

ULI Case Studies

Kashiwa-no-ha Smart City



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A collaborative approach guides development of a high-quality urban space in harmony with its environment.

PROJECT SUMMARY

Kashiwa, a city with a land area of 115 square kilometers (44 sq mi) and a population of just over 400,000, is in Chiba Prefecture, northeast of Tokyo in Japan's Kanto region. Though home to companies in food processing and other industries, as well as a professional soccer team, it is now best known as the home of Kashiwa-no-ha Smart City. Currently being developed on 273 hectares (675 ac) in northwestern Chiba Prefecture, Kashiwa-no-ha Smart City was launched in 2005 with the opening of Kashiwa-no-ha Campus Station on the Tsukuba Express train line. The land is divided into 299 parcels, to be subdivided further into blocks with interconnecting streets and pathways. Initial development is taking place in parcels 147, 148, 149, 150, and 151. This 42-hectare (104 ac) group of parcels extends outward from Kashiwa-no-ha Campus Station and encompasses the University of Tokyo Kashiwa Campus, Chiba University Kashiwa-no-ha Campus, Kashiwa-no-ha Park, and industrial areas.

Accessible from Tokyo in less than an hour by train, Kashiwa-no-ha is an area rich in natural beauty as well as the home of a concentration of academic and research institutions. Creation of the grand design for the project was from the beginning a collaborative endeavor, with Chiba Prefecture, Kashiwa, the University of Tokyo, and Chiba University involved in the planning and deliberation.

QUICK FACTS

Location

Kashiwa, Chiba Prefecture, Japan

Project type

Planned community

Site size

273 hectares (675 ac)

Land uses

Cinema, Cultural Facility, Educational Facility, Event Space, Health/Fitness Center, Hotel, Medical Facility, Multifamily For-Sale Housing, Multifamily Rental Housing, Museum, Office, Open Space, Park, Parking, Restaurants, Retail, Streets, Transit

Keywords

Collaboration, College campus, Coworking space, Development, District energy, Green building, Ground-floor retail, Group living, Healthy place, Historic preservation, Hotel/retail development, Innovation, LEED ND Plan Platinum certified, Master-planned community, Meeting space, Mixed-use three uses or more, Mixed-use development, Mixed-use town center, Multifamily housing, Multigenerational, Neighborhood retail center, Office, Pedestrian friendly, Placemaking, Preservation, Public/private partnership, Restaurants, Sustainability, Town center, Transit-oriented development

Location type

Inner suburban

Website

www.kashiwanoha-smartcity.com/en

Project address

(UDCK) Kashiwanoha Campus 148-4, 178-4 Wakashiba, Kashiwa, Chiba Prefecture

Developer

Mitsui Fudosan Co. Ltd.
Tokyo, Japan

Owner

Mitsui Fudosan Co. Ltd.

Master planner

Chiba Prefecture, Kashiwa, University of Tokyo, Chiba University

Consultants

Hitachi Ltd.
Nikken Sekkei
Glumac
City of Portland
Murase Associates
EcoNorthwest

Introduction

The project scheme called for work to proceed in two stages, the first being the development of Gate Square, a 12.7-hectare (31 ac) pilot area surrounding Kashiwa-no-ha Campus Station, which would serve as the center of the Kashiwa-no-ha Campus. The official opening of Gate Square in 2014 marked the completion of Stage I of the smart-city development, with a fully functional pilot area. The initial 127,000-square-meter (1.4 million sq ft) area development is home to about 5,000 residents and 1,000 workers and is visited by 7 million people a year. It features Japan's first functional smart grid and includes residential, office, retail, educational, and medical facilities.

The development of Stage II, now underway and slated for completion in 2030, represents the scaling up of the pilot area development, expanding concentrically to an area of about 3 million square meters (32 million sq ft). A government-driven artificial intelligence center and a research center for the development of next-generation medical devices are being planned for this area, and the complex is expected to attract the participation of leading Japanese firms.

Upon completion, the city is forecast to have 26,000 residents, 10,000 workers, and 10 million visitors a year. It is intended to serve both business and community interests by encouraging more employment uses in association with institutional and academic partnerships located nearby to cultivate an active and vibrant civic realm. The area supports creative-class industries with a vital new urban platform that serves multigenerational communities in a sustainable, healthful environment.

The heart of the Kashiwa-no-ha Smart City project is a multilateral partnership bringing together entities and participants from the public and private sectors and academia. This partnership serves as a platform for discussion, deliberation, creation, resolution, and guidance in the conception and evolution of the project.

Kashiwa-no-ha Smart City will have the capability to deal with environmental and energy issues in an intelligent, responsive manner that ensures the safety and well-being of residents while reducing the potential environmental footprint. The design, which inte-



Kashiwa-no-ha Campus Station (at left in photo) began operation in August 2005 with the opening of the Tsukuba Express line.

grates educational and research institutions with business enterprise support functions, will spark the birth of exciting new industries and support sustainable growth. And the city will offer superior livability for all residents—including the elderly—and can serve as a model for future large-scale developments.

Site and Context

Much of the land where Kashiwa-no-ha Smart City sits was originally used for the breeding of horses to supply the ruling Tokugawa Shogunate during the Edo period (1603–1867). The land was reclaimed by the emperor in 1871 during the Meiji Restoration, and rezoning eventually led to settlements and agriculture. In 1961, the Mitsui Group opened a golf course on a portion of the reclaimed land. Following the outbreak of the Korean War, the U.S. Air Force used 188 hectares (465 ac) to establish a communications station and planned an additional facility but after a quarter of a century returned all land to the national and Chiba prefectural governments in 1979.

The Joban Line, a rail service that originally launched operations in 1889, today serves suburban commuters as well as long-distance travelers between Tokyo and Sendai, about 360 kilometers (224 mi) to the northeast. In 1985, to alleviate congestion along the metropolitan stretch of the line and to provide public transport to new residential communities developed in Chiba and Ibaraki prefectures, the national

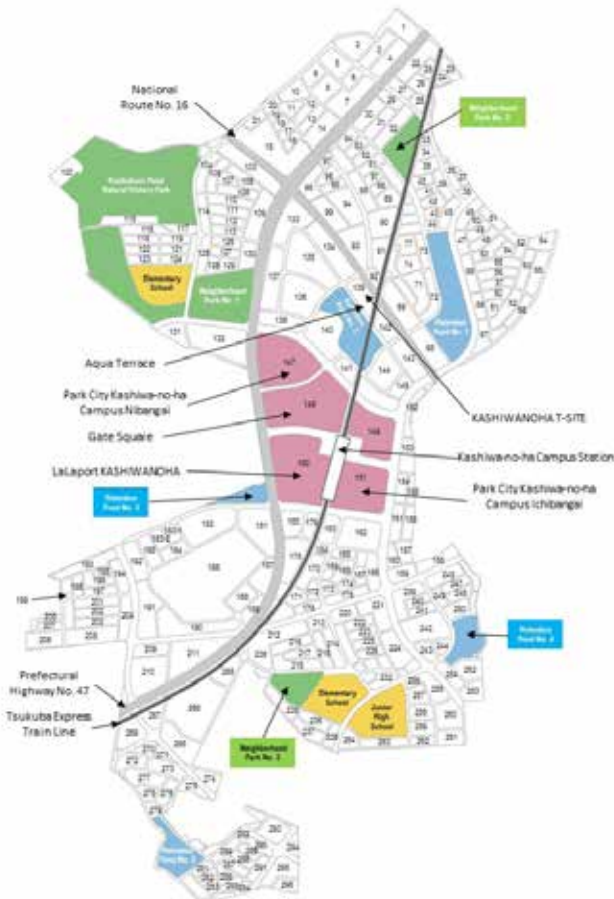
Council for Transport Policy determined that a new train line needed to be established. Running parallel to the Joban Line, it was to be called the Joban New Line and would ultimately connect many of the research centers along its length to form the backbone of Japan's high-tech corridor between Akihabara (Tokyo's famed electronics market and now a mecca for Japan's *otaku*—diehard fan—culture) and Tsukuba's Science City in Ibaraki Prefecture.

The passing of a national Integrated Development Law in June 1989 triggered the beginning of planning for not only the new train line, but also a host of land readjustment projects proposed by the Tokyo Metropolitan Government as well as Saitama, Chiba, and Ibaraki prefectures, through which the new line would run. One such project was a plan put forth by Chiba Prefecture concerning the land readjustment of a 273-hectare (675 ac) parcel in north-central Kashiwa, including the former golf course. Mitsui Fudosan negotiated an agreement with Chiba Prefecture and the city of Kashiwa to make infrastructure improvements and assemble land for a large transit-oriented development. This agreement required an early partnership between Chiba Prefecture, the city of Kashiwa, and the national government to offset the acquisition cost of land for developing public infrastructure that would provide needed connections between the proposed station and nearby institutions and neighborhoods. In August 2005, two decades

SITE PLAN



Central Tokyo, as well as two international airports, is accessible from Kashiwa-no-ha Smart City in less than an hour.



Initial development has focused on the five central parcels, with Gate Square (parcel 148, opened in July 2014) serving as the gateway to the development.

later, the new line made its debut as the Tsukuba Express and included Kashiwa-no-ha Campus Station—situated in the center of the 273-hectare (675 ac) development—among its 20 stations. This marked the beginning of the Kashiwa-no-ha Smart City project.

The Idea

The Kashiwa-no-ha Smart City concept was built on the themes of environmental symbiosis, health and longevity, and creation of new growth industries. These themes were formulated in 2003 and 2004, before the Tsukuba Express train line opened, when Chiba Prefecture established an advisory board focused on industry and urban development along the train line in the cities of Kashiwa and Nagareyama. The objective was to develop a city focused on environment, healthy living, creativity, and communication.

Establishing Urban Design Center Kashiwa-no-ha (UDCK) in November 2006 was the first step in implementing the Kashiwa-no-ha International Campus Town Initiative in March 2008. The initiative, formulated by Chiba Prefecture, Kashiwa, the University of Tokyo, and Chiba University, states that its objective is to “realize an international academic city in which cutting-edge knowledge, industry, and culture can be developed and bring about a next-generational environmental city where people coexist in harmony with a rich natural environment and healthy, high-quality living and working environments in a creative setting that integrates the campus and town through partnerships among the government, private industry, and academia.”

The initiative has eight goals, devised with the help of a survey of stakeholders and citizens:

- creation of a garden city coexisting in harmony with the environment;
- development of creative industrial and cultural space;
- formation of international academic and educational space;
- development of a sustainable transportation system;
- creation of a unique “Kashiwa-no-ha style”;
- implementation of local area management;
- design of high-quality urban space; and
- development of a city that supports innovative fields.

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Residents and visitors enjoy a summer street fair in the residential area.

Under these objectives, 21 action programs were identified with the themes of environment, healthy living, creativity, and communication; implementation of these measures began in 2008. As the project progressed, the themes developed further, sparked by Japanese real estate developer Mitsui Fudosan's development concept for the area around Kashiwa-no-ha Campus Station, which eventually became Gate Square. In July 2011, Mitsui announced its new concept, Kashiwa-no-ha Smart City, based on three pillars: environmental symbiosis, health and longevity, and creation of new industry.

Planning and Design

As a part of the Kashiwa-no-ha International Campus town scheme, UDCK formulated a plan to connect the parcels within the campus. At the core of the plan are the Campus Road and Green Axis paths, connecting educational and research facilities and enveloped in greenery. Campus Road links Kashiwa-no-ha Campus Station with Chiba University Kashiwa-no-ha Campus, Kashiwa-no-ha Prefectural Park, and the University of Tokyo Kashiwa Campus.

The Green Axis is a key urban space that encapsulates the character of the pilot area. It connects the spring-fed Konbukuro Pond, which was part of the golf course formerly on the site, to Campus Station, Gate Square,

Nibangai, Park City Kashiwa-no-ha Campus Gate Tower, and schools to its south. The Nibangai, Gate Tower, and Gate Square projects were organized to allow the Green Axis to serve as an interior pathway that reflects the recreational and community activities of residents nearby.

Jun Mitsui, principal of architecture firm Jun Mitsui & Associates, designed buildings that supported the Green Axis concept. "It was important to us in designing the Green Axis to ensure it was seamlessly integrated with the buildings that surround it," he says. "We succeeded for the first time ever in developing a green axis as a central community street space by creating a firm link between the abundant greenery—high and low trees, ground cover, and terraced greenery—the structures, and the outdoor space."

His firm based its work on the existing, government-approved master plan. "In order to realize the urban space the plan called for, we employed numerous devices and techniques in adjusting the design and landscape plan, and finally obtained approval through repeated, in-depth discussions with key players from the client and the local government," he says.

The external appearance of the buildings is crucial in giving form to open spaces and streets, Mitsui says. To achieve this, it was necessary to create a clear facade on all buildings approaching the Green Axis.

Though the individual characteristics of the surrounding buildings remain evident, they share commonalities in colors and design, resulting in an integrated backdrop.

"It's vital that the Green Axis overall generates a sense of unity by conveying the impression that it is a living space specifically created for the community," Mitsui says. "Further, whether the construction facade is in harmony with human-scale sensitivity, and the sense of scale of the tree branches and the shadows of the leaves, can determine whether it inspires a biophilic reaction in residents when they view it." Japanese-made ceramic tiles of many colors were used in the exterior design of the buildings, placed in intricate patterns to create precise shadows and consonance with the surrounding trees and nature, he notes.

In 2014, Smart City Planning—a joint venture consortium of 27 companies from around the world overseeing the Smart City project—signed a memorandum of understanding with the Portland (Oregon) Development Commission (PDC) as part of Portland's We Build Green Cities (WBGC) initiative, under which the city exports the expertise it has accumulated over four decades of transforming itself into a sustainable showcase for cities around the world.

Representatives of Portland-based ZGF Architects, along with other WBGC members including the PDC, Glumac, Murase Associates, and EcoNorthwest, entered into an agreement with Mitsui Fudosan to design and develop Kashiwa-no-ha's neighborhood facilities to more fully realize environmental harmony, healthy lifestyles, innovation, economic sustainability, and improved communication. Under the agreement, WBGC provided planning services to integrate business and community aspirations through placemaking, energy management, and water management strategies that made a new neighborhood design for Kashiwa-no-ha.

"Through cultural exchange with Portland, Oregon's government and technical advisers, UDCK incubated an ecodistrict planning vision. It organized community aspirations desiring active and vital places along streets serving multigenerational communities and creative industries, similar to the Pearl District in Portland, Oregon," says Charles Kelley, principal of ZGF Archi-



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Located outside the west exit of Kashiwa-no-ha Campus Station, Kashiwa-no-Harappa is a place where residents, workers, and visitors can relax on the lush lawn, have a picnic lunch, and even enjoy occasional concerts. The area also serves as an evacuation assembly site.



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The character of the new Kashiwa-no-ha Innovation Campus stems from the organized development actions of multiple property owners surrounding the repurposed retention basin, making a lively central park setting for residents and workers in the area.

pects. “The community living in this smart city achieved its aspirations by organizing ground-level active uses along public streets to make them more vital and engaging,” he continues, confirming “a new approach to smart city placemaking.”

After completing design sessions in winter 2015, UDCK began developing a master plan that would implement the community’s vision for sustainable neighborhood de-

sign, and guidelines specific to the development of the project’s Innovation Campus were adopted by Kashiwa city. Working with Nikken Sekkei, ZGF Architects prepared a plan for a new Innovation Campus located on a 20-hectare (49 ac) undeveloped area in the northern portion of the pilot area around the retention pond. Were it not for UDCK, the broad and shared agreements between property owners regarding existing areas and areas to be redeveloped would

not have incorporated additional guidelines pertaining to all future site and building improvements.

Development Process

In November 2006, the first element of Kashiwa-no-ha Smart City was launched—LaLaport Kashiwanoha, a compact shopping complex with 155,700 square meters (1.7 million sq ft) of space located on a 58,400-square-meter (629,000 sq ft) site. It has 180 retail outlets, restaurants, and service firms, as well as the Town Health Station, which includes medical and dental clinics, research institutes, an acupuncture station, and a yoga studio. The facility also has a movie theater, a bookstore, and a fitness club.

That same year, LaLaport Kashiwanoha became the first retail facility in Japan to earn the S rank (excellent) under the Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) standard, which was established in Japan in 2001.

Development of the Kashiwa-no-ha pilot area had been proceeding essentially on schedule until March 11, 2011, when the country was struck by the Great East Japan Earthquake. The 9.0-magnitude earthquake and the ensuing tsunami and nuclear disaster caused widespread loss of life in Japan and cessation of a wide range of vital services. A plan had been formulated and preliminary construction initiated for the development of what would become the centerpiece of the project, but the original plan did not incorporate an emergency power supply system. Although an area energy management system had been developed to share Tokyo Electric Power Company (TEPCO) power sources across the project, following the disaster the system was expanded to include battery storage, on-site renewable power, advanced controls to share heating and cooling between buildings, and other measures not initially part of the system.

Following the disaster, UDCK coordinated a six-month, comprehensive effort by Mitsui Fudosan and other stakeholders to revise the original plan, which led to creation of the “disaster-ready energy system.” Under the revised plan, in the event of a disaster, the newly implemented system would provide offices and medical and commercial facilities in the target area (parcels 147, 148, and 149, which house Gate Square, Nibangai, and Gate



Energy from solar panels such as these installed on the roof of LaLaport Kashiwanoha—along with energy from storage cells, biogas cogeneration, and other sources, as well as TEPCO—is shared across parcels via private transmission lines, enabling a 26 percent reduction in electricity consumption during peak hours.

LaLaport Kashiwanoha, located in parcel 150 just outside the entrance to Kashiwanoha Campus Station in Gate Square, offers parking for up to 2,700 vehicles.

Tower, scheduled for completion in 2018) with 60 percent normal power for up to 72 hours; supply residential properties with energy to support elevator operation and lighting in common areas; and provide water via newly installed groundwater pumps for daily use during an emergency.

Japanese architectural firm Jun Mitsui & Associates was hired to design the first two residential developments in the 12.7-hectare (31 ac) pilot area. Park City Kashiwanoha Campus Ichibangai, completed in spring 2008 on a 29,000-square-meter (312,000 sq ft) site on the opposite side of Kashiwanoha Campus Station from LaLaport, consists of five towers ranging from 18 to 35 stories, with a total of 977 residential units and a gross floor area of 145,000 square meters (1.6 million sq ft).

The second residential district, Park City Kashiwanoha Campus Nibangai, comprises six residential towers housing a total of 880 units with a gross floor area of 115,000 square meters (1.2 million sq ft). This district is near LaLaport and, in addition to the residences, includes a large common area where residents can relax and interact.

Each unit in Nibangai has a monitor allowing residents to track water, electricity, and natural gas use, and carbon dioxide emissions, so they can be aware of how their use of utilities is affecting the environment. Later, residents of Ichibangai were also given the option of having such monitors.

This residential area was completed at the end of 2012.



West side of Kashiwanoha Campus Station (parcels 147, 148, and 150) in June 2012.



West side of Kashiwanoha Campus Station (parcels 147, 148, and 150) in January 2013.



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The west side of Kashiwa-no-ha Campus Station (parcels 147, 148, and 150) in October 2014.



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The opening of Gate Square represented the completion of the first stage of the project.

Construction of the core element of the project—its gateway, Gate Square—began just before the 2011 earthquake and resumed months afterward. Comprising offices, retail space, 145 residential units, 166 hotel rooms, conference centers, and other key features, Gate Square encompasses a gross floor area of over 53,000 square meters (570,000 sq ft) on a site measuring about 24,000 square meters (258,000 sq ft). Gate Square opened in July 2014.

Gate Square incorporates the University of Tokyo Kashiwa-no-ha Campus Station Satellite, a facility for research and collaboration; the north wing of LaLaport; Mitsui Garden Hotel and Park Axis Kashiwa-no-ha, which offer both hotel rooms and rental residences; the Kashiwa-no-ha Smart Center, the facility

responsible for overall energy management for the project; the energy building, which houses power storage systems; and Kashiwa-no-ha Open Innovation Lab (KOIL). KOIL is a first for Japan—a facility that brings together one of the largest coworking spaces in the country, a café, and a digital manufacturing studio; it also has business mentors on staff to assist and support entrepreneurs. Offices of major corporations as well as venture companies are on site. A winner of the Japan Institute of Design Promotion's 2015 Good Design Award, KOIL encapsulates the premise of Kashiwa-no-ha Smart City: the natural, comfortable, synergistic merging of knowledge, industry, and culture.

In September 2016, UDCK and Mitsui Fudosan achieved Leadership in Energy and Environ-

mental Design for Neighborhood Development (LEED ND) Plan Platinum certification from the U.S. Green Building Council for the Kashiwa-no-ha Smart City plan. Two months later, a rainwater retention pond, which was a physical barrier in the center of the Innovation Campus and inaccessible to the public, was converted into the Aqua Terrace by Nikken Sekkei. Creating a new public amenity, its construction ended a two-and-a-half-year discussion concerning the transformation of the park space while maintaining the standard functions of a retention pond. The area around the pond is owned by Mitsui Fudosan and numerous individual owners, all of whom bear a portion of the costs of taking care of the landscape and enhancing the value of the area, for which benches, a stage, a fountain, and a habitat for wild birds have also been created. Along the northeast edge of the Aqua Terrace is the Kashiwanoha T-SITE, a complex offering visitors the opportunity to enjoy movies, music, and books in a comfortable setting with cafés and specialty shops. Kashiwanoha T-SITE opened in March 2017.

Performance

Kashiwa-no-ha Smart City's area energy management system is overseen from the Smart Center, located in the Mitsui Garden Hotel building. The center collects data on electricity consumption at residences, retailers, offices, and other areas—and provides advice on use, consumption forecasts based on past patterns, and even weather advisories—making residents and employees aware of their impact on the environment in terms of CO₂ emissions and of the need to manage their energy use.

Kashiwa-no-ha Smart City uses energy from TEPCO, along with solar and wind energy collected and stored locally, and shares that energy across parcels as needed through a microgrid of private transmission lines. This system makes intelligent, situational energy sharing possible, not only leading to reduction in energy consumption and the subsequent decrease in CO₂ emissions, but also ensuring that energy is both available and distributed as required to Kashiwa-no-ha Smart City facilities if a natural disaster or other event affects operation of primary systems. On average, only 10 percent of power consumed in the pilot area is provided by TEPCO.

The monitors provided in the residential units at Ichibangai and Nibangai are components of the home energy management system



KOIL Park (left) is a coworking space seating about 170. KOIL Factory (right) provides 3D printers, a laser cutter, and other tools to enable quicker conversion of ideas into three-dimensional prototypes.



Aqua Terrace will serve as a place where workers and residents can relax and interact. It is also expected to contribute significantly to attracting Japanese and foreign companies to the area.

designed specifically for Kashiwa-no-ha Smart City. Residents can view the status of their electricity use both on their monitors at home and via mobile terminals when they are away. Air conditioning and lighting can also be controlled remotely, further contributing to effective energy use management.

Management

UDCK, unique in Japan when it was formed, is made up of public and private partners as

well as local academic institutions that help hold community and business interests together as the neighborhood develops. The smart city's success relies on the constant and supportive guidance from this singular entity, a structure that is now a prototype being replicated across Japan.

UDCK creates a forum for discussion of how development can reinforce business and community goals. Over its ten years, UDCK has been essential to the community's adap-

tation to economic stresses and unplanned disasters as well as efforts to make the smart city a sustainable place.

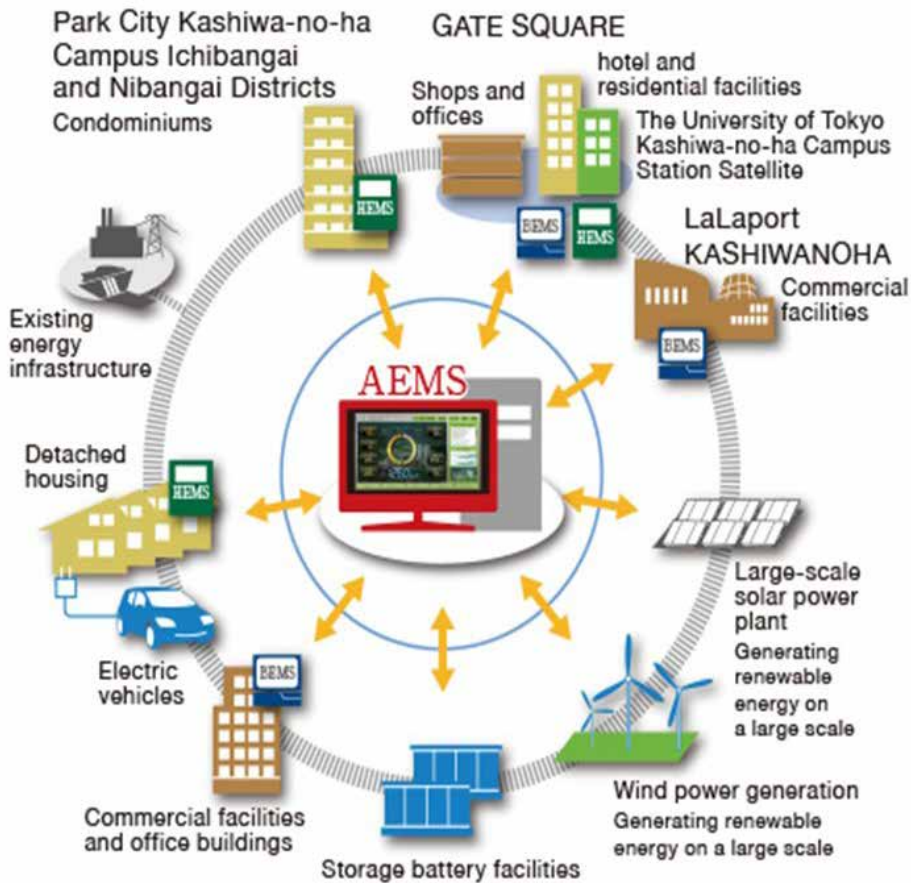
Because of UDCK, this new city has been transformed from a conventional transit-oriented development to become the largest smart city to earn a LEED ND Plan Platinum rating. The development owes its start to advanced technology and local community aspirations to make a healthful place for multigenerational lifestyles.



The Smart Center is on the second floor of the Mitsui Garden Hotel building.

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● AEMS (Area Energy Management System)



AEMS: Area Energy Management System
BEMS: Building energy management system
HEMS: Home Energy Management System

||||||| : Energy flow
 ↔ : energy information

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UDCK is led by Atsushi Deguchi, a professor in the Department of Socio-Cultural Environmental Studies at the University of Tokyo who has been involved in urban engineering for more than three decades. UDCK provides support for urban design, the introduction of advanced technologies and services, and the creation of a new lifestyle and community. In addition to public and private entities, UDCK gives citizens a voice in the evolution of their community. It served as the platform for the formulation of the Kashiwa-no-ha Smart City vision and the catalyst for putting those ideas into practice.

Given momentum by the LEED ND Plan Platinum certification, the highest rank awarded for urban development, UDCK will play a key role in organizing property owners to subscribe to site- and building-performance guidelines to achieve sustainable design objectives, as well as more active and vital neighborhood spaces.

Not only does UDCK bring together stakeholders to regularly discuss and deliberate urban development issues, but the center's staff also initiates and manages a variety of community programs that put community members in leadership positions concerning the creation, maintenance, and development of value. UDCK plans and tests these programs' effectiveness across the community's various demographic groups.

"The center in Urban Design Center represents the confluence of information, people, and activity," says Deguchi. "Any time these elements come together, issues inevitably arise. The members of the center then work cooperatively to resolve these issues."

"The real value of UDCK is that it is a collaborative effort involving public, private, and academic entities," he says, "and this multi-disciplinary structure affords us great flexibility. We operate autonomously, free of political associations or obligations, enabling us to respond at the same speed at which Kashiwa-no-ha is developing."

The UDCK Machizukuri (urban development) school hosts lectures by leading researchers and practitioners for city residents, and uses experience-type lesson plans and case studies to give residents the opportunity to learn what their role might be in building the community. Chiba University Kashiwa-no-ha's College Link program brings residents and universities together to discuss food, health, and the environment. And the Urban Design Studio, a joint program under-



Since its inception in May 2007, more than 530 people have participated in UDCK's Machizukuri (urban development) School. This hands-on program, led by lecturers including university professors and urban development specialists, is meant to educate citizens and prepare them to play an active role in the evolution of their environment.

taken by the University of Tokyo, Chiba University, Tokyo University of Science, and the University of Tsukuba, is a forum for students to propose their images of the city of the future through discussion with stakeholders.

The better the members of the community understand the beauty, value, and importance of the environment surrounding them, the more they will be able to benefit from it—and the more proactively they will be willing to work to protect it. To this end, UDCK conducts walks around the city and holds symposiums to enhance awareness of the importance of environmental symbiosis and maintaining the area's greenery.

With UDCK's support, a Farming Town Committee has been formed. The goal of the committee is to realize a "garden city that coexists with urban agriculture." At present,

projects in progress include an Eco-friendly Convenience Station that will function as a center for information and activity, the creation of an agricultural experience farm, and the development of a landscape guidebook.

Observations and Lessons Learned

Implementation of a phased project such as Kashiwa-no-ha Smart City (development began in 2005 and the project is scheduled for completion in 2030) must be open to adjustments in direction occasioned by unforeseen costs, natural events (depending on the region), changes in regional and national ordinances and regulations, and other such unexpected developments.

The tremendous complexity and intricacy of a project of this scale and the number of stakeholders involved could easily breed

difficulty and discord between conflicting ideals and objectives. Instead, it has become a progressive, dynamic cooperative effort, where public agencies, private companies, and academic institutions have succeeded in creating a single path to follow in the continued evolution of the project—attributable in large part to the efforts of UDCK. Willingness and means to communicate openly, closely, and effectively along the way have enhanced the likelihood of positive outcomes when the need arises to detour unexpectedly.

In addition to performing a challenging balancing act in terms of effectively coordinating the participation of public, private, and academic players, UDCK sought guidance and advice from the city of Portland's WBGC organization in shaping the Kashiwa-no-ha project. Among the numerous other benefits,

this consultation has resulted in the incorporation of perspectives on aspects such as community engagement, mixed-use programming, and placemaking with stormwater management in mind that contributed to its LEED-ND Plan Platinum certification. UDCK's oversight and coordination between distinct interests has created a unified platform for progress.

Kashiwa-no-ha Smart City—winner of the Best Futura Mega Project award at the 2017 Marché International des Professionnels de l'Immobilier real estate industry trade fair in Cannes, France—has been established as an integrated, technologically advanced place with neighborhood facilities that accommodate a variety of lifestyles, generations, and uses. This would not have been possible without UDCK's ability to coordinate and serve institutional, municipal, business, and community interests in a new urban form.

OTHER PARTICIPANTS

Architect

ZGF Architects LLP
Portland, Oregon, USA

Nikken Sekkei Ltd.
Tokyo, Japan

Landscape architect

Jun Mitsui & Associates
Tokyo, Japan

Interviewees

Atsushi Deguchi, President, Urban Design Center
Kashiwa-no-ha (UDCK)

Professor, Department of Socio-Cultural
Environmental Studies, Graduate School of
Frontier Sciences, University of Tokyo

Jun Mitsui, Architect, AIA/JIA
Principal, Jun Mitsui & Associates Inc.

Charles Kelley Jr., AIA, LEED AP
Principal, ZGF Architects LLP

PROJECT INFORMATION

Development timeline

	Year
Opening of the University of Tokyo Kashiwa Campus	2000
Approval from Chiba prefectural government for land readjustment project in northern central Kashiwa	2000
Closing of Kashiwa Golf Club	2001
Launch of operations of Tsukuba Express train line	2005
Opening of LaLaport Kashiwanoha	2006
Establishment of Urban Design Center Kashiwa-no-ha (UDCK)	2006
Designated as an ecofriendly community development project by the Ministry of Land, Infrastructure, Transport and Tourism	2008
Completion of Park City Kashiwanoha Campus Ichibangai	2009
Designated as a local information technology utilization model project by the Ministry of Internal Affairs and Communications	2009
Designated as a model city for intelligent transportation systems experiments by the Cabinet Office	2009
Launch of public power supply service	2010
Designated as Future City Model Project by Japan Federation of Economic Organizations (Keidanren)	2011
Completion of Park City Kashiwanoha Campus Nibangai	2012
Opening of Kashiwanoha Open Innovation Laboratory (KOIL)	2014
Completion of Gate Square (completion of Stage I)	2014
Acquisition of LEED certification by Kashiwa-no-ha Smart City	2016

Gross building area

Parcels 147–151

Use	Total floor area (sq ft)
Residential	3,498,268
Retail	1,883,683
Office	322,917
Hotel/hall	129,167
Other (medical)	129,167
Total area	5,963,201
Parking space	Approx. 3,500 vehicles

Land use plan

	Site area (acres)	Percent
Retail and residential buildings	368	54.6
Parking garage and transportation center	5.7	0.1
Public streets, sidewalks, and parks	216	32.1
Other (reserve/land for sale, land readjustment area)	84	12.4
Total	674	100.0

Residential building or unit name/type	Number of units	Unit size (sq ft)	Percentage sold/leased	Typical rent/sales price
Park City Kashiwanoha Campus Ichibangai	977	700–1,421	100% sold	Not released
Park City Kashiwanoha Campus Nibangai	880	455–1,533	100% sold	Not released
Park City Kashiwanoha Campus Gate Tower	347	707–987	100% sold	Not released (sales in progress)
Park City Kashiwanoha Campus Gate Tower West	495	Not released	100% leased	Scheduled for completion March 2018
Park Axis Kashiwanoha	145	301–804	100% leased	¥88,000–¥220,000

Office space	Leasable area (sq ft)	Major office tenants
KOIL 4F	28,524	Healthcare Corporation Shinwakai
KOIL 5F	28,524	Tsukuba Wellness Research Co. Ltd.
		Fuller Inc.
		Ricoh Co. Ltd.
		Hitachi Ltd.
KOIL 6F	5,382	
Total	62,431	
Occupancy	84%	
Average annual rent per square foot	¥506	

Hotel information

Number of rooms	137
Number of serviced apartments	29
Standard room size	213.1–243.3 sq ft
Luxury room size	487.6 sq ft
Rates (range)	Approx. ¥8,000 to ¥20,000
Serviced apartments, range of sizes	265.9–676 sq ft

Key retail/restaurant tenants	Retail type
Oak Village Kashiwanoha	Macrobiotic food restaurant
Kashiwanoha T-SITE	Shopping center featuring bookstores, restaurants
Volvo Kashiwanoha	Auto sales
Anniversaire Kashiwanoha	Wedding venue
Café Agora	French bistro

Financing sources	Amount
Public capital sources	¥9,630 million (operating costs for Chiba Prefecture for land readjustment project)



About the Urban Land Institute

The Urban Land Institute is a global, member-driven organization comprising more than 40,000 real estate and urban development professionals dedicated to advancing the Institute's mission of providing leadership in the responsible use of land and creating and sustaining thriving communities worldwide.

ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 76 countries.

The extraordinary impact that ULI makes on land use decision making is based on its members sharing expertise on a variety of factors affecting the built environment, including urbanization, demographic and population changes, new economic drivers, technology advancements, and environmental concerns.

Peer-to-peer learning is achieved through the knowledge shared by members at thousands of convenings each year that reinforce ULI's position as a global authority on land use and real estate. In 2016 alone, more than 3,200 events were held in 340 cities around the world.

Drawing on the work of its members, the Institute recognizes and shares best practices in urban design and development for the benefit of communities around the globe.

More information is available at uli.org. Follow ULI on Twitter, Facebook, LinkedIn, and Instagram.

Patrick L. Phillips, Global Chief Executive Officer

ULI CASE STUDIES

The ULI Case Studies program highlights and showcases innovative approaches and best practices in real estate and urban development. Each case study provides detailed information regarding the ideas, plans, process, performance, and lessons learned for the development project. Each also includes project facts, timelines, financial data, site plans, photos, location maps, and online videos. The new ULI Case Studies program is the revitalization of a program begun in 1971. For more information, visit the ULI Case Studies website at casesudies.uli.org.

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