GREEN STREET

NEW CONNECTION ACROSS RAILROAD

NEW BUILDING AND PARKING FOR TRANSIT STATION

OLD JAIL MUSEUM

OLD COURTHOUSE

RENOVATE EXISTING BUILDINGS FOR NEW TRANSIT STATION

BOTANICAL GARDENS

OLD MAIN DEPOT

MAIN STREET

HARDIN AVENUE AS GREEN PARKWAY

WEST AVENUE

PUBLIC LIBRARY
With courtyard and streetscape to enliven Green Street

J.F. CARR CENTER
Public Department and Human Services

LIBRARY EXPANSION

LIBRARY PARK

COMMUNITY HOUSE

BOTANICAL GARDENS EXPANSION

STREETS TO INCORPORATE STREAM THROUGH BIO SWALES

VEAL STREET PARK W/ 1.1 ACRE EXPANSION

GREEN STREET

ROCKDALE COUNTY HIGH SCHOOL

NEW CONNECTIONS ACROSS RAILROAD

RELOCATED CITY HALL

1/4 ACRE NEW PARK

NEW PARK
To articulate City Hall and to accommodate the needs of the Boys & Girls Club

RECONFIGURED BOYS & GIRLS CLUB

RELOCATED POLICE DEPARTMENT

RELOCATED DEPARTMENT OF COMMERCE

NEW PLANNING DEPARTMENT

RELOCATED COURTHOUSE & ADMINISTRATION

INTERSTATE 20

NEW CONNECTIONS ACROSS RAILROAD
To integrate the project into the surround street network

2 ACRES NEW PARKS

NEW MUSEUM

NEW PARK PAVILION

HWY 138

PROPOSED MASTER STREET PLAN

WITH EXISTING, RECONFIGURED, AND NEW PARKS, PUBLIC BUILDINGS AND INSTITUTIONS

NEW OR RELOCATED BUILDING

EXISTING OR RENOVATED BUILDING

Scale: 1" = 200'

0' 200' 500'

WEST AVENUE

GREEN STREET

OLD JAIL MUSEUM

COURTHOUSE

OLD TRAIN DEPOT

BOTANICAL GARDENS

MAIN STREET

ROCKDALE COUNTY
HIGH SCHOOL

PUBLIC LIBRARY

J.P. CARR CENTER
Health Department and Veteran Services

COMMUNITY HOUSE

GREEN STREET

BOYS & GIRLS CLUB

DEPARTMENT
OF COMMERCE

PLANNING DEPARTMENT

CITY HALL &
ADMINISTRATION

CITY COUNCIL &
POLICE DEPARTMENT

INTERSTATE 20

HWY. 138

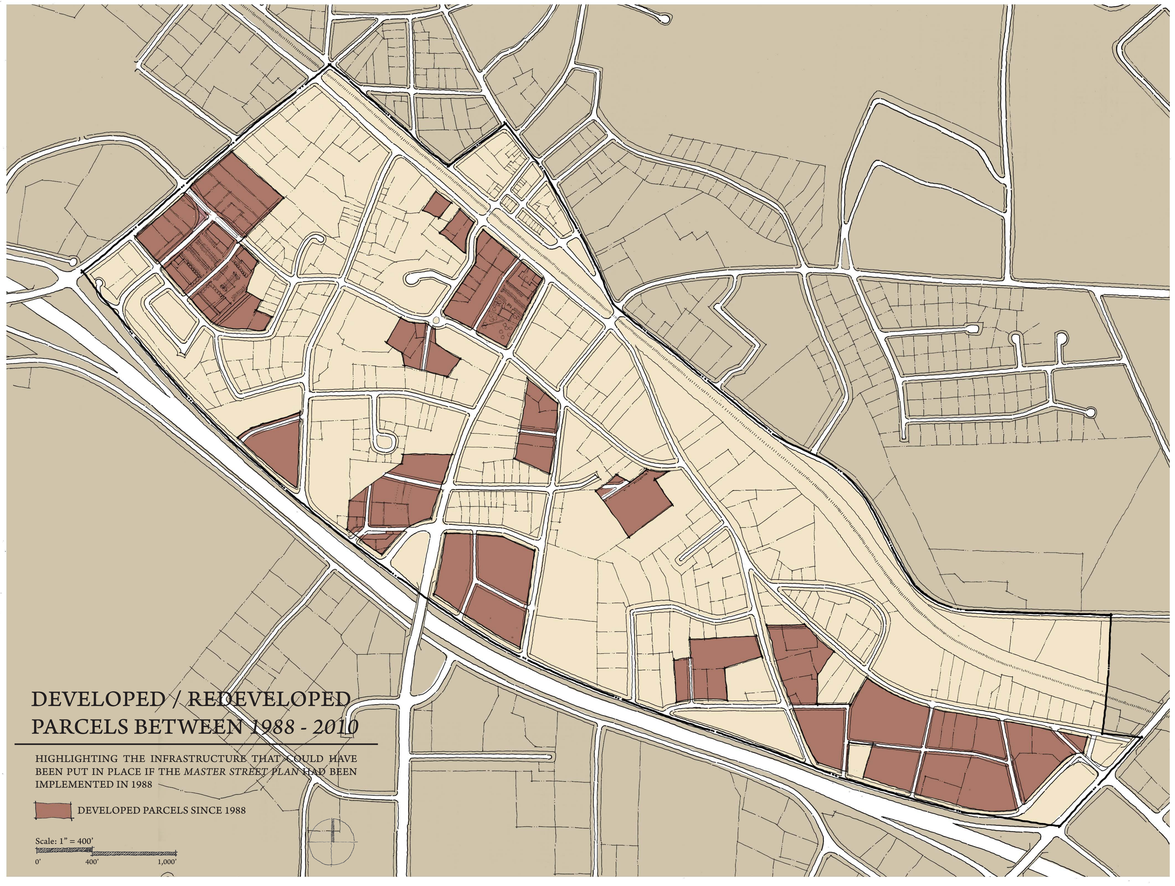
EXISTING CONDITION

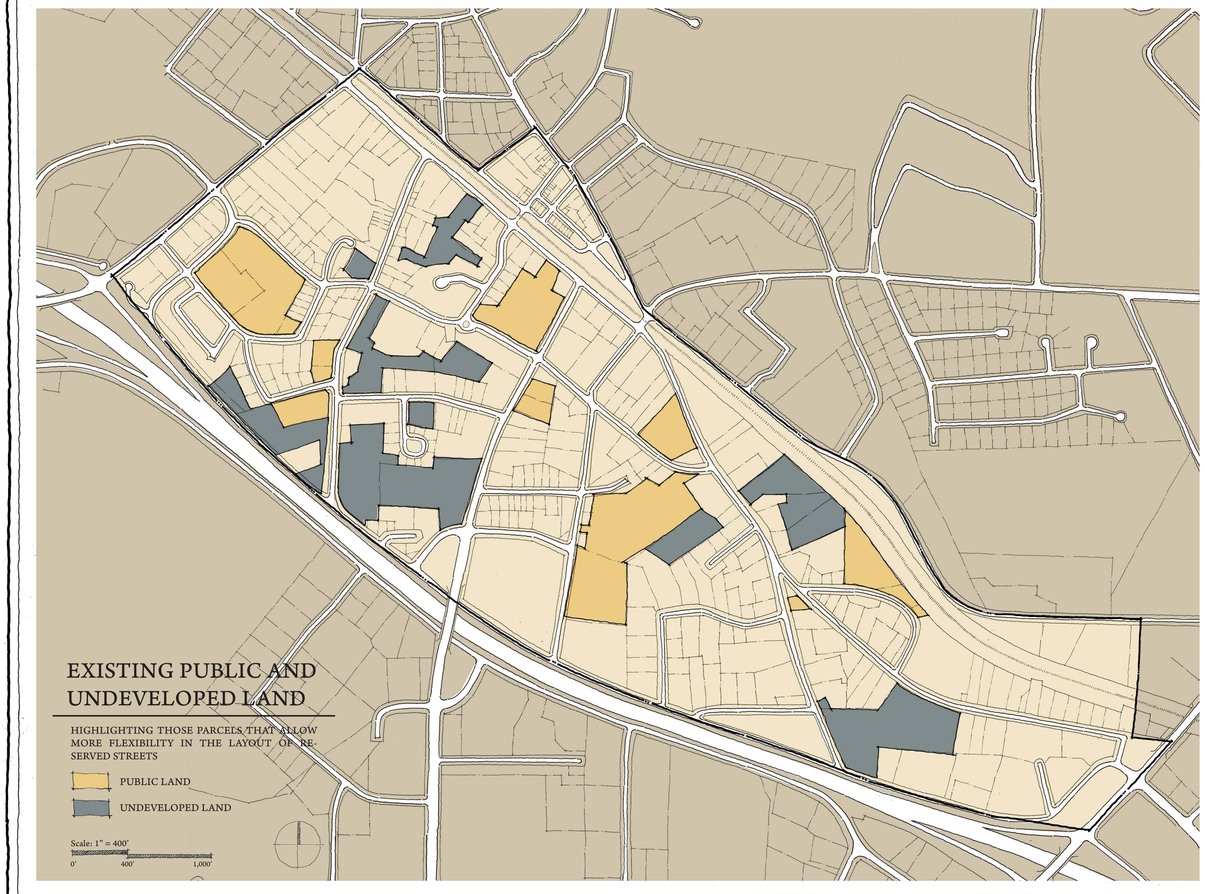
THE CONYERS PROJECT AREA IS BOUNDED BY I-20, WEST AVENUE, HWY. 138, GREEN STREET, AND THE CSX RAIL LINE

EXISTING BUILDING

Scale: 1" = 200'

0' 200' 500'


DEVELOPED / REDEVELOPED
PARCELS BETWEEN *1988 - 2010*
HIGHLIGHTING THE INFRASTRUCTURE THAT COULD HAVE BEEN PUT IN PLACE IF THE *MASTER STREET PLAN* HAD BEEN IMPLEMENTED IN 1988
DEVELOPED PARCELS SINCE 1988
Scale: 1" = 400'
0'
400'
1,000'


EXISTING PUBLIC AND
UNDEVELOPED LAND
HIGHLIGHTING THOSE PARCELS THAT ALLOW MORE FLEXIBILITY IN THE LAYOUT OF RESERVED STREETS
PUBLIC LAND
UNDEVELOPED LAND
Scale: 1" = 400'
0'
400'
1,000'


MASTER RIGHT-OF-WAY PLAN
HIGHLIGHTING EXISTING AND PROPOSED RIGHTS-OF-WAY
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
FORMER RIGHT-OF-WAY
Scale: 1" = 400'
0'
400'
1,000'


AERIAL PHOTOGRAPH
HIGHLIGHTING THE PROJECT WITH THE LCI SITE, I-20, THE CSX RAIL LINE, AND DOWNTOWN CONYERS
Scale: 1" = 400'
0'
400'
1,000'

CONYERS, GEORGIA

WHY CONYERS?

The study of large urban areas like Atlanta is no doubt critically important for the preservation of our future. But equally as important is the realization that development sprawl IS found just as much in our small towns and cities as it is in our metropolises. Further, 42% of the US population in 2000 lived in rural and urban areas with populations less than 200,000 (US 2000 Census). While 97.4% of all land in the US is still classified as "Rural" (US 2000 Census), the potential for abusive development is as high as it has ever been.

Conyers, GA represents just one of the thousands of sprawling towns and cities in the US. A suburban town edging closer to ubiquity, Conyers borders an interstate highway and "controls" its growth using the the only tool it has known since the early 20th century: *Zoning*. Since the majority of its growth occured following the arrival of Interstate-20, Conyers' relatively fast development sped the use-based infrastructure along.

The combination of speed and standardized zoning has made Conyers a poster child of exactly what zoning will deliver when acting as the primary development tool. With a strip-center in this area, a cluster of assisted living housing over there, and a government complex behind the bushes, Conyers is the physical manifestation of a loosely conceptualized bubble diagram on trace paper. The separation of "incompatible uses" was the sole design guideline. This pattern of development is easily discernable. The commercial components line the busy streets and highways (West Avenue and I-20) while the single family residences occupy the interior of the site. Multifamily units are found in distinct clusters. Likewise, the government offices and other public institutions are found within clusters of development.

Conyers must reverse its sequence of development: it must design its infrastructure before it decides its uses.

HISTORY

1821: State of Georgia opens Rockdale County to settlers.

1840: Dr. W.D. Conyers deeds a right-of-way to the railroad and develops Conyers Station.

1854: Village incorporated into "Conyers."

1864: Conyers destroyed by General Sherman's "March to the Sea."

1870: State of Georgia acknowledges Rockdale as a county.

1880: Conyers a "wild town" with 12 saloons and 5 brothels.

1960: Construction of I-20. Chamber of Commerce brought numerous major businesses to the town.

1996: Hosted equestrian and mountain biking events for the Summer Olympic Games.

2008: Population of Conyers is 10,000; Rockdale County, 70,000.

BASIC INFORMATION

County: Rockdale

Population: 13,545 people

Land Area: 11.8 square miles

Population Density: 1.8 people / acre

Elevation: 904 feet

Population Race: 51% White, 33% Black, 11% Hispanic

Distance to Atlanta: 23.7 miles

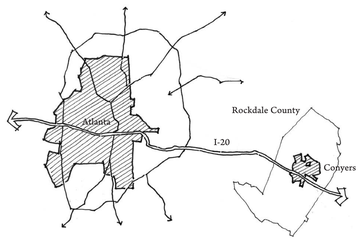
Poverty-Level Households: 17%

High Schools: Rockdale County High School, Salem Highschool, Heritage High School

Higher Education: Artistic Beauty College

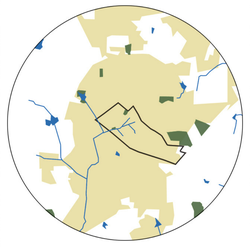
Hospital: Rockdale Hospital, 1412 Milstead Ave.

Parks: Johnson, Pine Log, Veal Street, Bonner, Eastview, South Hicks, Center Point, Pleasant

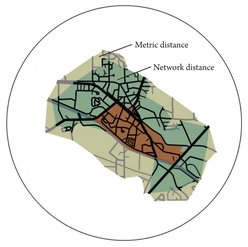


EXISTING PROGRAM ON SITE

Residential:	**314,000 sf**
Single Family Detached: 130 units @ 1,600 sf / unit avg:	208,000 sf
Multifamily: 96 units @ 1,100 sf / unit avg:	106,000 sf
Parks:	**240,000 sf**
Veal Street 5.5 acres:	240,000 sf
Commercial:	**550,000 sf**
21 units less than 4000 sf:	70,000 sf
22 units between 4,000 and 10,000 sf:	220,000 sf
12 units between 10,000 and 20,000 sf:	260,000 sf
Government Complex:	**49,000 sf**
City Hall:	10,000 sf
Administration:	5,000 sf
Court Services:	1,000 sf
Police Department:	8,500 sf
City Council Chambers:	8,500 sf
Planning/Inspection & Public Works/Transportation:	7,000 sf
Chamber of Commerce:	2,000 sf
Fire Department:	7,000 sf
Public Institutions and Other Services	**varies**
Library:	30,000 sf
Mental Health Hospital:	50,000 sf
Boys & Girls Club:	50,000 sf
Churches: 7 units @ 2,500 sf / unit avg:	17,500 sf
Community Center:	3,500 sf
Funeral Homes: 2 units @ 7,000 sf / unit avg:	14,000 sf

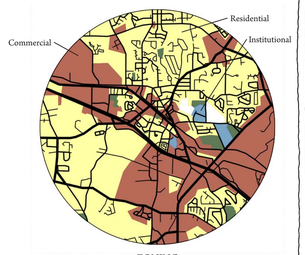


PARKS AND WATER



1/2-MILE RADIUS FROM SITE

CITY AND SITE BOUNDARIES



ZONING

SPACE SYNTAX: Comparitive Analysis

EXISTING STREET NETWORK

PROPOSED STREET NETWORK

CONNECTIVITY

Definition: *A measure of the number of intersections occuring on each line segment.*

In both the before and after condition, Highway 138 has the highest level of connectivity. In the proposal, the connectivity of Green Street increases due to the increased number of proposed street additions intersecting it. The site's interior streets maintain their mid-level measure of connectivity.

LOCAL INTEGRATION

Definition: *A measure of the number of street segments accessible from each street segement within 3 turns.*

The greatest change occurs for West Avenue, Green Street, and Main Street. In each of these instances, their local level of integration into the surrounding street network increases. For local traffic and residences, these streets will be the primary means for circulation and activity.

GLOBAL INTEGRATION

Definition: *A measure of the number of street segments accessible from each street segement within the entire street network.*

The greatest change is apparent in West Avenue, Green Street, and Main Street. In each of these instances, their global level of integration into the larger street network increases. These streets along with Hwy 138 are the primary streets for Conyers and will help to invigorate the downtown area.

PROJECT ANALYSIS: Utilization of the Principles

EXISTING CONDITION

PROPOSED CONDITION

BLOCK SIZE

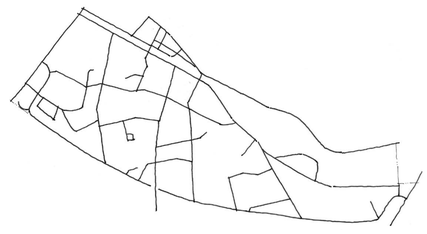
A block should have sides with lengths greater than 240 feet and less than 600 feet and should have a perimeter less than 2,000 feet. These dimensions create the physical permeability necessary for a sustainable, effecient, and vibrant urbanism to materialize.

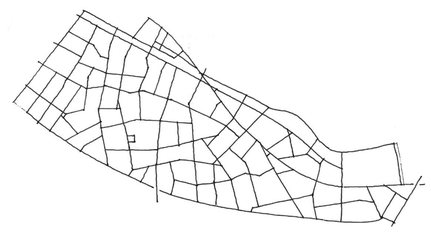
Average block size:

Existing:	**618' x 1,052'**
Standard Deviation:	317' x 619'
Proposed:	**305' x 443'**
Standard Deviation:	93' x 111'

Number of Blocks:

Existing:	**18**
Proposed:	**68**

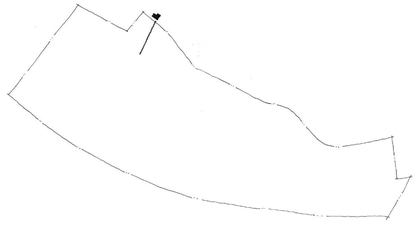


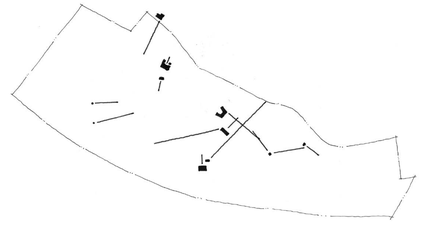


AXIAL LINES

Utilize axial lines to highlight important spaces and institutions, to close vistas, and to create a unique sense of enclosure.

Center Street, the best street in Conyers, is a good start for the city, but there are many opportunities to celebrate more of its instutions as can be seen in the opposite diagram.

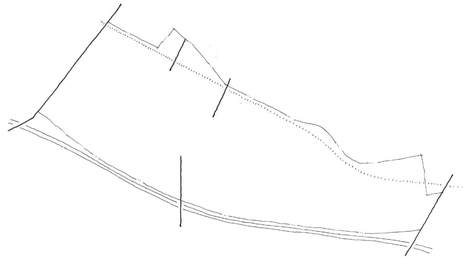


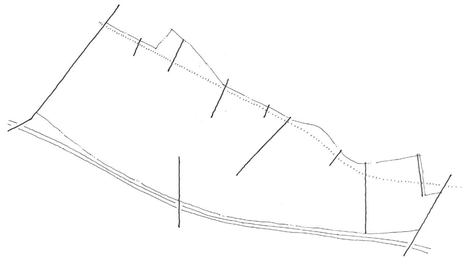


AUTONOMOUS SYSTEMS

Autonomous systems such as railroads, rivers, and interstate highways operate outside of the stipulations of local conditions. These systems should be traversed by local public rights-of-way as frequently as possible.

In order to reinforce downtown Conyers, the CSX rail line will have to be traversed more often than it is now.
The bridges over I-20 occur at approximately 3/4-mile intervals. Though more connections over it would be better, the best appropriation of funds would be to invest in new internal local streets as per the Master Street Plan.





PROJECT ANALYSIS: Utilization of the Principles

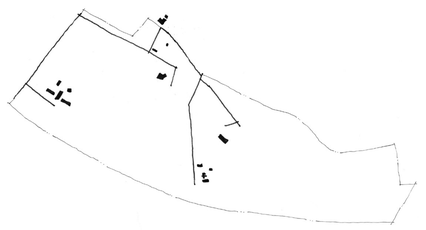
EXISTING CONDITION

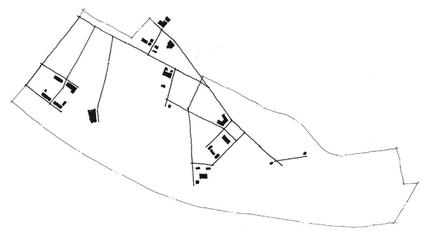
PROPOSED CONDITION

PUBLIC INSTITUTIONS

Public institutions should occupy the most prominent, visible, and integrated parcels within the Master Street Plan. Avoid clustering these instutions into "office parks." Instead, allow them to anchor axial lines, reinforce parks, and front major streets.

Note: the streets drawn are the most integrated streets (see Space Syntax sheet) that access and link all of the public institutions shown together.

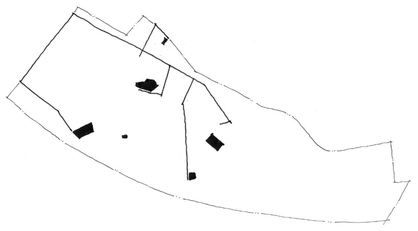


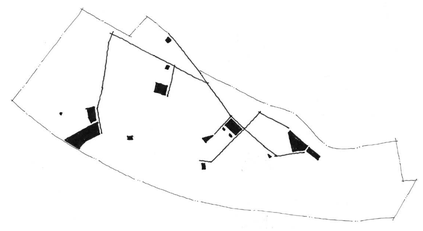


PARKS

A system of parks should be situated throughout the Plan in order to protect any existing sources of water and to insure adequate spaces of recreation. Parks can also be used to articulate important institutions, buildings, or monuments.

Note: the streets drawn are the most integrated streets (see Space Syntax sheet) that access and link all of the parks shown together.

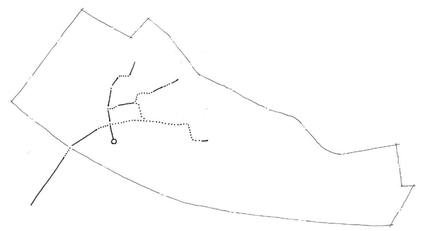




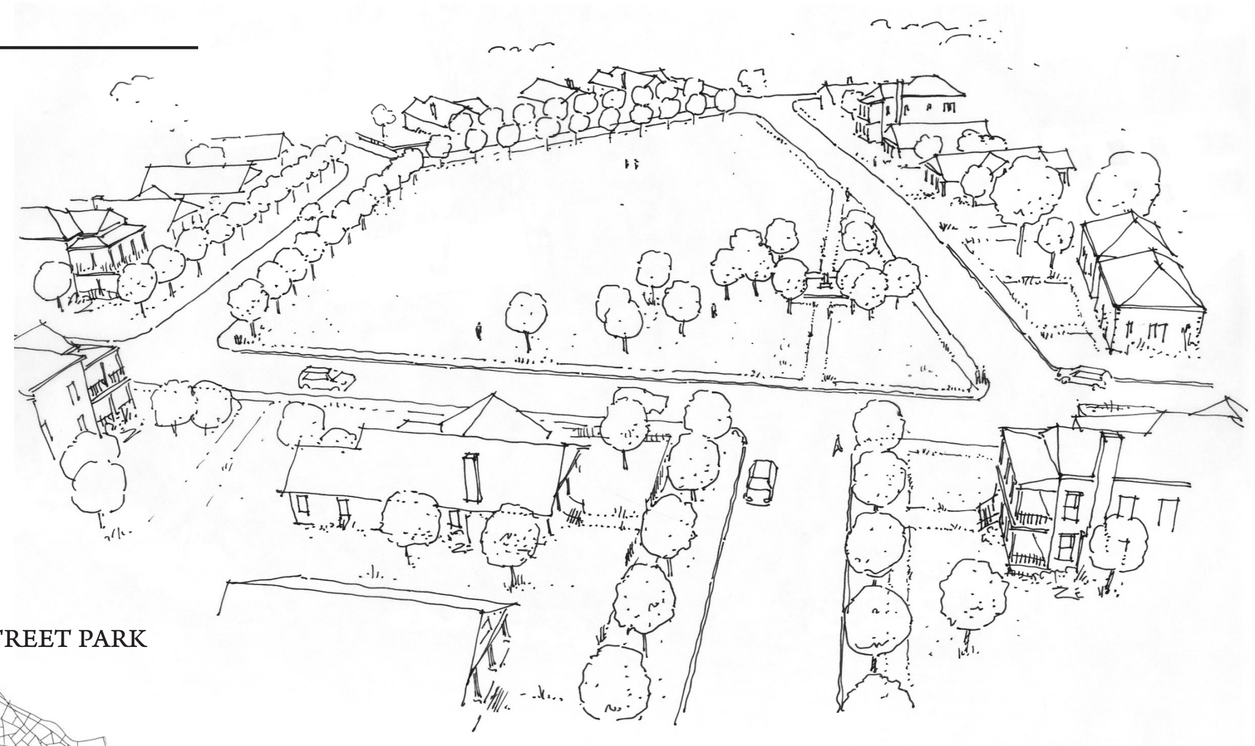
WATER

Streams and sources of water should be protected and accessable by public rights-of-way on all sides.
Common "backyard-buffer" conditions should be avoided when possible.
Where a stream would have a negative impact on the sustainability of the Street Plan it should be piped, rerouted, or incorporated into the street section in order to avoid such conflict.

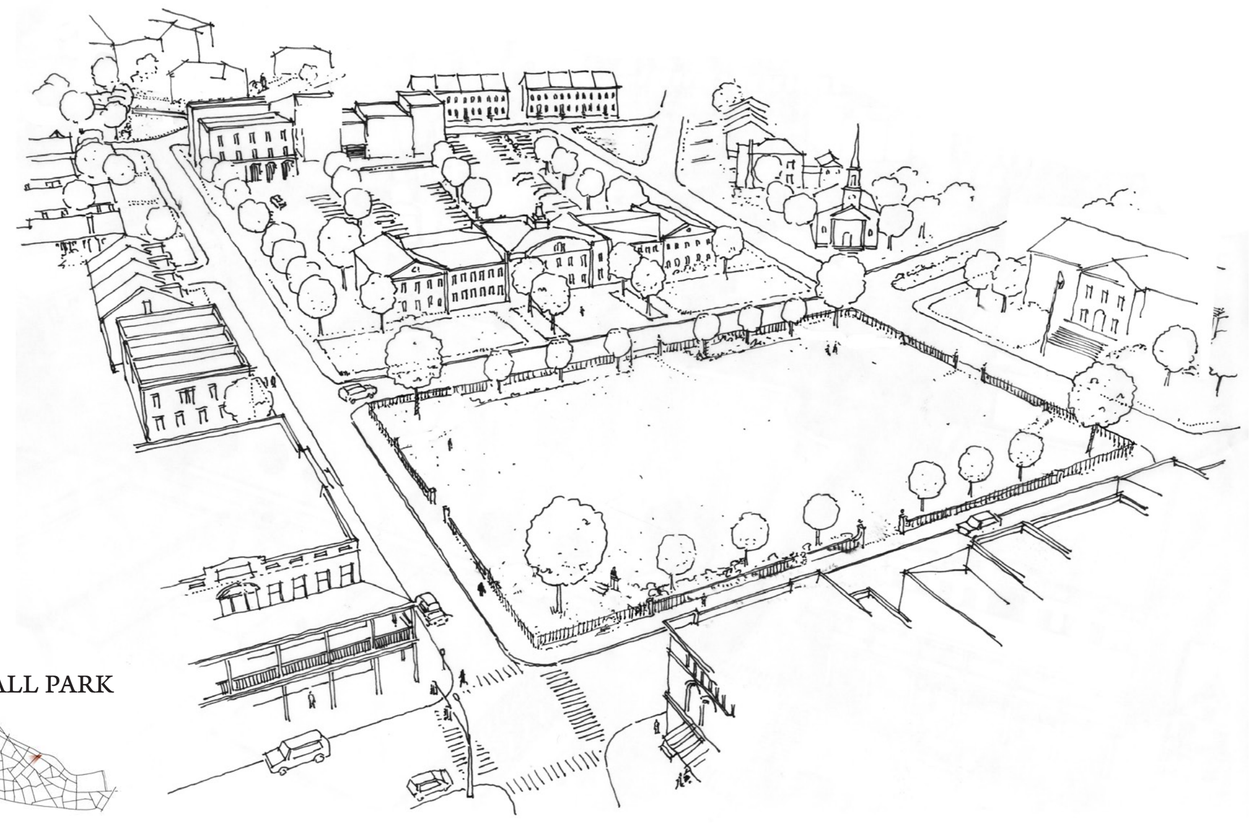
The proposal is a compromise between all the components of the Principle: some of the stream is accessible, some remains in "backyard conditions," while most of the stream has been incorporated into the street section with bioswales.



PERSPECTIVES



VEAL STREET PARK



CITY HALL PARK

PROJECT COSTS AND REALIZATIONS

The design of a Master Street Plan within a context of existing development should attempt to be as least invasive as possible even if this means not producing the "best" Plan. This can be done by sequentially working through each of the following design steps until an appropriate plan has been generated.

1 : Keep existing streets.
2 : Reconfigure publicly owned land.
3 : Designate reserved rights-of-way across undeveloped land.
4 : Designate reserved rights-of-way along property lines.
5 : Designate reserved rights-of-way across parcels.

INCREMENTAL COSTS: An Illustrative Example

1. Existing Conditions

Assume that the Master Street Plan calls for a right-of-way along the shared property line between the 3 parcels.

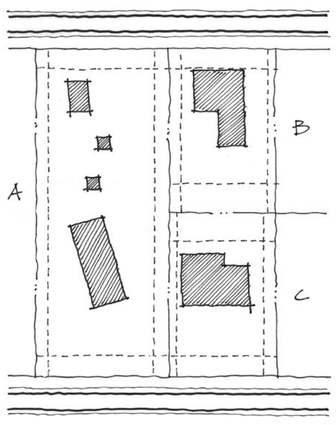
Parcel A: 130 feet x 400 feet
33,250 sf buildable area

Parcel B,C: 130 feet x 200 feet
14,700 sf buildable area

Front setbacks: 25 feet

Rear setbacks: 35 feet

Side setbacks: 10-20 feet



2. Reserve R.O.W. and Reconfigure Setbacks

1. Locate reserved right-of-way. In this case a 50 foot reserved R.O.W. was drawn by offsetting a 25 foot line from the shared parcel boundary thereby sharing the obligation among the parcel owners.

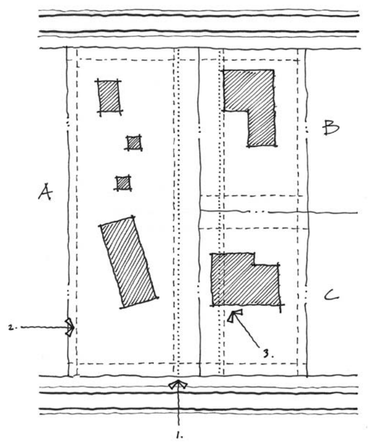
2. Reconfigure setbacks so property owners have the exact same (or more) buildable area as before the reconfiguration.

3. This non-conforming structure can remain until the owner substantially renovates or demolishes the building. Any new structure will have to comform to the new setback lines.

Changes to buildable area for each parcel include:

Parcel A: 33,300 sf buildable area (+50 sf)

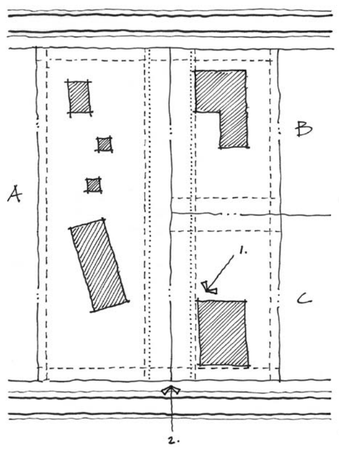
Parcel B,C: 14,850 sf buildable area (+150 ft)



3. Anticipate Clearing of Reserved R.O.W.

1. New building conforms to new set-back line.

2. Reserved R.O.W. is now clear. Eminent domain can now be excercised on that portion of property within the reservation lines.



4. Municipality Constructs New Street

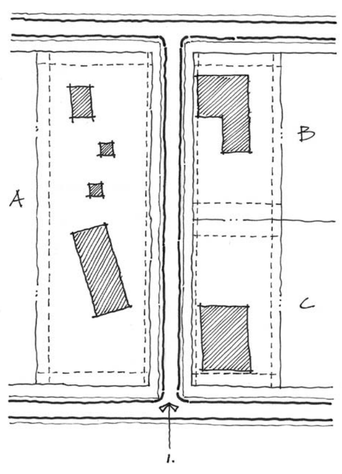
1. Condemn property and construct new street.

Costs for new 400 foot street:

Land Purchase:
•0.32 acres @ $90,000 / acre
$28,800

Street Construction:
•$275 - $341 / lineal foot
$110,000 - $136,400

Total Cost for New Street:
$138,800 - $165,200



TOTAL PROJECT COSTS

CONSTRUCTION COSTS

Assumptions:

•$275 - $341 / lineal foot for street construction

Project Proposal:

30,200 lineal feet of new streets

Total Construction Cost: $8,300,000 - $10,300,000

LAND SALES / PURCHASES

Assumptions:

•Average Land Value - $90,000 / acre
•Average R.O.W. width - 60 feet

Purchases:

2.3 acres of new parks	$207,000
41.6 acres of new R.O.W.	$3,744,000

Sales:

1.7 acres R.O.W.	-$153,000
Total Land Purchases:	**$3,798,000**

TOTAL COST: $12.1 - 14.1 million

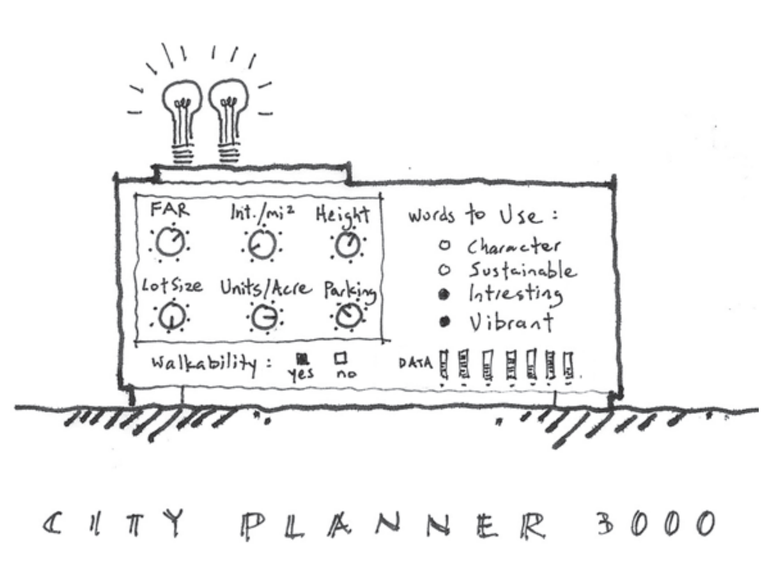
Assumptions:

•This is not an upfront cost by any means. Complete build-out will take decades.
•Much if not all of the cost will be offset by an increase in property values and tax base over time.

BEYOND METRICS

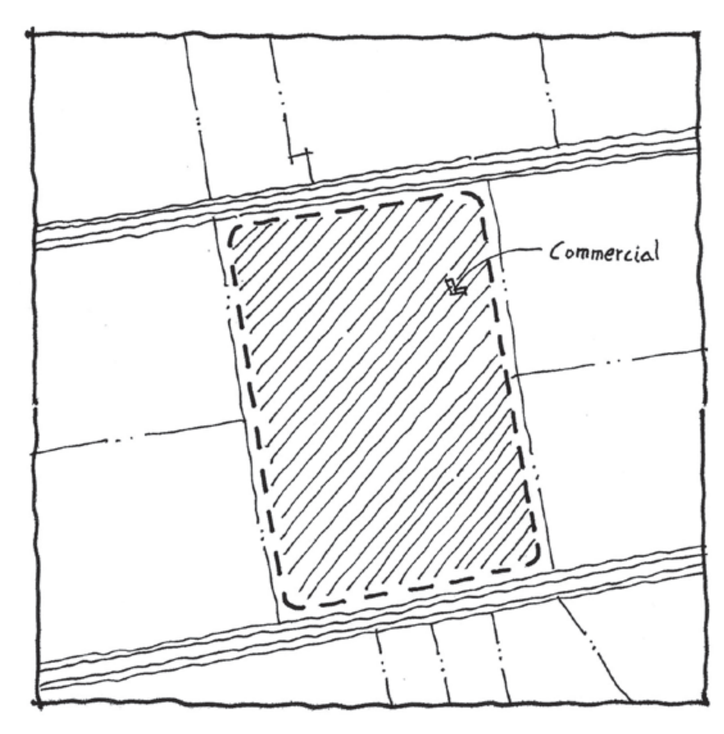
DESIGNING THE MASTER STREET PLAN

Our current system of development regulations attempts to mechanize the design process by molding the complexities of urbanism into simple and naive ratios. This regulatory machine acts only on the parcel and fails to accommodate for the city. As an alternative I will propose a principle-based system of design for the generation of a master street plan that will lead to a more sustainable and holistic form urbanism.

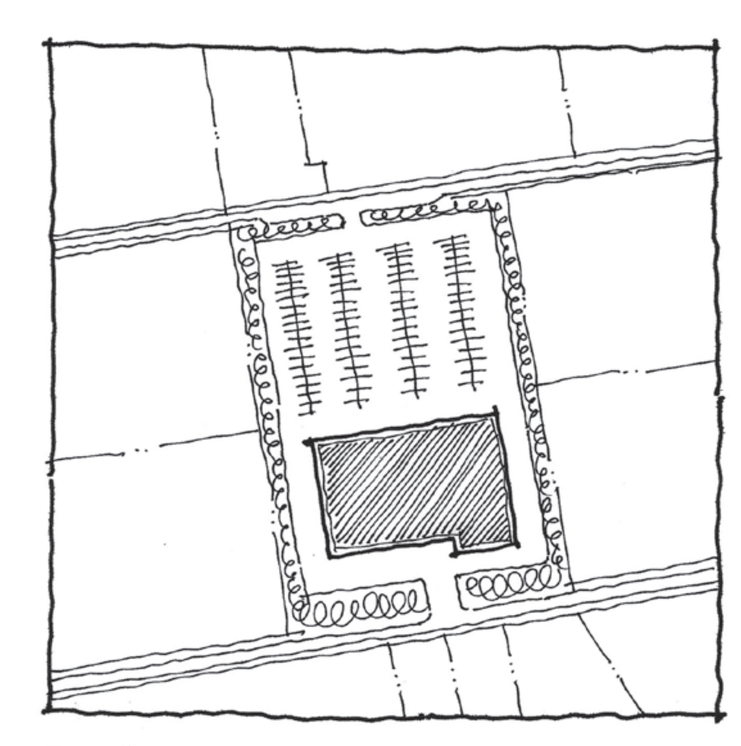


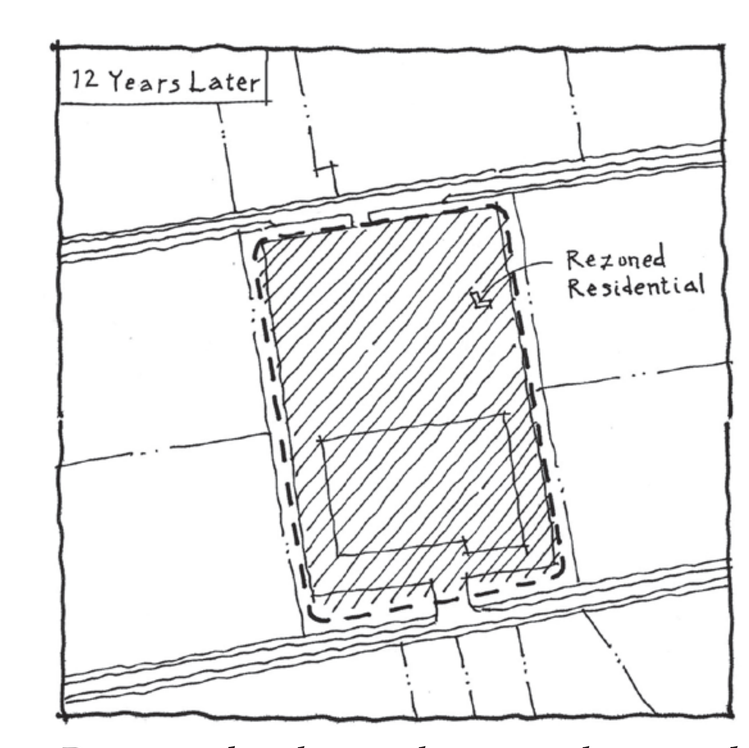
CURRENT DEVELOPMENT METHODOLOGY : Infrastructure Conforms to Land Use

Currently, "zones of use" come first which in effect determine the geometry of a city's infrastructure. In this scenario, when a grocery store, for example, goes out of the business or simply changes its location the city is left with a building shell on a site that can only accommodate another grocery, a bowling alley, an antiques market, or other similarly large and unique uses. In order to reoccupy the land one of three things must happen: 1) a developer inhabits the parcel with a similar use, 2) a developer must reconfigure the parcel's infrastructure to accommodate a different use adding considerable cost to the project, or 3) the parcel simply remains vacant. All too often the latter case is found to be the answer while new developments continue to march into the hinterlands of our cities; thus, the perpetuation of sprawl.

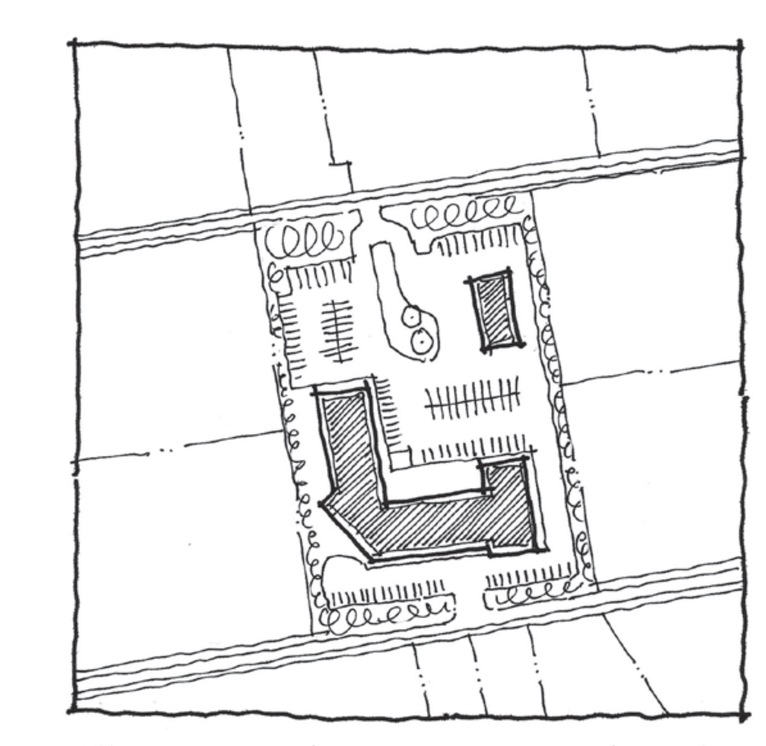


Commercial land use of a parcel is determined.


Developer constructs a grocery store.

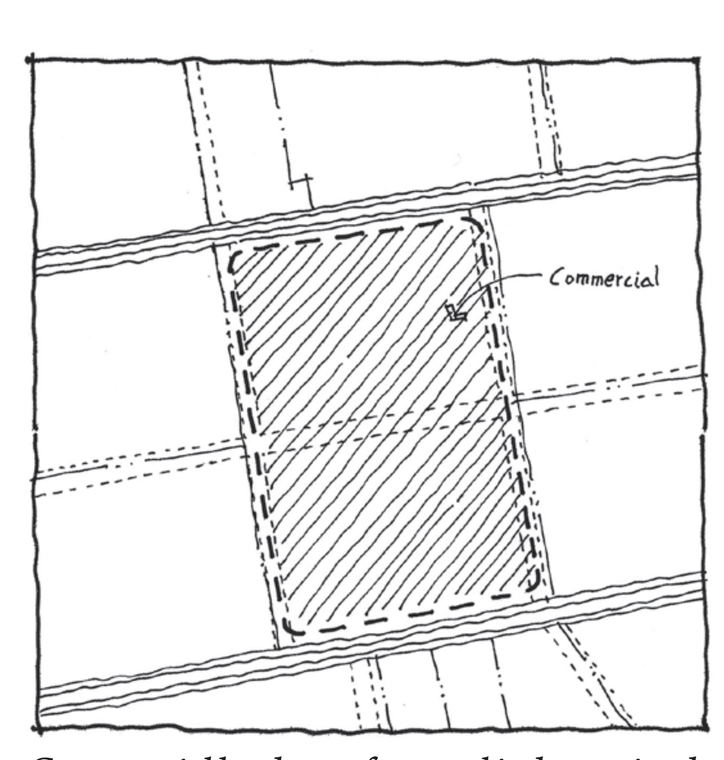


Due to market changes the grocery has moved to anther location. The parcel is rezoned for residential use.

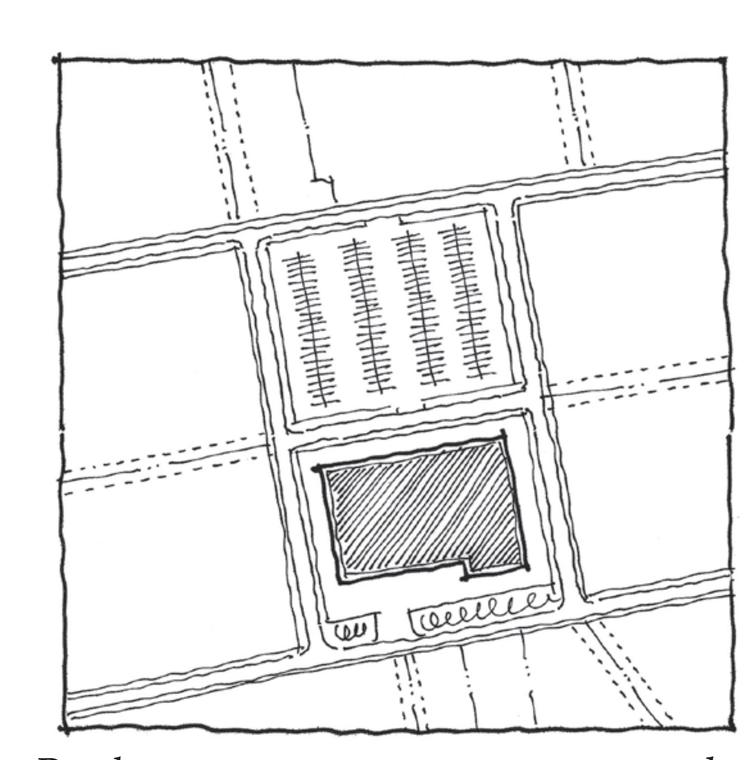

All previous infrastucture is reconfigured at great expense in order to accommodate the new use. This cycle will continue indefinitely.

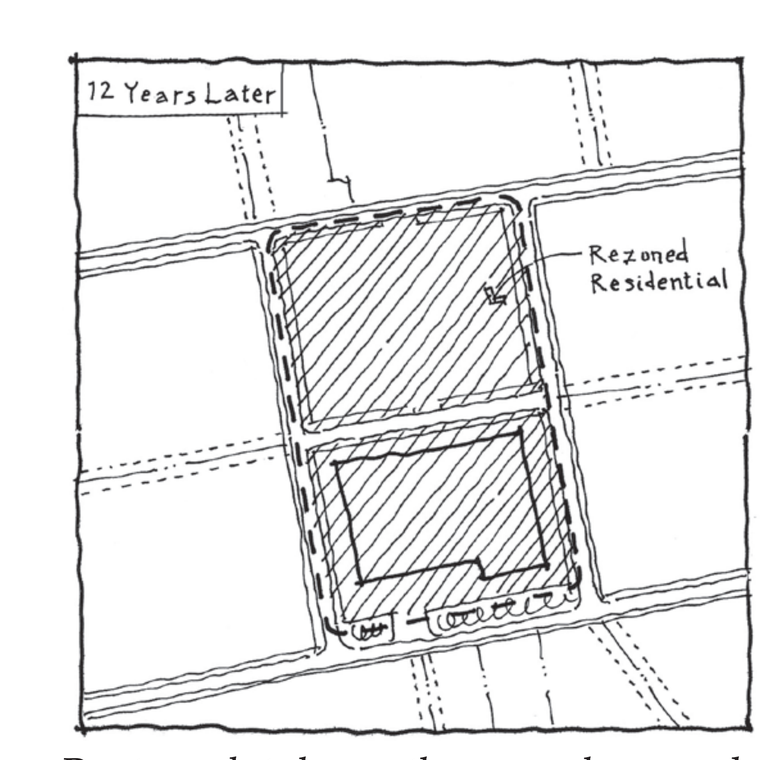
PROPOSED DEVELOPMENT METHODOLOGY : Land Use Conforms to Infrastructure

The pre-establishment of a master street plan, on the other hand, puts the geometry of infrastructure first and zones of use second. In this scenario of reversed roles, if and when the grocery store leaves, the infrastructure does not have to be fully reconfigured and is already apt to take on any use—from small residential to large commercial.

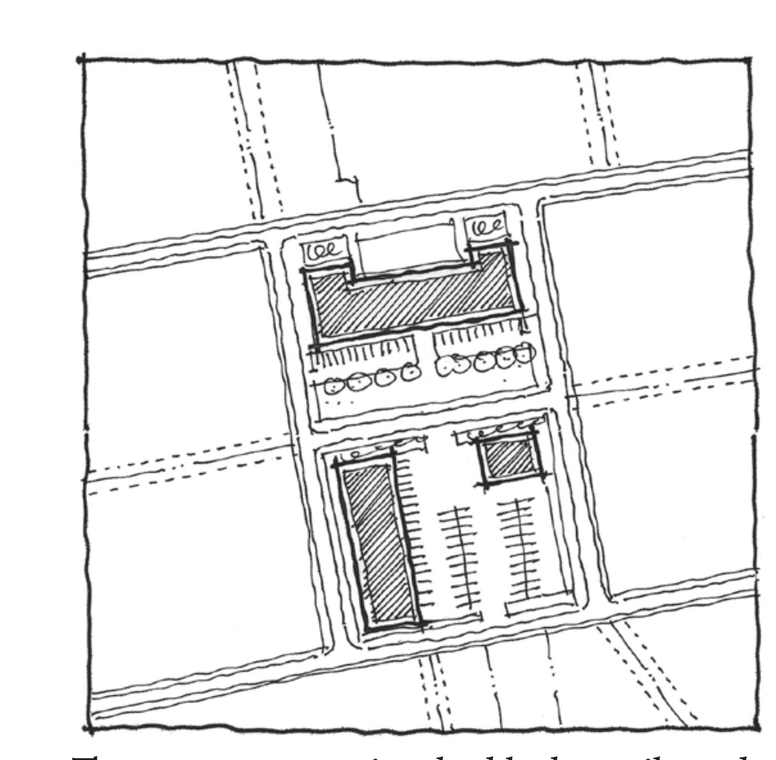


Commercial land use of a parcel is determined.


Developer constructs a grocery store and shares in the development of the reserved streets with the municipality.



Due to market changes the grocery has moved to anther location. The blocks are rezoned for residential use.


The new use occupies the blocks easily and efficiently without reconfiguring the streets. This cycle will continue indefinitely.

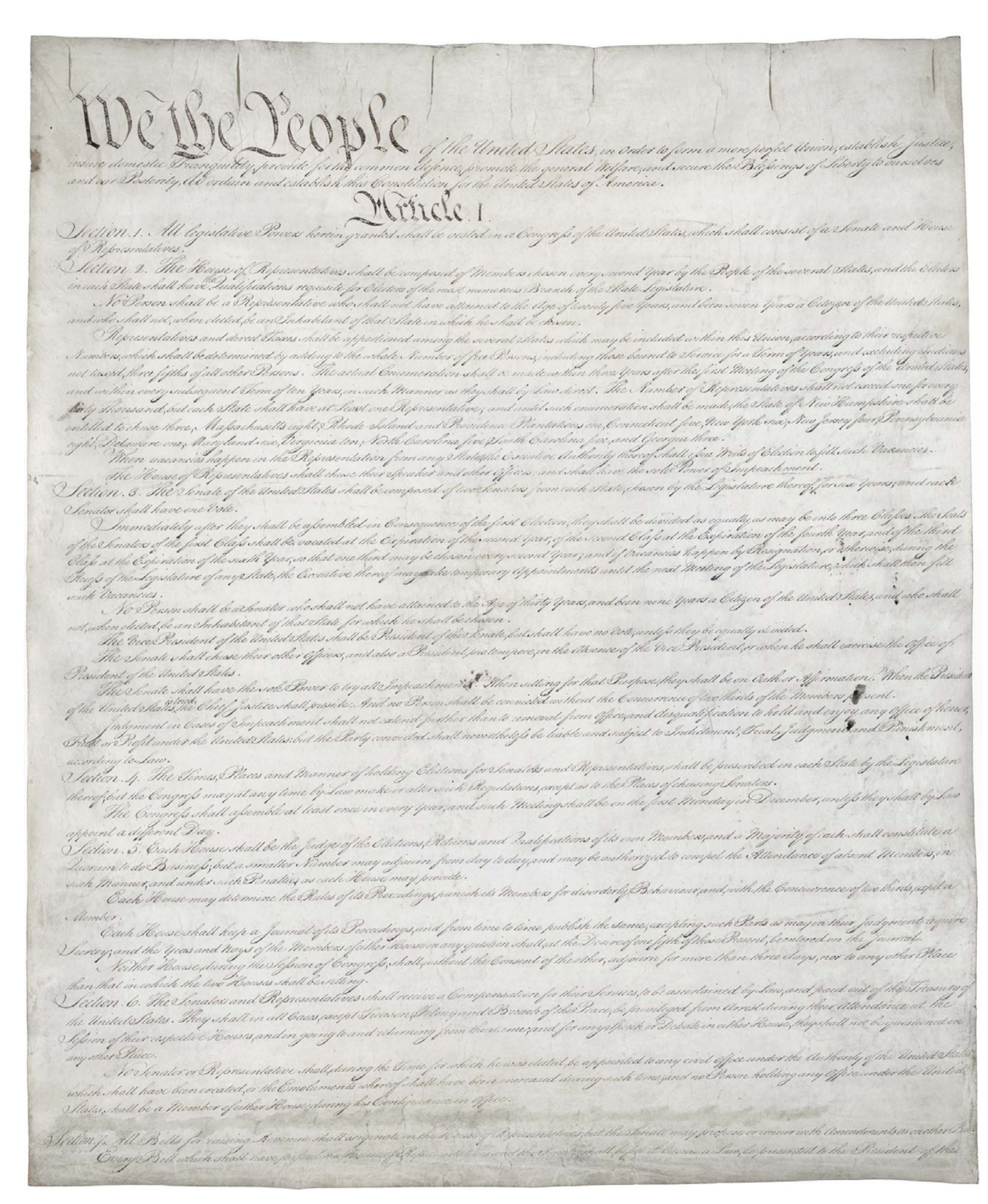
The Master Street Plan...

...is like the U.S. Constitution: rigid enough to keep everyone in line but flexible enough to accommodate the future we cannot predict.

...is a medium for the sustainable transfer of land uses over time allowing for the location of our infrastructure, utilities, and largest public space (our streets) to remain constant.

...is necessary to tie all regulatory metrics together and to keep them from acting autonomously.

...is dependent on the design intuitions of true professionals and cannot be mechanically regulated into a meaningful existence.

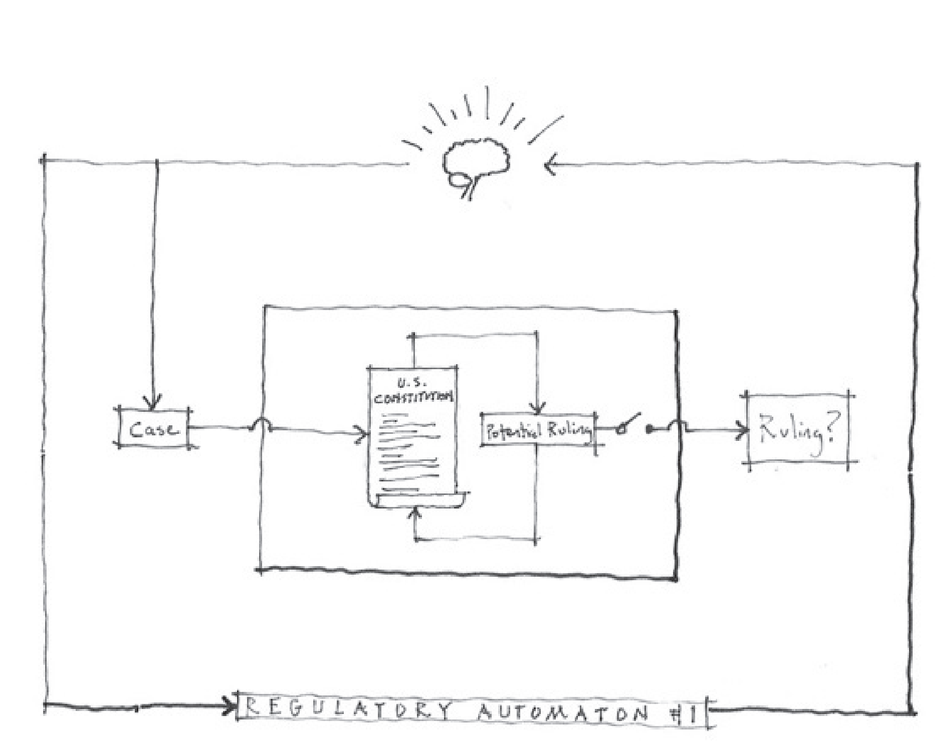


Our current development laws are missing the first and most critical step toward successful urban design and city planning: the pre-established physical framework of our towns and cities, or the Master Street Plan. Without the establishment of a master street plan, any and all attempts at urban design and city planning—be it through zoning, zoning overlays, New Urbanism, Character Areas, transfer of development rights, etc—will inevitably fail to fulfill the goal of a truly comprehensive, holistic, and sustainable city plan. The conceptual framework that successful city development requires cannot be found in various individual metrics. The master street plan must be present in order to tie all regulatory metrics together and to keep them from acting destructively and autonomously.

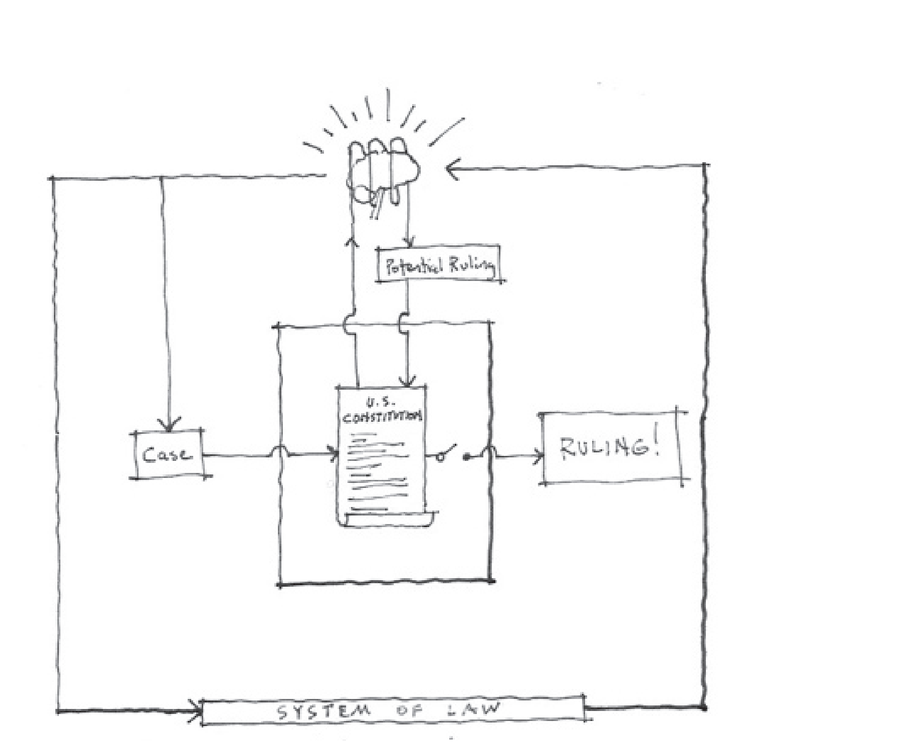
The master street plan says nothing about how a city should look or how it should feel. It is merely an indexical framework of the land. This index allows for action at a distance. For example, a suburban house built 5 miles from the city center will immediately fit within the greater physical framework of the area even if the full extent of the framework will not be physically realized for hundreds of years. As development continues out (and it will), the infrastructure need not change. Thus, the master street plan is a medium for the sustainable transfer of land uses over time allowing for the location of our infrastructure, utilities, and largest public space to remain constant.

The master street plan has no potential energy unto itself; rather, it requires our outside influence to realize its potential—just like the United States Constitution. Because the Constitution does not say everything we have an established court system of professional lawyers who interpret the Constitution. Because of this built-in "meta-Constitution", flexibility is readily observed as the same document that has allowed for slavery has also disallowed for slavery. The same text allowed for women's suffrage and disallowed for women's suffrage. Likewise, the master street plan requires this same level of professionalism and interpretation.

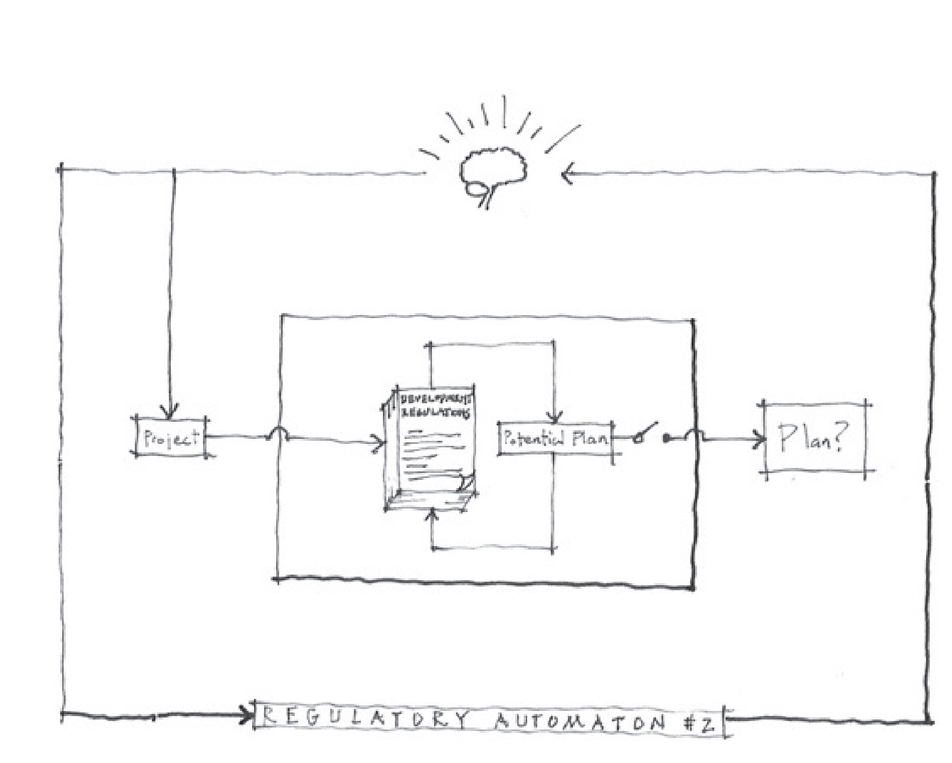
Every municipality has the legal authority to describe, adopt, empower, and follow a master street plan. Such power is described in the *Standard City Planning Enabling Act* of 1928. The act, intended to function as the primary vehicle for all future development of America's municipalities, was overwhelmed by its own subordinate: the *Standard State Zoning Enabling Act*. The stipulations within the *Zoning Act* concerning the "master plan" were conflated with those within the Enabling Act concerning the "master street plan." But given our benefit of history and hindsight, we have the opportunity to correct those mistakes made before us and to follow the original and true intentions of urban design as described in the *Enabling Act*. The master street plan, therefore, needs to assume its proper role at the forefront of development.



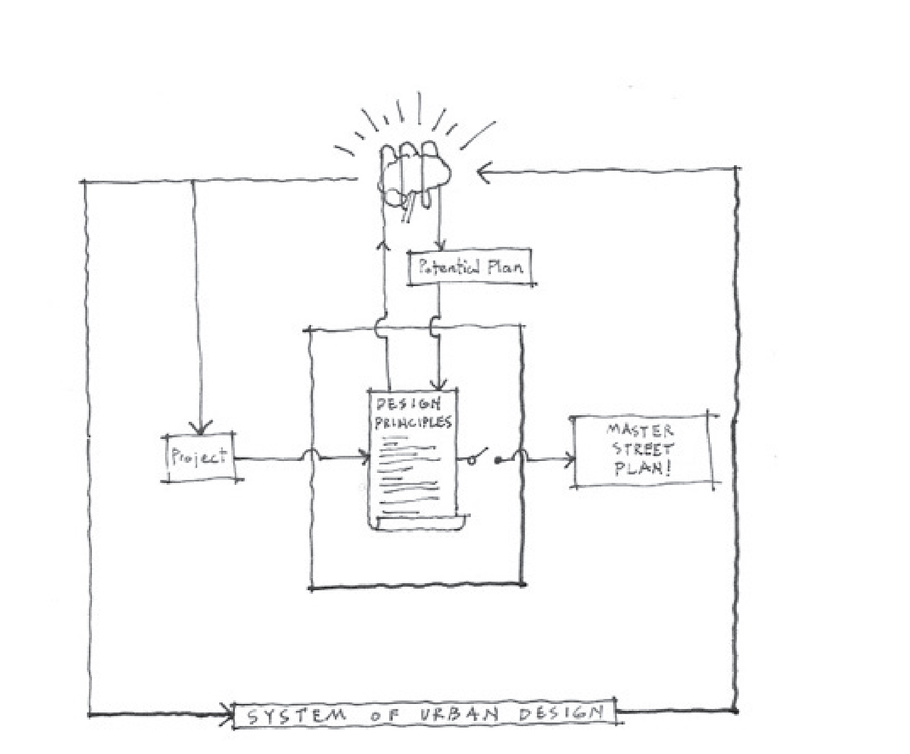
We knew we could not rely on the text of the U.S. Constitution alone...



So we created a System of Law powered by Cognititive Interpretation.



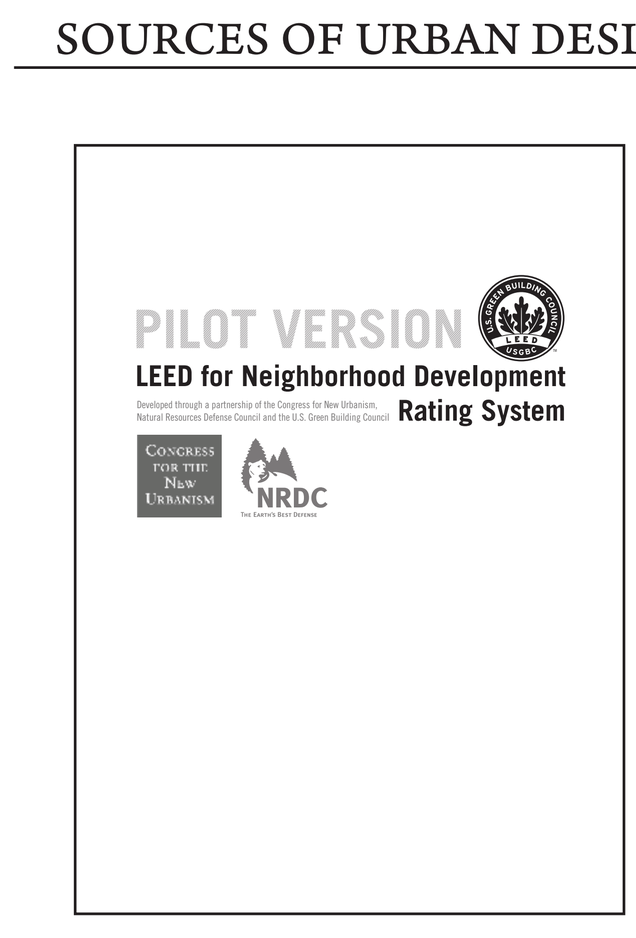
We perpetuate our reliance on the text of Development Codes alone...

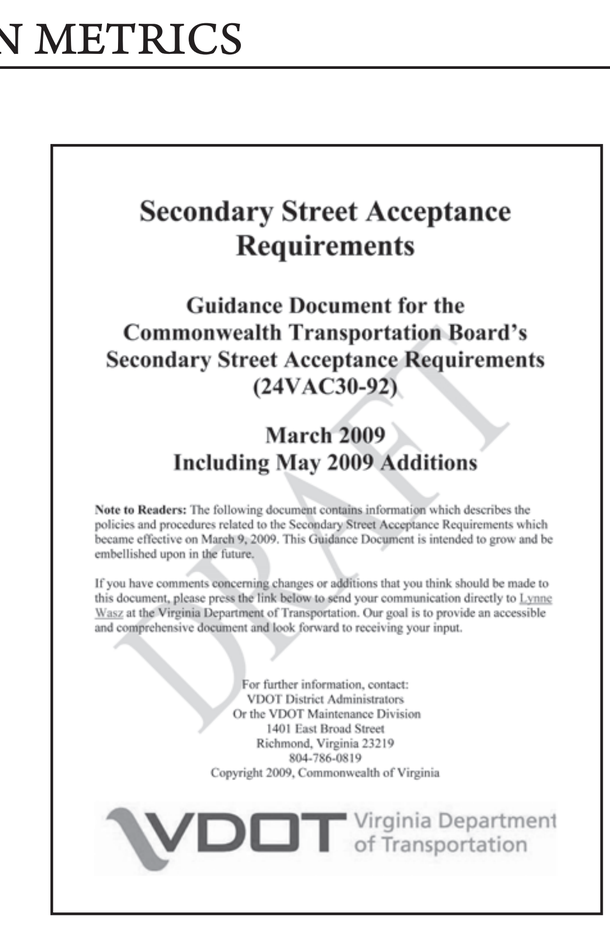


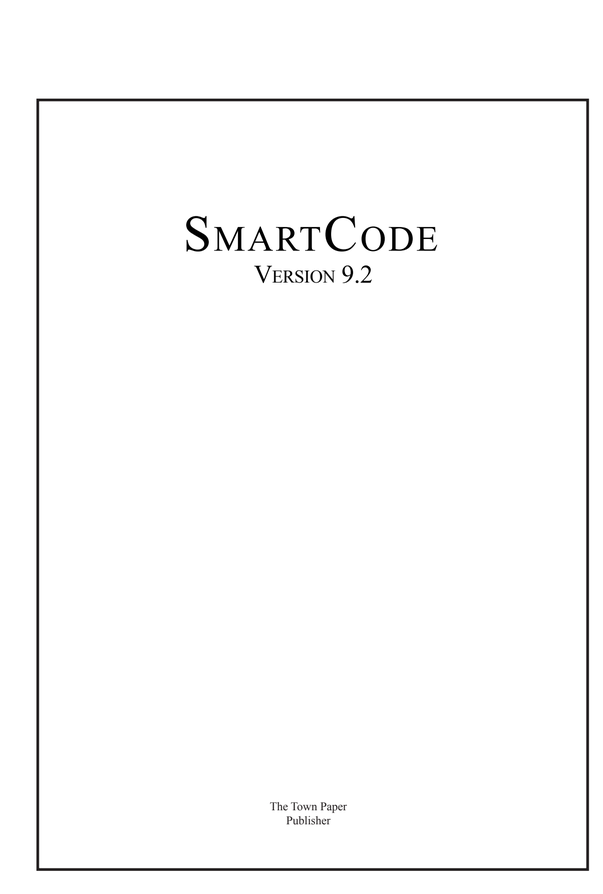
But one day a renewed System of Urban Design will restore the sustainable Order of Things.

REGULATORY AUTOMATONS: An Analysis of Their Defective Machinery

SOURCES OF URBAN DESIGN METRICS





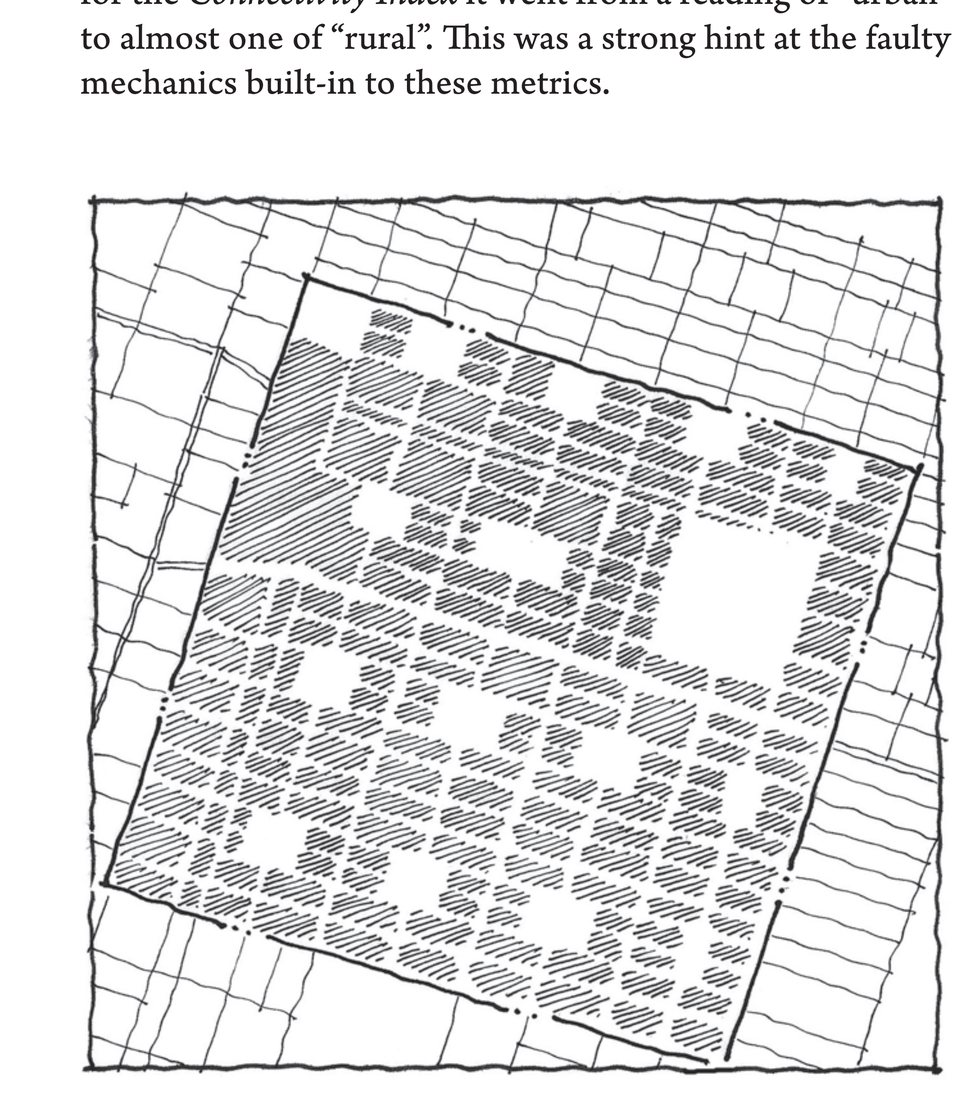


As planning departments are beginning again to realize the importance of the design of our street networks, how does one actually design a master street plan? Current attempts to do so are often relegated to the impartial world of metrics. Metrics such as *Connectivity Index, Street Centerline Density,* and *Intersection Density*, among others, attempt to reduce all the complexities of urbanism into simple and naïve ratios. Their declarations of hard numbers and fast rules assume their own assertions. Based on specific instances or averages of unknown studies and precedents, metrics reach for universality. They attempt to distill the lessons of the Average into the average project, but simple averages can be deceiving. For example, Albert Einstein and Mickey Mantle together had a lifetime batting average of 0.149. But the average tells me nothing of Einstein's genius or of Mantle's athletic skill. All was lost in the number.

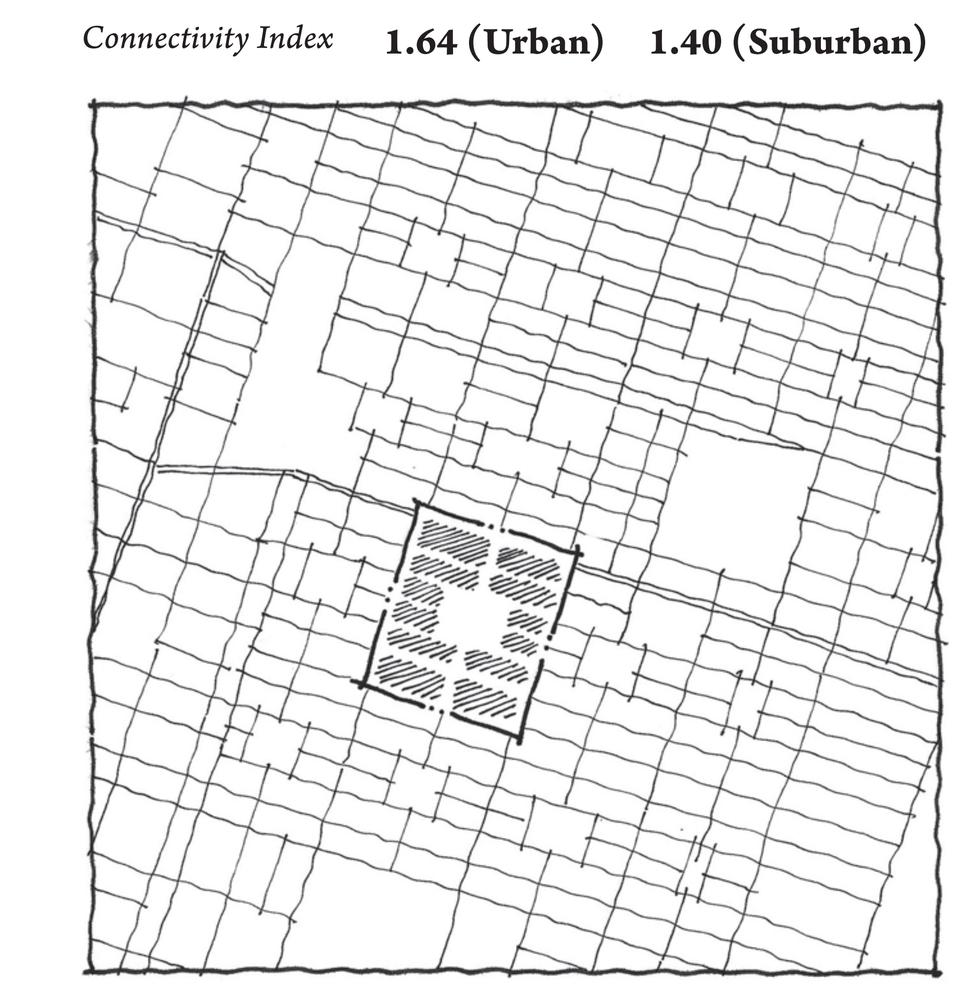
Metrics are by their very nature inflexible. A metric's own exclusion of context will cause it to ultimately fail to accommodate for every situation at every time. Attempted malleability can be built-in to a metric's rules by establishing a larger numerical range, but doing so will eventually cause the device to lose its "metricness" and become nothing more than a vast extent of integers within which to pick from an infinity of possibilities, thus controlling nothing. We see the need for a meta-metric.

INITIAL EMPIRICAL OBSERVATION

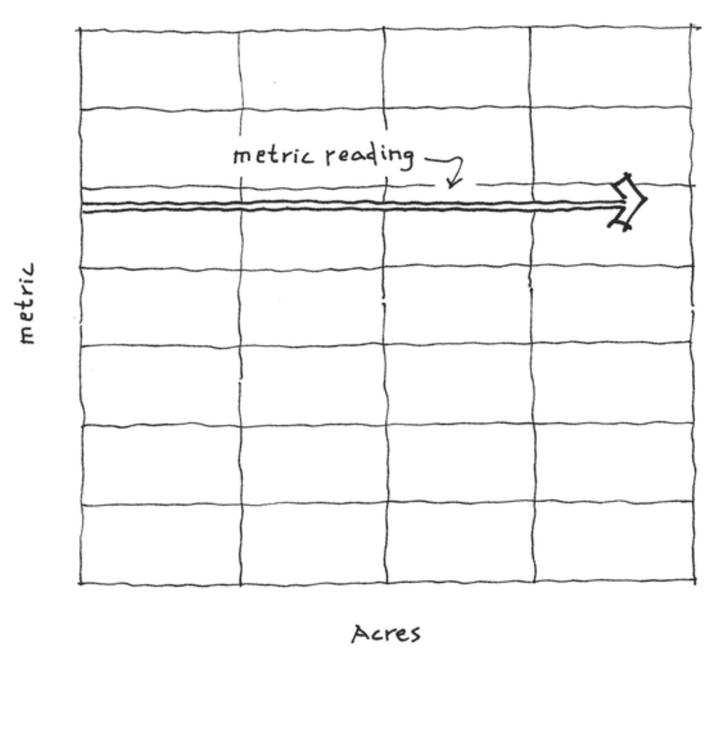
An initial empirical observation was made while studying the street network of Savannah, Georgia. Beginning with a large 218 acre area, the *Intersection Density* and the *Connectivity Index (VDoT)* was calculated. Following that and considering that Savannah is simply composed of repeating wards, a smaller ward area of 12.4 acres was studied for comparison. Suprisingly, none of the metrics for each area matched or were even cloes to matching. In fact, for the *Connectivity Index* it went from a reading of "urban" to almost one of "rural". This was a strong hint at the faulty mechanics built-in to these metrics.



	218 Acre Area	*14 Acre Area*
Intersections / mi²	**686**	**1,030**
Connectivity Index	**1.64 (Urban)**	**1.40 (Suburban)**



THEORETICAL OBSERVATIONS



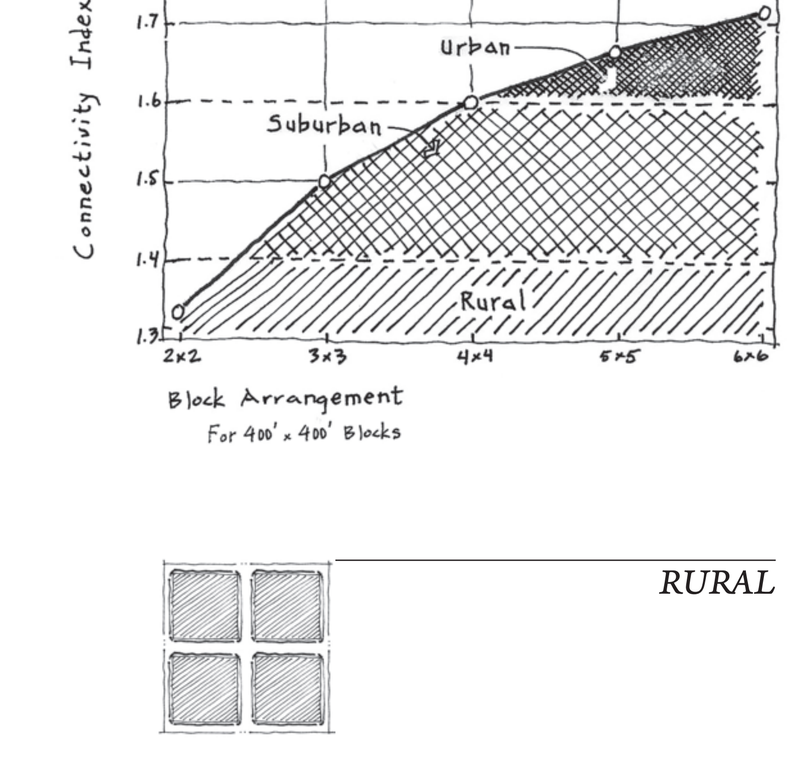
The intention behind each urban design metric is to produce a desired result consistently. The graph of such an intention would look like a simple horizontal line relative to the size of a project area (generally 15 acres to 200 acres as stipulated by many of the metrics). For example, if a metric calls for 220 intersections / mi², then that average should hold constant for all project areas. This is analogous to saying that gold is valued at $1,000 per ounce regardless of how many ounces of gold one has.

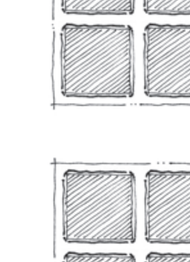
This seems to be a completely logical assumption, but the reality of the situation proves otherwise. By graphing the changes in a metric's value as one explores difference land areas, the line is anything but horizontal or constant.

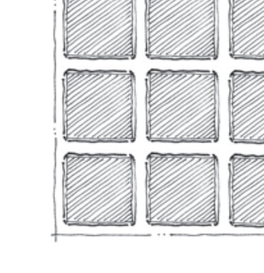
Below are some findings on the ineffectiveness of both the *Connectivity Index* and *Intersection Density* which fail to control for any desired outcome. The exact same street network of 400 foot blocks is "read" differently based on simple changes in the study area.

CONNECTIVITY INDEX

Virgina Department of Transportation Requirements



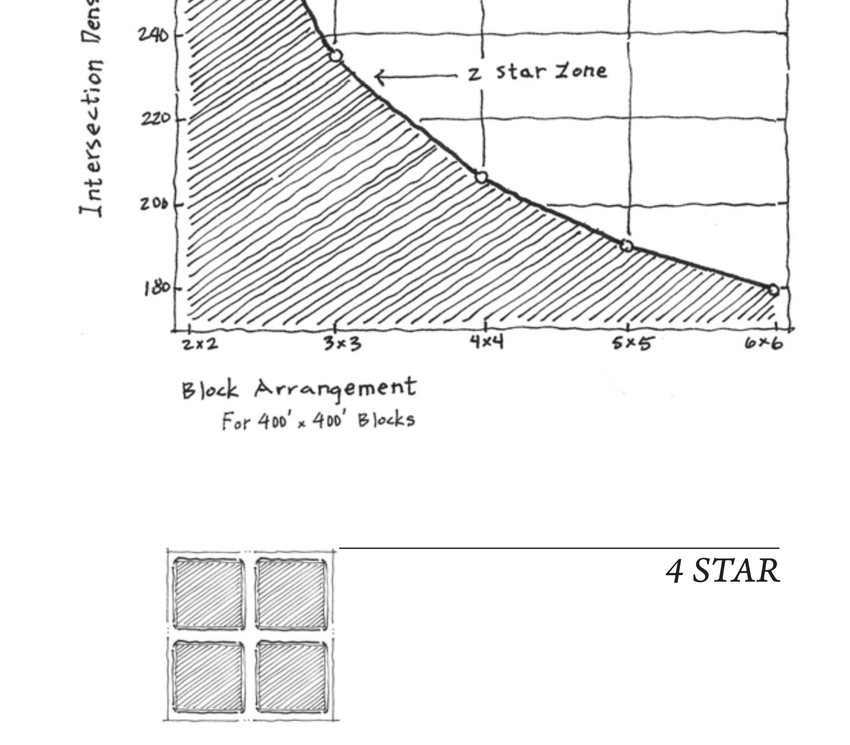

RURAL

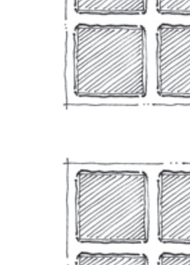

SUBURBAN

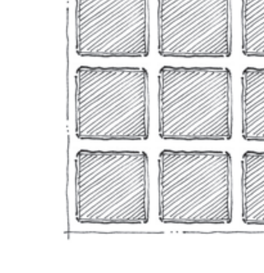
URBAN

INTERSECTION DENSITY

TND Design Rating Standards on a 5 Star Scale




4 STAR


2 STAR

2 STAR