Sustainable Development



RMLUI 2009 Conference

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NATIONAL TRUST FOR HISTORIC PRESERVATION®

Presentation Outline

- Frames for thinking about sustainable development
- <u>Values</u> of historic patterns of building and development
 - Threats to historic patterns of building and development
 - Policies to conserve our existing patterns of development

www.PreservationNation.org/green









Sources of CO-2 Emissions



percentage of emissions

Source: Architecture 2030, American Institute of Architects

Projected Building Trends



2005

2030

Source: Brookings Institution

Frame: Technology is the solution



"gadget green"

Frame: Technology is the solution





"the assumption of consumption"

























Frame: conserving what we have







Demolition Waste

"When we throw away one two-story, 125 x 50 ft Main Street building...

We are <u>un-doing</u> the environmental benefits of recycling 1,345,000 aluminum cans."

Donovan Rypkema

The greenest building is... one that already exists



Life - Cycle Energy Use: New vs. Historic



Energy Use

Life-Cycle Energy Use: New vs. Historic



Energy Use

Value: Traditional Building Practice







Value: Traditional Building Practice

 site location and orientation to maximize light and passive solar

- planting of trees to protect from sun/wind
- natural ventilation
 from operable
 windows, transoms
 and high ceilings
- eaves, shutters, porches and awnings

 courtyards, window wells, skylights, large exterior windows to maximize natural light

- use of masonry to create thermal mass to modulate heating and cooling
- human proportions and scale and efficient use of space

Average annual energy consumption (Btu/sf commercial buildings, non-malls)



Source: General Services Admin



Value: Adaptability















LEED Silver Certified Federal Office Building, Ogden, UT

LEED Certified Senior Housihg, Salina, KS



LEED and Rehab Tax Credit projects completed in U.S.




Value: Pedestrian scale





Value: Pedestrian scale





Value: Public investments







Value: Public investments





Value: Mixed use development

Value: Transit-oriented development

Transit Ridership: 1900 - 2007

Cities by Age of Primary Development: Pre- vs Post-1945

Bar chart indicates average performance of cities by age.

Threats to historic buildings and patterns of development

Teardown: the practice of purchasing an older house, demolishing it, and replacing it with a much larger structure

PRICE J4.99 THE DRKER

BRINC MICHEL

home wreckers

Dwarfed by change

The classic look of coastal towns has fallen under a growing shadow

and in the state of the state o and Amazer the own instances prove the which the property and an internal solution An annual and hadron into the way places with a

by Liz Joss

Love the lot, but hate the house? Tear it down and start over.

eating down a perfectly good house and building a bigger and better one on the same spot may seem extravagant to waste-not want-not Midwesterners, but to an increasing number of people in and around Indianapolis, the concept makes sense-and it's coming soon to a neighborhood near you. Judging from the number of demolition permits granted for single-family homes in Indianapolis-up 55 percent in the last three years, from 401 in 2000 to 623 in 2003-what began as a strictly East and West Coust phenomenon has become a small but significant citywide trend. And as vacant land in and around Marion County becomes scarcer, real-estate insiders agree that the trend will only grow.

Typically, Indianapolis' reardowns are happening in older suburbs whose houses are outdated and small by today's standards, but whose location is appealing. These older neighborhoods have several advantages over far-flung new developments, including shorter and less nerve-wracking commutes, established retail and entertainment options, large yards with mature trees, and stable schools that aren't bursting at the scans due to a sudden influx of families.

Teardowns in over 400 Communities

Changes in House Size: 1950 - 2007

- Average household size decreased 22%
- Average area per person increased 188% to 840 sf
- Number of 1-person households up from 9% to 27%
- Average single family lot = 16,864 square feet in 2007

HARRIS CUSTOM HOMES 1018 S. Vine Street

6 Bedroom 8 Baths

6000 Sq. Ft. 3 Car Garage

0

Contact Tim Harris 303-257-4779

Many neighborhoods are "over-zoned"

Buildable Lot Area

- 1 Existing Structure
- 2 Current Trend
- A 10' City Right of Way
- B Front Setback no less than 20% of lot depth
- C 3'-0" Minimum Rear Yard Setback (Accessory Buildings)

Policies to conserve historic neighborhoods and communities



F.Q. STORY HISTORIC DISTRICT

GREENLAND HILLS)

EST. 1923

M STREETS CONSERVATION DISTRICT











Percentage of structures protected by landmark ordinance in major US cities



Total number of structures in city and % protected



Policies: Form Based Codes

A Form Based Code (FBC) moves the emphasis of zoning from use to form

FBC's are based on an analysis of existing context

Sample Building Specifications in Form-Based Code

Neighborhood Mixed Use: Building Type 2



TYPOLOGY AI



SNAPSHOT AREA - KEV

DESCRIPTION

This area typifies many of the earlier single family residential neighborhoods of the City. The development pattern in this area has particularly high lot coverage, with long street blocks concentrating consistently narrow lots. Detached sidewalks and mature street trees contribute a maturity and consistency to an already relatively cohe sive pattern of housing. Front set backs tend to be consistent while the building form varies considerably either between lots or within the block. Building height is also relatively consistent. This would seen to be the most consistent of the residential typologies.

Differs from other traditional typologies:-

- + Very high lot coverage and narrow streets
- · No front accessed parking
- · Very consistent pattern of street trees



SNAPSHOT AREA - AERIAL PHOTOGRAPH

second interaction of the second second second second

SNAPSHOT AREA - BUILDING PLACEMENT DIAGRAM

FRAMEWORK FEATURES

STREET PATTERN.	REGULAR RECTILINEAR GRID	Lot So
Sniet Work	MEDIUM AVENUES & NARROWER STREETS	Lor Siver & Orentance
Spewerk Location:	DETACHED	Lot Work
ALLEYE	CONSISTENT	Lot Covenior
Steert Terra	Ves - Recular Pattern	Bus react Operation

- BLook Wenk: RELATIVELY CONSISTENT 300' BY 600"
- CONSISTENCY/DHERSTY: RELATIVELY CONSISTENT



- # 50% & GREATER
- BOLING PLACEMENT: FORWARD
- Parent Access/Locattoic GEN, REAR ACCESS

EXTRACT OF THE SNAPSHOT AREA - AERIAL PHOTOGRAPH (LEFT) EXTRACT OF THE SNAPSHOT AREA - BUILDING PLACEMENT DIAGRAM (RIGHT)

BUILDING PLACEMENT

Front Setback: 20/

See Setbacks: 5' REAR SETBACK 20'





right of Congress Park above alrows the shallow hord yards, consistent Park above shows how many traditional front aethack and general two slory chaimulti-family structures fit within the genacter prevalent within typology A1. eral character of the single-family struc-



eas prevalent in typology A1

pology A1

infi# projects.



The photograph of Congress Park above As shown in the photograph of Congress shows the consistent pattern of front Park above, A1 tonds to have the most porches and lack of front vehicle use alconsistent pattern of street trees among functions.



development in typology A1 often recogrize the perierol scale and character of An abown above, side settlacks are artial nearby single-family development. and lot coverage is generally high in ty-





The defining elements of typology AT are not always recognized in contemporary sistent pattern of detached alley-looked garages in typology A1.

BUILDING FORM

Building Height:	2-2.5
Plate Height:	15-22
Roof Ridge Height:	25'-35'
Roof Form:	FRONT GABLE, SOME HIP
Entry (Porch/Door Orientation):	CONSISTENT FRONT PORCH
Transparency (Window Location & %):	30-50% Transparency

1. 35/40' BY 145' IONG, NARROW, PERP. TO STREET * NARROW, WITH SOME EXCEPTIONS ON: GEN. WITH LOT

TYPOLOGY DI



SHAPSHOT AREA - KEY

DESCRIPTION

This area is characterized by a curvilinear grid network of streets, often with exceedingly long street blocks which are generally limited to two standard lot lengths wide. All vehicle access is from the front, usually associated with attached garages. Sidewalks are attached and give access to a relatively regular pattern of drives and paths. House form is relatively consistent with a common shallow pitch rectangular plan often varied by additions, front porches and garage accommodation. The axis of the house plan is parallel to the street and predominantly single story. A consistent and deep set back, combined with minimal space between the houses, establishes a relatively strong street frontage pattern and visual cohesion.

Differs from A. B & C typologies:-

- · Curvilinear street network
- · Long, often sinuous, street blocks
- Differs from typology D2:-
- · Lower lot coverage
- · Lower front setbacks

FRAMEWORK FEATURES

STREET PATTERN. CURVILINEAR GRID Sneer Work WIDE SIDEWHER LOCATION: ATTACHED ALLEYE NONE STREET TREES: NONE. SPORADIC PRIVATE TREES BLOOK WOOK 250/300' BY 1,100', VARIABLE CONSISTENCY/DIVERSITY: RELATIVELY CONSISTENT



SNAPSHOT AREA - AERIAL PHOTOGRAPHI



LOT FEATURES

Lot Set: 50/75 BY 125. VARIES Lor Sinne & Onewtanox: SHAPE VARIES & RECT. Lot WOTH: VARIABLE Lor Coversion: 25-40% BULING OVENWINGK. PARALLEL TO STREET BURING PLACEMENT: CENTRAL Parene Access/Location: FRONT. ATTACHED GARAGES.



EXTRACT OF THE SNAPSHOT AREA - AERIAL PHOTOGRAPH





Typology D1 differs from typology C1 in ogy D1 than D2 as shown in the above its curvilinear gnd of streets. Sklewalks photograph of University Hills. are also attached





erally lower than those in D2. Most struclures are 1-1.5 stories.



are oriented parallel to the street.



-



typology D1 area where a significant amount of infit has occurred.



Because typology D1 does not have aikeys, most homes have front facing gareges and driveways.



As shown above and at left, most new

infill its larger and taller than traditional

BUILDING FORM

Building Height:	1-1.5 STORIES
Plate Height:	8'-10', 16'-20'
Roof Ridge Height:	12'- 15', 25'-30'
Roof Form:	GEN. SIDE GABLED
Entry (Porch/Door Orientation):	SMALL FRONT PORCH
Transparency (Window Location & %):	25-35% TRANSPARENY TRA DITIONAL, 40-60% IN NEW CONST.

BUILDING PLACEMENT

EXTRACT OF THE SNAPSHOT AREA - BUILDING PLACEMENT DIAGRAM

Front Setback: 40' SCE SETBACKS: 5 REAR SETEROIC VARIES, 40' PATTERN

Policies: changes to development standards



Los Angeles recently passed an ordinance changing the FAR standards for more than 300,000 properties across the city

Policies: remove barriers

• Reducing off-street parking requirements

 Allowing Accessory Dwelling Units (ADUs)





Policies: provide incentives





Policies: direct development to places where it fits



Population Densities of U.S Cities: 1950 - 1990







What will be the places we will <u>want</u> <u>to sustain</u> in the future?



Thank You.

www.PreservationNation.org

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NATIONAL TRUST FOR HISTORIC PRESERVATION







Shopping Center Space Per Person



Source: Shopping Center Today