

Livable and Sustainable City

Title	Taoyuan City: Building a Better Future
Abstracts	<p>Taoyuan City boasts a diverse and comprehensive industrial cluster, leading the nation in industrial output. It is also the youngest among the six special municipalities, with an average citizen age of about 41 years. Taoyuan has the highest number of new residents and births in the country, with a total population of 2.31 million that continues to grow each year. Therefore, Taoyuan is actively promoting a livable and sustainable city by using smart technology to solve urban problems, employing innovative thinking to enhance public services, implementing digital governance to plan the city, and driving change through talent development. These efforts aim to create a city where citizens can experience its benefits, providing excellent commuting, working, schooling, and living environments.</p>
Content	<p>(1) Inclusive and Sustainable Urbanization</p> <ol style="list-style-type: none"> 1. Taoyuan City integrates resources and connects industries to advance several national-level projects, including the "Taoyuan Aerotropolis Project," "Asia Silicon Valley 5G Innovation Application," and the "Forward-Looking Infrastructure Development Program." This includes establishing the Young Lion Youth Entrepreneurship Village and Smart Manufacturing Park, as well as the Taoyuan Convention and Exhibition Center, to accelerate the development of smart industries and create an industrial development platform. 2. Taoyuan City promotes climate change mitigation and adaptation policies, implementing greenhouse gas reduction measures, and participating in the international Carbon Disclosure Project (CDP). In 2023, Taoyuan was the only city in Taiwan to be awarded an A-grade, joining a list of 119 cities globally. 3. To align with the international goal of achieving net-zero emissions by 2050, Taoyuan City is actively promoting a net-zero city initiative. In 2023, the city held the "Taoyuan Race to Zero" to declare its commitment to the 2050 net-zero emissions target. The city is constructing its net-zero pathway through three main strategies: industrial transformation, green transportation, and the development of renewable energy. By leveraging a cross-agency operational mechanism and continuously refining strategies based on domestic and international trends and Taoyuan's unique advantages, the city is dedicated to achieving its net-zero goals. <p>(2) Natural Disaster Damage Reduction</p> <ol style="list-style-type: none"> 1. Through runoff sharing, outflow control, rainwater retention, and the construction and maintenance of rainwater drainage systems with regular dredging, Taoyuan City ensures smooth channels and accelerated drainage to reduce disasters. From 2014 to the end of 2023, the total length of rainwater drainage systems accumulated to 448.88 kilometers, an increase of 175.19 kilometers. The implementation rate grew from 56.13% to 85.12%, an increase of 28.99%, the highest growth rate among the six special municipalities. 2. Using a watershed-wide approach, Taoyuan City has built a multi-faceted smart water management decision-making system. This system ensures disaster preparedness by coordinating governance projects and disaster response services and information across relevant internal and external units. It provides a comprehensive one-stop decision-making platform for

watershed management and disaster response, leveraging over 600 high-density diverse water monitoring IoT stations. This enables comprehensive monitoring of Taoyuan's water conditions, reducing disaster response time from 3 hours to 10 minutes.

3. Taoyuan City has unique hydrology and has revitalized ponds to function as both flood detention basins and irrigation sources. In areas with fewer parks, existing ponds have been converted into flood detention parks. In 2023, the Chung Yuan Ecological Park and Longshan Pond Ecological Park flood detention basins were completed. By 2024, the "Dashulin Ecological Park" and "Danan Pond Ecological Park" will be completed, adjusting the water levels of detention basins during the flood season to serve as disaster prevention and flood reduction facilities.

(3) **Development of Sustainable and Affordable Transportation Systems**

1. **The 3-Core-6-Line Rail Construction:** This is a national forward-looking infrastructure project for rail systems, linking the three metropolitan core areas of Taoyuan District, Zhongli District, and the Aerotropolis Special Zone in Taoyuan City. The Airport MRT is already in operation, and the Green and Brown MRT lines are expected to open by 2032. Through the undergrounding of the railway, the vacated ground corridor space will be transformed into dedicated lanes, pedestrian walkways, bicycle paths, and green belts, creating continuous open spaces that enhance green areas and strengthen urban disaster prevention functions.
2. **TPASS for Commuting within Key Urban Areas:** The "TPASS" monthly pass for commuting integrates six major urban bus systems, MRT, Taiwan Railways, national highway buses, YouBike public bicycles, and the Taoyuan Airport MRT under the concept of the "Keelung-Taipei-New Taipei-Taoyuan living circle" and the "Taoyuan-Hsinchu-Miaoli living circle." This effectively increases the willingness of citizens to use public transportation, alleviating traffic congestion during peak hours. Notably, from June to December 2023, usage of the "Keelung-Taipei-New Taipei-Taoyuan commuting monthly pass" resulted in a 34.53% increase in Airport MRT ridership and a 16.81% increase in city bus ridership.
3. **Promotion of Shared and Electric Vehicles:** Aiming for city bus electrification by 2030, Taoyuan has pioneered the introduction of free low-floor electric shuttle buses, connecting key transportation hubs. By the end of 2023, there were 27 electric buses in operation. Additionally, the city has approved GoShare and iRent services for shared electric scooters and vehicles, with a total of 2,000 electric scooters and 200 hybrid cars.
4. **Public Bicycles:** To encourage the use of low-pollution, low-energy public bicycles for short-distance transportation, Taoyuan offers a 60-minute free ride incentive. By the end of 2023, cumulative rentals had exceeded 76 million, and the total length of bicycle paths had reached 313 kilometers.
5. **Transportation Services for the Elderly and Disabled:** Considering the mobility challenges faced by the elderly and disabled, Taoyuan City provides special transport services, including long-term care shuttles and rehabilitation buses. The city also improves transportation accessibility in remote areas, promoting a flexible 9-seater "Happiness Bus" in Fuxing District, which can be reserved online for more adaptable scheduling. Additionally, a fleet of 2,621 "Senior Citizen & Handicapped Taxi Service" including 66 accessible taxis, was formed by eight operators.

	<p>6. Transportation Fare Discounts for Vulnerable Groups: Taoyuan City offers various fare discount programs for vulnerable groups, women, children, people with disabilities, and the elderly. These include social welfare cards and children's ticket discounts. Citizens holding senior or disability cards receive up to 800 points per month to offset transportation costs. In 2023, the average daily usage of social welfare cards was 6,180 trips, accounting for approximately 6.85% of the total Airport MRT ridership.</p> <p>(4) Mitigation of the Impact of Urban Development and Economic Activities on the Environment</p> <p>1. To expedite investment projects, facilitating the acquisition of building permits, establishment of factories, and three-dimensional factory review processes. By the end of 2023, the total investment reached NT\$1.0956 trillion. For developing industrial parks, the city incorporates environmental, green energy, and energy-saving indicators, which not only create job opportunities and stimulate the economy but also promote energy conservation and carbon reduction. Existing factories are supported through the Green Factory Guidance Group and the Low-Carbon Technology Industry Subsidy and Incentive Program to implement energy-saving improvements.</p> <p>2. Comprehensive Air Quality Management</p> <p>(1) The city government collaborates with co-generation plants to reduce emissions by switching to low-pollution fuels, updating control equipment, and adjusting operating conditions. Air pollution control performance is assessed, and outstanding units are recognized. In industrial areas, 1,000 air quality sensors have been deployed for real-time monitoring, allowing immediate response to abnormalities. Due to these proactive measures, the number of days with an AQI below 100 in Taoyuan is increasing.</p> <p>(2) Starting in March 2023, Taoyuan began lung cancer screenings for high-risk residents over 40 years old with a history of air pollution exposure, smoking, occupational hazards, or related diseases/family history, providing low-dose CT scans. In 2024, the program will expand to include residents who have worked in 18 industrial areas for over 10 years and those over 40 in high-risk areas near large power plants and incinerators.</p> <p>(3) The construction of Taoyuan Airport's Terminal 3 has implemented an AI dust suppression system. Using micro air quality sensors and AI recognition, the system activates sprinklers to control dust, saving approximately 2,500 labor hours annually, conserving about 60 tons of water per day, and reducing carbon emissions by approximately 102 tons per year.</p> <p>3. Circular Economy Initiatives</p> <p>(1) Taoyuan is promoting the use of reusable cups in partnership with the Rakuten Monkeys baseball team, replacing single-use cups. In 2023, 54,000 reusable cups were used across 63 games, with a return rate of 81.52% and 44,000 cups successfully recycled.</p> <p>(2) The city is advancing the Guanyin Biomass Energy Center through a BOT project. Designed with "landmark, green, and circular" principles, it is Taiwan's first biomass energy center, featuring thermal treatment, landfill, and anaerobic digestion units. Officially operational by the end</p>
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	<p>of 2023 (excluding the anaerobic digestion unit), the center efficiently converts waste into electricity, enhancing waste disposal efficiency.</p> <p>(3) Through "source reduction" and "waste reuse" strategies, Taoyuan reduces waste from road construction, such as oxide slag, milled asphalt, and incinerator bottom ash. From 2016 to the end of 2023, these measures have reduced carbon emissions by approximately 428,000 kilograms.</p> <p>(5) Provision of Affordable, Safe, and Sustainable Housing</p> <ol style="list-style-type: none"> 1. Accelerating Social Housing Supply: As of the end of 2023, Taoyuan City has planned 61 sites for approximately 15,000 units of social housing (40 sites developed by the city and 21 by the central government). Out of these, 31 sites for about 8,000 units are actively being promoted. These projects incorporate diverse public service facilities to enhance living conditions. By the end of 2023, a total of 13 sites have been completed, providing 4,281 housing units. 2. Diverse Rental Subsidy Resources: By the end of 2023, the number of households eligible for rental subsidies reached 69,330. Additionally, 10,022 units have been matched and developed under the Rent and Management Assistance Program, bringing the total to 79,352 households. This provides citizens with various rental options and alleviates the financial burden of renting. <p>(6) Preservation of Cultural and Natural Heritage</p> <ol style="list-style-type: none"> 1. Taoyuan City has designated and registered several tangible cultural heritages, including 2 National Historic Sites 29 Municipal Historic Sites, 102 Historic Buildings, 4 Cultural Landscapes, 1 Archaeological Site, and 1 Group of 10 Artifacts. Among these, the "Former Taoyuan Air Force Base Facilities" is notable for being one of the most well-preserved decommissioned military bases in the country. The city aims to connect local and international communities through interactions and dialogues, such as establishing workstations, producing documentaries, conducting oral interviews, and collecting artifacts, to found the "Aerotropolis History Museum." 2. Preservation and Conservation of Ponds: Taoyuan is home to 3,000 ponds, which are rare globally and offer significant cultural and natural value due to their role in climate regulation and biodiversity. Efforts are being made to register these ponds as cultural landscapes and promote their revitalization. In areas with fewer parks, ponds are being transformed into detention parks to enhance their functionality. For example, the Longshan Pond Ecological Park can store approximately 70,000 cubic meters of water during flood seasons. <p>(7) Creation of Safe, Inclusive, and Green Public Spaces</p> <ol style="list-style-type: none"> 1. Development and Expansion of Parks and Green Spaces: As of 2023, in Taoyuan City, non-urban planning areas provide 5.23 hectares of green space per 10,000 people, encompassing approximately 797 parks. Among these, 361 parks have playgrounds, and an additional 62 inclusive or themed playgrounds are either open or under construction. 2. Taoyuan City actively revitalizes city-owned land by planning and constructing 5 major sports parks, 12 national sports centers, 12 new sports venues, and the renovation of 36 sports facilities. These efforts aim to provide citizens with diverse and high-quality sports environments.
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	<p>of 2023. Additionally, Taoyuan pioneered energy storage subsidies at the county/city level, collaborating with Taiwan Power Company to develop virtual power plants and fortify the power network.</p> <ol style="list-style-type: none"> <li>2. Energy Efficiency in Residential and Commercial Buildings: Taoyuan Metro established an energy-saving committee in 2017 to analyze station electricity usage using smart technology. Targeted improvements were made to energy-consuming equipment such as lighting, air conditioning, elevators, and escalators, resulting in a reduction of 17.12 million kWh of electricity consumption by September 2023 compared to 2017. The city also promotes building energy efficiency grading management, starting with advocacy and health check services, gradually transforming public and private buildings into nearly zero-carbon buildings. <li>3. Industrial Transformation: In 2023, Taoyuan joined the Powering Past Coal Alliance, declaring its determination to reduce coal use and aiming to eliminate the use of raw coal by 2030. Efforts were made to assist and support the transformation of the seven cogeneration plants within its jurisdiction, guiding industrial smart management and low-carbon technology to help industries transition to net-zero emissions. In 2023, subsidies were provided to 14 factories to improve equipment, resulting in electricity savings of about 4.923 million kWh and a carbon reduction of about 2,520 tons. Additionally, 1,067 industrial boilers were improved, achieving a completion rate of 99%, making Taoyuan the leader in the number of improvements nationwide and reducing carbon emissions by 305,000 tons per year. <li>4. Green Transportation: Taoyuan promoted three major subsidies for electric motorcycles, providing incentives for youth, women, and the general public to switch to electric motorcycles and have comprehensive vehicle care. By 2023, the number of electric motorcycles exceeded 90,000. Additionally, cross-county cooperation was implemented through the "Keelung-Taipei-New Taipei-Taoyuan" and the "Taoyuan-Hsinchu-Miaoli" commuting monthly passes (TPASS), effectively increasing people's willingness to use public transportation and alleviating peak-hour traffic congestion. <li>5. Smart Farming: In July 2023, the "Taoyuan Smart Farming Team" was established to promote smart agricultural technology through four major squads, maximizing agricultural benefits through precise water usage. Taoyuan also has the largest area of organic cultivation, reaching 481 hectares, including greenhouse cultivation, which supplies nutritious lunches to elementary schools in the Taipei-New Taipei-Taoyuan area. <li>6. Construction of Sewage Systems: Taoyuan planned 12 sewage systems and 3 collection areas to accelerate promotion through public participation and public-private partnerships. All 13 administrative districts in the city have completed sewage system planning, and the penetration rate of sewage systems has increased by 20% compared to 2015 by the end of 2023. Furthermore, Taoyuan promotes recycled water and currently has 10 water resource recovery centers, moving towards the development of recycled water plants to provide water resources for industries and address water scarcity crises.
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