The framework plan defines a vision for the campus over the next 30 years. The central library on the Green Belt will be moved underground and connected directly to the subway, making the Higashiyama campus greener. The north and south buildings along the Green Belt will be converted to a space for general education. The goal is to offer a wide green space to university members as well as visitors to gather and to create a public space for the local community.

Motoji Shibusawa, the first president of Nagoya University, conceived a green campus. He must have stood on the hill at the eastern edge of Nagoya city in his day and looked at the city center far in the west, promising to contribute to the society from this newly opened campus made possible with the devoted efforts of local people. In fact, Nagoya Castle is located far on the extension line of the Green Belt running from the current Toyoda Auditorium. Although no historical evidence exists, the predecessors might have planned the campus with the castle tower in their vision.
Basic Objectives of the Campus Master Plan 2016

The Campus Master Plan (CMP) is the campus space planning initiative deliberated by the University based on its management philosophy. The CMP provides guidelines for continuous development and operation of university facilities and environments.

The CMP supports the academic plan implemented with the basic principles defined in the Nagoya University Academic Charter. The CMP has been updated four times up to the CMP2010.

The latest update, the CMP2016, provides a long-term framework plan that defines a vision over the next 30 years, as well as an action plan for the six years, in correspondence with the university’s mid-term objectives / mid-term plan and the NU MIRAI 2020 (Nagoya University Matsuo Initiatives for Reform, Autonomy and Innovation 2020).

Where the CMP2016 Is

The CMP was updated four times, in 1997, 2001, 2005, and 2010. The latest update, the Campus Master Plan 2016, is made of a framework plan and an action plan redefined for this update.

Guidelines to Implement the CMP2016

In the CMP2016, various facility-related guidelines and check and evaluation systems are established to implement the plan. To implement the plan for sure, achievements from the CMP2016 will be used in the next phase of the CMP through plan-do-check-act (PDCA) feedback.
Checking and Evaluating the Campus and Tasks of the CMP2016

To fit the academic plan and to reflect domestic and global situations, the Nagoya University Campus Master Plan clarifies the tasks through check and evaluation, and also flexibly incorporates new plans and objectives to accomplish the tasks.

In formulating the Campus Master Plan (CMP) 2016, based on the internal assessment by analyzing its achievements through check and evaluation as well as the external assessment of the CMP2010, the current states of the existing facilities and the problems with the campus were identified.

Facility development during the CMP2010 (year of completion in parentheses)

1. Affiliated School Community Hall (2014)
2. Central Library Renovation (2013)
5. Disaster Mitigation Research Building (GERMANAM) (2013)
10. Research Institutes Building (2013)
11. Medical Science Research Building 3 (2014)
12. Advanced Medical Center (to be completed in 2017)

Tasks for Individual Campuses

[Higashiya Campus]
- Project plan for mixed housing for domestic and foreign students

[Daiko Campus]
- Development of Building 1 and the new medical center

[Tsurumai Campus]
- New construction or reconstruction
- Renovation (seismic reinforcement
- Toilet renovation
- Anti-aging or for functional improvement

Tasks for the Higashiya Campus

- Measures against the aging of educational and research facilities and infrastructures
- Intensive re-development to reduce building congestion and create more public spaces
- Development and improvement of library functionality
- Reserving space for future construction and management of temporary buildings
- Response to the issue of dispersed school personnel, and integration and rearrangement of lecture rooms
- Redevelopment of the Research Park and the Engineering Building 7 area
- Regulating vehicle entry into the campuses and developing car and bicycle parking spaces
- Enhancement of welfare functionality for campus visualization

Tasks for the Daiko Campus

- Building mixed housing for domestic and foreign students for campus vitalization
- Maintenance operation for intensive rebuilding
- Creating a base for health sciences research and reserving space for new projects
- Provision of self-study rooms for students

Tasks for the Tsurumai Campus

- Measures against the aging of educational and research facilities and infrastructures
- Efforts to reduce building congestion and create more public spaces
- Development of welfare facilities, green environment, and car parking spaces
- Barrier free design
- International exchange and industry-academia collaboration

Achievements of the CMP2010

External assessment of campus management
- Received the Prize of Architectural Institute of Japan (AIJ) 2015
- Specific Contributions Division
- Received the Platinum Certificate in the Assessment System for Sustainable Campus by CAS-Net Japan
- Renovated Toyota Auditorium designated as a Registered Tangible Cultural Property
- Rated A grade in the system reform project by MEXT for 4 consecutive years

Creating a low-carbon eco campus
- Our three main campuses received the Eco Business Certification from Nagoya City
- Ranked first in the Eco University Ranking in Japan

Preparation of facility related guidelines, etc.
- Campus Jogo Manual 2012
- Universal Design / Guidelines 2015
- Regional planning for Higashiya Campus and Tsurumai Campus

Check and Evaluation and Future Tasks

Check and evaluating the CMP2010
- Slow achievements made by the framework plan
- High achievements made by the action plan

Problems with the framework plan
- Poor outlook for the vision in 30 years

Problems with the action plan
- Slow achievements in the traffic plan, regional collaborations, and welfare facilities
- Intensified building congestion and poor streetscapes
- Strategies for financial pressures with increased facility operating costs

The achievements made by the framework plan

- Traffic and parking plan
- Energy supply and infrastructure plan
- Maintenance and effective use of campus resources
- Green spaces, outdoor environments, and public spaces

The achievements made by the action plan

- Functional zoning on the Higashiya Campus
- Functional zoning on the Tsurumai / Daiko Campus
- Energy-saving and environmental load reduction plan
- Traffic plan
- Green space plan
- Facility and infrastructure plan
- Environment, health, and safety plan
- Internationalization support plan
- Regional collaboration
- Welfare facilities
- Preparation against natural disaster and prevention of crime
- Development plan of educational and research facilities
- Mid-term plan for the Higashiya Campus
- Mid-term plan for the Tsurumai Campus
- Mid-term plan for the Daiko Campus
- Mid-term plan for the Toyokawa District

Management Issues

- Increased facility operational costs and reduced financial support for operational costs
- Lack of finances for re-development and renovation of the increasingly aging facilities
- Insufficient space for industry-academia collaboration projects
- Increased needs for foreign students housing, and aging of the facilities

Ideal campus for individual members

- Development of dining halls and shops
- Maintenance and re-development of the aged infrastructures and buildings
- Development of indoor and outdoor public spaces
- More spaces for students and young researchers
- Easy to walk and convenient campus traffic

Highly-ranked requests from questionnaires

- Dining halls and shops in individual areas
- Planned re-development of the aged infrastructure
- Provision of rest spaces (indoor rest areas)
- Provision of self-study rooms for students
- Building cafes and shops in the Green Rest area
- Development of open spaces (rest areas and green areas)
- Measures against the aging of buildings and life extension of buildings
- More research spaces for young researchers
- Higher level safety in buildings
- Effective use of solar energy such as solar power generation
Framework Plan
Long-term vision over 30 years—

To achieve an open campus that fosters intellectual development and exchange, exchange zones will be defined, and their overlapping areas will serve as the exchange center. The Hiragashiyama Campus particularly focuses on the Green Belt, which will serve as the symbolic zone of the University.

Zoning for Exchange

Green Space and Outdoor Environment Plan

To create a wide green network in the east part of Nagoya city, the campus will offer more green spaces for preserving the greenery and the ecosystem in the city. The campus will also offer an outdoor environment that promotes collaborative activities among students, faculty, and the surrounding local community.

Traffic and Parking Plan

Parking lots will be placed at the periphery of the campus to create a safe, quiet, and beautiful campus environment that is friendly to pedestrians. New and leading technologies, including shared bicycles and electrical buses, will be used for more efficient transportation on the campus.

Energy Supply and Infrastructure Plan

With its core efforts to be a low-carbon campus, the whole university is devoted to creating a world-class, sustainable campus including effective use of resources. For that, the university takes various approaches, in terms of hard/soft and on-site/off-site, such as collaborations with the local community or technology transfer to foreign countries.

To create a zero net energy campus, or Zero Energy Campus (ZEC), the university also conducts step-by-step development for energy supply and infrastructures that are reliable, safe, and robust.

Framework Plan for Individual Campuses

1. Hiragashiyama Campus
2. Tsurumai Campus
3. Daiko Campus

1. Creating a general education area around the Green Belt
2. Redevelopment of open spaces around the Green Belt
3. Development of residential accommodations
4. Development of the main street and public spaces
5. Rearrangement to fit the university reorganization
6. Integrating departmental education and research areas, and building high-rise buildings

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Diagram:

- Exchange center
- Inter-departmental exchange area
- Community-university exchange area
- Educational and research exchange area
- Preserved green spaces
- Expanded green spaces
- Tree-lined campus road
- Creating outdoor exchange environment
- Creating natural environment
- Subway exits
- Construction of the medical area
- Development of the Hospital street and public spaces
- Development of the main street and public spaces
- General education area
- Research education area
- Departmental research education area
- Welfare area

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Action plan
— 6-year mid-term plan —

The action plan to be achieved within 6 years by 2021 in the period for phase III mid-term objectives / mid-term plan is shown below. The action plan involves reviews of items including regional collaboration, public spaces, traffic, green spaces, a low-carbon campus, facilities and infrastructures, environment, health, and safety, disaster prevention, crime prevention, internationalization, industry-academia collaboration, welfare, and universal design. Each item has projects planned in three categories: (1) development that will require new investments, (2) development that will be financed by the university budget, and (3) support for its operation.

Action Plan for Individual Campuses

[Higashiyama Campus]

- Redevelopment of the Engineering Building 7 area
- Reconstruction of Engineering Building 1, B-Wing
- Renovation of Engineering Building 9
- Renovation of Engineering Building II, North Wing
- Development of the Research Park
- Development of the Clean Room Building and the Research Buildings
- Pharmaceutical Sciences Building (Phase 10)
- Building the Universal Hall (Initiative)
- Setting up the Global (Global + Local) Communication Plaza
- Renovation of the Top-Global Human Resource Development Facility
- Integrating lecture rooms around the Green Belt

[Tsurumai Campus]

- Improvement of the research and education area
- Advanced Medical Center
- New construction, reconstruction, and renovation of the Center for Research of Laboratory Animals and Medical Research Engineering
- Increasing the functionality of the Central Consultation Building
- Planned renovation of the Ward Building
- Building mixed housing for domestic and foreign students, car parking, and profit-making facilities

[Daiko Campus]

- Development of the main street and the common green area
- Building car parking
- Reconstruction of the former main building
- Development of the library / education and research functionality
- Buildings subject to: renovation of construction, functional improvement or renovation, operation review, and zoning changes
- Campus entrance

Creating a Campus that Fosters a Liberal and Active Academic Culture

Regional Collaboration
Creating a co-creative space for interactive communication between the society and the university
1. Development of a public space along the Green Belt to Yotsuya-Yamadotori
2. Integrated use of the Toyota Auditorium, the Green Belt, and the Central Library together

Public Spaces
Redeveloping public spaces along the exchange center and the exchange zones to create an exchange base for students, faculty and staff members, and visitors, allowing local community exchange and industry-academia collaboration
1. Expansion of total space by connecting neighboring public spaces
2. Development of public spaces around welfare facilities and public facilities
3. Total designing of outdoor environments including materials, lighting, and planting

Traffic Plan
Transforming to a next-generation urban model for a walkable campus with a pedestrian space around the Green Belt
1. Separation of traffic and pedestrians, and a network of walking paths
2. Car parking placed at the periphery of the campus and integrated bicycle parking
3. Interdepartmental sharing of university cars and sharing of bicycles
4. Trial operation of new technologies including an automatic driving bus

Green Space and Ecosystem Conservation Plan
Environment-oriented landscapes planning for an ecosystem conservation zone, a landscape conservation zone, and a green use zone. Achievement of greening targets. Clean-up activities by students and local community volunteers.

Low-carbon Eco Campus That Is Friendly to the Environment

Low-carbon Plan
Creating a zero net energy campus
1. Use of low-carbon buildings
2. Active use of natural energy and new energy systems and consideration to Business Continuity Planning (BCP)
3. Use of external funds for facility improvement

Facility and Infrastructure Plan
Improving reliability and durability for the stable supply of lifelines
1. Stable financing for basic expenses 2. Updates based on the comprehensive mid-to-long term plan for facility management

Environment, Health, and Safety
Creating a safe, beautiful, and comfortable campus where history is made
1. Update of the pH monitoring system 2. Creating the standard specifications for experimental drainage facilities

Disaster Prevention
Ensuring the safety of students, and faculty and staff members, continuation and early recovery of leading edge research and higher education, and contributions to the local community in preparation for massive natural disasters
1. Seismic reinforcement for nonstructural bodies such as ceilings 2. Use of Business Continuity Planning (BCP) 3. Disaster drills and regional collaboration

Crime Prevention and Security
Planning and implementation of security guidelines for information protection and crime prevention in buildings
1. Provision of a hazard map for the campus 2. Provision of security guidelines

A campus that facilitates intellectual-exchange

Internationalization
Developing a system for receiving foreign students (building mixed housing for domestic and foreign students) and overseas sites (Asian Satellite Campuses)

Industry-Academia collaboration
Building large research institutes funded by companies, securing a steady income from collaborative research courses with companies, and benefiting from profits made by university-based ventures

Welfare Facilities (Dining Halls and Spaces for Students)
Creating a cooperative system with appropriate specialists including counselors and expanding the space for a variety of university members

Universal Design and Gender Equality
Creating an environment in which university members and visitors can work without stress regardless of their nationalities or whether or not they are disabled, and continue their careers while keeping a good work-life balance
1. Introducing universal design lecture rooms
2. Building nurseries on campus, multipurpose rooms, and universal toilet facilities
Implementation of the Action Plan through Campus Management

To implement projects defined in the Campus Master Plan 2106, the plan must be financed through proper campus management.

Campus management includes facility management (FM), design management (DM), and energy management (EM), each of which aims to meet the required quality, spaces, and costs, and has its achievements evaluated. The Nagoya University CMP2016 has a unique system to steadily implement the projects within the limited financing budget based on the comprehensive mid-to-long term management plan under the CMP2016.

- **Facility management (FM) that contributes to university management**
  - Creating a campus that is financially, socially, and environmentally sustainable
  - Sustainable redevelopment, renovation, and operation of facilities through lifecycle management
    - Reducing the facility areas and the building areas to keep the campus on a sustainable scale
    - Reducing and stabilizing the lifecycle costs by reviewing the redevelopment and renovation periods
    - Extension of life by reviewing the mid-to-long term management plan
    - Appropriate renovation and repairs based on the database storing the actual conditions of facilities
  - Provision of spaces and financing of strategic projects through space management
    - Expansion of spaces for competitive projects and industry-academia collaboration projects
    - Planned provision of study rooms for students and public spaces to facilitate exchange
    - Review of the space allocation standards and reallocation of spaces for each department
    - Financing for mid-to-long term management expenses by charging for spaces
  - Streamlining assets including residential accommodations through asset management
    - Creating an integrated management system for housing facilities such as accommodations for staff members and foreign students, and student dormitories
    - Reviewing the total demand through understanding of the needs of users
    - Creating a business scheme with various finances to fit the conditions of each site and institute
    - Creating and implementing an annual plan with set priorities

- **Design management (DM) to enhance the quality of the campus space**
  - Creating a safe, beautiful, and comfortable campus where history is made
    - Clarifying the design process, system, and designer selection standards
    - Institutionalization of the Nagoya University style commissioning to meet the required facility performance
    - Creating harmonized landscapes and public spaces under the design guidelines
    - Operation of the sign manual and the universal design guidelines

- **Energy management (EM) for achieving a low-carbon eco campus**
  - Creating a zero net energy campus
    - Financial measures to cut the CO2 emissions by 25% from 2005
    - Acquiring an LEED-ND certificate for the entire campus and at least CASBEE-A for individual buildings
    - External energy supply to the Information Technology Center

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PDCA Cycle for Management

Management including FM, DM, and EM uses a PDCA cycle to review and manage items to be improved.

At the same time, the Key Performance Indicators (KPI) are set as numerical targets specifically to solve problems.

1. **Identifying problems through understanding of the current situation**
2. **Setting the specific objectives**
3. **Implementing measures (mid-to-long term repair plan)**
4. **Check and evaluation in terms of space cost, and quality**
5. **Operation and maintenance with an execution system and financial plan**
6. **Re-evaluation in terms of the objectives**
7. **Setting improvement objectives**

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Campus Management System

The Campus Management Central Administration will systematically facilitate development of the buildings and the outdoor environment. The Campus Management Central Administration consists of members from the University Executives, the Campus Planning & Environment Management Office, and the Facility Control Department.

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Design Code and Future Concept of the Green Belt

The Green Belt that runs from the Toyota Auditorium will be redeveloped to serve as the exchange center on the Higashiyama Campus. The Green Belt will keep the open space by removing facilities that can block the view. The central library will be moved underground and connected directly to the subway, making the Higashiyama campus greener. The north and south buildings along the Green Belt will be converted to a space for general education. The goal is to offer a wide green space to both university members as well as visitors to gather and create a public space for the local community.

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University management policy

Mid-term objectives, mid-term plan, and academic plan

Campus Master Plan

Facility management

Integrated management for implementing business process

- System for implementing facility management
- Facility database with a true purpose
- Setting the management standards reflecting the actual conditions
- Checking finances for implementing the plan

Project management through systematic financing (repair/renewal reconstruction)