



r= wire

**Analysis for
investment and
growth in Northern
Fairfield County**

Summer 2013

What is Re-Wire?

Investment analysis

Target area companies

Market analysis



Inspired by Redding's twin legacies of art and manufacturing, *Re-Wire* is a land-use planning program for the former Gilbert & Bennett Wire Mill that seeks to redefine post-industrial development for the twenty-first century.

AT A GLANCE

Site

- 55-acre campus
- 12-acre pond with waterfall
- One minute from Metro North Branchville station
- Largest intact mill village in New England

Team

- 3-principal international professional atelier
- 11-principal local student atelier

Vision

- Contemporary, fully integrated live/work neighborhood
- R&D labs
- Urban farm & green market
- Indoor/outdoor event and social space
- Boutique hotel
- High-end restaurant & mid-range eateries
- Communal workspace
- 2D/3D printing & prototyping
- Wood and metal shops
- Kitchen incubator
- Bicycling and aquatics
- Exhibition and studio space
- Career pathway education center (grades 9-12)
- Direct rail link to NYC

Context

Founded in 1670, Redding is a small town in western Connecticut considered by many to be the “Vermont of Fairfield County”. Redding’s colonial settlers were farmers with an enterprising, proto-industrial spirit. Gilbert & Bennett Manufacturing Company, established in 1828, began as a family-run tanning business, growing to become purveyors of wire products (including the mesh used in screen doors and windows) for the global market. As Redding’s farming economy faced increasing competition from Midwest imports, artists and progressives discovered the town’s beautiful landscape and made Redding their home.

Gilbert & Bennett

A self-sustained community grew around Benjamin Gilbert and Sturges Bennett’s 55-acre mill site, largely creating the village of Georgetown. The business transitioned from tanning to working with wire and developed the first wire mesh, which led to the creation of window screens — revolutionizing indoor life.

The company grew to be an industrial leader for the international market, and was a global company before modern globalism took hold. Most of the wire mill’s labor force was drawn from the major immigrant groups. Swedish immigrants actively recruited by the company arrived in great numbers by the end of the nineteenth century. The Gilbert & Bennett community was considered a model rural industrial village, closely following nineteenth-century Utopian ideologies, but it was never a social experiment — a healthy community was simply a good business model. Although the flagship mill closed in 1989, the company remains a producer of wire products in Atlanta, Georgia. Their former campus in Redding is the largest intact mill village in New England.

Art

In the early and mid-twentieth century, rural Redding was transformed by an influx of urban professionals – artists and progressives – taking up part-time and summer residence. Mark Twain founded the local library. Art collector, artist, and Société Anonyme co-founder Katherine S. Dreier welcomed guests such as artists Marcel Duchamp, Man Ray, Josef and Anni Albers, and dancer and choreographer Ted Shawn (who offered dance instruction to Redding farmers' wives). Edward Steichen, photographer, gallerist, and Museum of Modern Art's first curator of photography, deeded his Redding farm, Topstone, to the town, now a public park. Other notable residents include composers Charles Ives and Leonard Bernstein, art critic John Russell, publisher Virginia Kirkus (*Kirkus Reviews*), and early organic gardening advocate Ruth Stout.

Re-Wire Community Partnership

The *Re-Wire* atelier is a partnership between students from Redding's award-winning public schools and an international team of artists and architects. The principals of the professional atelier are artist and Redding resident Jane Philbrick, architect Ludvig Hällje (Gothenburg) and architect and artist Emil Lillo (Glasgow); with Cambridge, Massachusetts, architect and planner Steven Cecil leading The Cecil Group. Working with the professional atelier are Joel Barlow High School student interns (Melanie Ambler, Nick Catania, Cassandra Cormier, Jamie Curtis, Suzanne Goldberg, Olivia Greenspan, Matthew Hushion, Kylie McAdam, Sean Murray, Liana Viselli, and John Walsh), who are also the principals of our student atelier. The student atelier is staffed by Redding Elementary and John Read Middle School interns, whose optimism and imagination are invaluable. They have no fear of failure and their creativity is boundless.

Re-Wire began as a grant proposal for the new initiative “Art Catalyzes Placemaking,” sponsored by the State of Connecticut, Office of the Arts, Department of Economic and Community Development. Re-Wire is funded by the Connecticut Trust for Historic Preservation.

Bloomberg Administration & Cornell Tech: Investment analysis

Summer 2013

Introduction

By example, and briefly, we admire the Bloomberg administration's initiative to promote NYC's economic vitality by investing in high tech R&D through partnerships with Cornell and Technion, Israel Institute of Technology, to create a “Silicon Valley” on Roosevelt Island. NYC anticipates the impact of Cornell Tech to be 600 new companies, and up to 30,000 new jobs for low- and high-skilled workers, with many at wages above NYC medians.

The investment required to achieve this is substantial, and *Re-Wire* does not look to replicate this costly model in its vision for a hybrid, innovative campus. Rather, we look to attract and transplant talent produced by Cornell Tech to *Re-Wire*'s resource-rich complex, diverting young entrepreneurs from low-cost western Queens to a newly accessible northern

Fairfield County entrepreneurial base of operations. Boston offers further incentive and confirmation of this strategy: retaining 46% of its college graduates, Boston's economy consistently outperforms Massachusetts overall.

1. Uniqueness

The Cornell and Technion proposal contained several additional unique elements that added to its desirability:

- \$150 million revolving financing fund for NYC start-ups
- Largest net-zero energy building in the eastern United States
- Education enhancement for 10,000 NYC students and 200 teachers each year
- \$350 million seed donation for Phase 1 from single donor

2. Incentives

To catalyze the expected billion+ dollars in private investments, NYC put a compelling package on the table in the RFP. City assistance includes:

Technical assistance

- development approvals, planning
- applications for governmental (Federal, State) funds

Real estate

- three City-controlled sites offered on favorable terms
or
- respondents could select a private site

Capital funding

- up to \$ 100 million to assist with infrastructure, build-out, and/or equipment

3. Where is growth needed?

“Game Changers” was a year-long exercise spurred by the financial crisis (September 2008) which forced a hard look at strengths and opportunities in NYC.

“Game Changers” included:

- 350+ business and community leaders
- 12+ University Deans/Presidents
- Round-tables, workshops, panels
- Sector analyses of NYC’s leading industries and growth sectors
- Focused on identifying ambitious, achievable initiatives for growth

NYC consistently heard:

- Building NYC’s technology capacity is critical to future growth
- Strong research institutions help create these knowledge jobs
- NYC is relatively underweight in academic tech research, despite excellent existing institutions

4. What do we lack?

Relative to the size of its economy, NYC is simply not producing enough cutting edge technology or a big enough high-tech workforce

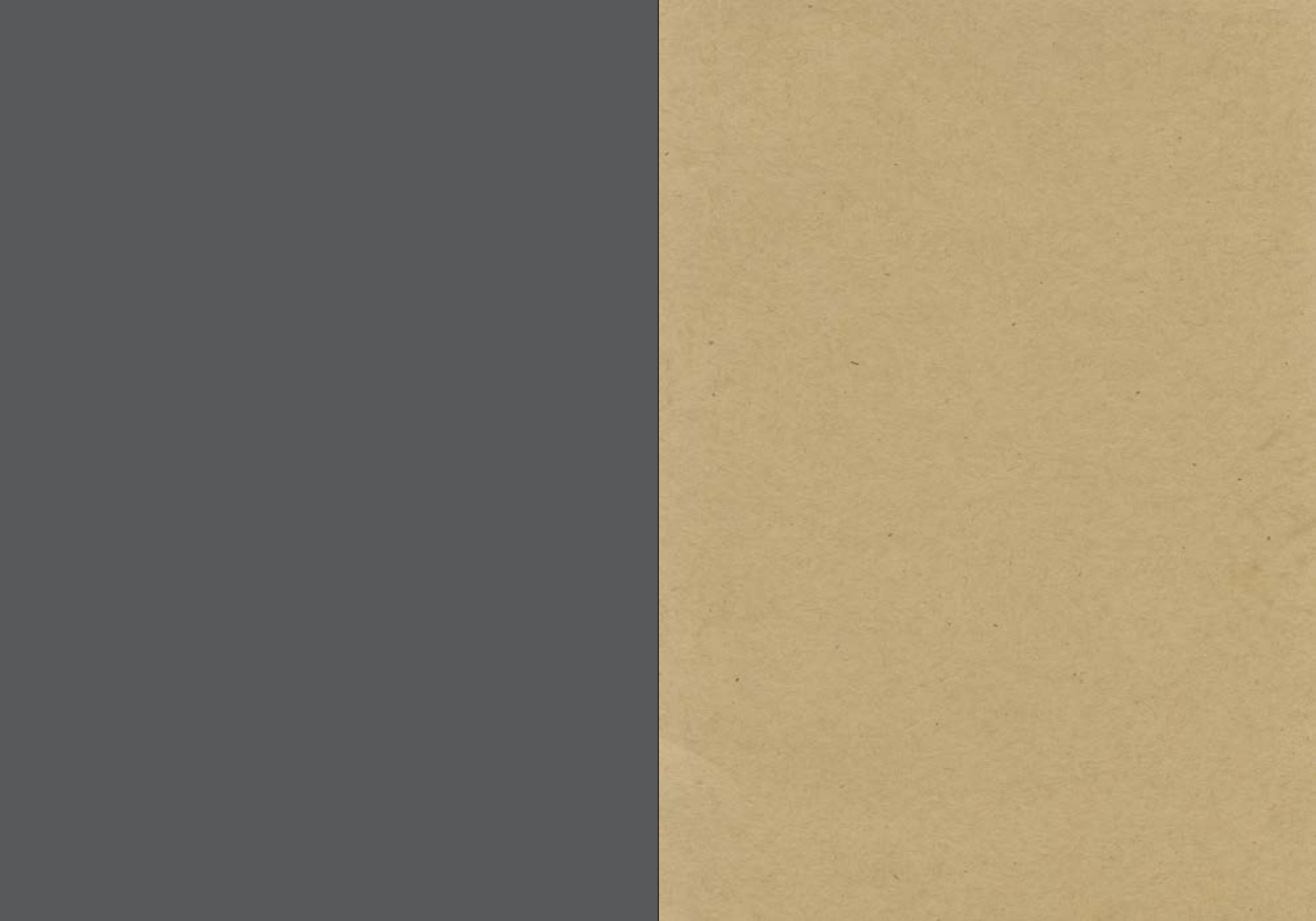
Metric	New York	Boston	SF Bay
Size of Economy	1st	9th	8th
R&D per capita of Top 100 engineering programs	\$7.00	\$134.00	\$95.00
Science & engineering as % of workforce	3.8% (33rd)	7.4% (6th)	6.9% (8th)
Hi-tech payroll as % of economy	6%	13%	13%

5. Return on investment*

Cornell Tech NYC's \$2 billion of private investment will generate:

Metric	Phase I (2017)	Full-build (2043)
Size	700,000 sq ft	2,000,000 sq ft
Population	Up to 400 students Up to 80 faculty	2,000 students, 300 faculty and 125 researchers
Uses	Academic and lab space / student and faculty housing / conference space / corporate co-location	

* If the active companies founded by MIT grads formed an independent nation, their revenues would make that nation the 9th largest economy in the world.



Target area companies

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1. Pharmaceutical

Boehringer Ingelheim

Pharmaceutical manufacturing

800 employees in Danbury

200 employees in Ridgefield

Kendro Laboratory Products

Biotechnology

297 employees in Newtown

MannKind Corporation

Bio-pharmaceutical manufacturing

250 employees in Danbury

Penwest Pharmaceutical

Pharmaceutical manufacturing

125 employees in Danbury

2. Medical equipment

Dade Behring

Clinical diagnostic product retailer

350 employees in Brookfield

Lorad Corporation

Manufacturers of x-ray equipment

175 employees in Danbury

Medical Instill Technologies (MEDInstill)

& Sud-Chemie, Inc.

Sterile filling, dispensing, and connecting technologies

New Milford

TREX Medical Corporation

Medical imaging

409 employees in Danbury

Tenax Corporation

Plastic component production for health care

124 employees in Danbury

3. Aerospace

UTC Aerospace Systems

498 employees in Danbury

4. Manufacturing

Barden Corporation

Ball Bearing Manufacturer

350 employees in Danbury

Belimo Aircontrol (USA), Inc.

Air Control Manufacturers

130 employees in Danbury

Branson Ultrasonics

Electrical Machinery and Supplies

240 employees in Danbury

Dow Chemical, Inc.

Manufacturer of Plastics and Chemicals

160 employees in Danbury

Eaton Corporation

Hydraulic Manufacturing

190 employees in Bethel

FCI (Framatone Connections Inc., formerly Burndy)

Connectors for Various Markets (Automotive,
Communication, Consumer, Industrial, Medical)

80 employees in Bethel

Heli-Coil

Heli-Coil fastening devices

250 employees in Danbury

Hubbell Wiring Device-Kellems

Thermoset plastics

281 employees in Newtown

Memry, Inc.

High-tech engineering of alloys

142 employees in Bethel

Photronics, Inc.

Semiconductor equipment

245 employees in Brookfield

Praxair, Inc.

Industrial gases

280 employees in Danbury

Ullman Devices

Specialty tool manufacturer

180 employees in Ridgefield

5. Internet and information technology

Bristol Technology

Computer programming

75+ Employees Danbury

EGB Systems & Solutions

IT staffing and consulting, software development, search engine optimization, and website design

Inc. 500/5000 (2009) Stamford

Keane, Inc.

Computer-related services

350 Employees Danbury

Protegrity

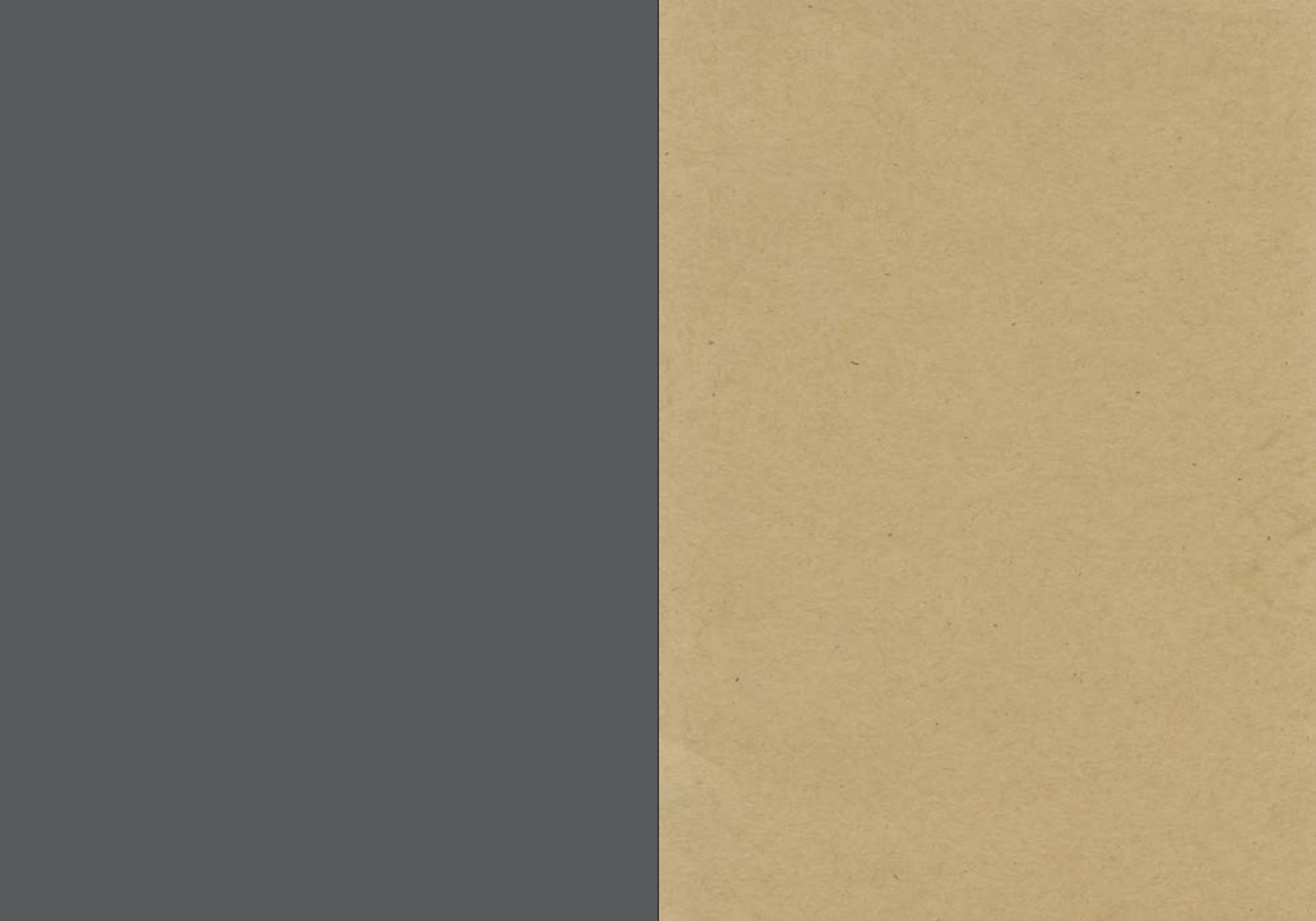
Centralized data security management

Inc. 500/5000 (2009) Stamford

SkyMira

Satellite and cellular technology

Inc. 500/5000 (2009) Milford



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Market analysis

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Twenty-first century challenges and emerging trends

Graying and “browning” of America

Rise of the single person household

The traditional family is changing

Aging infrastructure

Urban sprawl, aging suburbs,
shrinking rural areas

Climate change

Availability of water

Obesity, public health, food security

Jobs and the economy

Energy

Projections on aging & households

By 2030, one in five Americans will be over the age of 65. Today, one in five Americans have a disability.

Life expectancy will increase from 76 years in 1993 to 82.6 years in 2050. By 2050, the number of Americans over 85 will triple from 5.4 to 19 million.

By 2025, the number of single person households will equal the number of family households. By 2050, the overwhelming majority of households will be single.

Natural decrease in U.S. counties

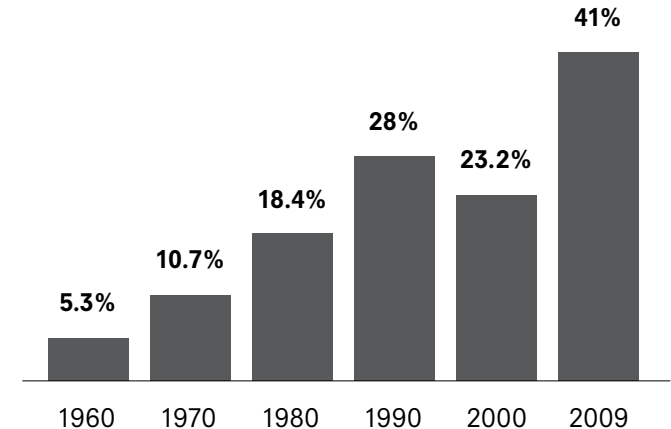
A near-record number of U.S. counties are experiencing more deaths than births in their communities, a phenomenon called “natural decrease.”

Roughly 760 of the nation’s 3142 counties are fading away.

West Virginia is the first state to experience natural decrease in the past decade. Pennsylvania & Vermont are close behind.

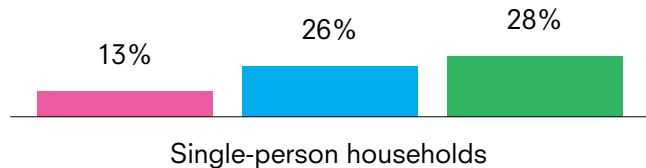
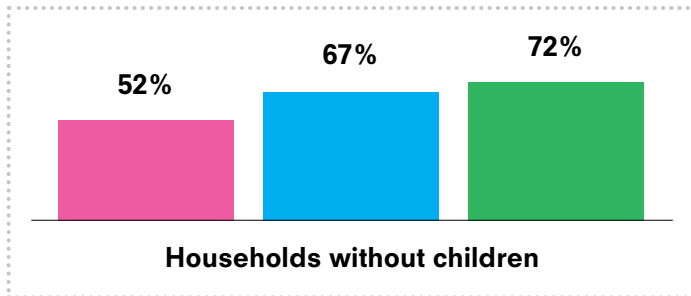
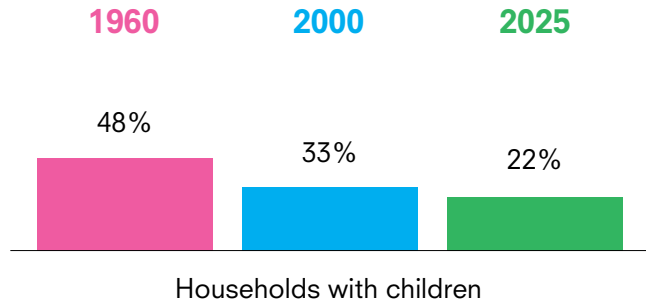
The common thread in shrinking counties consist of older whites who are no longer having children combined with the exodus of young adults who find little promise in the region and seek jobs elsewhere.

Fragile families: The rise of unwed births



Marriage rates are at their lowest recorded levels

Household Change, 1960–2025



Implications of an aging population

Land use patterns and transportation choices will change as millions of aging Americans realize they can no longer drive. 600,000 over the age of 70 stop driving every year.

By 2015, 15.5 percent of Americans over the age of 65 and older will live in poor transit areas.

There will not be enough workers to take care of the aging population.

NIMBYism may grow (and seniors vote).

Tax base for local governments may be challenged as seniors seek property tax relief due to their fixed income.

Implications of an aging population (continued)

Consolidation, mutual aid agreements to address shrinking tax base. Over the past 5 years, 472 local governments no longer exist. There are over 89,000 local governments in the U.S.

Seniors and the younger generation will demand an urban lifestyle, more housing and transportation choices.

Smaller house sizes and a preference to rent rather than own.

Experts estimate there will be an excess inventory of 25 million single homes by 2030 with no market to buy them.

Resiliency of post-war construction?

Pre-war

Better material

Better quality

Custom-built

Post-war

Inferior material

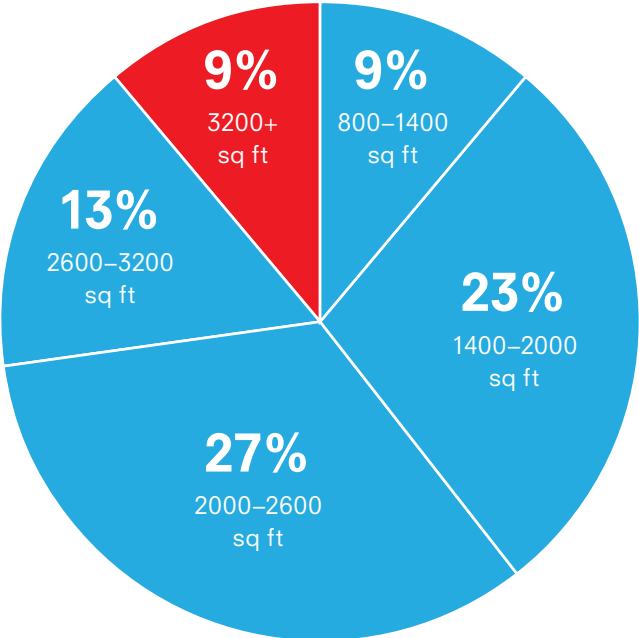
Mass-produced

Housing boom of the 1980s and 1990s

Is the McMansion era over?

9% of buyers want a home 3200 square feet or more

91% of buyers want a home 800-3200 square feet



SOURCE: TRULLIA

Next generation of building material?

National Association of Home Builders survey says: smaller, more energy-efficient homes.

Can we develop greener, more resilient building materials as home sizes get smaller?

Changing United States of America

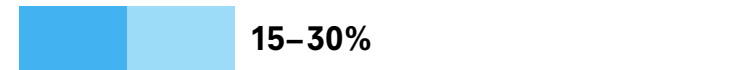
By 2042, there will be no majority race in the United States.

By 2050, the U.S. will look very different than it does today:

White (non-Hispanic) population



Hispanic population



Black (non-Hispanic) population



Asian / Pacific Islander / other races



U.S. Census projections

Whites are projected to lose population in the 2030s and 2040s and will drop to 46% of the population by 2050.

The Hispanic population is expected to triple from 46.7 million to 132.8 million between the 2008–2050 period.

Rise of the inclusive community

By 2023, minorities will comprise more than half of all children in the U.S.

By 2050, the nation's population of children is expected to be 62% minority.

The working-age population is projected to become more than 50% minority in 2039 and 55% minority in 2050.

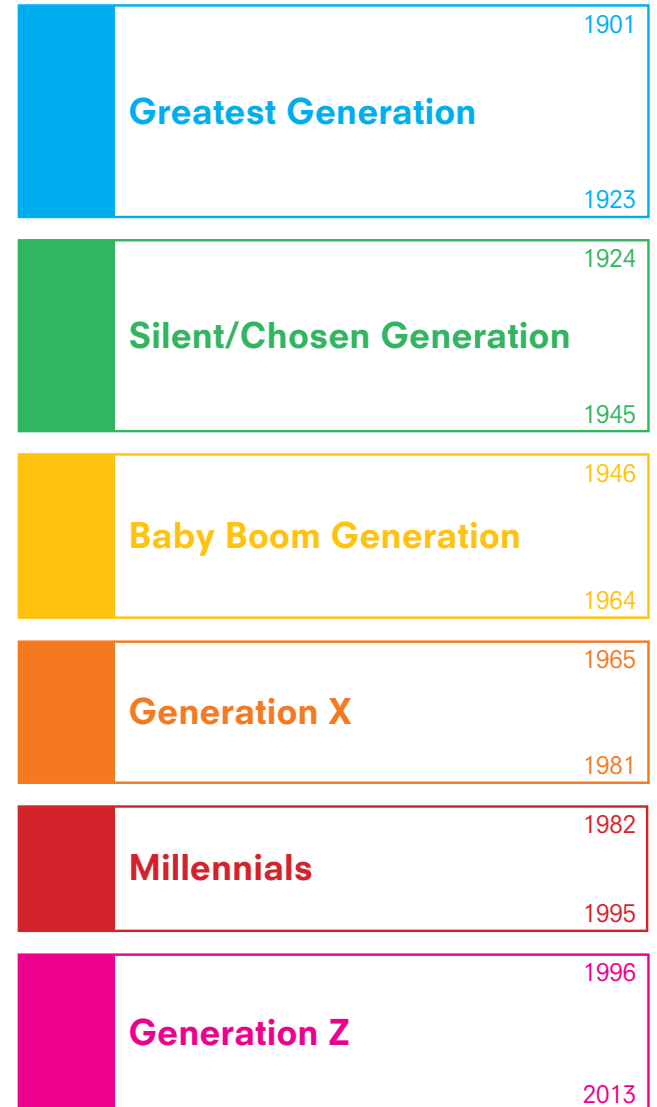
Implications of the “browning” of America

Neighborhoods may become more diverse, but will vary from region to region.

School diversity policies will be an interesting debate to watch over the next 10–20 years.

The results of the 2020 Census will be a wakeup call for America. Fierce election cycles from 2020–24.

The generation gap



Future market demand

- Values
- Needs
- Aspirations/constraints

Future consumer preferences and market demands

Greatest Generation

1901–1923

88 years old or older today

Experienced the Great Depression

Fought in World War II

Understood the meaning of hard work and shared sacrifice

Gave their today for our tomorrow

Understood the value of money and saving

Growth in industry and manufacturing

Immigrants poured into the U.S.

Segregation was a reality

Extended family lived nearby

Parents of baby boomers

Silent / Chosen Generation

1924–1945

66 to 87 years old today

Also known as the Mature Generation

Postwar generation

Grew up through the
suburbanization of America

Emergence of the “traditional”
American family

Also understood the value
of money and saving

Rise of the manufacturing sector
and the middle class

Civil Rights leaders were
born during this time

Parents of Baby Boomers and Generation X

Baby Boom Generation

1946–1964

47 to 65 years old today

Age of consumerism: emergence of
credit cards and personal debt

Today’s CEOs, leaders, and decision-makers

Great Recession occurred under their watch

Rise of information technology
and the knowledge economy

Age of the sexual revolution and drug abuse

Lifelong prosperity and entitlement

Lived through the Vietnam War

Parents of Generation Y

Generation X

1965–1981

30 to 46 years old today

Also known as “Baby Bust Generation” and “Me Generation”

The traditional family begins to change

Rising divorce rates, women joining the workforce, “latch key” children. Emergence of daycare centers.

Inception of home computers, video games and internet as a tool. Beginning of the technologically adept.

Individualistic. Casual disdain for authority. Dislikes being micro-managed. Value work/balance: work to live rather than live to work

Emergence of the creative class

Millennials

1982–1995

16 to 29 years old today

Also known as “Echo Boomers”

Lived through parents’ consumerism. Want choice

Tech savvy. Familiar with computers, internet, digital technology

Move from job to job

Instant communication: email, text, IM

More racially and culturally tolerant than previous generations.

Prefer urban lifestyle. Environmentally conscience. Place matters, not just job.

Significantly fewer getting driver’s licenses compared with a decade ago

Generation Z 1996 – PRESENT

15 years old and under today

Lived through 9/11 and Katrina

Living through the Greatest
Recession and two wars

First African-American president

Emergence of MP3 players,
iPads, and smartphones

Rise of social media

More non-traditional households

Environmentally conscious, many
similarities to Generation Y

Children of youngest boomers
and Generation X and Y

Implications of the generation shift

The 80 million Millennials (16 – 29)
will be the generation to watch. They
will have as big an impact on our
culture as the boomers

There will be tension over the next
10 years as generations transform
to American attitudes and values.
Generation X and Y will begin to
influence laws and public policy

The 2020s will be the decade when
single person households will surpass
family households for the first time in
American history

Aging in place

Lifelong communities

Aging in place

Active living

Universal design

**Return on
investment:
Next generation
economic
development**

**“If you aren’t a city
where people want
to live, you aren’t
a city where people
want to invest”**

Ron Littlefield

Mayor, Chattanooga

Sources of revenue

Property tax

Sales tax (retail)

Fees (cost recovery)

Enterprise funds (public utilities)

Lease or sale of assets

Competition for tax “ratables”

Some places are growing, shrinking,
or remaining flat

Offer incentives to “pirate” existing jobs
rather than “create” new jobs

Planning = economic development

It’s about the “plan,” not just the “deal”

Strategic planning adds value

It would take 600 single-family homes on a 150-acre subdivision to equal the tax value of the Wells Fargo Capital Center (Raleigh), which sits on 1.2 acres of land.

Wells Fargo Capital Center in downtown Raleigh has 90 times the tax value per acre than the average suburban acre.

Return on investment

Downtown high-rise residential on a 3-acre site pays off its infrastructure in 3 years. The return on infrastructure investment is 35%.

Suburban multi-family complex on a 30-acre site pays off its infrastructure in 42 years. The return on infrastructure investment is 2%.

Suburban vs. downtown Walmart*

Suburban	Suburban	Downtown
Land consumed (acres)	34.0	0.5
Real estate taxes/acre	\$6,500	\$640,000
Total city taxes/acre	\$50,800	\$414,000
Residents per acre	0.0	90.0
Jobs per acre	5.9	73.7

*SUBURBAN ASHEVILLE VS. DOWNTOWN RALEIGH

Creative placemaking

Experience

Memory

Sense

Authenticity

Developing town centers, main
streets, and urban villages

Livable Streets plan

New downtown zoning

\$ 25 million capital investment

\$ 3 billion in development in 5 years

America supports community planning

Two-thirds of Americans believe their
community needs more planning

79% of Americans support
community planning

America's top priorities for planners

1. Job creation (70%)
2. Safety (69%)
3. Schools (67%)
4. Protecting neighborhoods (64%)
5. Water quality (62%)

“Fall in love with
the problem,
not the solution”

Brad Smith
CEO, Intuit

The next 50 years?

Consolidation, regionalism,
governance

Demographic change

Public health

Water

Climate change, extreme weather

Energy

Zoning and land management

Building codes and material

Materials in this section collected from a lecture, "Planning in the 21st Century: What's Next?", given by Mitchell J. Silver, President, American Planning Association, at the Graduate School of Design, Harvard University on March 30, 2013.

— **re**wire