



This Publication is indebted to the following CHDD Participants:

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Master of Science in Real Estate Development Program

The Center for High Density Development

Columbia's CHDD was founded in response to the belief that the current debate on Smart Growth does not adequately address the Benefits of Density in commercial projects, and that few industry eyes are currently focused on the positive Benefits of Density in general.

We believe that topics addressed within CHDD will have broad political and investment implications for the industry as the future of the built environment is reexamined.

This advanced Spring Term Seminar explores the Critical Success Factors and Performance Measurements for high-density development.

CHDD is founded on certain premises:

- Business Process Innovation and Cultural Achievement are uniquely sponsored in High Density environments
- Workplace Density provides better choices and efficiency
- Density optimizes Fiscal Efficiency and utilization of expensive Infrastructure
- High Density Investments have more Stable Cash Flows
- Capitalization Rates are Lower producing higher Values

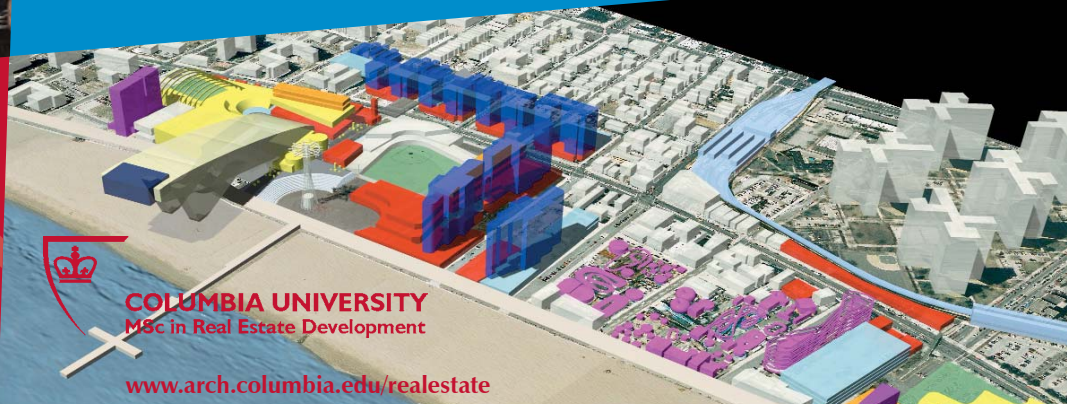
CHDD Research Modules currently include:

- Metrics of Density
- Infrastructure Maximization
- Fiscal Impact of Density
- Optimization of Workplace Environments
- Visualization of Density
- Cultural Density
- Valuation Impacts & Factors
- Human Capital Factor



Columbia CHDD undertakes research through an advanced seminar, a CHDD symposium on campus, and study field trips.

Research sponsors also review and shape topics, results and areas for further investigation. page 6



COLUMBIA UNIVERSITY
MSc in Real Estate Development

www.arch.columbia.edu/realestate

CHDD Design Charettes

Coursework for CHDD includes Design Charettes - featuring real sites and development opportunities for new high density urban districts. Charettes have focused on SkyRide - an alternative Transit and High Density Mixed-Use Concept for the Westside of Manhattan, and the repositioning of Coney Island in New York City. Student solutions to these actual, real-time problems were presented to the Annual CHDD symposium at Columbia.

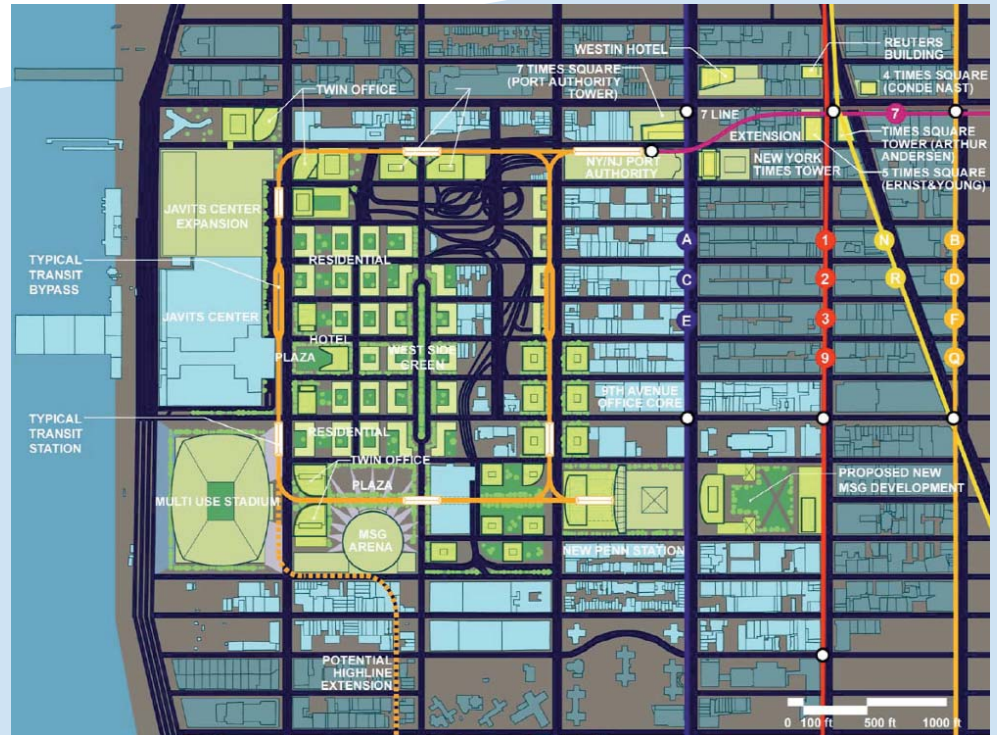
SkyRide Manhattan's Westside

SkyRide - CHDD concept for an Elevated Transit loop and high density Mixed - Use District for Manhattan's Westside monorail plan proposes loop to maximize connectivity to 42nd Street and new Penn Station. Master Plan renderings by John Lin MSRED 03.

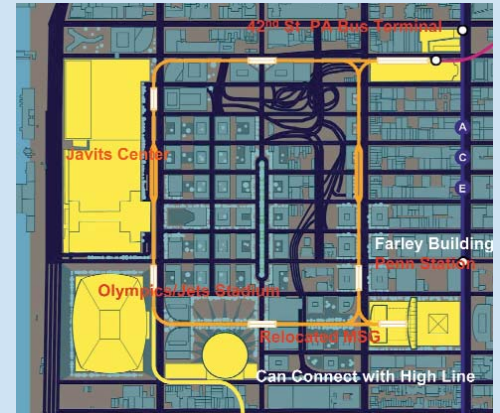
Coney Island Redevelopment

Coney Island redevelopment - CHDD proposal for Extreme Sports center and significant new Residential + Destination Retail + Hotel & Catering. Charette renderings by Eric Levin MSRED 04.

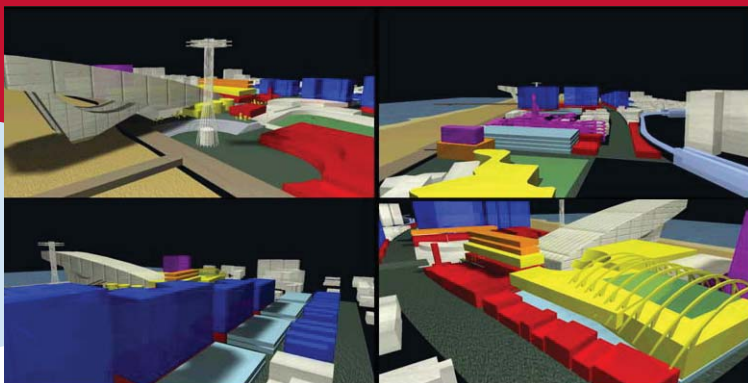
SkyRide Westside Concept



SkyRide loop connects Javits & 42nd Street & Penn Station and creates maximum Real Estate value



Coney Island Redevelopment



CHDD Annual Symposium

Developers and Urban Planning leaders convene for the End of Term Symposium on CHDD Student Research, with Panelists responding to the CHDD Students' conclusions on the benefits of Density.



Louis Dubin
President and CEO
The Athena Group

Density allows for the opportunity to innovate --- but that abysmal, high profile failures have tainted the current image in many regions. Look at the lack of affordable housing and outmoded, low density zoning issues in many communities, and you'll see how far we have still to go.



Mark Strauss
Director of Planning
Fox and Fowle

You can't divorce the planning aspect necessary to building dense communities. In order to create truly dense environments you need transit hubs plus the incentives, and the political perceptions of density increases make this difficult.



Thomas Wright
Assistant Director
Regional Plan Associates
of New York

Thomas Wright concurred, noting that planners' failure to convince the public of dense-development benefits is an overlooked factor that often kills projects. Mayors, on the other hand, race to increase tax rates and not property tax rates, so they are often amenable to density if properly approached.



Max Bond
Principal and Former
Planning Commissioner
Davis, Brody and Bond

The benefits of inclusionary zoning on sustainable development should now be obvious. Intolerance of low-income classes has replaced racial intolerance in our cities and is markedly reducing our ability to produce viable communities and cultural experiences.



Thomas Craig
Senior Vice President
Development
Hines Interests

Hines own research indicates dense regions produce lifestyle - purchasing demographics whose shifts in interest give the rents greater volatility. Public demands on the built environment are changing: we may be the first generation to value life-experiences over fiscal security.

MSRED Class presentations of Research Modules at CHDD Symposium



CHDD Symposium panelists and MSRED Director Michael Buckley (center)



Charles Shorter
Principal Public/Private Practice
Ernst & Young

Demographic shifts appear to favor Density by designing with narrowly selected segments - yet infrastructure in place can easily handle more.

We are indebted to the vision and generosity of our initial Sponsors who are helping to shape the Mission and Program of Columbia's Center for High Density Development.



The Athena Group

Margaret Campbell MSRED 04 awards Louis Dubin a Columbia Cap for The Athena Group's sustaining Sponsorship of the CHDD Programs.



The Gale Company

Stan Gale, President The Gale Company, was an initial Sponsor of the Columbia CHDD, shown at center, with MSRED Interns.

Research Results

Our Claim

High Density Development Offers a Competitive Advantage:

- Leverages Expensive Infrastructure
- Increases Access to Cultural Amenities
- Optimizes Workplace Proxemics and Industry Clustering
- Demonstrates Fiscal Performance
- Enables Operational Economies of Scale
- Facilitates Institutional Investment

Research Modules

Based on our Mission Statement and Philosophical Premises, we have aligned ourselves around the following research modules:

- Units of Density
- Visualizing Density
- Shifting Demographics & Lifestyle Preferences
- Cultural Benefits
- Human Capital Benefits
- Physical Benefits
- Financial Benefits

Cultural Drivers

David Berger & Laurence Berman, MSRED 04

Cultural Facilities

The “frame” necessary for the presentation and the promotion of Culture, such as performance halls, museums, restaurants, arenas, theaters, galleries, clubs/underground venues and the associated supporting professionals.

Creators

Artists, musicians, chefs, composers, film makers, the prime movers actively devoted to the creative process.

Products

The output or expressions (performances, literature, cuisine collaborations) of those involved in the creative process.

Patrons

Individuals or groups (audiences, investors, philanthropists and consumers.) who support the three other drivers in various ways.

Cultural Drivers			
Facilities	Creators	Products	Patrons
Performance Halls	Musicians	Performances	Audience
Museums	Artists	Publications	Investors
Theaters	Writers	Visual Arts	Consumers
Clubs/Underground	Athletics	Cuisine	
Galleries	Chefs	Competitions	
Arenas			
Restaurants			

Cultural Facility Example

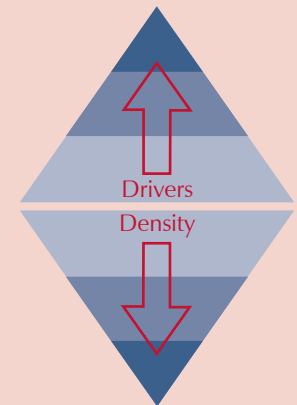
Tier 1:
National Concert Hall

Tier 2:
Regional Performance Hall

TIER 3
Neighborhood Stage

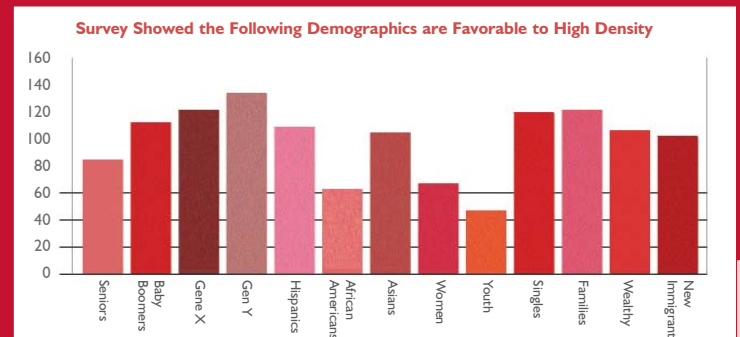
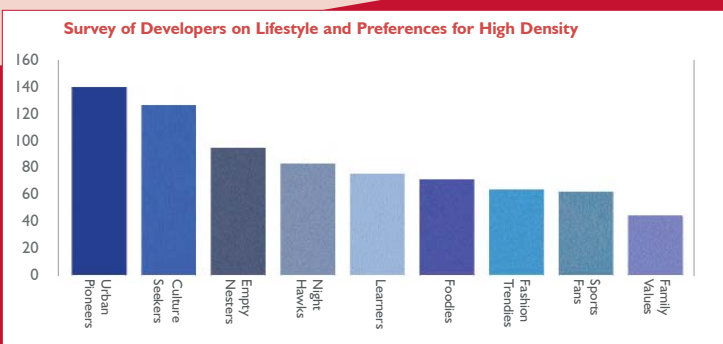
Correlations

- As Density of a community increases, so will the concentration of Cultural Drivers leading improvements in the quality, availability, accessibility, frequency and promotion of culture.
- As Density increases, so will the frequency and quality of Interactions and/or Collaborations between the cultural drivers of that community.
- As Density increases, so will the probability of Innovation (the ultimate product of increased interactions between cultural drivers).



Demographic Survey

Margret Campell & Mandy Whitely, MSRED 04



Survey also demonstrated

Growth of High Density Areas will Result from:

- Immigration & Population Growth (85% Agreed)
- Aging Baby Boomers (80% Agreed)
- Changes in Household Formations (80% Agreed)
- Growing Economic Disparity (40% Agreed)

Survey Showed People prefer to Live in High Density Areas for:

- Culture (95% Agreed)
- Economic Opportunity (95% Agreed)
- Sense of Community (70% Agreed)
- Social Diversity (65% Agreed)
- Environmental Ideology (30% Agreed)

Human Capital Benefits of Density

Ahkilah Johnson, Michael Gilliard & Harsh Toprani, MSRED 04

Dense work environments improve work force productivity, innovation, diversity, career growth and communication

Through Spatial Proximity:

Productivity

Competitiveness
Overhead Costs
Teamwork
Collaboration

Innovation

Idea Generation
Feasibility Testing

Communication

Information Sharing
Access to Human Expertise
Increased Face Time

Through Urban Clusters:

Diversity

Intellectual Diversity
Broad Demographics

Career Growth

Options
Opportunities

Corporate Benefits

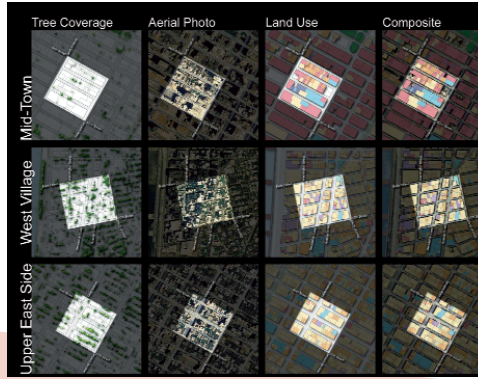
Availability of Quality Workforce
Location Inertia
Peer Employees

Human Capital Quality

Better Education
Continuing Education
Broader Experiences

Valuation Methodology Survey

Scott Lien, Sam Flood & Phillip Poettinger, MSRED 04



Units of Density

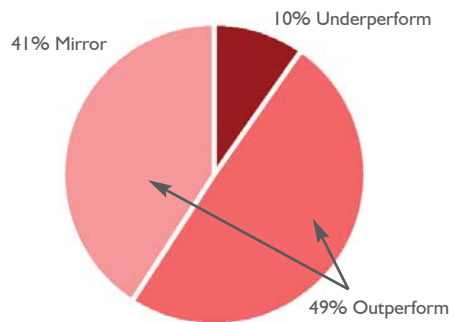
MSRED 04 students Robert Schiffer & Eric Lavin

Most definitions of Density are arbitrary. Instead, an accurate measure of density should aggregate a weighted set of factors that any individual can see and feel

$$\text{Density} = f(\text{weight} * \text{factor})$$

- Sidewalk Width & Street Width & Trees
- Building Volume & Lot Frontage & Setbacks
- # of Structures, # of Lots, Average Lot Size
- Sky Exposure & Private Outdoor Space
- % of Day in Use
- % Transparency
- Parking by Typology
- Pedestrian and Vehicular Traffic

Assuming a regional market in equilibrium, do you think a high-density development would mirror, outperform, or underperform the market?



MSRED Students explored the relationship between High-Density and Value with survey feedback from MAI-designated Valuation Professionals across the nation. Corroborating the CHDD hypothesis, the survey found:

- 49% of respondents indicated that a high-density development would outperform the market, given a regional market in equilibrium (see chart).
- Survey participants were asked to provide a typical Rate Spread, some noting Discount Rates between 10 and 200 basis points (average 50 bps) for high density developments.

Visualizing Density

MSRED 04 students James Suh & Greg Lobdell

Adverse perceptions of Density are primarily influenced by poor physical characteristics...

- Uninspired composition and massing
- Lack of human scale and proportion
- Inappropriate materials and quality of construction
- Unconsidered vehicular and pedestrian circulation

Rather than a simply negative relationship between Density and success. Successful High Density Development relies foremost on thoughtful Design.

Comparisons: 135 Dwelling Units per Acre



Positive

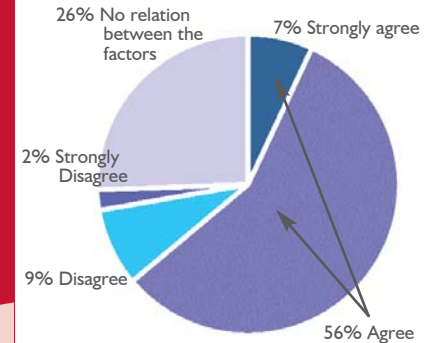
Hierarchy of Floor Heights
Varied Fenestration
Variation of Corner Articulation



Negative

Lack of Massing and Facade Hierarchy
No Street Presence
Thoughtless Extruded Floor Plan
Floor Plan

High-density office assets will typically attract tenants with a higher creditworth than less-dense assets.



The survey defined key fundamental factors that differentiate high-density:

- Pedestrian/transit vs. automobile accessibility to neighborhood services
- Garage vs. surface parking
- Low-rise vs. Mid to High-rise profile

Respondents overwhelmingly indicated proximity to transportation alternatives, housing, and workforce/employment were key factors upward Sales and lower Cap Rate comparisons used in traditional valuation approaches.

CHDD Annual Study Trip

Midway in the Spring term a Study Trip is organized to exposure CHDD Students to real world high density developments -and the Developers, Planners, and City Officials who enable the creation of Higher Density mixed-use environments.

This year's CHDD development road trip was held in Baltimore and Washington, DC. The class met with prominent developer and urban planning teams, who presented the leading political and fiscal models guiding the built environment in these regions.



CHDD Class Field trip to Baltimore and Washington

Forest City Washington



FCW's goal is to produce mixed-use neighborhoods that are stand-alone Districts.

- Economic and demographic drivers will support high-density development.
- Large scale mixed-use projects won't work without government support.
- Tension between federal and municipal sectors of government.
- Developer can add value by bridging that gap.
- Height restriction in D.C. forces density.
- Strategic play of three key projects to dominate and brand Southeast Washington.



Kristen Brinker, MSRED 03, who recently joined Forest City Washington, shown briefing CHDD students.

Streuver Eccles & Rouse

Density and Diversity have a catalytic effect

- Districts are more lively with activity on evenings and weekends.
- More is More: Density of attractions, and diversity of choice, accelerate absorption.
- Igniters: live music index, diversity of income/race.
- Smart Growth's Strongest Allies are Often Density NIMBYists: False conflict, narrow perspective on density and diversity.
- Critical mass of jobs and economic growth need to be generated for an area to 'tip.'
- Many neighborhoods are poised for discovery, but with perceptual impediments.



Bill Streuver presents a concept for a new neighborhood district.



CHDD Class with Tom Baum MSRED 86 and John Slidell, executives with Maryland-based Bozzutto Development Corporation.

Bozzutto Development Corp.

Bozzutto is developing high density urban residential facing the expanded Baltimore Harbor. The multi-decade revitalization of Baltimore's mer Harbor has produced massive re-investment in mixed-use office and residential.

- Successful high density urban projects require a retail component.
- Challenges of high density development require a more intimate knowledge of building technologies.
- Density is also an emerging trend in suburbia:
 - Bozzutto sees continued job growth in suburbs
 - Developments that were 18 units/acre are now 40+
- Public assistance helps make infill project feasible.

Eaken Youngetob



Eaken Youngetob,
President

- Undertakes urban infill projects near job centers or high density exist.
- People are willing to sacrifice square footage for lifestyle amenities and location.
- Premium construction at high density yields perceived value.
- 20% cost premium will realize a 3x-10x return.
- Dense environments are located near lifestyle amenities, which are becoming increasingly important.
- Target Audiences are empty-nesters, dinks, & mingles.

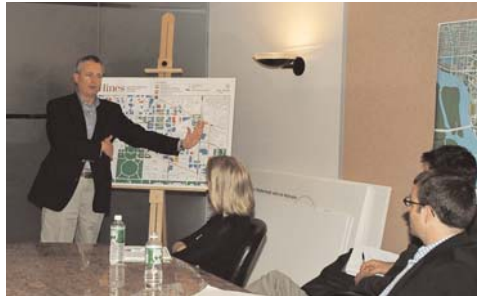
Cordish Company



David Cordish, President; above
Blake Cordish, VP Development; at top

As mixed-use developers, Cordish understands that a small amount of retail can galvanize a development.

- Entertainment in controlled environments creates value:
 - Own the streets
 - Control behavior/ security
 - Branding with entertainment retail
 - Encourage competition
- People would rather be entertained in a Downtown environment.
 - Market defined by 1h10min driving radius.
 - Music is a laser to attract specific demographics.
- Create environments
 - Unique amenities, tenant mix, and events.
 - Trend setting attractions change people's behaviors.



Hines Interests

William Alsup
SVP Development

- Large institutional developers and star architect partnering for complex urban projects.
 - Hines + Archstone Smith + Norman Foster Partnership for DC MXD Project
- European models are antecedents for local D.C. developments.
 - Dense city layouts.
 - Local Partnerships compliment their expertise.
- Develop 24 hour live/ work environments that have a variety of uses.
 - Cultural, Civic, Office, and Residential
- Each use should act individually, yet contribute harmoniously to the sum of the whole.
 - Stability of cash flow.
- Mixed-use development helps create neighborhoods and sense of place



RTKL Architects / Planners

John Gosling
Director of Planning

As designers of mixed-use developments, RTKL tries to design a sense of place to support community identity:

- Need to include all types of housing.
- Mixed-income allows for diversity.
- Rediscovery of MainStreet: created movement back to the city and galvanized street level retail.
 - Even if you have a metric to measure density, it can't be universally applied.
 - Minimum of 10 acres required to make a destination.

Anacostia Riverfront Initiative

Uwe Brandes
Director of Planning
DC Government



- Strategic venture to add developable land to D.C.
- Opportunity to add new districts and add life to city.
- To effectively redevelop the waterfront, they will rely on increased density.
- Strive to add 20,000 households and 40,000 new jobs.
- Economic development is an essential part of the plan.
- Urban Residential is also economic development.
- High Density is needed to fill the waterfront areas and to civilize the parks - "eyes on the street."

Urban Residential Trends

Eugenia Birch
Professor, Dept
of Planning
University of
Pennsylvania



As a leading researcher in Urban Residential Trends, Dr Birch shared her ideas on high density residential, including the unique demographic demand factors, and corroborated in principle the CHDD Mission Statement and Research Modules



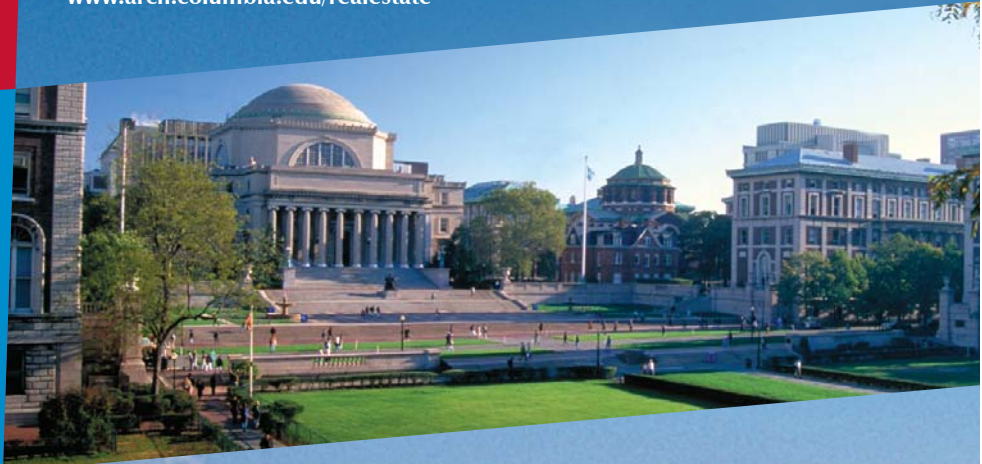
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Center for High Density Development



Michael P. Buckley,
Director, Columbia
MSRED Program



CHDD Mission Statement:

Research to Explore the Benefits of Critical
Success Factors and Performance Measurements
for High Density Development.

CHDD Philosophical Premises:

- New Ideas and Artistic Invention are uniquely sponsored in Dense environments
- Workplace Density provides better skill sets, choices and efficiency
- Dense Development optimizes Efficiency of expensive Infrastructure
- Density of Investment makes sense given shifts in Capital Sources
- Capitalization Rates for Denser developments are more favorable and cash flows more stable over time

CHDD Research Objectives:

To prove the Benefits of density across
three operating scales of development:

- Urban District
- Suburban District
- Village Centers

Firms or Institutions who have interest in sponsoring
CHDD Research Activities are requested to contact
the Columbia MSRED Program Office.

Columbia University
in the City of New York

