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CASE STUDIES IN RETROFITTING SUBURBIA

URBAN DESIGN STRATEGIES FOR URGENT CHALLENGES

WILEY

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Case Study **II.6**

The BLVD

Lancaster, California

Challenges Addressed:

- Disrupt automobile dependence
- Improve public health
- Compete for jobs
- Add water and energy resilience

A nine-block stretch of West Lancaster Boulevard in Lancaster, California, underwent a dramatic "road diet" in 2010, reducing four travel lanes plus a turn lane down to two. Designers and engineers placed diagonal parking in the three middle lanes, interlaced with street trees and streetlamps. They removed traffic signals from seven intersections, reduced the posted speed from 35 to 15 miles per hour, and rebranded the two-thirds of a mile length as a special place: The BLVD. Did it result in a congestion nightmare, a deathblow to already fragile shop owners? Quite the opposite. The BLVD demonstrated the multiple benefits of intelligently retrofitting wide, fast arterials with aging retail into inviting, walkable public spaces.

It helped that those nine blocks were Lancaster's historic Main Street and had "good bones." But it was also clear that its 72-foot width from curb to curb encouraged high driving speeds and was threatening to people seeking to cross on foot. The street's roots go back to the 1880s, when Lancaster started as a railroad town 70 miles north of Los Angeles in the high desert of Antelope Valley. However, the fine-grained, mostly one-story retail that thrived from the 1920s to 1950s began to lose out to strip malls and big box stores as Lancaster's growth accelerated in an increasingly suburban development pattern. The city's population grew from 48,000 residents in 1980 to 157,000 in 2010, driven by annexations and cost-conscious home buyers willing to endure hour-plus commutes into Los Angeles. In 1983 West

(a)

(b)

Figure II.6-1 These photographs before (a) and during construction (b) show how the road diet and the tree-lined central rambla retrofitted Lancaster, California's Main Street from a space to pass through into The BLVD, an attractive, flexible, and more climate-responsive destination. Source: Courtesy of City of Lancaster, California.

Lancaster Boulevard was widened from four lanes to five to try to help businesses compete with the suburban development.[1] After the Antelope Valley Mall opened in nearby Palmdale in 1990 and Sears and JCPenney closed their locations on the boulevard, there was not much meat left on the "bones."

The losses spurred several actions on the boulevard in the 1990s: construction of a new library and performing arts center; the Aerospace Walk of Honor, recognizing distinguished test pilots; and a new Metrolink rail station a block away with commuter service to Los Angeles. In 2008 the city adopted the Downtown Lancaster Specific Plan (DLSP). Produced by RBF Consulting with extensive community outreach, it included a form-based code to promote walkability and suggested the possibility of narrowing Lancaster Boulevard to two lanes.

So how did a politically conservative, working-class, and very auto-oriented community get to the point of putting their Main Street on a road diet? In just the right coalition-building way, the answer depends on who you ask. Jason Caudle, deputy city manager and then-director of the Lancaster Redevelopment Agency, sees the project as part of an economic development strategy to grow businesses and improve the jobs-housing balance, while weaning the city off its dependence on car dealerships and gas stations for most of its tax revenue.[2] Brian Ludicke, the city's planning director, agrees but emphasizes the role of The BLVD as a pilot project to address the high fatality rate on the city's grid of one-mile spaced, 100-foot wide high-speed streets.[3] The community members who participated in shaping the DLSP gave top priorities to building a sense of community, history and heritage, and arts and culture. All three agendas—economic development, public safety, and culture—united behind the vision of a "Main Street environment," but it was the 2008 Great Recession that made it happen.

Like other communities whose economy depended largely on sprawl building, the recession hit Lancaster hard. Unemployment reached 18%, foreclosures were rampant, and construction of strip malls and subdivisions ground to a halt. The national developers quit town. But the downtown locals were still clamoring for action on their newly adopted plan. With rumors spreading that the state might soon dissolve its redevelopment agencies, Caudle was able to direct the last of California's redevelopment funds to getting the road diet on West Lancaster Boulevard

Figure II.6-2 This early partial plan shows the flexibility of the tree-lined rambla retrofit system. From left to right, it depicts a block with the rambla used for parking, a widened sidewalk for café seating under a proposed (unbuilt) arcade on the south-facing side; an intersection with no light signals; and a block with the rambla used as event space with an activated mid-block crossing. Source: Moule & Polyzoides, Architects and Urbanists.

[1] Telephone conversation between Brian Ludicke and Christy S. Dodson, March 2016, for an academic paper at the Georgia Institute of Technology.

[2] Conversation with Ellen Dunham-Jones and Elizabeth Moule in Lancaster, CA, 13 July 2017.

[3] Joe Linton, "Lancaster's Livability: An Interview with Planning Director Brian Ludicke," *Streetsblog LA*, 12 July 2016: https://la.streetsblog.org/2016/07/12/lancasters-livability-an-interview-with-planning-director-brian-ludicke/.

completed quickly. The city hired Moule & Polyzoides, Architects & Urbanists, to do the plan in 2009.[4] Before construction started Caudle began drumming up developer interest in public-private partnerships for several of the properties fronting the corridor.[5]

Most road diets are part of a Complete Streets strategy where the focus is on shifting space in the public right-of-way away from car use and into sidewalks, bike lanes, and transit ways so as to reduce non-motorist injuries and fatalities. Moule & Polyzoides' design goes much further. Instead of simply trying not to maim or kill pedestrians, they looked at how to make the street itself an iconic welcoming space for gathering and strolling. Elizabeth Moule, lead principal on the project, says they used their "romantic imaginations" to propose a tree-lined rambla, inspired by Las Ramblas in Barcelona, one of the most pedestrian-filled sequence of spaces in the world.[6] Trees and lighting were a way to quickly transform the new median space, add beauty through landscape, and allow changes to the adjacent properties to be more incremental. Rows of sycamores and tall palms at the mid-block crossings also provide necessary shade from the desert sun and block the strong desert winds.

Surprisingly, the fact that the rambla is primarily used for parking rather than strolling does not detract from how much more inviting it is now to window shop and use the new mid-block crossings to go back and forth to support businesses on both sides. The design provides the new BLVD Association the flexibility to close off a block or two for the weekly farmers' market or musical performances, or the entire length for the massively popular BooLVD

[4] Vinayak Bharne ran project management on the project for Moule & Polyzoides. Additional services provided by David Schneider of FHS and Peter Swift of Swift & Associates.

[5] Los Angeles–based InSite Development has been the primary development partner with the Lancaster Redevelopment Agency and has been responsible for much of the new affordable housing, commercial, entertainment, and cultural facilities. See their website for details: www.insitedevelopment.com.

[6] Elizabeth Moule, "Lancaster Boulevard," lecture presentation at the KTH Royal Institute of Technology, Stockholm, 16 June 2016: https://youtu.be/tUeuNvgx5es.

(a)

(b)

(c)

(d)

Figure II.6-3 These simulations show the sequential transformation of the three center lanes into the 32-foot-wide rambla framed by streetlamps and trees and its use for parking or festivals. Source: Moule & Polyzoides, Architects & Urbanists.

(a) (b)

Figure II.6-4 The rambla has many lives. It is typically used for parking (a). Two blocks are converted weekly into a farmers market (b). For holidays and festivals, the entire length becomes a parade and gathering space. Sources: (a) Moule & Polyzoides, Architects and Urbanists; (b) Photo by Ellen Dunham-Jones, 2017.

Figure II.6-5 A former grocery store turned furniture store with parking in front has been transformed by the addition of liner shops fronting the street. They back up to a twinkle-lit plaza for patrons of a popular restaurant, nightclub, and underground bowling alley that took over the former store and added some night life to The BLVD. Source: Photo by Ellen Dunham-Jones, 2017.

Halloween and Harvest Festival and annual go-kart Grand Prix. A truly multiuse space with permeable pavers, the rambla is designed to accommodate a proposed streetcar or, in a driverless car future, more pedestrians.

As award winning as the rambla is, and as skeptical as stakeholders were about the lane reductions, Caudle says the most controversial aspect of the project was the removal of the seven traffic lights.[7] This is a city whose top-rated "thing to do" on Trip Advisor is visit the Musical Road, where intermittent grooves in the asphalt "play" the finale of the William Tell Overture when driven at 55 miles per hour. This is a city highly respectful of its aerospace engineer and military personnel residents. This is not a city particularly open to replacing the precision of traffic signals with ad hoc eye contact at intersections, although it helped having the city engineer provide reassurance it would be okay. Caudle managed outreach for the project by making it clear that the city was looking for input, not consensus, and kept to the tight schedule.

The entire streetscaping project was constructed in eight months at the relatively low cost of $11 million, largely because the design changes occurred without moving the existing curbs and gutters. The city invested an additional $30 million downtown in partnerships on nine new housing complexes with 800 affordable units; rehabilitation and construction of more than 110,000 square feet of commercial space; the 13.5-acre American Heroes Park; a new building for the Museum of Art and History; a new cinema on a former parking lot; and numerous programs to help tenants and property owners. In 2012, after barely two years of operation, the Redevelopment Agency calculated that their $41 million investment had yielded $273 million in economic output,

[7] Conversation with Jason Caudle, Elizabeth Moule, and Ellen Dunham-Jones in Lancaster, CA, 13 July 2017.

(a) (b)

Figure II.6-6 Business owner Gabrielle Ratcliff (a) considered space at the mall, but instead chose to open the Modern Tea Room on The BLVD: "I preferred the vibe here. It's so much more locally focused." The solar panel shop next door (b) reflects the popularity of the locally run solar power utility, Lancaster Choice Energy. Source: Photos by Ellen Dunham-Jones, 2017.

37 new businesses, and over 1,900 jobs.[8] Six years after completion, counts of pedestrians had doubled and retail sales increased almost 60%.[9]

Despite all of the new activity on The BLVD—or because of it—public safety has dramatically improved. Total motor vehicle collisions are down 38% and pedestrian-involved collisions have plummeted by 78%.[10] Based on the behavioral changes he saw after the road diet, Ludicke introduced a Complete Streets Master Plan for the entire city in 2016.[11] The Antelope Valley Healthcare District also took notice and in collaboration with the city are planning to redevelop automobile-oriented properties surrounding the to-be-rebuilt hospital into a walkable, mixed-use, medical, commercial, residential district called Medical Main Street.

This lean and enriching project has more than lived up to the goals of economic development, increased public safety, and enhanced culture and arts. It transformed a windswept asphalt corridor into a beautiful, green Main Street. It also demonstrates the benefits reaped from reshaping the street as social infrastructure.[12] Caudle says it increased trust in local government's ability to deliver on its promises and he credits the success of The BLVD with the community's embrace of Mayor R. Rex Parris's ambitions for Lancaster to be the first net-zero energy municipality in the US.[13]

[8] For these figures and many more on the early fiscal performance of the project, see Lancaster Redevelopment Agency, "The BLVD Transformation Project," 2012 California Redevelopment Association Awards Submission: http://www.insitedevelopment.com/pdfs/BLVD_transformation_project.pdf.

[9] The Modern Tea Room owner, Gabrielle Ratcliffe, confirmed the growing activity on the BLVD in conversation with Elizabeth Moule and Ellen Dunham-Jones, Lancaster, CA, 13 July 2017.

[10] In addition to these statistics, for technical information on the project's process, ADT, and dimensions see Robert Steuteville, "From Car-Oriented Thoroughfare to Community Center," *Public Square*, 14 December 2017: https://www.cnu.org/publicsquare/2017/12/14/car-oriented-thoroughfare-community-center.

[11] Linton, "Lancaster's Livability."

[12] For more on social infrastructure, see Eric Klinenberg, *Palaces for the People: How Social Infrastructure Can Help Fight Inequality, Polarization, and the Decline of Civic Life* (New York: Broadway Books, 2018).

[13] The city was the first in the nation to require all new homes to have solar. They've partnered with eSolar, SolarCity, sPower, and BYD and have set up a city-run solar utility company. See Felicity Barringer, "With Help from Nature, A Town Aims to Be a Solar Capital," *New York Times,* 8 April 2013.

Case Study II.11
ACC Highland
Austin, Texas

Challenges addressed:

- Compete for jobs
- Increase water and energy resilience
- Disrupt automobile dependence

Educational activities are perhaps the most forward-looking uses that communities can bring to a dead or dying mall. Schools of all kinds have moved into obsolete big-box stores, strip malls, and malls, especially charter schools and community colleges, both of which have been growing in number.[1] ACC Highland is Austin Community College's 12th and largest campus. It is a particularly impressive example of an academic institution reinhabiting a dead mall, due in large part to strategic partnerships. What started as simply the reuse of a former department store at the Highland Mall quickly expanded to fulfill the neighborhood's desire for a "live-work-play" redevelopment and the city's aspirations for demonstration of a transit-oriented development (TOD) and form-based code along Airport Boulevard.

ACC ended up taking over the entire mall and plans to construct a few new buildings as well. The expanded scope was powered in large part by the partnership between ACC and RedLeaf Properties. Matt Whelan, principal of RedLeaf, acted as both middleman and master developer, transforming the mall's parking lots into a transit-served, walkable mix of uses and parks.[2] This allowed ACC to focus on its mission of affordable access to higher education and workforce training. In turn, their projected 21,000 students provide RedLeaf with a reliable population of visitors and a strong institutional anchor. The combination of students, walkable urbanism, and a new transit station has attracted significant employers to the site who hire student interns as part of their lease agreements.

There are plenty of reasons why the Highland Mall was prime for redevelopment, not the least of which appear to be as a result of two other Austin-based retrofits. ACC Highland sits five miles northeast of downtown at the junction of two major highways. It's also one mile from the old airport, historically a damper on nearby real estate values. Since the airport started being redeveloped into a new mixed-use community called Mueller in 2000 and light rail came to Airport Boulevard in 2010, East Austin has been changing.[3] However, despite rising incomes, the 40-year old, 80-acre, 1.2-million-square foot Highland Mall went into foreclosure in 2010, blamed in part on

Figure II.11-1 A before aerial view of the Highland Mall in East Austin shows Airport Boulevard in the foreground, and department stores JCPenney to the north (left in the photo), Dillards to the south, Macys to the east, and Interstate-35 and Highway 290 in the background. More than three-quarters of the site was surface parking. Source: Photo by Ibai Rigby.

[1] See the retrofit of Surrey Place Mall into Surrey Central City for Simon Fraser University, discussed in *Retrofitting Suburbia* and an inspiration for ACC Highland.

[2] Whelan brought this expertise from his experience overseeing the Mueller retrofit (see Case Study II.12) as senior Texas executive at Catellus Development Group.

[3] Marie Albiges, "Highland's revival raises area home prices, spurs growth," *Austin Metro Community Impact Newspaper*, 27 February 2017.

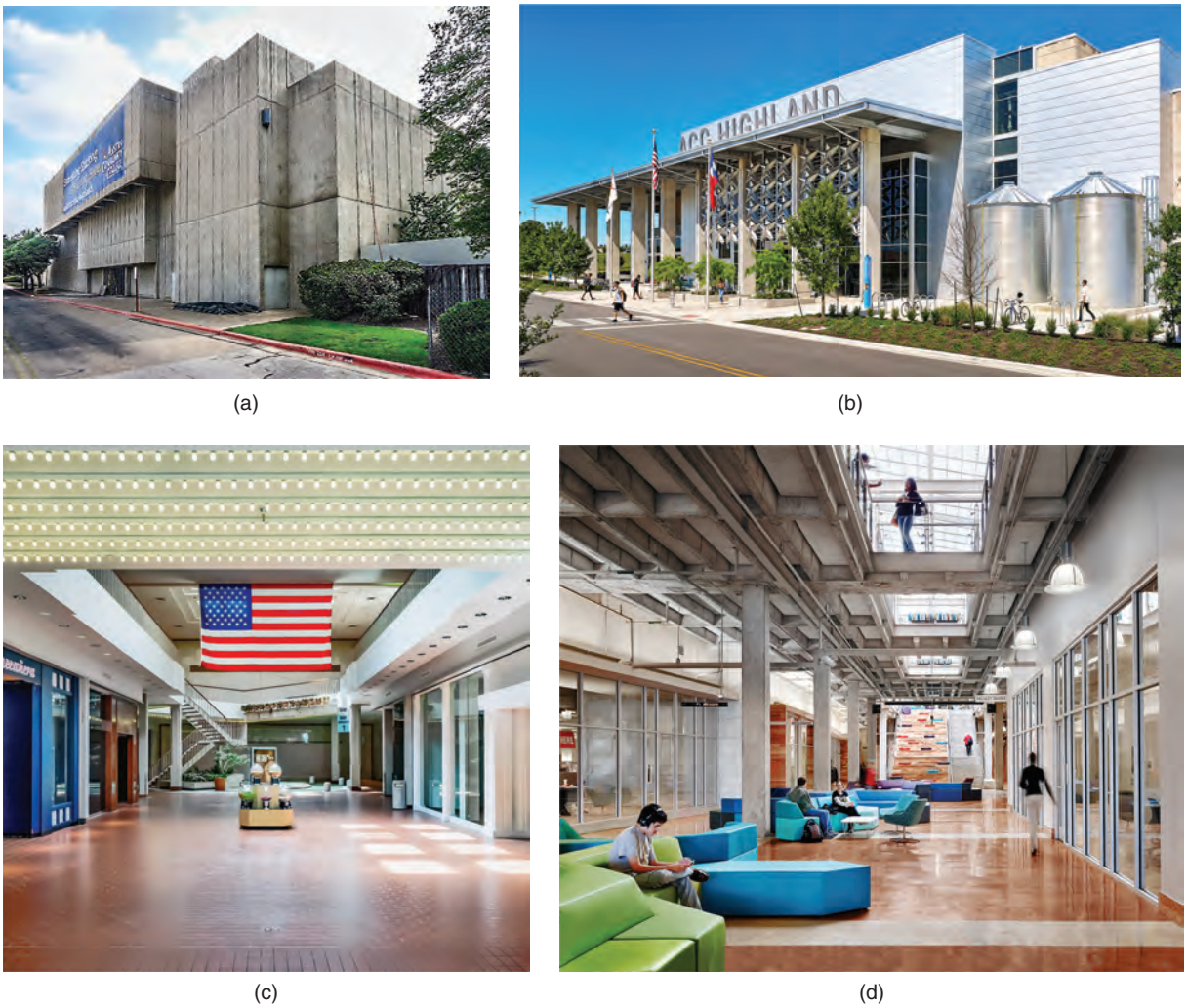


Figure II.11-2 Before (a, c) and after (b, d) views of the JCPenney show the welcoming addition of a shaded colonnade at the entry and flexible seating inside. Daylighting the interior with a 170-foot- long skylight and harvesting roof rainwater and air-conditioning condensate in cisterns helped earn this phase of the project LEED Gold certification. Sources: (a) Courtesy of Barnes Gromatzky Kosarek Architects; (b, d) Photos by Casey Dunn; (c) Photo by Ibai Rigby.

competition from Domain, an extensive retrofit of an office park 6 miles to the northwest.[4]

ACC entrusted Barnes Gromatzky Architects to give the mall a new visual identity along with its new purpose.[5] In Phase One, they transformed the former JCPenney department store from a concrete, windowless bunker to an award-winning light-filled sequence of loft-like spaces. More like open-plan offices than traditional classrooms, these spaces have been conducive to effective tech-oriented modes of instruction. The ACCelerator Lab cut the attrition rate in math by more than half, particularly benefitting traditionally disadvantaged groups of students.[6] Phase Two's programming is further assisting students from

[4] "General Growth, Simon in Austin Drama," *Wall Street Journal* developments blog, 13 May 2010.

[5] Additional consultants on the project include McCann Adams Studio; Coleman & Associates; Laukgroup; Bury; MWM Design Group; and Datum Engineers.

[6] Virginia Tech pioneered the modular instructional system. See Paul Fain, "Texas-Size Math Lab," *Inside Higher Ed,* 20 March 2015.

diverse backgrounds with a Veterans Resource Center and large daycare center. The campus is also expanding high-tech resources with the first wetlab at a community college in Texas, a Health Sciences/STEM Regional Simulation Center, robotic equipment in the Regional Workforce Center, and an expansive and very well-outfitted Creative Media Program.

Companies have shown interest in locating near community colleges for targeted workforce training that they no longer wish to provide in-house. They also like to use them as recruiting hubs, especially for the growing number of hard-to-fill middle-skill, middle-wage jobs. Cloud-hosting company Rackspace (coincidentally headquartered in a reinhabitation of the Windsor Park Mall in San Antonio, Texas) planned to move 500 employees into the former Dillards department store at ACC Highland and hire ACC interns. But when a change in ownership in 2017 put the deal on hold, KLRU-TV, Austin's PBS-affiliate station, knocked on ACC's door. KLRU agreed to set up its offices and production facilities in the ground floor of the three-story building and offer paid internships and enhanced job training for ACC's arts, digital media, and communications students. RedLeaf hopes to attract up to 1.1 million square feet of similar office users to the "innovation district" campus.

The partnership with the neighbors and city has also worked well despite local real estate journalist Caleb Pritchard's story on the project likening efforts to redevelop *anything* in Austin to "a naked belly crawl through a fire ant-infested mesquite patch."[7] In 2002, three years after the nearby airport closed and as the mall was starting to struggle, the city organized a series of planning workshops with residents of the adjacent Highland and Brentwood neighborhoods. In 2004 the city adopted the Brentwood/Highland Combined Neighborhood Plan calling for three new "neighborhood urban centers," including one at the Highland Mall. A follow-up charrette in 2011, shortly after ACC's initial 18-acre purchase, confirmed the local support for approximately four-story build-out of the site and nearby redevelopments. In partnership with RedLeaf, this both emboldened ACC to purchase the rest of the mall and built support for the successful bond package they needed in order to do so. McCann Adams Studio produced a Design Book to guide the realization of ACC Highland and RedLeaf's master plan.[8] It was developed in close coordination with the City and Gateway Planning's innovative work on the 3-mile Airport Boulevard Form-Based Code Initiative.[9] Both were completed and adopted in 2014 and advance the goals of the city's 2012 comprehensive plan.[10]

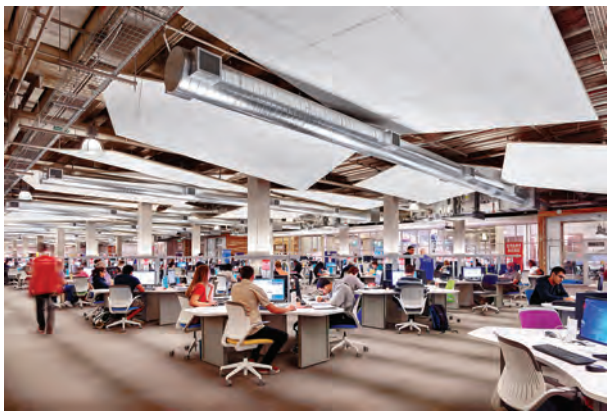


Figure II.11-3 Instead of chopping the former JCPenney department store into individual classrooms, the 300-foot-long space was outfitted with 600 computer work stations and named the ACCelerator Lab. Students work through remedial math modules at their own pace while instructors in red or blue jackets roam the room and respond to visual signals to give assistance. Source: Photo by Casey Dunn, courtesy of Barnes Gromatzky Kosarek Architects.

[7] Caleb Pritchard, "The Plan to Turn Highland Mall into a Neighborhood," *Austin Monthly,* 19 July 2017.

[8] A form-based code for the project, the Design Book sets standards to coordinate the separately designed components into a cohesive whole. It designates street and frontage types linked to pedestrian-friendly priorities, building form and development standards, building design guidelines, streetscape design guidelines, and the review and approval process.

[9] To spur redevelopment on the corridor, Gateway Planning proposed a form-based code to provide what principal Scott Polikov calls "adjacent predictability" to landowners, a significant factor in underwriting; reconstruction of the right-of-way with wide sidewalks, bike lanes, and a planted median; and district-scale stormwater detention on the sites of the large property owners to greatly facilitate redevelopment of smaller parcels. See Sam Newberg, "Airport Boulevard Corridor: Where a Form-Based Code Advances Redevelopment," *Urban Land,* 29 February 2012. The form-based code was adopted in 2014. New sidewalks and bike lanes were approved as part of a larger Smart Corridor referendum in 2016 with promised implementation by 2024.

[10] For five years Austin's planning department worked to shift the entire city toward form-based zoning; however, the CodeNEXT project was canceled in 2018. ACC Highland, and a few other retrofits (Midtown Commons at Crestview and the Linc), continue to demonstrate the value of the Airport Boulevard form-based code as the area evolves.

Figure II.11-4 This site plan from late 2018 shows ACC in the reinhabited mall with future additions and green quads for outdoor activities. The former parking lots are filled with "Texas donut" apartment buildings wrapped around parking and office/commercial buildings. A park and jogging trail surround the campus and connect to the new light rail train station on Airport Boulevard. Source: Courtesy of RedLeaf Properties and Austin Community College.

ACC Highland's master plan reduces automobile dependence with the introduction of new transit, urban form that promotes and encourages walking, partnerships with car share programs, and a reduction of the parking coverage of the site's surface area from 68% to 4%.[11] The master plan also improves overall environmental performance and achieved LEED Gold certification. Retaining the mall building saves its embodied energy—that is, the energy expended in manufacture and transportation of building materials and initial construction. However, new wastewater lines were installed and the building's outdated mechanical systems are being replaced with an underground district cooling system for the entire site. ACC is providing Austin Energy with a 30-year service agreement and lease on 35,000 square feet of land on which to build a100-foot-diameter, 50-foot-tall thermal energy storage tank and phase in 7500 tons of chillers and cooling towers as the site gets built out.

The master plan calls for over 1000 new trees to mitigate heat island effect and reduce stormwater runoff. Most of them will line the new streets, but many will also shade the more than five acres of parks, connected by a 1.25-mile trail loop. In addition to the retained trees in the green quad off of Airport Boulevard, a new park is planned to the east of the former Macy's. To be called St. John's Encampment Commons, it honors the St. John's Industrial Institute and Home for Negro Orphans that graced the site

[11] Parking coverage calculations by Gita Khote and Melvin McLure as students at Georgia Institute of Technology, April 2014.

Figure II.11-5 In this view from early 2019 looking south, ACC is in the retrofitted JCPenney on the left while renovation is taking place on the rest of the mall. New housing has risen on the former parking on the right. Of the 1,200 apartments planned for the site, 120 will be designated affordable. The parking lots in the foreground are planned for new office and retail use. Downtown Austin is visible on the skyline. Source: Photo by Phillip Jones, 2019.

from post–Civil War Reconstruction circa 1870 until the 1940s. It will include an amphitheater and playground for the new daycare center and Veterans Resource Center. Further increasing the social and civic nature of this park, it will be fronted on the opposite side by a new home for Austin's planning and development office.

It's too soon to tell the full impact of the reinhabitation, redevelopment, and regreening of the Highland Mall on Austin's economy, the neighborhood's air and water quality, let alone the quality of its streets and public spaces. The combination of the three primary retrofitting strategies bodes well for connecting inhabitants, workers, and students to the past, the future, and to nature. However, we're concerned that at 4 spaces per 1,000 square feet, the project contains too much parking for a TOD.[12] We also wonder about an overreliance on "Texas Donut"–type housing.[13] Austin's transit system is quite limited so it's understandable why the parking standards still assume that most residents and visitors will be arriving by car.[14] But we would like to see TODs and housing incorporate parking structures designed to be retrofitted to other uses in the

[12] See Smart Growth America and Department of City and Metropolitan Planning at the University of Utah, "Empty Spaces, Real Parking Needs at Five TODs," January 2017.

[13] **"**Texas Donuts**"** is the colloquial name for wood-construction residential units wrapped around concrete parking decks. They have become ubiquitous in development and redevelopment projects around the country and are today's cheapest way to build 200–300 units on 2- to 3-acre sites. They screen parking garages from public view, increasing walkability. However, their long facades can be monotonous, decreasing walkability and leading to unattractive attempts to break up the bulk with varied materials. Plus, there are concerns about their long-term viability. Which will last longer: their concrete parking decks, which may not be needed in the future, or their wood-framed, thinly-sheathed apartments? In moderation, we appreciate their contribution to affordability but would like to see more quality in their design. Moule & Polyzoides Architects and Urbanists' not dissimilar courtyard buildings reward the pedestrian eye inside and out with much more diversity of massing and detailing.

[14] In addition, ACC found that historically their campuses require more parking spaces than the City of Austin's standards. Too bad more of the apartments on campus aren't priced for students.

Figure II.11-6 Highland Greenway Park, on the left, is the first of three planned parks on the mall's former parking lots. It features a community garden, picnic areas, and a fitness trail that will eventually loop the entire site and is here shown wrapping Elan Parkside, a new apartment building. On the right, the former Dillards department store's cladding has been removed as it gets transformed into ACC classrooms and KLRU-TV office and production facilities. Source: Photo by Phillip Jones, 2019.

future. Not only does reduced parking reduce car trips, but it can also reduce the cost of living—always a challenge for students.

That said, we're extremely hopeful about the impact the project might have on ACC's graduates. Will they be intrigued by how the different systems—from paid internships to rainwater harvesting—increase resiliency? Will the project's transformation inspire them to seek changes to the status quo in their careers? More than 40% of current US high schoolers are projected to attend two-year community colleges. How many of them, let alone those in lower grades, might similarly end up studying in retooled shopping centers? We know that a lot of them already are. Studying in retrofitted buildings may be the best possible preparation for adaptable and resilient career paths.

Case Study II.12
Mueller
Austin, Texas

Challenges addressed:

- Improve public health
- Add water and energy resilience
- Disrupt automobile dependence
- Leverage social capital for equity

The redevelopment of underused public land is one of the great tactics for retrofitting suburbia. One of the largest and more ambitious examples is Mueller, an ongoing retrofit of a 711-acre municipally owned airport decommissioned in 1999. East Austin's neighborhoods were long considered the less desirable side of town because of the airport. After it closed, forward-looking Austinites wanted more density, not less, in the underinvested area. An award-winning, citizen-led plan for a sustainable community drove the tightly drafted public-private partnership agreement guiding its redevelopment.[1] While Mueller's progressive goals are sometimes mocked as utopian—and also sometimes criticized as imposing Stepford Wives–like controls on behavior—performance metrics on the new community are being closely monitored, allowing it to serve as a living research lab on designing compactly for improved public health, increased affordability, and water and energy resilience.

The decision-making process over closing the airport and what to do with it took over two decades. Ultimately, consensus formed around green urbanism, affordable housing, jobs, neighborhood form that supports community building, and environmental sustainability.[2] Stakeholder leaders continue to oversee the team responsible for making it all happen: the City of Austin, McCann Adams Studio (formerly ROMA Design Group), and Catellus Development Group. They took on several tasks above and beyond the usual call of duty, including:

- The city rewrote its regulations to allow a mix of uses, narrow lots, and narrower streets, getting buy-in from the waste-management and emergency services departments. It set development requirements that 25% of all for-sale and all rental residential units be set aside as affordable housing (later raised to 35%) and that all new construction meet green building standards. And, like many other communities, they established a tax-increment financing district so that increased property and sales taxes reimburse the developer for upfront infrastructure costs.
- Catellus established the Mueller Foundation. Funded by real estate transaction fees, the foundation supports affordable housing at Mueller and quality education and sustainability throughout Austin.[3] Catellus also partnered with a local nonprofit to manage a shared equity program. It provides buyers meeting the affordability requirements with an interest-free second mortgage.[4]

[1] Robert Steuteville, "Former Airport Turns Into Complete Community," *Public Square* blog, 27 January 2020.

[2] When the airport needed to expand in the 1970s, locals began arguing for its closure instead. Neighbors first proposed a dense, sustainable neighborhood for the site in 1983. The airport closed in 1999. ROMA's reuse plan was approved by the city council in 2000 but it took two years for the city to figure out how to change the regulations to allow it, conduct public outreach, select a developer, and craft an agreement with them to minimize the city's risk. The children's hospital was among the first buildings to break ground in 2004. The first residents moved in three years later.

[3] The foundation invested more than $21 million in its first nine years. It is supported by three sources: a fee added to all real estate transactions in Mueller in perpetuity of 0.25%, proceeds from the Shared Equity housing program, and donations.

[4] The Shared Equity program allows a homebuyer to pay less than market value, with the second mortgage making up the difference. In return, at the next time of sale the foundation pockets a percentage of the appreciated value and holds a purchase option to keep the home within the program.

- McCann Adams Studio produced the new urbanist master plan intended to balance approximately 13,000 residents and 13,000 workers over a walkable street network surrounded by 140 acres of parks. It is accompanied by the detailed *Mueller Design Book* illustrating the different neighborhoods and a wide range of diverse, compact building types and landscaping standards featuring native plants. Of all the communities they've worked with, the principals liked this one so much they joined the first round of residents and have continued to advise the plan's evolution.

To meet the agreed-upon goals, the plan dedicates 18% of the land to uses that generate employment in 4.5 million square feet of commercial space; 20% to green infrastructure and open space; and the rest to 6,200 residences of various types and sizes. To begin paying off the bonds, early phases concentrated on building houses in the south and revenue-producing strip retail in the north. The air traffic control tower and a hangar were adapted to public spaces, the aviation terminal became the visitor center, and the Austin Film Society took over several aviation buildings along East 51st Street, the northern boundary of the former airport, for film production.

According to Greg Weaver, executive VP of Catellus: "A big question is when do you build the town center. Does it come first, or do you wait? Instead of putting it in first as an amenity but at low density, we felt we could wait, sell homes, get the hospital in, and be able to build the town center later at higher density."[5] Construction of the children's hospital was a catalyst for the adjacent health research district, together providing over 5,000 jobs and justification for the decision to postpone the town center. It's a strategy counter to that employed at the nearby Domain retrofit. Home sales have continued to be brisk without it, but not without some grumbling from residents.

The project advances the twin goals of housing affordability and water and energy resiliency at multiple scales:[6]

- Buildings must adhere to both the LEED and the Austin Energy Green Building standards for energy and water efficient buildings.[7] Small residential lots minimize both land costs and private lawns.[8] Less lawn space lowers household water bills and improves air quality by minimizing gas-powered landscape maintenance. Less private outdoor space is compensated for by ample shared yards and parks, irrigated with Austin's "purple pipe" reclaimed water.
- Residential lots and blocks are laid out to minimize heat gain from western frontages and maximize south-facing sloped roofs for solar panels, thus reducing both air conditioning needs and household energy bills while producing clean power. Porches are required on all detached houses, further reducing heat gain while inviting social interaction and increasing eyes on the street.
- Walking and biking, the cheapest and cleanest forms of transportation, are encouraged by the small block sizes, typically 220 feet wide by 350 to 450 feet long. Alleys keep garages and curb cuts from interfering with

Figure II.12-1 The bright red Thinkery Children's Museum adds a playful civic presence to the town center at the southern end of Aldrich Street. It abuts Lake Park and a playground and reinforces the particularly family-friendly urbanism in Mueller. Source: Photo by Phillip Jones, 2019.

[5] Greg Weaver presentation at Mueller, 4 May 2015.

[6] The 95-page *Mueller Green Resources Guide* by the Center for Maximum Potential Building Systems laid out the strategies and resources early on. In 2016 it was deemed the world's largest LEED ND Gold project.

[7] Recognized at the 1992 UN Earth Summit, as the first of its kind in the world, Austin's Green Builder Program is now expected standard practice in the city. The program claims that as of August 2017, 1,375 homes at Mueller were rated and achieved a savings of 1.925 million kWh of energy savings.

[8] In 2007, the design book included single-family house lots as small as 37' x 90 and live-work "shop house" lots at 25' x 55'. Lots have shrunk further since Catellus organized a two-day symposium on affordability by design in 2008. The 2017 version of the design book includes lots for row house paseos at 15' x 40', small lot row houses at 22.5' x 45', and zero-lot-line detached garden houses at 26' x 60'.

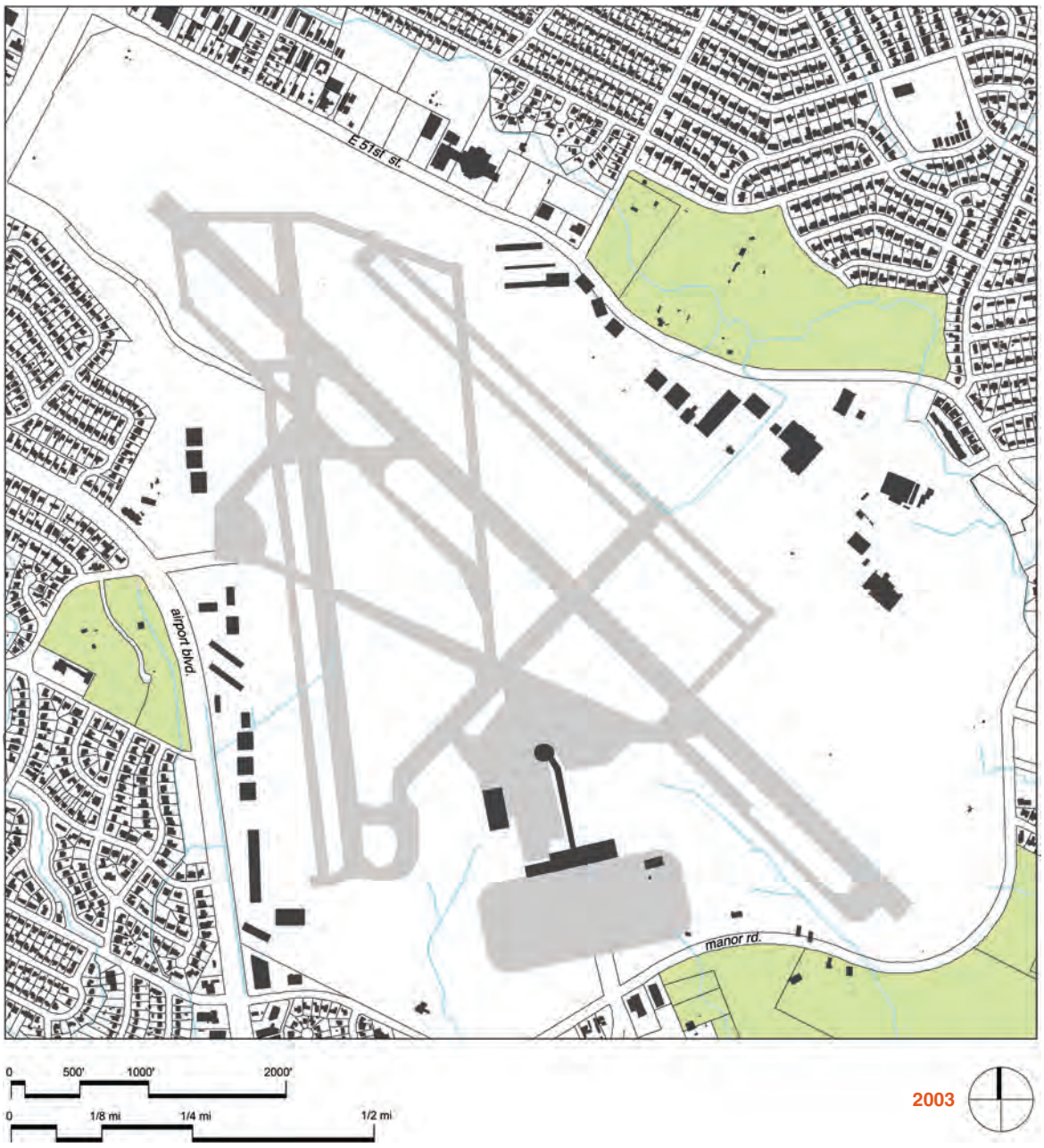


Figure II.12-2 2003 figure-field diagram. The Robert Mueller Municipal Airport operated from 1931 to 1999. The hangars along the northeast side of the airport have since been converted into sound stages for film and production companies while the arched roof of the Browning Hangar to the south has been retained as a gathering space just south of the preserved 1961 control tower. The site continues to have direct access to I-35 (just visible in the upper left corner) from East 51st Street and Airport Boulevard.
Source: Authors.

Figure II.12-3 Projected future figure-field diagram. At build-out, the 711 acres will comprise a series of linked, mostly walkable districts. Neighborhood parks anchor diverse housing types in the southern, mostly residential districts. The Dell Children's Medical Center (a large building with "fingers" of patient rooms) anchors the northwest commercial district and a grocery store and the Austin Film Society anchor the northeast commercial area. These districts were substantially complete by 2019. They converge at the final phase, Aldrich Street, two blocks east of Mueller Boulevard, envisioned as a lively Main Street and the community's town center. Dotted lines in the northwest commercial district parking lots anticipate future fine-grained redevelopment. A perimeter park system supports trails and provides stormwater retention. Source: Authors.

(a) (b)

Figure II.12-4 Mueller contains a wide variety of compact housing types and styles in close proximity to each other, including alley-loaded detached houses fronting a shared garden court (a). Modern row houses (b) share an alley with traditional triplexes and share frontage on Branch Park with four-story apartments. Source: Photos by Phillip Jones, 2019.

the pedestrian experience and provide opportunities for second-unit carriage houses, which can be rented out.

- Streets are designed with relatively narrow widths and frequent intersections and consistent sidewalks to reduce car speeds and encourage more walk and bike trips. Streets have rain gardens and light-colored concrete, and are lined with trees in 20 local varieties, aiming for 30% tree canopy coverage within public spaces, including the streets.
- A necklace of landscaped greenways, neighborhood parks, and the 13-mile trail network interconnecting them provide district-scale "green" stormwater conveyance and detention, allowing individual lots and yards to be smaller and cheaper. The green infrastructure mitigates off-site flooding and cleanses stormwater before it is released into the natural stream system, and it serves as social infrastructure, hosting a range of activities from community gardens to sport facilities for Mueller residents and neighbors.

Figure II.12-5 One of several pocket parks, Paggi Square combines community-building activities with green infrastructure. It features a sunken gravel court popular for the game of pétanque, surrounded by live-work shop houses, casual seating, and rain gardens. The Mexican sycamores and cedar elm trees are just some of the 15,000 new trees. Source: Photo by Ellen Dunham-Jones, 2017.

Affordability for lower-income households is provided by the Mueller Affordable Housing Program and the real estate transaction fees that go to the Mueller Foundation.[9]

[9] In 2006, a household earning up to 80% of Austin's Median Family Income qualified to purchase a home for $140,000. Those making up to 60% MFI qualified for one of the greater number of rental units. As per the Master Development Agreement, the affordable units are scattered throughout the project and appear no different on the exterior than those that are market rate. Market-rate apartment houses are to include 10–15% affordable units. All will be guaranteed for 50–99-year affordability. Wildflower Terrace, a 55+ age-restricted mixed-use building, is the first predominantly affordable rental property in Mueller, with some units reserved for tenants at only 30% MFI.

However, Mueller's home values escalated enormously and squeezed out access by middle-income households.[10] In response, as of 2016 the program includes an additional 10% of homes targeted for households earning 80–120% of MFI (median family income). New lot and building types that are even more compact have been introduced to provide affordability by design and the city has allowed an increase in the total number of units.

Austin Energy and Pecan Street earn accolades as Mueller's innovative energy program partners. Austin Energy, a city-owned utility, is a national leader in district energy and renewable energy systems as means to improve regional air quality. Both are employed at Mueller. The Mueller Energy Center is a combined heating and power plant (CHP) that operates at twice the efficiency of a conventional central plant and produces half as many greenhouse gas emissions. It captures waste heat from power generation to provide both steam heat and chilled water. These are disseminated through a microgrid serving the children's hospital and others in the commercial district.[11] In residential areas Austin Energy operates a distributed generation system powered by solar panels, installed by one in three homeowners, that contribute excess capacity to the solar microgrid. In 2018 the Austin Energy SHINES project began tackling energy storage, one of the thorniest obstacles to reliance on solar power, with utility- and customer-scaled batteries.

One of the key partners on the SHINES project is Pecan Street, a consumer energy research and development nonprofit associated with the University of Texas that collects fine-grain energy consumption and generation data from volunteer Mueller homeowners, renters, and businesses.[12] Pecan Street has developed and distributed internet-connected devices to monitor water usage and detect leaks, and are monitoring the impacts to the power grid of electric vehicle charging and energy storage. Their consumer energy

(a)

(b)

Figure II.12-6 Whether along the strictly pedestrian Aldrich Street Paseo (a) or a slow residential street lined with quadplexes (b), Mueller's varied streetscapes invite walking, biking, and casual social interaction. All streets have sidewalks. Protected cycle tracks are provided on through-streets that allow higher driving speeds. Source: Photos by Phillip Jones, 2019.

[10] In 2019, three-bedroom row houses at Mueller started at over $600,000, while the Austin region's median home value was $323,000. This speaks to Mueller's desirability, but also to the region's rising home prices in the face of unprecedented population growth. According to data from the Austin Board of Realtors Market Statistic Reports, the area has seen a 67% increase in median single-family home values from 2010 to 2019.

[11] The CHP's efficiency and low emissions helped the Dell Children's Medical Center become the first LEED Platinum hospital in the world.

[12] As of 2019, Pecan Street is monitoring 250 solar homes and 65 electric cars in Mueller, in addition to over 1000 homes elsewhere. With funding from the Verizon Foundation, Pecan Street was able to equip 140 apartment units, including those of seniors and low-income residents, with the equipment needed to see which of their appliances were energy hogs. Testimonials abound from participants saying how the data enabled them to make simple changes and lower their bills.

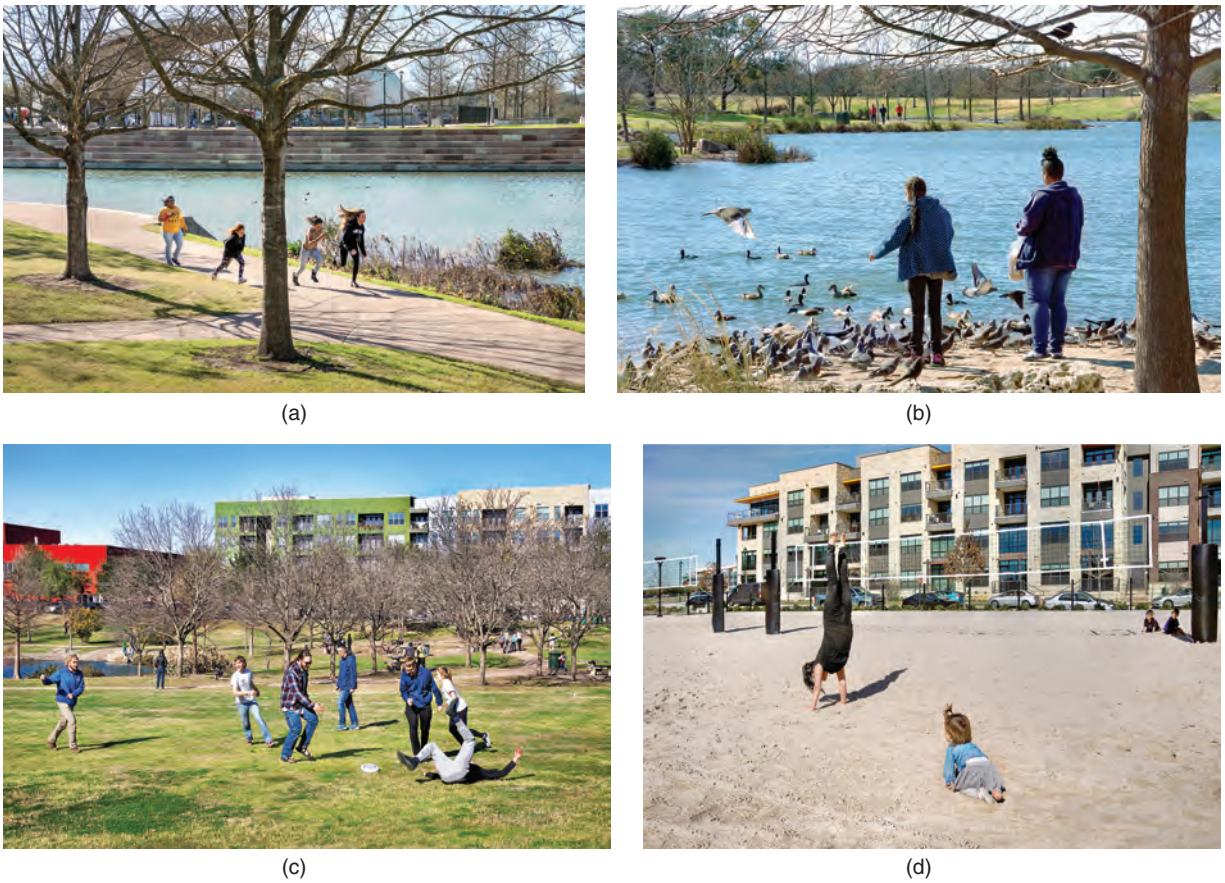


Figure II.12-7 A January day in the parks found plenty of evidence of healthy physical activity for the whole family. Research findings show that residents walk and bike more, and travel less in cars, after moving to Mueller. Source: Photos by Phillip Jones, 2019.

database is considered the largest in the world. Research findings based on this data improve smart grid technologies, providing lessons for urban designers and architects. A widely distributed 2013 study upended conventional design wisdom, finding that west-facing solar panels produce 49% more electricity than south-facing ones during energy demand peaks in the late afternoon.[13] Importantly, this enables designers to integrate some west-oriented roofs into solar communities and better shape public spaces.

Mueller is also a test bed for research on the intersection of public health and "bridging" social capital. When development was 40% complete, a team of researchers at Texas A&M University began a series of pre-move and post-move comparative assessments. They used surveys to study changes in residents' physical activities, social interactions, and neighborhood cohesion.[14] Of the hundreds of respondents studied, the total mean average of minutes walked per week rose by half an hour, to a figure close to the recommended 150 weekly minutes of moderate physical activity. Reported weekly minutes spent bicycling rose from 12 to 22, while the time spent traveling in a private car decreased to three hours, a reduction of

[13] Katherine Tweed, "Are Solar Panels Facing the Wrong Direction?" *GreenTech Media*, 13 November 2013.

[14] Based on the 2013 study, the same team leaders have received funding for a longitudinal study where volunteers' activities will be measured. It will be interesting to see if the self-reports were exaggerated or whether walk and bike trips increase as Aldrich Street's commercial destinations get built out. A review in 2019 of over 93 comments on the Reddit social media site shows frequent complaints that until the town center is built, many residents feel that Mueller is not as walkable or bikeable as promised, especially given the location of the grocery store on East 51st Street, far from most Mueller residents.

Figure II.12-8 Future walkable urbanism? The strip shopping center and parking lot adjacent to I-35 were built as a temporary use to provide revenue to pay off the TIF bonds. Utilities were laid in locations that are anticipated to be new streets when the site is redeveloped at a higher density. The Mueller Energy Center, directly behind the awning-fronted strip, is also designed to expand as needed. Source: Photo by Phillip Jones, 2019.

more than one hour per week. Rates of social interaction with neighbors also rose significantly. The researchers found that physical activity increased significantly even for residents who didn't claim walkability as a factor in their decision to move to Mueller.[15]

Both pragmatic and forward-looking, Mueller's design and development structure is conceived in anticipation of future changes. A New Construction Council was established at the start to enable changes in response to new innovations or market changes.[16] The *Mueller Design Book* encourages designing for *future* retrofits at both the urban and building scales: "Each subarea should be planned with an existing and future network of streets that will allow a finer-grained pattern of development to emerge over time."[17] In addition to requiring homes to be "solar-ready," the design book encourages designs that enable aging-in-place by incorporating zero-step wheelchair access and stacked closets that could be converted to elevator shafts.

Recognizing how trends and desires evolve, Jill Fagan from Austin's Economic Development Department says, "In 2002 when we were trying to get our transportation, waste management, and fire folks on board with the Mueller plan, our roads were deemed too narrow. Now they're seen as too wide."[18] While residents of Mueller love many aspects of their community, a frequent complaint expressed on social media is that Mueller is too suburban, with cars everywhere. It doesn't help that multiple transit options have been voted down or are in flux, and the pilot projects were not as popular as those at The Domain or Downtown.[19] Will that change when the town center on Aldrich Street finally gets built out? Will transit access improve and allow for even greater density? Will the retail parking lots then be redeveloped as anticipated? For now, the site of Mueller—where airplanes once parked, taxied, and took-off—remains reliant on automobiles. However, with the highest concentration of electric vehicles in the country, and many of them solar-home powered, this is a much less-energy-consumptive form of auto dependency.[20] The impacts are being monitored as yet another test case in Mueller's family-friendly, affordable, green urbanism.

[15] Xuemei Zhu, Chia-Yuan Yu, Chanam Lee, Zhipeng Lu, and George Mann, "A retrospective study on changes in residents' physical activities, social interactions, and neighborhood cohesion after moving to a walkable community," *Preventative Medicine* 69 (2014): 593–597. See also Xuemei Zhu, Zhipeng Lu, Chia-Yuan Yu, Chanam Lee, and George Mann, "Walkable communities: Impacts on residents' physical and social health," *World Health Design* (July 2013): 68–75.

[16] At the NCC's recommendation, the Planned Unit Development agreement adopted in 2004 was amended in 2009. The illustrative plan in the design book has gone through four iterations, primarily expanding the town center district.

[17] *Mueller Design Book*, 2017, 90.

[18] Conversation with Ellen Dunham-Jones at Mueller, 4 May 2015.

[19] See the results of the "Electric Last Mile" eight-month pilot project run by Pecan Street and Capital Metro in 2018: https://www.pecanstreet.org/work/transportation/elm/.

[20] Bryan Walsh, "Is this America's Smartest City?" *Time,* 26 June 2014. See also Mark Fischetti, "Electric Car Owners All Plug In at Once," *Scientific American,* 21 August 2012.

Case Study II.17

One Hundred Oaks Mall

Nashville, Tennessee

Challenge addressed:

- Improve public health

One Hundred Oaks Mall is a pioneering example of the turn to medical clinics to breathe new life into moribund retail centers on life support.[1] The 56-acre property a few miles south of downtown Nashville had once been the site of a spacious log home, surrounded by dozens of graceful oak trees, the base of operations for a popular local catering business. As a family member recalled, "There were 98 oaks there when my mother bought the property. She planted two acorns and named it Hundred Oaks."[2] By the early 1960s, the land was surrounded with encroaching commercial development, including a Pepsi bottling plant (the sugary American elixir, a contributor to top burdens of disease). It was time to sell.

In the often-repeated story of suburban development, the trees were bulldozed and replaced with a two-story enclosed shopping mall—replete with 60 stores, a twin-screen movie theater (a novelty at the time), and parking for 4000 cars. Then, in what journalist Joel Garreau somewhat famously described as a standard real estate practice, the mall developers named it for the flora and fauna they had just eradicated: One Hundred Oaks.[3]

The 1967-vintage One Hundred Oaks Mall had seen much better days when, forty years later, Vanderbilt

(a) (b)

Figure II.17-1 Views of the main second level entrance to One Hundred Oaks, before (a) and after (b) a reinhabitation-type retrofit into the Vanderbilt Health Medical Center. To realize the project, Vanderbilt Health worked with developers ATR Corinth Partners and the architecture firm Gresham Smith. Source: (a) Courtesy of Gresham Smith; (b) Photo by Bob Schatz.

[1] Project credits include Vanderbilt University Medical Center, developer ATR Corinth Partners, and the architecture firm of Gresham Smith.

[2] Wayne Wood, "When Hundred Oaks Was Home," *House Organ*, the magazine of the Vanderbilt University Medical Center, December 2008–January 2009.

[3] Joel Garreau, *Edge City: Life on the New Frontier* (New York, Doubleday, 1991).

(a)

(b)

Figure II.17-2 Interior views of the entry lobby, before (a) and after (b). The retrofit design aimed for the ambiance of a hotel lobby. Source: (a) Courtesy of Gresham Smith; (b) Photo by Bob Schatz.

University Medical Center (VUMC) chose to move some of its outpatient services from a crowded, parking-challenged, midtown Nashville campus into the mall's vacant second floor. The first floor had already been converted to outward-facing discount box stores in a mid-1990s "Hail Mary pass" renovation. The mall offered 450,000 square feet and ample parking. And a new marketing tagline: "'Convenience' is about to become a medical term. Take Exit 79, then left."

Gresham Smith's 2009 gut renovation introduced warm colors and furnishings that dramatically changed the feel of the interior to something akin to a hotel lobby. A new facade with grand entrances and ample perimeter windows and skylights welcomes patients from well-organized parking lots partially regreened with hundreds of new trees, including oaks, of course, rain gardens, and other site navigation and stormwater management improvements. Cyril Stewart, then director of facility planning at VUMC, cited increased patient follow-up visits at the mall location.[4]

On arrival, patients sign in at an electronic kiosk and are given pagers, freeing them to visit the shops at ground-floor level or grab a bite while waiting for appointments. The focus is on the ease of the patient experience. The floor plan for the medical center is laid out as if the 22 different clinical groups, including heart health, surgical weight loss, imaging, and women's health, are inline stores. Each has its own waiting area along the daylit, high-ceilinged public corridor and transitions back to the most private spaces along the exterior wall.

In the decade since completion, the project has been repeatedly profiled in the press, joining the dozen other enclosed shopping malls that have been substantially converted to healthcare and inspiring imitators. University medical systems in Dallas, Atlanta, and Charleston, South Carolina, are working with developers to convert former Sears and JCPenney mall anchor stores.[5] Healthcare isn't only moving into malls. Our database contains over 30 examples of healthcare uses moving into former big box stores and strip malls, seven of them alone in the state of Minnesota.

And why not? Since 2010 US healthcare providers have themselves "gone shopping" for more consumer-friendly locations by which to compete for the 30 million new medical customers created by the Affordable Care Act. The retail health clinics have been so successful that efforts to repeal "Obamacare" haven't slowed the trend down. By one estimate there was 47% growth in healthcare retail

[4] Cyril Stewart, "Vanderbilt Health at One Hundred Oaks: Transforming Architecture, Healthcare and a Community," presentation at the American Institute of Architects convention, Denver, Colorado, 19 June 2013. See also Todd Hutlock, "The Ultimate Recycling Project: Vanderbilt Health One Hundred Oaks Outpatient Clinic Mall," *Healthcare Design,* 12 January 2012.

[5] Maria Halkias, "UT Southwestern's move is a trend breathing new life into big, empty department stores," *Dallas Morning News*, 12 December 2019; Patrick Hoff, "Citadel Mall redevelopment progressing," *Charleston Business Journal*, 1 November 2018; Raisa Habersham, "Emory Healthcare to Anchor Northlake Mall," *Atlanta Journal Constitution*, 24 October 2019.

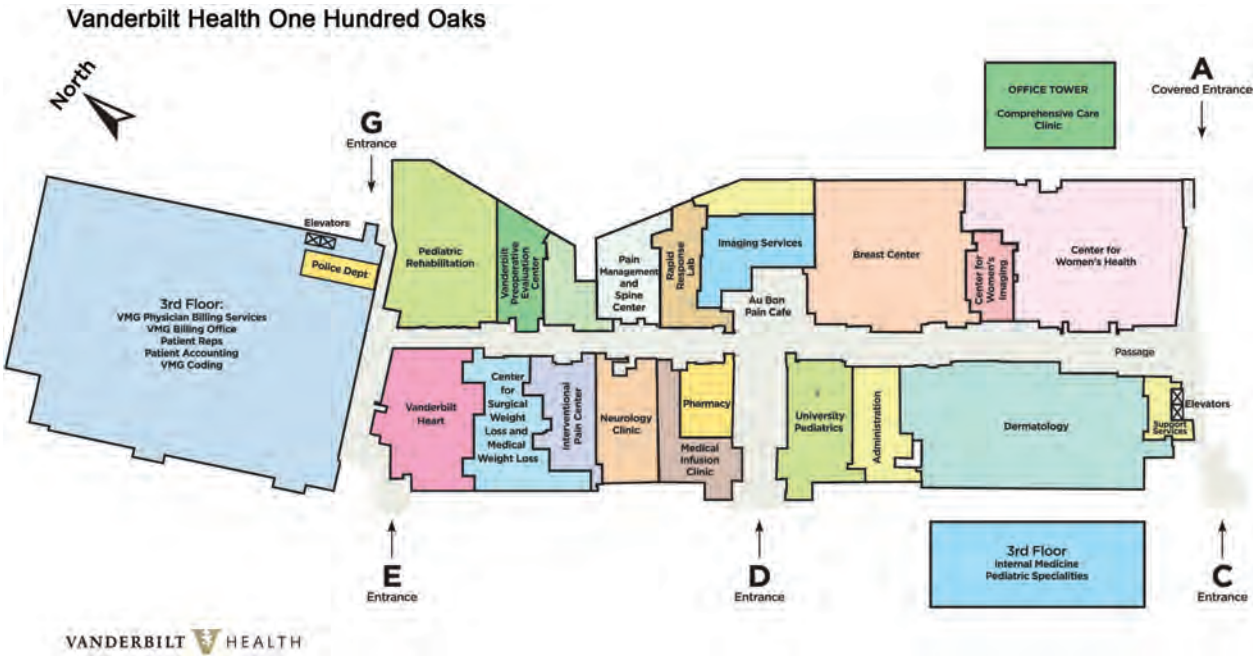


Figure II.17-3 The floor plan for the VUMC, on the second floor of the One Hundred Oaks Mall, laid out as if the different clinical group areas are stores. While all of the original wall partitions and storefronts were removed in the gut renovation, the new configuration evokes the old, but instead of buying goods, patrons are "shopping" for their health. Source: Courtesy of Vanderbilt University Medical Center.

clinics from 2015 to 2018 and the number of retail locations could double by 2022.[6]

Improving access to healthcare in the suburbs is a good idea. The sedentary lifestyle of driving and sitting, associated with the era of mass suburbanization and suburban form built during the second half of the twentieth century, is a proven major contributor to the risk factors for premature death and disability in northern America. These risks threaten to stall the immense gains made over the twentieth century in longevity and compression of morbidity, while contributing to many of the serious health conditions treated with convenience at the VUMC.

[6] Natalie Dolce, "How to Incorporate Healthcare Services into Retail," *GlobeSt.com*, 24 May 2019.

Case Study II.18

Historic Fourth Ward Park

Atlanta, Georgia

Challenges addressed:

- Add water and energy resilience
- Compete for jobs

Can the regreening of 17 acres of parking lots into a stormwater park trigger award-winning redevelopment, reinhabitation, and trail building on a grand scale? That's the case that can be made by Atlanta's decision to address its combined sewer overflow (CSO) problem with a $23 million stormwater park instead of a $40 million underground tunnel. The park attracted the first major investment to support the Atlanta BeltLine, an ambitious 22-mile long rails-to-trails project that's also hoped to be a future transit loop. As such, Historic Fourth Ward Park proved the viability of the BeltLine to be the catalyst for change that it's since become. And by solving the site's recurring flooding problems, the park enabled the renovation of a large vacant Sears distribution warehouse into Ponce City Market, a highly successful mixed-use complex with a popular food hall. Rents for creative office space there were the first in the city to breach $50 per square foot.

The ripple effects can be seen in the ever-expanding new office and apartment buildings flanking both the park and the BeltLine. Contrary to previously accepted popular opinion, the transformations have proven that Atlantans quite love to walk, bike, and gather in well-designed public spaces. So much so that some of the nearby lower-income residents the park was intended to serve have been displaced. Further away the project has inspired an explosion of new trails, several stormwater parks, more redeveloped parking lots, and the reinhabitation of many vacant buildings to similar uses throughout Atlanta's suburbs.

The confluence of the park, Ponce City Market, and the BeltLine appears to be the result of a well-laid master-plan. In fact, they're linked more by topography, water, and history. In the 1860s an Atlanta physician christened the "healthful" waters at the low-lying junction of two creeks the "Ponce de Leon Springs" and it became a popular attraction. The Ponce de Leon Amusement Park opened on the site in 1903, soon followed by the Ponce de Leon Ballpark (built on top of a drained lake, and eventually replaced by the Midtown Place strip shopping center in 1999).

In the early 1920s, Atlanta learned that Sears was looking for a site in the southeastern US outside of a downtown with both railroad access and space for ample parking. To entice the company, the City of Atlanta buried the two creeks in culverts and agreed to extend North Avenue to meet the site. In 1926 Sears built a multistory warehouse for goods sold by catalog, along with a large retail store, above the junction of the culverts. An existing rail line on a ridge to the east provided freight access, while paved parking lots stretched far to the south. By the mid-1960s, Sears was the largest retailer in the US and their Atlanta building had expanded to 2 million square feet. But their catalog business slowed in the 1970s and they vacated the building in 1987. The city bought it in 1990 and used the lower floors as City Hall East and the parking lots to store municipal vehicles. Utility vehicle parking for various companies extended the parking lots further south.

By the 1990s, heavy rains and runoff from all those parking lots contributed to frequent flooding in the area. Like many northern American cities, Atlanta has a combined sewer system, collecting rainwater runoff and sewage in the same pipes. In storms, these systems can overflow, releasing untreated sewage into the Chattahoochee River; this was happening up to 70 times a year. In 1999 EPA hit the city with a $2.5 million penalty and negotiated two consent decrees requiring elimination of overflow events by 2007. The city has complied largely by constructing large underground stormwater storage tunnels deliberately designed to have no impact on the neighborhoods above them.

Figure II.18-1 These before-and-after diagrams looking northeast show the former parking lots regreened into Historic Fourth Ward Park adjacent to the BeltLine trail. The stormwater park has since attracted new development along its sides and is anchored to the north by the massive former Sears warehouse, since reinhabited with the mixed-use Ponce City Market. The park's sports field and skatepark are beyond this view, further south along the BeltLine. Source: Authors.

Figure II.18-2 In 1953 the Sears building was serviced both on its third floor by the railroad up on the ridge, by its truck dock below and retail store facing Ponce de Leon Avenue and the baseball field. Its parking lots extended even further south on the low-lying land than shown. Source: Kenan Research Center at the Atlanta History Center.

This strategy was proposed in 2003 for the City Hall East parking lots. Instead, local engineer Bill Eisenhauer and architect Markham Smith began rallying support for a stormwater park that would be an amenity to the neighborhood and could trigger redevelopment of the underused area.[1] They pointed out that the Old Fourth Ward neighborhood had the highest number of public housing residents and the least amount of park space, and that their open-air solution would cost half as much as the underground tunnel.

Designed by HDR like a heavily landscaped bathtub on top of a natural spring, the 2-acre detention pond holds up to 4 million gallons of stormwater from a 300-acre subdrainage basin.[2] To avoid overflows,

[1] For more details on the process and discussion of other stormwater parks, see *City Parks, Clean Water: Making Great Places Using Green Infrastructure*, a report by the Trust for Public Land, March 2016.

[2] Additional organizations involved in the planning and design include, for the park, the Trust for Public Land, Wood & Partners, Inc.; for the Fourth Ward masterplan, TSW; for Ponce City Market, S9; for the BeltLine, Perkins & Will.

Figure II.18-3 The land was excavated and sloped down to create an attractive stormwater pond and park that has attracted much new development around it, including new housing, 12-story office buildings, and, in the distance, the renovated brick Ponce City Market. The remaining parking lot is approved for a grand staircase connecting the park and the BeltLine and more tall buildings. Source: Photo by Phillip Jones, 2018.

Figure II.18-4 The Eastside Trail Gateway in the foreground opened in 2014 making a direct connection between the low-lying stormwater park on the left and the 6,000+ visitors a day on average on the BeltLine, the multiuse trail on the ridge to the right. Both infrastructural amenities have attracted new development. Credit: Photo by Phillip Jones, 2018.

this water is gradually released after a storm.[3] However, unlike other detention ponds, this one was designed in response to community input to invite the public 30 feet below street level to walkways lined with native plants. Visitors hear the sounds of chirping, quacking, and the splashing of flowing water. Atlanta-based artist Maria Artemis designed granite slab and boulder features at the inlets to transform box culverts into fountains, a 35-foot tall step channel and a 40-foot long waterwall. The design enhances water quality by the increased aeration and exposure to ultraviolet light; however, it is mostly appreciated for its aesthetic and biophilic qualities. The amphitheater is frequently rented out for weddings—high marks for a stormwater facility!

Community input also informed the design of other components of the Historic Fourth Ward Park: a lawn/festival space east of the pond and a playground to the south with a series of very popular splash pads for kids. Soon after, designers leapfrogged the park southeast to regreen a 5-acre abandoned trucking company site beside the BeltLine into sports fields and Atlanta's first skatepark. Local skateboarders who were already using the former truck dock for their sport consulted on the park, helping it win it a coveted construction grant from the Tony Hawk Foundation (a retired professional skateboarder, Hawk is one of the pioneers of modern vertical skateboarding).

At the same time that Eisenhauer and Smith were talking up the crazy idea to turn a sewer tunnel project into a public park, planner and architect Ryan Gravel was drumming up support for the

[3] The pond has succeeded in reducing area flooding and is estimated to be reducing peak stormwater flow by 9.6% in trunk sewer flows for a ten-year storm. Rachael Shields, Jon Calabria, Brian Orland, and Alfie Vick, "Historic Fourth Ward Park, Phase 1 Methods," *The Landscape Performance Series* (Landscape Architecture Foundation 2018): https://doi.org/10.31353/cs1381.

Atlanta BeltLine.[4] As he's fond of saying, no one needed the 14-foot wide abandoned rail line turned into a multiuse trail and transit line. But 45 abutting neighborhoods had fallen in love with the idea of a trail loop connecting them to each other and to public parks. When the Trust for Public Land, a national nonprofit, began acquiring crucial parcels for the Historic Fourth Ward Park in the mid-2000s, the ability of the BeltLine concept to spark investment was validated.[5] In 2006 the city established Atlanta Beltline Inc. (ABI), which made plans for the addition of 1,300 acres of new greenspace, including the Historic Fourth Ward Park, which opened in 2011. The BeltLine's Eastside Trail followed in 2012, and the former Sears warehouse reopened as Ponce City Market in 2014.

Figure II.18-5 The first of many examples of bike-oriented development along the BeltLine, the entry to Ponce City Market from the BeltLine at 9 am leads to the free bike valet for visitors and extensive secure bike parking for residents and employees. Source: Photo by Phillip Jones, 2018.

The former Sears building had been vacant since 2010 and the mayor tried to sell it to Jamestown Properties, the Atlanta-based developer behind Chelsea Market in New York City. That food hall–anchored adaptive re-use project helped popularize the neighborhood where the High Line linear park was built. Jamestown saw the potential to similarly reinhabit Atlanta's large historic warehouse with a food hall–anchored, mixed-use project. But they refused to complete the purchase until the flooding problem was solved. When the stormwater park opened they signed the contract and began converting the property into Ponce City Market, an award-winning example of bike-oriented development that has attracted record rents for creative office space, crowds to its restaurants, and a long waitlist for its 259 apartments, 20% of which are designated affordable.[6]

The $23 million public infrastructure sewer project has provided abundant returns: a $250 million investment in Ponce City Market, plus $2 billion worth of additional private investment in the six blocks adjacent to the park.[7]

In many respects, the park has returned to its roots as a place to visit healthful waters and engage in amusement park–like entertainment. Enormously popular, the park and the BeltLine are improving both the physical and mental health of the growing number of visitors each year.[8] However, there is increasing concern that the benefits of the park are reaching fewer and fewer of the lower-income, disadvantaged population they were most intended to serve. In the mid-2010s, home values rose more than twice as much in areas within a half-mile of the Eastside Trail than elsewhere in the city, leading to property tax increases and displacement of residents in the Old

[4] We discussed the BeltLine in Dunham-Jones and Williamson, *Retrofitting Suburbia,* **93–94.**

[5] The city council approved Tax Allocation District funding for the BeltLine Redevelopment Plan in late 2005. Georgia's Tax Allocation Districts (TAD) operate similar to what many states call Tax Increment Financing (TIF). Upon its designation as a TAD, the BeltLine was expected to result in an approximately $20 billion increase in the tax base over 25 years. By 2012 the TAD was collecting double the revenue anticipated. Between 2005 and 2018, over 50 projects representing more than $1 billion in private investment have occurred within the TAD, most of them clustered near the Eastside Trail and Historic Fourth Ward Park.

[6] It has plenty of parking as well, including Atlanta's first paid parking for retail and restaurant visitors.

[7] From 2009 to 2016, median property tax revenue in the park's census tract (17) increased 56% and occupied housing units increased 60%, compared to a 27% decrease in tax revenue and 8% increase in housing units for Fulton County as a whole. Shields et al., "Historic Fourth Ward Park."

[8] In 2018, 1.9 million people accessed the BeltLine's trails. An intercept survey of 71 users at the park in 2018 found that 44% live in a zip code within a 15-minute walk and 88% of that group visit the park more than twice per week. Shields et al., "Historic Fourth Ward Park."

Figure 11.18-6 In addition to numerous daytime festivals and sporting activities, the Lantern Parade on the Eastside Trail has become a new tradition, bringing neighbors with handmade lanterns out at night to enjoy the trail and park. The always well-lit skatepark is in the background. Source: Photo by John Becker, 2017, Atlanta Beltline Partnership.

Fourth Ward.[9] Now, in addition to being recognized as an exemplary stormwater park, Historic Fourth Ward Park is also seen by some as an example of "eco-gentrification."

Is the lesson learned that we shouldn't invest in great design that integrates stormwater solutions into beautiful parks? Hardly. But we recommend that municipalities planning similar green infrastructure upgrades should anticipate the potential for displacement and get ahead of it.[10] They would do well to look at recent efforts to increase and preserve affordable housing along other sections of the BeltLine.[11] These include the Anti-Displacement Tax Fund Program set up by a nonprofit specifically focused on the Westside, the city's and ABI's contributions to the Atlanta BeltLine Affordable Housing Trust Fund, collaboration with the Atlanta Land Trust, and ABI's programs to provide information on resources to existing renters and homeowners.

[9] Between 2011 and 2015, while City of Atlanta homes more than half a mile from the BeltLine rose 17.7% in value, those on the Eastside Trail rose 40%. These figures are for the NE segment of the BeltLine, which is dominated by the Eastside Trail. Further analysis claims that homes in the NE segment appreciated 17.9% more than homes more than ½ mile from the BeltLine. See Dan Immergluck, Tharunya Balan, "Sustainable for whom? Green urban development, environmental gentrification and the Atlanta Beltline," *Journal of Urban Geography*, vol 39, 2018, issue 4.

[10] There were early warnings of the potential for displacement along the BeltLine but in 2017 ABI was severely criticized for failing to meet the TAD's requirement for 20% affordable housing units. See Catherine Ross, "Atlanta BeltLine, Health Impact Assessment," Center for Quality Growth and Regional Development, Georgia Institute of Technology, June 2007. See also Willoughby Mariano, Lindsey Conway, and Anastaciah Ondieki, "How the Atlanta Beltline Broke its Promise on Affordable Housing," *Atlanta Journal-Constitution*, 13 July 2017.

[11] Atlanta Beltline Inc., "ABI Affordable Housing Working Group Final Report," August 2018: http://beltlineorg-wpengine.netdna-ssl.com/wp-content/uploads/2018/08/Affordable-Housing-Working-Group-Report-v14-Single-Pages-ABI.pdf.

Case Study II.25

White Flint and the Pike District

Montgomery County, Maryland

Challenges Addressed:

- Disrupt automobile dependence
- Add water and energy resilience

It's one thing to retrofit a single parcel into a node of drive-to walkability. It's altogether another thing to get multiple property owners to agree to build public streets on their private land in order to create a walkable street network intended to cut the percentage of automobile trips in half. It's hard enough to build support to do this on 430 acres. It's harder still to extend the model for 4 miles of sprawling development along Rockville Pike, an 8-lane state road, 14 miles northwest of downtown Washington, DC.

Entities from both the public and private sectors have collaborated surprisingly well on this ambitious, large-scale retrofit. Strong champions and partnerships on both sides argued for the value of leveraging existing Metrorail stations to anchor multiple new transit-oriented developments (TODs). Together, they came up with unique financing and staging mechanisms for establishing the finer-grain street network, increasing the tree canopy, installing stormwater management, and gradually shifting trips from the highway to the transit line.

Montgomery County (MoCo) has a long history of inventive, progressive urban planning. It was among the first (regrettably) to employ urban renewal funds to replace much of downtown Rockville with a windowless concrete shopping mall, since retrofitted into Rockville Town Center. It was the first (admirably) to institute inclusionary zoning. And it has a strong legacy of regional planning in coordination with the Maryland-National Capital Park and Planning Commission (M-NCPPC), including the notable two-county "On Wedges & Corridors" general plan of 1962.[1] As a result of that plan, more than a quarter of the land in the county remains in the largest agricultural reserve in the US, at 93,000 acres, while green "wedges" of unbuilt land are preserved around stream valleys. However, the rest of the county's acreage was largely built out at low densities and when DC Metrorail's Red Line was extended through the center of the county in the 1980s, the stations were built with large park-and-ride lots.

In 2008, to reduce encroachment on the agricultural reserve, the county established a Building Lot Termination program (BLT) where landowners are compensated for permanently foregoing residential development. Developers purchase BLTs as density bonuses in the areas where the county is incentivizing growth. For MoCo Planning Director Rollin Stanley, the means to protect the agricultural reserve *and* accommodate growth called for reconsidering—and reinventing—the concept of "corridor cities" from the 1962 plan.[2]

The White Flint Sector Plan is one of several county efforts to do just that.[3] It proposes the construction of a walkable grid of public streets on private land within three-quarters of a mile from the White Flint Metrorail Station (most of which is paid for by an additional 10% tax

[1] The plan advocated for green "wedges" between "corridor cities" along rapid rail transit lines in parallel with the National Capital Transportation Act's proposal of 83 miles of new lines. When two-thirds of the lines were curtailed, the "On Wedges & Corridors" plan went through revisions in 1964 and 1968.

[2] Rollin Stanley, "Wedges & Corridors: The Country's First Sustainable Growth Plan?" *Greater Greater Washington* blog, 4 November 2011: https://ggwash.org/view/11293/wedges-corridors-the-countrys-first-sustainable-growth-plan.

[3] The 2006 Shady Grove Sector Plan, the 2010 Great Seneca Science Corridor Master Plan, and the additional plans along Rockville Pike are part of a coordinated effort by MoCo and M-NCPPC to transform single-use commercial or industrial auto-oriented areas into mixed-use, urban environments with dense housing to balance the heavy concentration of jobs along I-270.

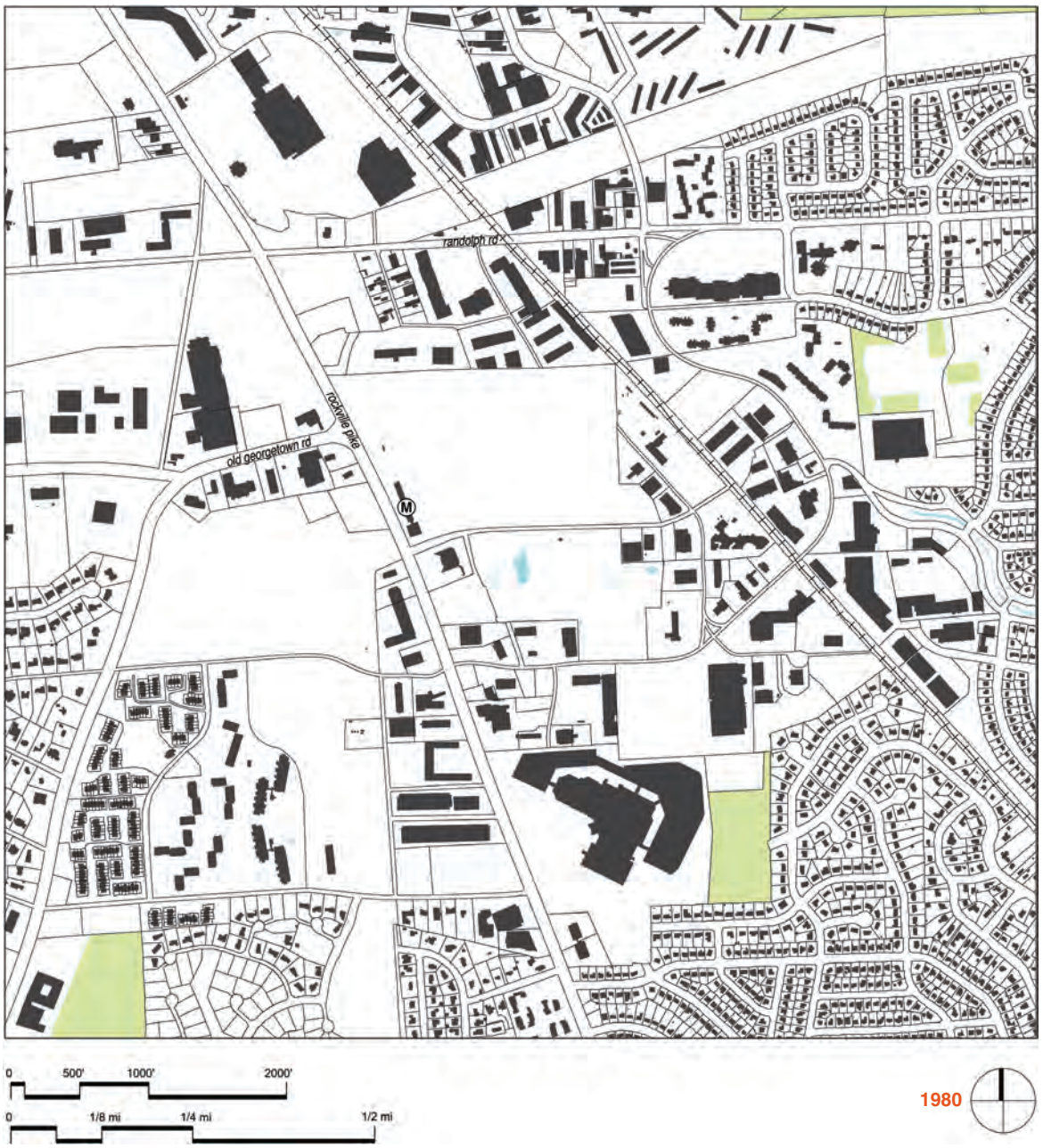


Figure II.25-1 1980 figure-field diagram. Older, low-rise industrial and commercial buildings flank the railroad line. Little remains from the time of the trolley that served farms between Rockville and Georgetown from 1890 to 1935. They were replaced in the 1960s and 1970s with strip malls, motels, and the White Flint Mall on Rockville Pike (lower right) to serve residents of new residential subdivisions between Rockville and Bethesda. The soon-to-open White Flint Metrorail station is under construction. Source: Authors.

Figure II.25-2 Future figure-field diagram. The plan to transition to a finer-grain urban form of smaller blocks and buildings was approved in 2010. This view shows the approved sketch plans as of 2018, some of them already constructed, particularly Pike & Rose between Montrose Parkway and Old Georgetown Road. It does not yet show many of the expected redevelopment plans for parcels in the nearby 2018 White Flint 2 Sector Plan. Source: Authors.

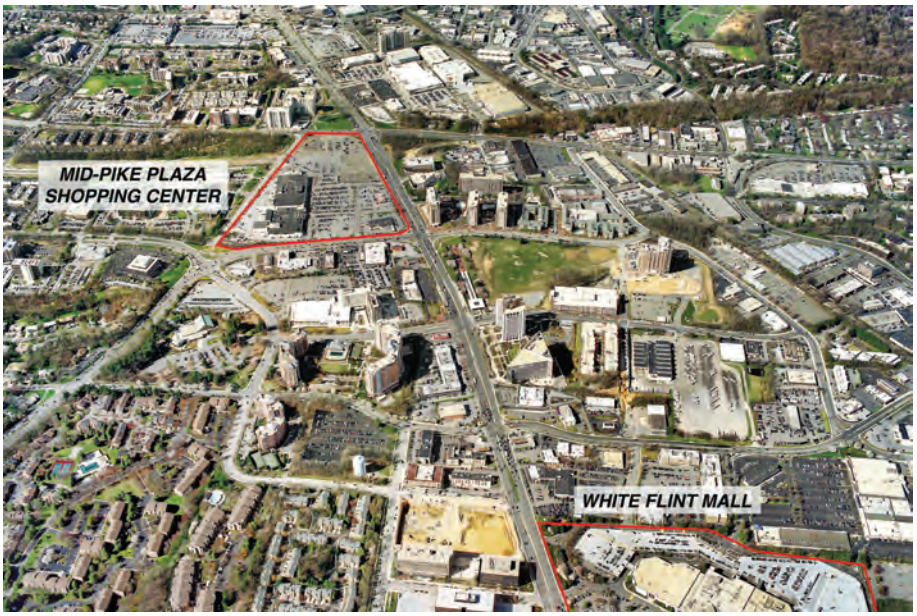


Figure II.25-3 Regulations from 1978 and 1992 encouraged density near the Metro station but resulted in piecemeal tall buildings with little relationship to each other and plenty of parking lots and under-used landscaping, as visible in this aerial from 2012. The Mid-Pike Plaza Shopping Center is upper left, since redeveloped into Pike & Rose. White Flint Mall is lower right. Source: Courtesy of Federal Realty Investment Trust.

on commercial property owners), rezoning to quadruple residential and double nonresidential density, and conversion of Rockville Pike from a "stroad" into a boulevard.

The proposal was largely developed by the commercial property owners themselves. The JBG Companies triggered interest in redevelopment after they received permission to build North Bethesda Market, a 24-story apartment tower, plaza with restaurants, and a Whole Foods grocery store in an urban format in exchange for including additional moderately priced units. Executives at Federal Realty Investment Trust (FRIT) were well aware of the higher rents they were receiving at Rockville Town Square and Bethesda Row, two suburban retrofit redevelopments a few Red Line Metrorail stops in either direction.[4] The developers started meeting among themselves, with county officials and community groups. All were concerned about the corridor's traffic problems and the need for a masterplan to accommodate growth.

In 2008, the White Flint Partnership (made up of six of the area's major developers) hired Glatting Jackson, new urbanist transportation planners, to conduct a charrette with various stakeholders. The resulting plan calls for a new walkable street network centered on Rockville Pike reconfigured as a tree-lined boulevard with wide sidewalks and bus rapid transit running down the median. Over the course of some 200 meetings between 2006 and 2010, The White Flint Partnership and the Friends of White Flint (predominantly residents but supported by the developers) built consensus that the plan's walkable urbanism with higher density but more green space was preferable to the status quo.[5]

Under Rollins's direction and with the support of the County Planning Board and County Council, county staff developed the proposal, new commercial-residential zoning and incentives, and the county planning board adopted the White Flint Sector Plan, its financing, and staging in 2010.[6]

[4] The first phase of Rockville Town Square's redevelopment of a strip mall into mixed-use urbanism opened in 2007. At numerous community meetings prior to 2010, FRIT executive Evan Goldman was able to show residents and county staff Rockville Town Square and ask if they'd like something like that on the Mid-Pike Plaza strip mall site. County staff encouraged him not to create an island of walkability and he helped encourage the rest of the property owners to collaborate and create the new street network.

[5] The beginnings of the plan are well described by Louis Peck, "In Like Flint," *Bethesda*, 26 February 2012. The authors would like to thank Margaret Rifkin, Nkosi Yearwood, and Atul Sharma of the Montgomery County Planning Department and Dan Reed of the Just Up The Pike blog for their additional input.

[6] The plan gives developers permission to build up to 300 feet high in locations close to the corridor and with the purchase of BLTs. However, they will pay 75% of the $601 million in infrastructure improvements ($280 million for construction of public streets on their private land and $169 million through a Development Impact Tax), an *ad valorem* property tax of 10.3% (later raised to 11.5%) for schools. County-issued bonds based on that revenue stream cover the rest of the cost of new infrastructure. Early on, the developers favored using Tax Increment Financing, but county officials vetoed it because of the uncertainty of revenues to repay the bonds—especially on a project being carefully staged. Tanya Snyder, "How Value Capture Financing Will Revitalize White Flint," Streetsblog USA, 20 October 2011: https://usa.streetsblog.org/2011/10/20/how-value-capture-financing-will-revitalize-white-flint/.

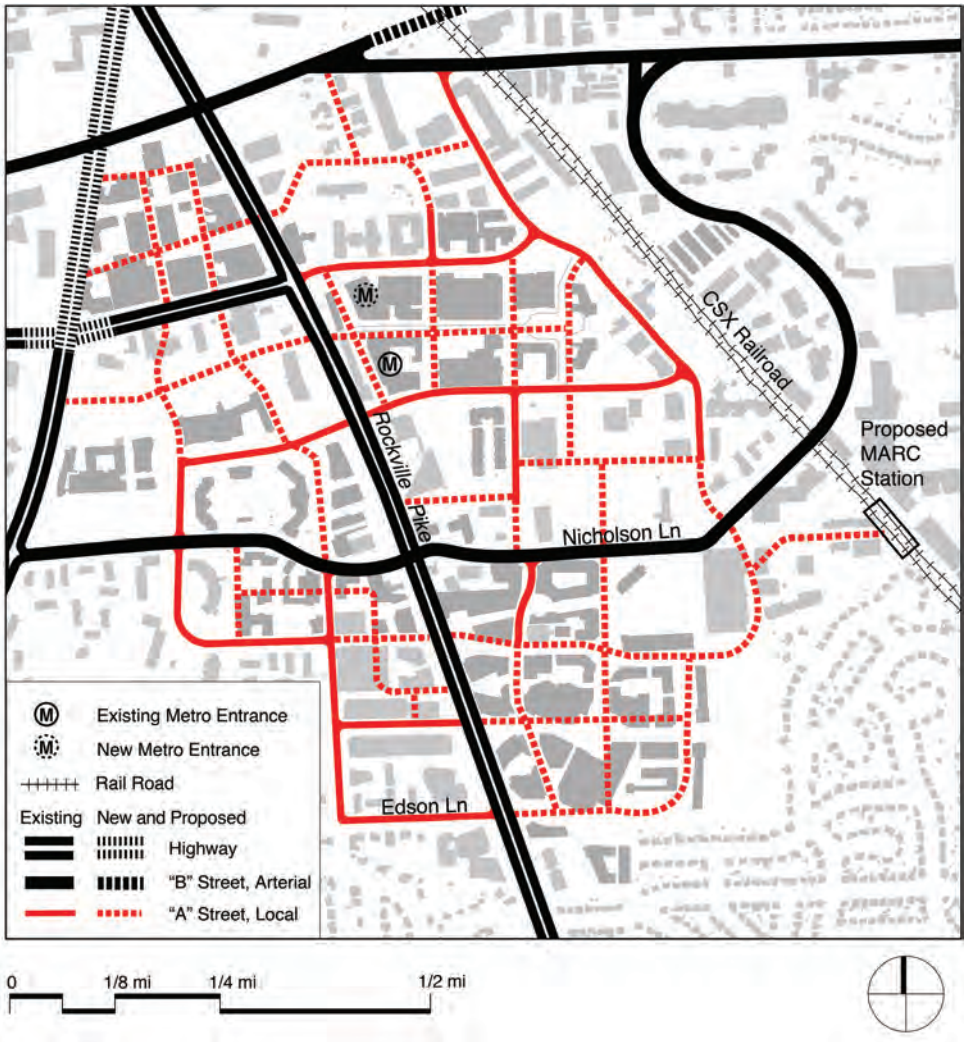


Figure II.25-4 The approved plan adds ten additional east-west streets and six additional north-south streets, allowing local trips to use local streets instead of all trips being funneled onto Rockville Pike and Old Georgetown Road. Some are designated "business streets" for higher traffic counts, while others are more local, sometimes private. The target speed for all of them is 25 mph. Source: Redrawn by authors based largely on Glatting Jackson plan.

While the bulk of the new streets will be paid for by the private sector, the public sector also committed to several street realignments, improving the pedestrian, bicycling environment, and the reconfiguration of Rockville Pike with bus rapid transit (part of a new 22-mile route to connect the county's major employment centers). Strict staging requirements ensure that affordable housing, a jobs-to-housing balance, and new infrastructure (including a new publicly-funded civic core and other privately funded civic uses throughout the eight neighborhoods) is constructed in pace with new development in three stages.[7] Additional goals include increasing the tree canopy from 10.5% to

[7] To proceed from Stage 1 to Stage 2, the area has to achieve a 34% non-auto driver mode share. To go from Stage 2 to 3, 51% of trips have to be non-automobile. Similarly, at each of these points, the planning board has to assess progress on achieving a better jobs-to-housing balance and adequate affordable housing. For details of the staging requirements and calculation of the mode share splits for residents and employees, see Montgomery County Planning Department, *Midtown on the Pike: White Flint Sector Plan Implementation Guidelines,* July 2011.

Figure II.25-5 This view of Pike & Rose from 2018 shows development focused along Grand Park Avenue, a new street connecting a new park (not visible behind the tall buildings) to the planned town green to be built across Old Georgetown Road on the parking lots in the foreground. Residential buildings are concentrated to the west, while the frontage along Rockville Pike, to the right, is expected to be built up with dense, mixed-use office buildings once Rockville Pike itself is retrofitted. Source: Courtesy of Federal Realty Investment Trust.

Figure II.25-6 The master planners, landscape architects, and environmental graphic designers devoted close attention to the design of the public realm at Pike & Rose. Eye-catching textures and details, plantings, seating, undergrounded utilities, and coordinated but individualized storefronts create a strong sense of place and invite pedestrians to linger—in great contrast to the former strip mall. Source: Courtesy of Clinton & Associates, PC.

20%, improving stream quality, and reducing 2005 carbon emissions 80% by 2050.

Staging allocation charts on the MoCo Planning Department website and Biennial Monitoring Reports enable everyone to see progress on the infrastructure, building permit approvals, and goals. The 2019 Biennial Monitoring Report proudly reported meeting the Stage 1 goal of 34% non-auto driver trips for the third year in a row (up from 20% in 2010). It also reported completion of all Stage 1 triggers. This allows Stage 2 to proceed with slightly over a quarter of the 13,400 residential units and 8.8 million square feet of nonresidential use that have already been approved by the planning board. The rest will have to wait until the next phase of infrastructure is installed.[8]

The first development allocation for Stage 1 went to Pike & Rose, FRIT's mixed-use redevelopment of the 1960s-era 24-acre Mid-Pike Plaza strip mall. So far, its transformation bodes well for the feasibility of the larger plan. The new grid of public streets designed by Street-Works Studio divides the former superblock into nine squarish blocks at a very walkable dimension of around 300 feet per side. Streets are narrow with wide, lushly streetscaped sidewalks and richly textured storefronts, especially on Grand Park Avenue.[9] A bike-share station and bike infrastructure improvements to abutting streets further invite ditching the car. Nonetheless, despite the proximity to the Metro station, a conventional suburban parking ratio of approximately four parking spaces per 1000 square feet is planned for the mix of uses.[10]

Pike & Rose's green roofs are the first line of defense in slowing and cleansing stormwater. Planting strips at ground level drain the stormwater to an extensive array of Silva Cells under the wide sidewalks. Likened to large milk crates, the cells support the sidewalks structurally,

[8] The 2010 White Flint Sector Plan was written to recognize that a learning process would occur and revisions would be needed from time to time. In 2018 the implementation guidelines were revised to clarify the procedures for switching from Stage 1 to Stage 2 and the development allocations were revised upward.

[9] FRIT hired nearly 100 consultants on Pike & Rose so as to foster a visually diverse environment. Those with a major role include Street-Works Studio, WDG Architecture, Design Collective, Foreseer, and Clinton & Associates Landscape Architects.

[10] Build-out is expected to contain 1,600 dwelling units, over one million square feet of office and 470,000 square feet of retail, restaurants, cinema, and a performing arts and jazz club.

Figure II.25-7 Pike & Rose's roofscapes are mostly put to good use as tenant amenity space, a 260-watt solar array, and ample green roofs. Uptop Acres, a 17,000-square-foot rooftop farm just visible in the upper right corner, provides fresh veggies for its sold-out CSA membership. Source: Photo by Phillip Jones, 2018

allowing less compaction of the soils and more voids for water storage and healthy tree roots. The county estimates Pike & Rose has cut polluted run-off into storm drains and streams by 77%.[11] An independent academic study credits much of this to the almost tripling of tree canopy area and the five times increase in percent of permeable surface area.[12]

In keeping with the larger plan goals, Pike & Rose met the county's inclusionary zoning requirements for subsidized residential units, while receiving a density bonus for contributions to the BLT program. The project has won major urban planning awards and became the first by a publicly traded developer to achieve LEED for Neighborhood Development Gold certification.

Is the public sector similarly living up to its promises? FRIT CEO Donald Wood didn't think so in 2018 when he fired off a letter to the Montgomery County Executive and County Council. He complained that the road upgrade projects were behind schedule, progress was sluggish on creating parks and civic spaces, and the county had not been receptive to FRIT's push for financial incentives for a new office project at Pike & Rose. MoCo's Chief Administrative Officer replied that market forces, decisions of private property owners, and strict state policies have reined in the pace of White Flint's transformation.[13]

Nonetheless, MoCo and M-NCPPC have proceeded not only with design studies for the retrofit of Rockville Pike, but with several more Sector Plans expanding the finer-grained street network, the percentage of non-automobile trips—and revenues—further north. Collectively, the 4-mile length is being branded as the Pike District and new special tax districts have been proposed to fund bus rapid transit. In Stage 1, the county received a 2.3 to 1 return on public investment in new property tax revenue, and projects a return of 7 to 1 or more from Stage 2.[14]

There are several hundred corridor retrofit projects in the works around the US, but few that aspire to the level of "corridor cities." Is the stroad-to-street network model equally replicable elsewhere? Clearly, it helps to be in a real estate development market where the desire for urban living has already been proven. It helps to have a rail transit system in place. It helps to have just enough property owners buy in to multiply the benefits of investing in the public realm, but not so many as to make it difficult to

[11] Casey Anderson, "The Environmental Benefits of New Suburbanism," The Third Place: A Montgomery County Planning Department Blog, 18 December 2018: https://montgomeryplanning.org/blog-design/2018/12/the-environmental-benefits-of-new-suburbanism/.

[12] The study also found an 89% decrease in average block size, 133% increase in intersection density, 242% increase in linear feet of sidewalk, a 248% increase in gathering space, and estimated a 114% increase in site energy demand but a 39% decrease in energy use intensity. While the bar was pretty low to begin with, this kind of performance data is important to assessing the longer-term impacts of retrofits. Yeinn Oh, Jun Wang, Nevedita Sankaraman, Osvaldo Broesicke, Alexandra Maxim, Yilun Zha, John Crittenden, and Ellen Dunham-Jones, "The SuRe Gap: Bridging the Gap Between Idealized and Attainable Infrastructure Sustainability and Resilience," research poster, the Brook Byers Institute of Sustainable Systems, Georgia Institute of Technology.

[13] Bethany Rodgers, "Federal Realty Considers Moving Employees Out of County Amid Frustrations with Local Officials," *Bethesda,* 24 July 2018.

[14] Jay Corbalis, Development Associate, FRIT, presentation in session, "The Good, Bad and the Undiscovered: An Insider's Look into Successful Public-Private Partnerships across the Country," New Partners for Smart Growth Conference, Baltimore, 29 January 2015.

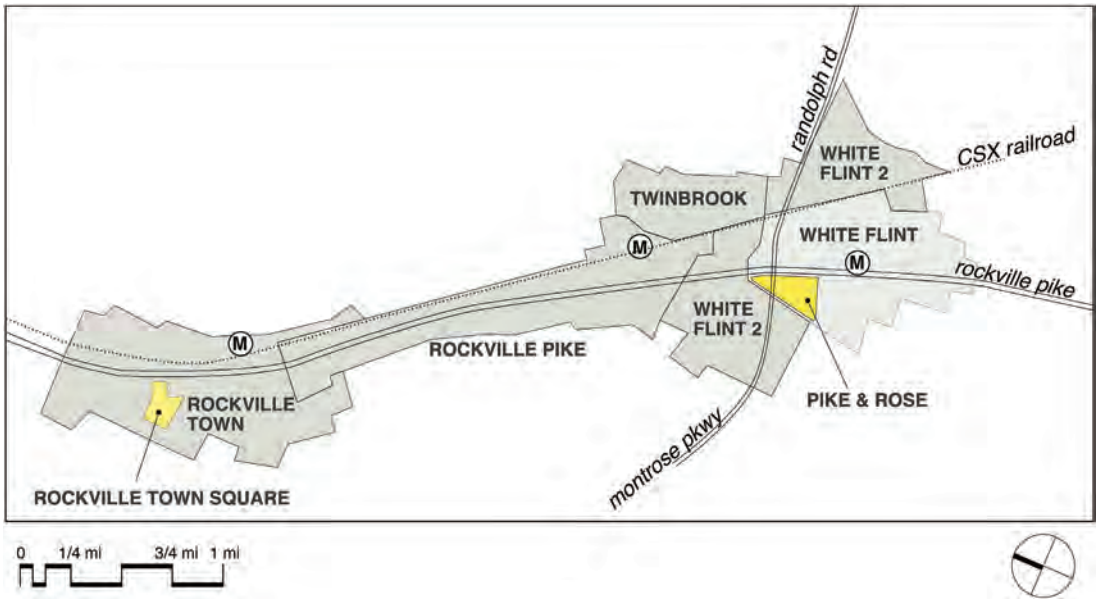


Figure II.25-8 MoCo and M-NCPPC are now extending the basic goals and methods of walkable densification employed in the White Flint Sector Plan (shown on the right) up Rockville Pike for four miles. The Rockville Pike Plan's corridor city should enable a regional-scale transfer of more car trips from the highway to the planned rapid transit bus and the Metro rail stations while accommodating significant growth in the renamed Pike District. Source: Authors.

reach consensus.[15] And it really helps to have a strong public-sector planning department with the capacity to coordinate and stage such a complex public-private partnership.

Could smaller-scale bus transit instead of rail and lower-density development still finance new street networks at the scale of targeted "nodes" on a corridor instead of a full-blown "corridor city"? Increasingly, the answer is yes. More and more bus-oriented TODs are under development in northern America and around the world. These projects are more likely to connect suburban nodes together than to radiate from a central downtown. All could benefit by learning from White Flint and the Pike District how to integrate multiple partners to reduce automobile dependence while adding much needed new housing and improving stormwater management at the scales of the street, the project, the corridor, and the region.

[15] The six major property owners in the White Flint Partnership are the JBG Companies, Federal Realty Investment Trust, Saul Centers, Inc., Gables Residential, Lerner Enterprises, and the Tower Companies. Their partnership and commitment both reduced the individual risk of investing in walkability without knowing if your neighbor would continue the network, and increased the returns they expect to receive from a truly walkable environment.

Case Study II.29

Wyandanch Rising

Town of Babylon, New York

Challenges addressed:

- Leverage social capital for equity
- Improve public health
- Add water and energy resilience

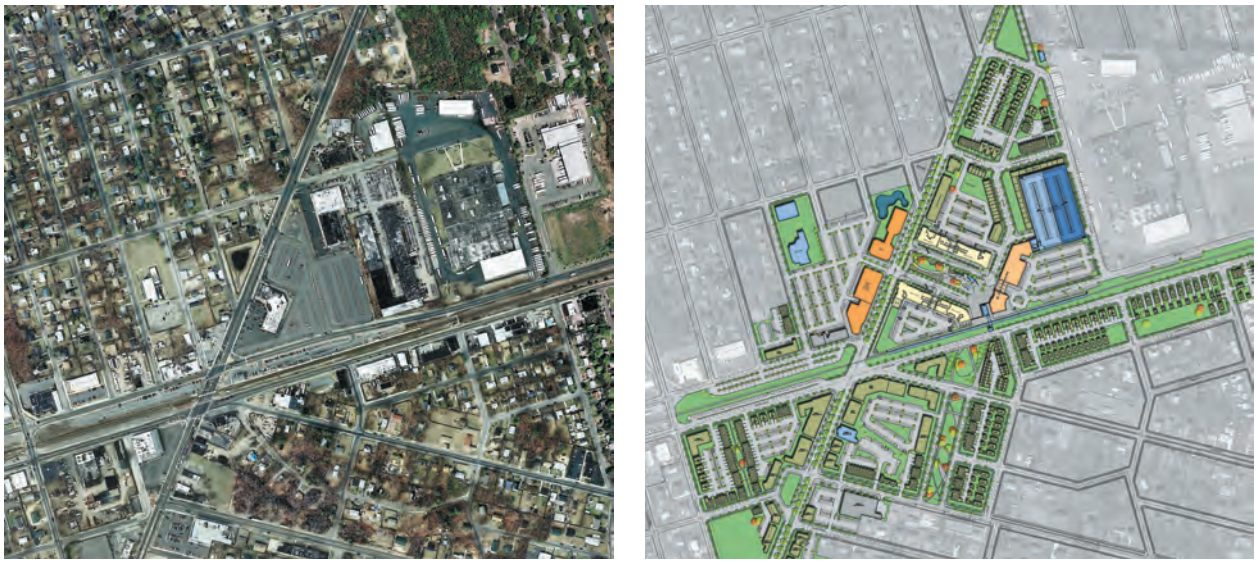
How does a retrofitting project get started in an economically distressed community? The story of Wyandanch Rising, a multifaceted suburban renewal project in a small, long-overlooked unincorporated hamlet in the Town of Babylon, a suburb of New York City on Long Island, provides an instructive case study.[1] Named for Chief Wyandanch, a mid-seventeenth-century sachem of the indigenous Montaukett people, the hamlet's revitalization demonstrates the important role of new "chiefs" to champion on behalf of local voices. The effort began in 2000, when Wyandanch was identified by the Suffolk County Planning Commission as the most economically distressed place in the county.

Two decades later, the hamlet can boast a rebuilt boulevard and extension to the nearest sanitary sewer district two miles away, an impressive new rail station and new commuter parking structure, and, most significantly, two five-story apartment buildings with 177 apartments framing a public one-acre green plaza, with several additional new mixed-use buildings in the works, in place of surface parking lots, all within a short walking distance of the station. By 2016, the project had leveraged $1.74 million in state brownfields planning grants to over $131 million in public and private financing, an astonishing rate of return on investment of 75 to one, with the potential for millions more.[2]

Figure II.29-1 The first phase of Wyandanch Rising features two new mixed-use buildings, four stories of apartments over retail, flanking a public plaza. After decades of neglect, the Long Island Rail Road invested heavily in the area, with a large new commuter parking structure and an extensively enhanced station building. New water mains and an extension to the nearest sewer district were required to support the higher-density, transit-oriented retrofit. Source: Photo by Phillip Jones, 2018.

[1] Contributors to the planning, design, and development of Wyandanch Rising, many years in the making and still ongoing, include the Town of Babylon, NY; the Albanese Organization; AKRF, Olin Studio; Speck & Associates, LLC; Sustainable Long Island; Torti Gallas and Partners, Inc.; VHB; BHC Architects; Keller Sandgren Architects; and Merrill, Pastor & Colgan Architects.

[2] The chronology of the project up to 2016 is well documented in Town of Babylon, Office of Downtown Revitalization, *Wyandanch Rising: A Community's Transformation*, April 2016: https://townofbabylon.com/index.aspx?nid=139. For news reports on the first decade of the project, see Will James, "Wyandanch Rising Tries to Undo Long Fall," *Wall Street Journal,* 4 April 2013, and C.J. Hughes, "In a Long Island Hamlet, a Downtown Is Being Built From Scratch," *New York Times*, 30 September 2014.



(a) (b)

Figure II.29-2 Orthophoto taken in 2007 shows the "before" conditions (a) in the focus area for Wyandanch Rising, once characterized by surface commuter parking lots, a small strip center, and underutilized industrial buildings, a small train station, and less than a third of an acre of public open space. The adopted masterplan (b) by Torti Gallas and Partners, shown here as developed in 2013 by BHC Architects for the Albanese Organization, is being implemented in phases, starting with the parcels directly north of the train station. Source: (a) NYS Digital Ortho-imagery Program, 2007; (b) Courtesy of BHC Architects.

A significant part of the story is the ongoing effort to gain, and keep, the trust of local residents, who harbored, and continue to harbor, reasonable fears of displacement. These fears are deep seated in past experiences of race-based discrimination in access to housing and the provision of services.[3]

In 1950s Wyandanch, developers built and sold 400 Cape Cod saltbox houses in two FHA-insured, non-racially restricted subdivisions—a rarity at the time. The two subdivisions, Carver Park and Lincoln Park, led the growth and transformation by 1960 of Wyandanch from a mostly white working-class area to a majority African American community of homeowners. Current census figures track the hamlet's 11,600 residents (down from a 1970 peak of 16,000) as over 90% Black and Hispanic, with a higher poverty rate than nearby places with similar housing stock. Today, a disproportionate number of residents rent their houses from absentee landlords.

In 2000, a series of round-table events by local philanthropists and activists led to the formation of Sustainable Long Island (SLI), a nonprofit environmental justice organization. The group identified five focus communities to begin engagement, including Wyandanch. Vanessa Pugh, one of the organization's first hires, went straight to work. In Wyandanch, she knew residents would be distrustful, and alienated by the planning jargon of sustainability efforts—terms like "zero-lot line housing" and "density"—when they wanted to talk about hunger, food scarcity, and the need for jobs.[4] She proposed a community planning process based in methods of the Gamaliel Foundation, founded to empower ordinary people to effectively participate in the political, environmental, social, and economic decisions affecting their lives, thus uniting people of diverse faiths and races. Gamaliel's roots are in the 1960s effort of the Contract Buyers League

[3] Andrew Wiese, "Racial Cleansing in the Suburbs: Suburban Government, Urban Renewal, and Segregation on Long Island, New York, 1945–60," in Marc Silver and Martin Melkonian, eds., *Contested Terrain: Power, Politics, and Participation in Suburbia* (Hofstra University, 1995): 61–69. See also Q&A with Wyandanch publishing activist Delano Stewart, Thomas Clavin, "Offering News From a Black Perspective, *New York Times,* 19 January 1997.

[4] Interview of Vanessa Pugh by June Williamson, 4 January 2018.

to protect African Americans on Chicago's West Side, who, unable to obtain bank mortgages due to racial discrimination, had purchased homes from realtors at inflated prices on specious contracts.[5]

With SLI, Pugh was able to connect with local clergy from 25 churches and other school and civic leaders over many months of regular meetings to help bring over 600 residents out for a five-day visioning charrette in June 2003. (A charrette is an intensive planning session where citizens, designers, and others collaborate on a future vision.) During the charrette, Dan Burden of Walkable Communities was invited to come and lead walking audits of the hamlet's many wide and dangerous roads, brownfield properties, and surface parking lots.

The outcomes were formation of a Wyandanch Rising Implementation Committee comprised of a core group of clergy and civic leaders, adoption of a Wyandanch Hamlet Plan drafted by SLI for the Town of Babylon, and creation of a town Office of Downtown Revitalization.[6] The new office was charged with seeking grants for planning studies and marshalling funds for assembling "blighted" property for revitalization. Pugh explains that all of the lots around the train station, approximately 300 properties, qualified as brownfields, both because of real physical contamination with industrial pollutants and also due to *perceived* contamination, a legacy of racial discrimination and avoidance or "othering" of the hamlet and its residents over many decades. Pugh eventually transitioned from SLI to working in the Office of Downtown Revitalization, for then-town supervisor Steve Bellone. Bellone became a huge champion of the initiative and has continued to nurture it since his election to the higher office of Suffolk County Executive. By the end of 2017 the Town of Babylon had spent $27 million to purchase 48 parcels, a dozen of them by eminent domain.[7]

As planning proceeded, a number of specific obstacles came to light. Environmentally, a high water table (Long Island depends on an aquifer for fresh water), a lack of sanitary sewer infrastructure, and the preponderance of brownfields all needed to be redressed before the land could support higher-density redevelopment. On the regulatory front, restrictive and outdated single-use zoning coupled with a costly and lengthy review and approvals process needed reform. A series of experienced urban design and planning consultants produced increasingly refined retrofit schemes for a central transit-oriented development (TOD) area: AKRF, Speck & Associates, and Torti Gallas and Partners each produced successive master plans.

AKRF worked with SLI and the Town of Babylon to fulfil the terms of an initial 2007–2008 planning grant from the New York State Brownfield Opportunity Program. They identified strategic sites around the train station, proposed an intermodal hub concept, and produced a draft environmental impact statement. Speck & Associates led the original urban design vision plan and assisted the town in selecting Torti Gallas and Partners to produce a full master plan.

Erik Aulestia of Torti Gallas led the next phase of work, funded by a further round of state brownfield funding, to conduct another charrette, refine the master plan, write a detailed form-based code, and, with Speck, assist in procuring a master developer. The Torti Gallas team included detailed architecture standards in the code to guide the building architects, once they were selected. The standards are informed by measured drawings of notable nearby precedents, including the Tudor-style buildings of Forest Hills Gardens in Queens, New York, handsomely designed by architect Grosvenor Atterbury in the 1910s following tenets of the garden city movement.[8]

The town commissioned landscape architect Olin Studio of Philadelphia to design a one-acre green and plaza, a delightful centerpiece to the revitalization. The Delano Stewart Plaza at Wyandanch includes a seasonal outdoor ice rink and fire pit, a kiosk used for skate rental, terraced seating, a pavilion, and a palette of plantings that evokes Long Island's "geologic vocabulary" of terminal moraine, beaches, and meadows.

The Albanese Organization, the selected developer, engaged Beatty Harvey Coco Architects to design two five-story buildings comprising apartments over retail to

[5] "Inside the Battle for Fair Housing in 1960s Chicago," *The Atlantic*, 21 May 2014: http://www.theatlantic.com/video/index/371360/the-story-of-clyde-ross-and-the-contract-buyers-league/.

[6] Sustainable Long Island, *The Wyandanch Hamlet Plan: Wyandanch Rising*, 2004: http://townofbabylon.com/DocumentCenter/View/16.

[7] Denise M. Bonilla, "Wyandanch Rising project to take off next year, officials say," *Newsday*, 10 December 2017.

[8] Interview of Eric Aulestia by June Williamson, 27 July 2018. See also Torti Gallas and Partners and Joel Russell, consultants, *Code of the Town of Babylon: Chapter 213, Article XLII Downtown Wyandanch and Straight Path Corridor Form-Based Code*, August 2014: http://townofbabylon.com/index.aspx?nid=139.

Figure II.29-3 Street view along Station Drive of the new mixed-use buildings, developed by the Albanese Organization. The master plan and pattern book created for the Town of Babylon by Torti Gallas and Partners informed designs for the buildings by BHC Architects. Source: Photo by June Williamson, 2017.

(a)

(b)

Figure II.29-4 The Delano Stewart Plaza at Wyandanch, designed by Olin Studio, named for a longtime African American community activist. On opening day in 2018, dozens of local kids learned to ice skate on the seasonal rink, a focal point of the plaza. Source: Photos by Phillip Jones, 2018.

flank the plaza. A majority of these apartments are designated affordable. The apartments filled quickly, with a high proportion of female-headed family households, suggesting unmet demand from this demographic group. The retail spaces are filling more slowly. The building facades are better proportioned and feature more detail than we have typically observed in recent Long Island TOD infill developments.

One notable innovative aspect of the construction process is that the master development agreement included a labor requirement for all subcontractors to hire first from a pool of local residents, trained through the local Wyandanch Community Resource Center. The Center, opened in a temporary trailer building across the railroad tracks in late 2009, runs programs that have successfully provided employment and union membership to over two dozen trainees.[9] One of them was Erica Prince, a mother of three living in a shelter when she applied for training. She excelled, becoming a working member of Carpenters Local 290 union.[10]

As of this writing, the Albanese Organization, in partnership with the Community Development Corporation of Long Island (CDCLI), is constructing a further 124 apartments, all designated affordable, a small new building for the Wyandanch Community Resource Center, as well as a larger mixed-use building in a prominent location just adjacent to the station that will house a YMCA, a relocated health and wellness center, and other community-serving programs. Another parcel will be developed as 100 subsidized seniors apartment housing.[11]

Two primary infrastructural components of the retrofit are water and transit. First, water. As is true in too many northern American suburbs, sewers reach only 30% of the 1.5 million residents of Suffolk County. The rest rely on backyard septic and cesspool systems, incompatible with higher-density housing types. Wyandanch was among the last communities in the county to receive piped water, rather than relying on wells. To support Wyandanch Rising, thousands of feet of additional water mains and a sewer pipe extension along the main commercial boulevard, Straight Path Road, were installed. In 2019, voters approved funding to expand the nearest sewer district northward, expanding coverage to residential areas in Wyandanch within the Carlls River watershed.

The site of Wyandanch Rising surrounds the Wyandanch Long Island Rail Road station on the Ronkonkoma Branch of the Main Line. One of the first transformations was the construction of a large parking structure, featuring a stair tower with stained glass windows, designed by Jeff Speck, to free up land that had been used for surface commuter parking and to ease pressure for commuter parking at other, land-constrained stations elsewhere in the Town of Babylon.

Figure II.29-5 Speck & Associates designed a striking stair tower for the new commuter parking structure, featuring stained glass public art. The tower not only forms a landmark, but it also encourages patrons to walk the stairs rather than taking an elevator. Source: Photo by Sid Tabak, 2015.

[9] Town of Babylon, Office of Downtown Revitalization, *Wyandanch Rising: A Community's Transformation*, April 2016, 31.
[10] Carrie Mason-Draffen, "Once homeless and unemployed, woman lands construction job," *Newsday*, 17 July 2014.
[11] Bonilla, "Wyandanch Rising."

Figure II.29-6 The gracious new Wyandanch Station, designed by Keller Sandgren Architects, opened in 2018, forms a focal point at the end of Delano Stewart Plaza. The station building features Terrazzo tile floors, a wood-paneled ceiling, chandeliers, bike racks, benches, and free Wi-Fi. It's a significant upgrade from the previous cheaply constructed station structure. Source: Photo by Phillip Jones, 2018.

The next major project was the building of two modernized platforms, with an elevator-served pedestrian overpass, and an ADA-accessible, amenity-rich new Wyandanch Station for 4,200 daily LIRR riders.[12] Fitting the master plan, the station was imagined as a civic amenity, placed on axis with the Plaza at Wyandanch. The new station is the fourth built in this location. The first, a wood-framed structure dating to 1875 when the railroad was mostly used for freight, had been a shooting location for movie Westerns in the pre-Hollywood era.[13] It was replaced by a nondescript concrete masonry unit box in 1958, and by a slightly larger but equally nondescript station building in 1987, after a scheme to eliminate the stop and bypass the community altogether was defeated. Finally, in 2018, Wyandanch could boast a dignified station structure worthy of the community's residents.

It might be said that the process of Wyandanch Rising is akin to a traditional barn-raising, its success dependent on the participation of many sturdy hands, all working in concert together. It is a potent case study of how an engaged community process, designed to build resident trust and leverage social capital, can advance goals for increasing equity, brownfields cleanup, improving public health, and enhancing water and transit infrastructure. It not only mitigates the effects of decades of systemic race-based segregation and discrimination in housing and public investment, but it is a much-needed example of building resilience to future economic and environmental disruptions for the most vulnerable suburban populations.

[12] Wyandanch Station Enhancement project page, New York Metropolitan Transportation Authority, Long Island Rail Road Modernization Program blog: http://www.amodernli.com/project/wyandanch-station-enhancement/.

[13] "Historic L.I.R.R. Station is Razed," *New York Times*, 11 June 1958.