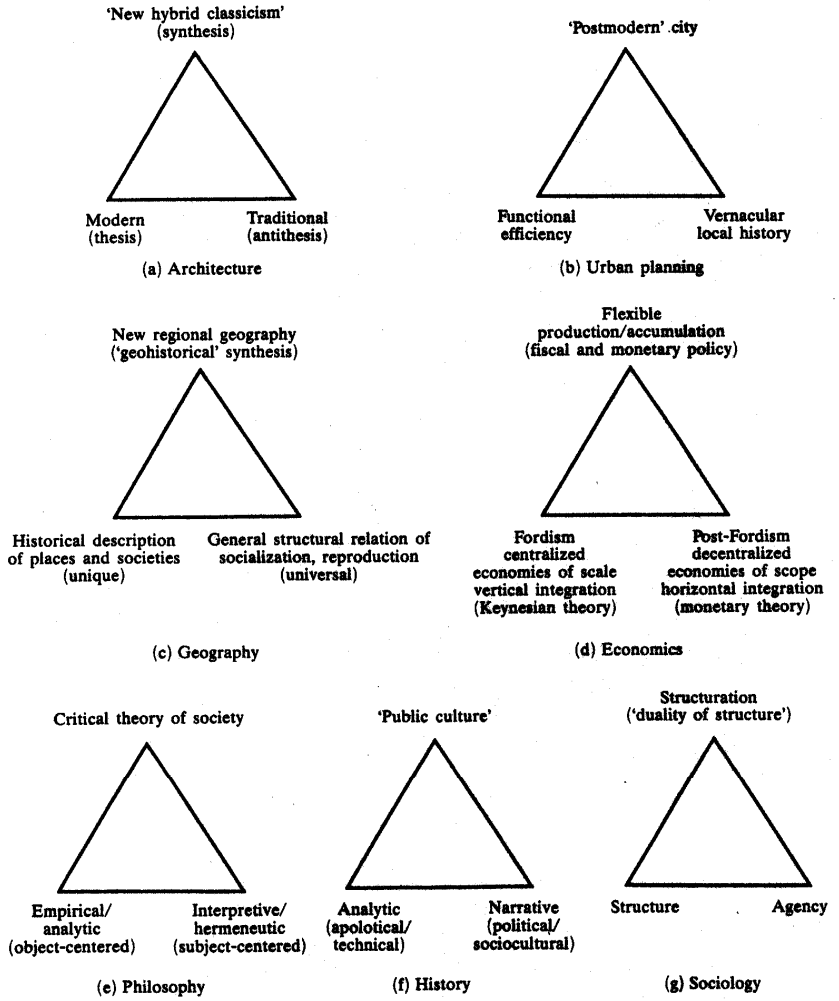

Figure 1. The synthesizing elements of restructuring in disciplines.

CRITICAL REALISM, AND URBAN AND REGIONAL STUDIES

Table 1. Critical realism: what can be investigated or known to exist (ontology)?

	Domain		
	real	actual	empirical
Mechanisms	*		
Events	*	*	
Experiences	*	*	*

* Areas of investigation (Bhaskar, 1975)

Some properties of critical realism (see also Bhaskar, 1989; Johnston, 1989)

(1) Bounded rationality. Knowledge is incomplete or partial owing to the complexity of social phenomena with interrelating parts.

(2) Contingency, variability, and causality. Circumstances and situations vary in space and time. Therefore the particular circumstances and conditions under which the causal power(s) of universal mechanisms (such as capitalism) cease in their effect must be discerned.

(3) Theory and experimentation. Knowledge of complex social phenomena is not gained by observation alone. A theory must accompany any empirical experimentation.

(4) Predictability and explanation. Prediction demands intensive and extensive knowledge of likely combinations of mechanisms and their linked outcomes (events). Prediction is difficult; certain features of social systems cannot be subjected to controlled experimentation, or 'randomization'. However, 'conditional' prediction can be provided as explanation of 'possibility' of outcomes. Explanation is contingent upon the environment of experimentation.

(5) Critical inquiry. Popular or 'nominal' definition or description of a problem need not be taken for granted. Critical assessment is needed to reveal assumptions otherwise concealed in common conceptions.

ENIVRONMENTAL RESOURCE SUTABILITY FOR SUSTAINABLE DEVELOPMENT: SPATIAL DECISION SUPPORT SYSTEM