

Station-centered arrangement of entertainment, recreation and business functions

Figure: Functional positioning (example)

Urban infrastructure

▶ Create technologically intensive “smart city”

<Concept, objectives>

● Urban infrastructure to support a global tourism hub, high-tech business cluster and logistical center

- Yumeshima already has a concentration of logistics facilities, including a high-standard container terminal; and, from here, the island is to be developed as a global tourism hub. Required for the area to function effectively in both capacities is smooth transportation access.
- Here, to be encouraged are efforts to employ state-of-the-art technologies to provide: (a) a variety of transportation modes, including rail, road and marine, to support the tourism, business and logistics functions of Yumeshima; and (b) a transportation system to provide smooth transport within the area; and (c) other related items.

<Directionality, approaches>

1. Improve access to the waterfront area by means of a railway network of sufficient capacity

- To be encouraged are efforts to provide a railway network of sufficient capacity to support the harbor and global tourism functions of Yumeshima and, by thus dispersing the transport load, to lighten the burden on nearby roadway networks and the like.
- To be encouraged are efforts to enhance the potential of Yumeshima by providing railway access from Kansai International Airport and Shin-Osaka Station.
- We take note of two railway routes that could conceivably be centered on Yumeshima Station. One, a northern route, would be comprised of a Keihan Nakanoshima Line/ JR Sakurajima Line extension. The other, a southern route, would entail an Osaka Municipal Subway Chuo Line extension. To be considered is such railway construction in light of the land utilization within the stepped development of the Yumeshima area.



Figure: Railway access⁶¹

⁶¹ Source : Yumeshima Development Concept (Draft) Interim Report, Committee for Yumeshima Development Concept, February 2015

2. Easy access to an attractive area

- Basic access is to be provided from the Wangan Maishima ramp of the Hanshin Expressway, part of an expressway network that links points throughout the Kinki region.
- The expressway network itself is to be geographically widened by, most notably, further work on the Yodogawa Left Bank Extension.
- Basically, two routes are to be provided to Yumeshima, one via Maishima (existing) and one via Sakishima (existing).
- The number of lanes on two bridges between Yumeshima and the Wangan Maishima ramp of the Hanshin Expressway (that is, on the Konohana Bridge and the Yumemai Bridge) is to be increased to boost highway capacity.
- Smooth access to Yumeshima is to be maintained by means of comprehensive measures that cover both hard and soft aspects. Most notably, traffic to the tourism area of Yumeshima is to be split from traffic to logistics facilities. This separation is to be effected by road widening, lane elevation, etc.

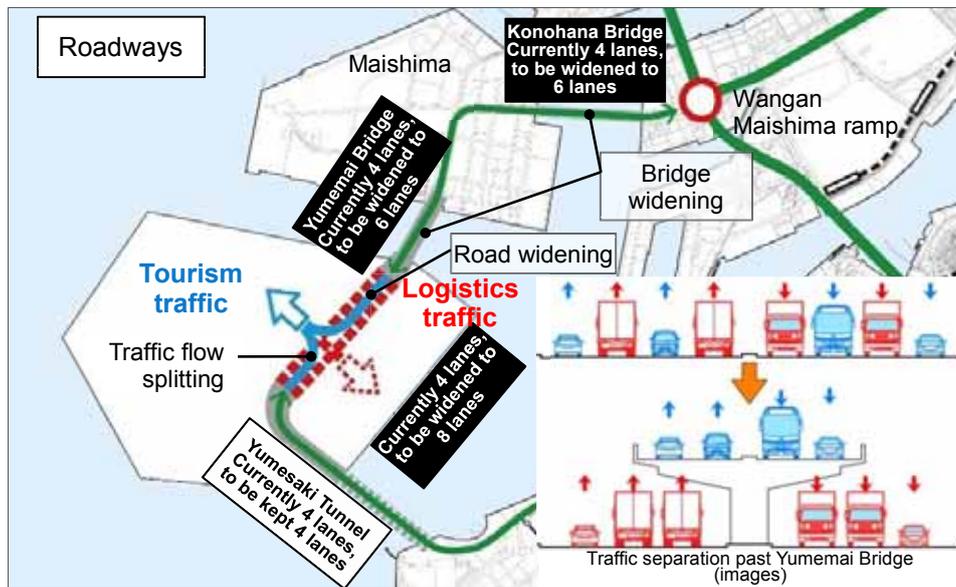


Figure: Roadway access



Figure: Separation of tourism/logistics traffic (image)

3. Multiple modes of access to an attractive area

- We envision a variety of means to get to the area, not only railways and roadways but also waterborne, aerial (helicopter) and other access modes.
- As appropriate for Osaka, the “Aqua Metropolis,” to be encouraged are efforts to play on the locational advantages of Yumeshima to provide waterborne access to this global tourism hub. We envision this to include international and domestic cruise ships along with smaller vessels to connect nearby attractions.
- We envision efforts to promote collaboration with water transportation officials/operators to enlarge the water corridors of Osaka as a whole.
- And, as for aerial access, we envision using the Maishima Heliport and other existing access points.



Helicopter



Water access

Figure: One of a variety of approaches to Yumeshima (images)⁶²

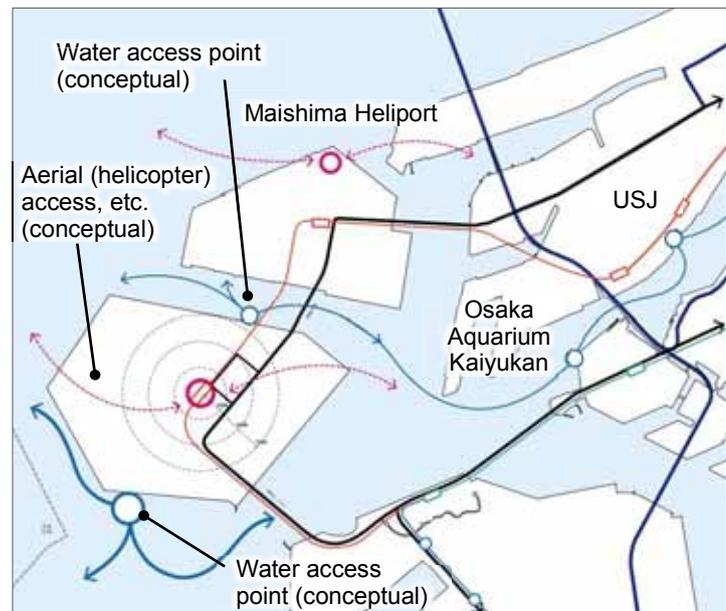


Figure: Yumeshima waterborne/aerial access (image)

4. Roadways and paths suitable for a resort area

- Perimeter roads, while having enough lanes to handle traffic, are to be designed as appropriate for a resort area. They are to be built around the site perimeter in stages in step with site utilization. And, we envision that they also be used for events.
- Sidewalks along perimeter roads in the tourist area are to take the form of shaded malls, with plenty of greenery and open space to impart a sense of relaxation and leisure. The spaces, including cycling paths, jogging trails and the like, are to be designed to meet a variety of needs/preferences.
- In the development of tourist area perimeter roads, we envision efforts to seek a degree of continuity/unity as necessary to accommodate expansion (land utilization) within subsequent development phases. (Example items for consideration)
 - Zoning for sunken roads; reclassification to pedestrian walkways; etc.

⁶² Source : <https://www.flickr.com>

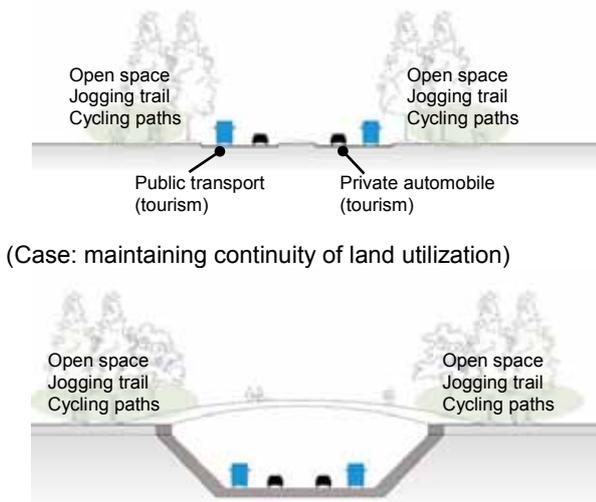


Figure: Roadway cross section (peripheral area) (image)

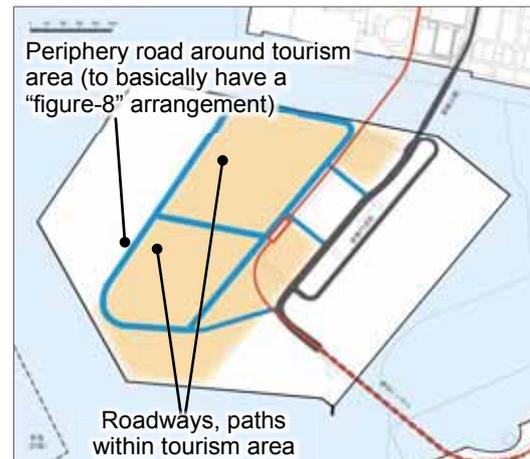


Figure: Tourist area peripheral roads

- Roadways within tourism areas are to be kept to a necessary minimum. This facilitates “super block” land utilization. Also, the roadway network is to be designed under a “pedestrian first” policy; that is, to the extent possible, traffic is to be lead away to peripheral roadways that go around tourism areas, not through them.
- Greenery, water courses and open spaces are to be suitably placed along pedestrian routes within tourism areas. Also, roadway spaces are to be arranged in a manner that facilitates event planning, etc., while also providing pedestrians with a sense of “escape from the ordinary.”
- As for roadways within tourism areas and the peripheral roadways around them, to be encouraged are efforts to provide pleasant, high-quality scenic views along them through ample placement of trees and open spaces. As one example, power lines are to be placed underground for reasons of scenery and safety.
- To be considered is a placement of transit malls (priority lanes, parking spots, etc.) that give priority access to public transport.
- As for pedestrian spaces, adjacent facilities (buildings) are to be “given a face,” works of art provided, and other measures taken to create an environment that is not only interesting and pleasant, but also makes walks feel shorter.

5. Transport systems are to provide pleasant and easy transit within Yumeshima; likewise, the station-front square is to invite people to further explore the area

- To be encouraged are efforts to introduce systems for transportation within Yumeshima, including a system of sufficient capacity for the area as a whole and, within tourism areas, a system co-existent with pedestrians.
- Here, we will consider installing transportation systems that are not only safe and easy to use, but are available to one and all and also provide a sense of “escape from the ordinary.” This might include, for example, waterborne transport or a monorail or ropeway with some striking view.
- Terminals for transportation systems operating within Yumeshima are to be integrated with the station-front square, which is to serve as a place for social interaction (events, etc.) and for comfort (rest, etc.). The square is to be arranged to promote the convenience of users and invite them to explore other areas.



Transport system having a suitable capacity (image)⁶³



Transport systems co-existent with pedestrians (image)⁶⁴

Figure: Transportation systems

⁶³ Source : <https://www.flickr.com>

⁶⁴ Source : <https://www.flickr.com>



Figure: Station-front square (image)

6. Building a “smart” urban infrastructure through multi-dimensional networking

- To encourage efforts to create a futuristic urban infrastructure, one that is capable of supporting the various functions of the city and the activities of people within it, through the construction of a three-dimensional network that links people, things and information beyond the limits of spacial proximity. More specifically, at one layer, this network is to be based on spacial proximity, entailing connections to railway lines and the construction of a station-front square linked to, primary, public transportation nodes. At another layer, however, this network is to transcend proximity by using ICT infrastructure to control traffic and to exchange data.
- To encourage efforts to build, by duplicating communication routes and employing both wired and wireless links, a resilient, high-speed/high-capacity ICT infrastructure, some of which is to run underneath major roadways, etc.

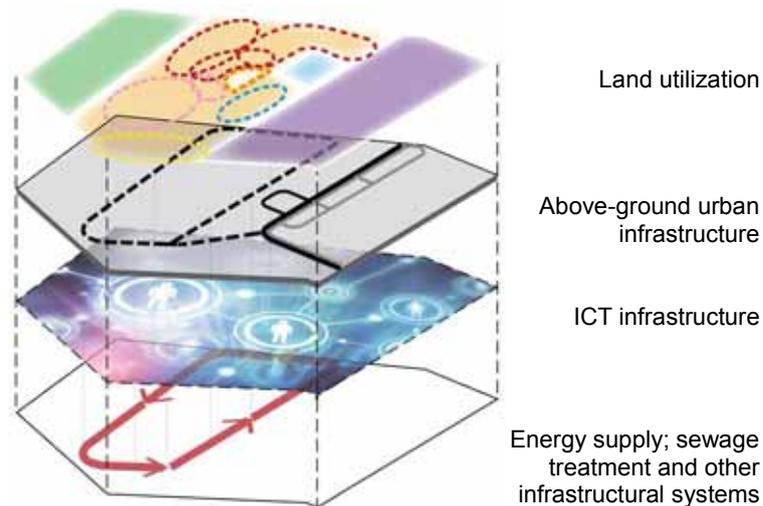


Figure: Configuration of a multidimensional urban infrastructure network (image)

Environmental coexistence

Create pleasant living environments by merging earth/natural environments with “smart” technologies

<Concept, objectives>

- **To encourage efforts to create a “zero carbon emission” town/community following on the “three Ss”—Sustainability, Security and Showcasing.**
 - Amid an international consensus toward the realization of “zero emission” societies to encourage efforts to actively utilize Japanese proficiencies in advanced environmental technologies to create a sustainable town/community. (Sustainability)
 - To encourage efforts to create a disaster-resilient town/community, one supported by multiple (backup) energy/ICT infrastructural and other elements to assure the safety and security of visitors. (Security)
 - To encourage efforts to utilize the area as a showcase for a “smart” city. By this, to seek to enhance the “brand value” of the town/community and also promote the area as a tourism resource that offers, among other attractions, “first-hand experience” of facilities. (Showcasing)
- **Promotion of effective/efficiency area management through the use of ICT**
 - To encourage efforts to monitor energy demand throughout the area and, based on the results, effectively/efficiently manage energy utilization.
 - To encourage efforts to provide a variety of ICT application services to prevent crime, respond to disasters and enhance hospitality.
- **Creation of a city co-existent with the environment by utilizing natural surroundings**
 - To encourage efforts to build a town/community that imparts minimal impact on the environment by providing both natural surroundings and environmentally friendly transportation/transit systems.

<Directionality, approaches>

1. Zero-emission (carbon-free) energy system—sustainability, safety and stability through on-site energy generation/consumption

- To be encouraged are the development and utilization of a sustainable, zero emission* energy system that fully utilizes state-of-the-art environmental technologies. We envision that aspects of this system will include, for example, (1) energy generation, through the use of hydrogen-based power generation (which emits no CO₂) and other new technologies; (2) energy storage, through the use of advanced storage battery systems and hydrogen storage stations; and (3) energy conservation, through the use of cogeneration and an energy management system (EMS).

* We envision for this to be done by first deriving energy from renewable sources externally supplied to the area. Following this stage, we envision for the energy needs of Yumeshima to be covered by CO₂-free power generation sources located within the area.

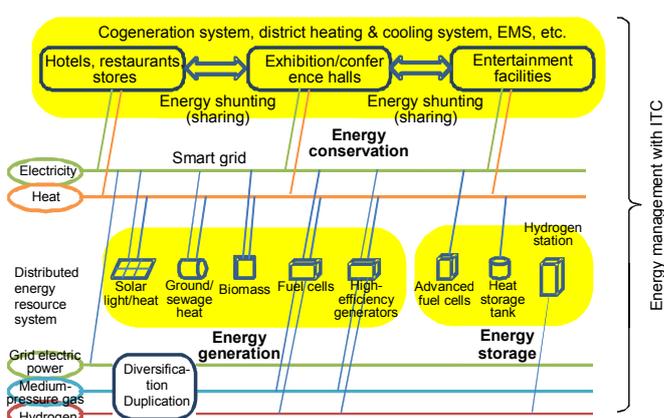


Figure: Example configuration of sustainable, stable and safe energy system

- To be considered is a stepwise construction of a safe/stable energy system in which energy to be consumed within the area is generated within the area. This would be advanced in step with area development. Here, we would attempt to strike a good balance among a variety of energy sources (electricity, natural gas, hydrogen, etc.) to be produced within a high-efficiency distributed energy resource system.
- To be encouraged are efforts toward the provision of an efficient, comprehensive energy management system that detects energy supply/demand situation within the area and, in accordance, shunts energy to where it is needed.

2. Innovative area management by use of ICTs

- Information and communication technology (ICT) covers many fields, including the Internet of things (IoT) and “big data.” Here, to be encouraged are efforts to provide a number of ICT-related solution services in the creation of an area management system.
- To also be encouraged are efforts to employ ICT to efficiently/optimally manage area systems by monitoring various urban activity parameters (for example, energy utilization, vehicular traffic and visitor influx).
- Energy; transportation; and safety & security—to be encouraged are efforts to add value by nimbly accommodating these and other needs of the area and its visitors.

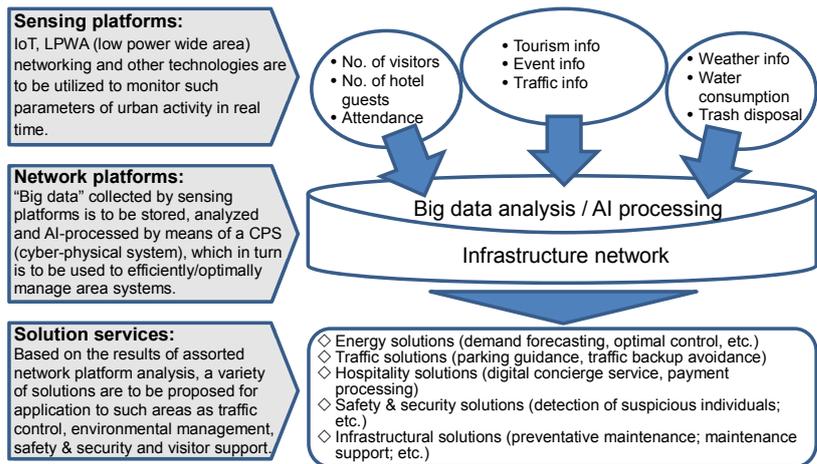


Figure: ICT and innovative area management (images)

3. Pleasant and environmentally friendly transportation/mobility systems

- ZEVs (zero-emission vehicles, including EVs (electric vehicles) and FCVs (fuel cell vehicles)), are to be actively employed, with preferential measures (special lanes, priority parking) taken to encourage their use within the area. The use of public transport is also to be encouraged.
- ITS (Intelligent Transportation System) technologies, including automated driving, parking and recharging systems, are to be used together with robotic technologies to manage traffic flows and prevent backups/jams. Also, both the means of transportation and the routes over which they travel are to be kept pleasant and appealing.



(Top photos) Personal mobility device⁶⁵, FCV bus (image)⁶⁶
(Bottom) Rental cycles⁶⁷, electric vehicle (image)⁶⁸

Figure: Transportation/mobility systems

4. Enhancing the city brand with “real showcases”

- To be encouraged are efforts to enhance the city brand at home and abroad by utilizing the area itself as a platform to publicize the ICT applications, sustainable energy systems and other innovations to be advanced here.
- Also conceivable are support efforts to publicize the high-tech nature of Yumeshima (and, accordingly, its tourism appeal as well) through the use of “first-hand experience” facilities pertaining to environmental technologies, robotics or the like.



Figure: “First-hand experience” facilities (image)⁶⁹

⁶⁵ Source : Toyota Automobile Museum homepage

⁶⁶ Source : <https://pixabay.com/ja/>

⁶⁷ Source : <https://pixabay.com/ja/>

⁶⁸ Source : Nissan Motor homepage

⁶⁹ Source : Orbi Osaka homepage

5. Creation of an urban environment co-existent with nature

- To be encouraged are efforts to create an environment that will serve as a model for coexisting with nature.
- Design/construction stage:
 - Prepare a landscape (together with associated infrastructure) that protects and nurtures the natural ecosystem of the Yumeshima area.
 - Design buildings in a way that takes in breezes, sunlight and other aspects of the natural outdoors, thereby reducing the environmental burden imposed by that structure.
 - Liberally place greenery around pedestrian spaces and other areas throughout the town to suppress heat buildups by screening direct sunlight and minimizing reflection off asphalt.
- Operational/maintenance stage:
 - Arrange activities and forums where people can experience and enjoy the natural environment of Yumeshima.
 - Efforts are also to be taken to lighten the environmental burden of Yumeshima with regards to water. Discharges of impure/untreated water are to be minimized by, for example, introducing a wastewater treatment facility to lighten the burden on the public sewage system or, where practical, recirculating water (for instance, collecting rain or gray water for use within sprinkler, emergency supply, cooling or other such system).



Figure: A model for an urban environment co-existent with nature (images) ⁷⁰

⁷⁰ Source : <https://www.flickr.com>

<Concept, objectives>

- **To encourage efforts to create a space design that conjures a sense of the “escape from the ordinary” provided by attractions that can only be seen in Yumeshima, attractions that can only be experienced in Yumeshima.**
 - It is difficult to “escape from the ordinary” in a modern urban environment. To create an environment conducive to such escapes, to be encouraged are efforts to play on Yumeshima’s positioning as a broad swathe of land surrounded by water (that is, this characteristic is to be kept fully in mind with regards to arranging buildings/structures of innovative designs/usages together with the infrastructure to support them).
- **To encourage efforts to utilize the characteristics of Yumeshima to create attractive spaces of greenery and waterfront/side scenery.**
 - Yumeshima is offers vast tracts of land and is surrounded by water. To be encouraged are efforts to play on these advantages to provide areas that are rich in greenery, close to water and otherwise bringing out the attractions of a natural environment.

<Directionality, approaches>

1. A new urban landmark for Osaka

- To be encouraged are efforts to turn Yumeshima into an urban panorama, one comprised of innovatively designed buildings, structures and landscapes that produce a strong impression on any visitor, one landscaped to be also viewed from the air, one destined to become a new landmark for Osaka.
- To be encouraged are efforts to create an urban space, one defined by facilities positioned over grand expanses of land, one of greenery and water and pleasant areas, one of different views, different aspects, a daytime face and, through dramatic light-ups and illumination, a nighttime face as well.
- Zoning is to provide urban spaces that play on their locational characteristics, with facilities and positioning arranged to match, and is to assure a degree of harmony among adjacent zones.



Landmark buildings (e.g., Guggenheim Museum Bilbao)⁷¹



Dramatic nightscapes (e.g., Kobe Harborland)⁷²

Figure: Urban scapes (images)

2. Space design to center on station, provide an “escape from the ordinary”

- A theme of “escape from the ordinary”—a sense that this can be seen and experienced only in Yumeshima—is to be extensively applied to the buildings, public spaces, roadways and other elements of Yumeshima. This is to particularly true for the area centering on the railway station, where the space design is to be such that a person stepping off a train is struck by a sense of exaltation/elevation.
- Positioned just outside the station is to be a public space that serves as both a transportation node and as a forum for communal intermingling. It is to form an urban gateway, symbolic of Yumeshima as a whole and suggestive of a gateway to the Yumeshima that lies beyond. Water and greenery are to be positioned throughout the area, with various amenity-rich spaces to serve as spots for relaxation or conversation, with nearby buildings are to be arranged to provide integration/consistency with comfort axes and activity promenades.

⁷¹ Source : <https://www.flickr.com>

⁷² Source : <https://www.flickr.com>

- A set of design guidelines are to be prepared for application to the structures, roadways and other features of Yumeshima. By this, we can effect a “total design,” partaking of the opportunities offered by developing an entirely new town. Furthermore, with this total design package, we can maintain the quality of urban space into the future.



Space designs that impart a strong impression upon arrival (from left, Lyon Airport Saint Exupery; JR West Osaka Station; Fulton Center, New York)⁷³



Pleasant and fun—comfort axes, activity promenades (images)⁷⁴

Figure: Spatial designs offering an “escape from the ordinary”

3. Create pleasant, high-quality urban spaces to invoke the attractions of the waterfront, the passage of seasons in Japan

- The most notable feature of Yumeshima is that it is surrounded by water. To be encouraged are efforts to take advantage of this by lining the periphery with public spaces, rich in both comfort and activity, where people can gather, think or just relax. (Water axis)
- We envision for water/green spaces to be provided along roadways and within building plots as appropriate for area characteristics, building utilization, etc. As a whole, Yumeshima is to comprise a waterfront space suggestive of Osaka, the “Aqua Metropolis.”
- To be encouraged are efforts to create spaces of water and trees, areas where one can feel the turn of the seasons. These are to be utilized as stages for “all-season” entertainment and enjoyment, including fireworks events, seasonal festivals, outdoor illumination. Through this and other means, we envision the formation of pleasant and high-quality urban spaces, places to support a sense of escape from the ordinary.



Waterfront axis along the Yumeshima periphery (images)⁷⁵



Community wading pond (image)⁷⁶



The four seasons of Japan (images)⁷⁷

Figure: Urban spaces that evoke water, the four seasons

⁷³ Source : <https://www.flickr.com>

⁷⁴ Source : <https://www.flickr.com>

⁷⁵ Source : <https://www.flickr.com>

⁷⁶ Source : <https://www.flickr.com>

⁷⁷ Source : <https://www.flickr.com>

4. Form outstanding green spaces far beyond what could be achieved in a city center

- Utilize the vast expanses of Yumeshima to form a varied yet uncluttered network of greenery far beyond what could be done in a city center.
- To be encouraged are efforts to play on the characteristics of the area and its landforms to create vast green spaces symbolic of Yumeshima. We envision that throughout the periphery of the island will be open spaces with plenty of greenery; and, along pedestrian walks, will be trees to create shaded malls. To be encouraged throughout are efforts to provide spaces conducive to quiet reflection and peace of mind.
- Green terraces are, we envision, to be developed on the west side to offer open, expansive views conducive to contemplation and reflection. The terraces would nonetheless exist in collaboration with the variety of urban activities underway on Yumeshima.
- To be encouraged are efforts to provide the station square area with a greenery-rich spatial design that blends with nearby facilities and, by making a strong impression on people who step off the train, acts as a symbol for the area.
- Under this vision, greenery is to be nearby and impart a sense of familiarity. For example, public spaces are to be provided as “pocket parks” and the like within building plots; greenery is to be planted on low- and medium-height rooftops to create a three-dimensional effect; etc.
- Likewise, greenery within the Yumeshima area is to be arranged in a manner that scenically accords to the greenery within nearby areas (Maishima, Sakishima, the Bay area and, more broadly, Osaka City as a whole), thus providing a sense of integration and continuity.

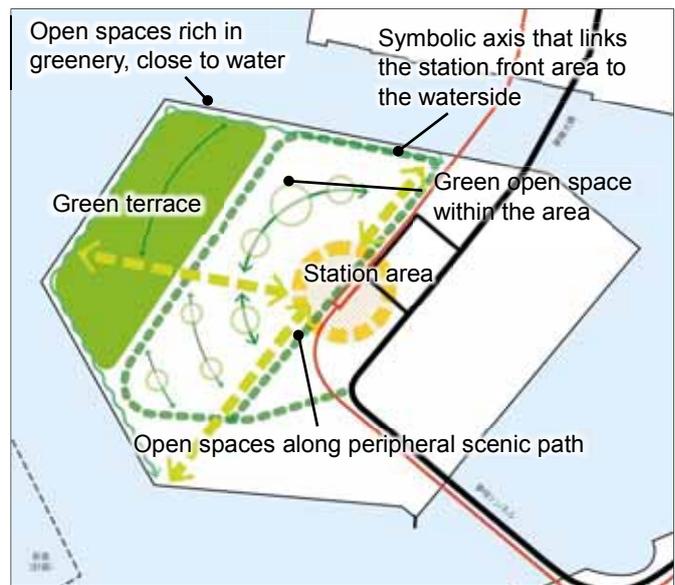


Figure: Creation of a greenery network



Figure: Green terrace (image)⁷⁸



Figure: Broad greenery/scenery network (image)

⁷⁸ Source : <https://www.flickr.com>

5. Space design around waterfront/greenery axes

- The waterfront environment is to be arranged in a manner befitting of Osaka, the “Aqua Metropolis,” with an axis is to be provided with pedestrian pathways, quiet spaces for contemplative thought, recreational “rendezvous” points, etc. The pathways are to offer proximity to greenery/water together with peace of mind.
- Comfort axes are to radiate from the station out toward the peripheries of Yumeshima and the open vistas they provide. Pedestrian areas are to be provided with trees to create shaded malls to enable pleasantly cool walks in the summer, while open spaces are to serve as forums for events and the like. These, along with cascading streams and other scenic features, are to be linked to parks, public spaces within building/facility tracts and so on to form networks of greenery and water.
- Activity promenades are likewise to merge these aspects of greenery/water with public activity. Also, the facades of buildings/stores along the promenades are to blend with the overall scenic effect.



Waterfront axis (images)⁷⁹



Comfort axis (images)⁸⁰



Activity promenade (images)⁸¹

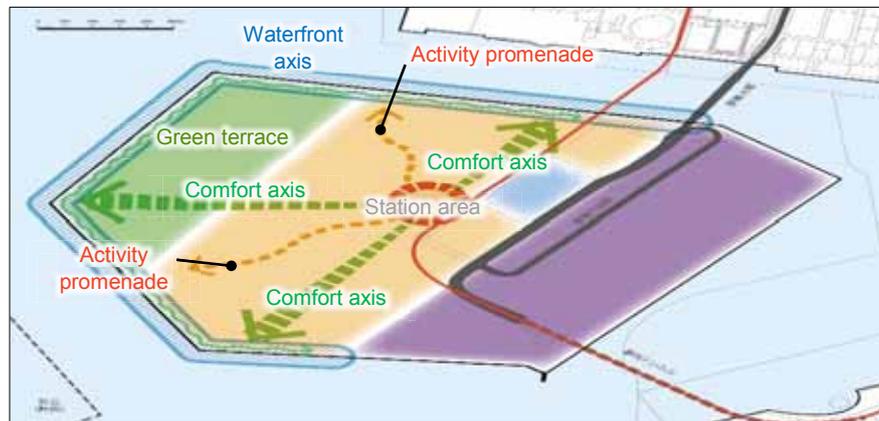


Figure: Water/greenery framework



Figure: Comfort axis (image)

⁷⁹ Source : <https://www.flickr.com>

⁸⁰ Source : <https://www.flickr.com>

⁸¹ Source : <https://www.flickr.com>

08 Support Systems

Safety, Security

Develop towns/communities that combine safety/security with 'round-the-clock' amenities

<Concept, objectives>

- To encourage efforts to bring together hospitality and state-of-the-art technology to create a town/community that offers 'round-the-clock' safety/security during normal times and also under emergency conditions (e.g., following a natural disaster).
 - To be encouraged are efforts to create a town/community in which people from Japan and abroad can stay in comfort and safety/security. Attempts are also be made to do so by, on the "soft" front, advocating the creation of an environment for the smooth and detailed provision of services, including information; and, on the "hard" front, the provision of high-tech crisis control and other capabilities together disaster-response equipment.

<Directionality, approaches>

1. Creating a resort space at which visitors from Japan and abroad can stay in comfort/safety under the hospitality and security for which Japan is known

- So that all visitors may stay in safety and comfort, to be encouraged are efforts to create a town/community that offers ICT networking, appropriate signage, and barrier-free access to facilities and public spaces.
- To be encouraged are efforts to develop towns/communities that combine safety/security with 'round-the-clock' hospitality. (Example approaches)
 - Provide an environment conducive to activity.
 - Facilities, information in line with "universal design" principles
 - Easy-to-understand signage; barrier-free pedestrian flow lines
 - Multilingual sightseeing information desks
 - Volunteer interpreters/guides
 - Provide an environment conducive to "anytime, anywhere" provision of information (via signage, mobile devices, etc.).
 - Provide a pleasant residential environment through a "zero litter" policy.
 - Actively provide information to prospective Yumeshima visitors at home and abroad.
- To be encouraged are efforts to collect detailed information of tourist needs, satisfaction and the like so as to provide an environment in which visitors, regardless of their religious or cultural background, can stay in comfort and safety. (Example approaches)
 - Fully consider the requirements of adherents of the Muslim faith (Halal restaurants, prayer rooms, etc.).



Figure: Hotel reservation site for inbound tourists (image)⁸²



Halal restaurant (image)⁸³



Prayer room (image)⁸⁴

Figure: Measures to provide a welcoming environment for inbound tourists (image)

⁸² Source : Japan National Tourism Association (JNTO) homepage

⁸³ Source : Japan Muslim-Friendly Association homepage

⁸⁴ Source : Kansai Sightseeing Web -Muslim Friendly KANSAI- homepage