捷運年刊

2019 DORTS ANNUAL REPORT

Contents

A Word from the Commissioner

MRT Sustainable Quality Construction --Travel in Taipei with Ease

Through organizational consolidation, human resources have been fully integrated, and with the benefit of having cultivated a deep foundation for the past 30 years, after taking its first successful step in being established, DORTS has made strides for 30 years. With the vision of "excellent construction, efficient MRT, and travel in Taipei with ease," DORTS has continued to provide the best possible service to the public in 2019.

MRT construction is the business affair of DORTS which most concerns the public. Viewing the route constructions which are currently underway, the electrical and mechanical systems of Circular line Phase I has been substantially completed and passed stability tests, then the initial inspection is immediately conducted. It's expected that the line will be opened in January of next year, by then, the total length of the MRT road network construction will reach a length of 152 kilometers with 131 stations. Trial runs are underway for the electrical and mechanical systems of Wuri-Wenxin-Beitun line with the goal of completing the line and commencing operations next year. Construction is also continually underway on Wanda-Zhonghe-Shulin line Phase I and Xinyi eastern extension. Detailed design is currently implemented for the approved Wanda-Zhonghe-Shulin line Phase II and Circular line north section & south section; furthermore, the feasibility study for Circular line east section is also expected to be reviewed and approved by the National Development Council. This will be another big step forward towards the completion of architecture for the Metropolitan Circular line. The entire Circular line will consist of 16 rail routes traversing 14 administrative

districts and will greatly reduce traveling times for the public while also providing more efficient transportation services. In addition, DORTS has planned NT$630 million in funding for the continual promotion of mid-term improvement construction on escalators and elevators at the entrances and exits of stations in the preliminary network in order to create senior citizen-friendly and obstacle-free spaces, and safe and convenient mobile residential environments.

In terms of joint development projects, DORTS has undertaken open leasing on Xiaobitan Station MeHAS Market, which is the largest scale joint development high-rise building. Bidding was successfully concluded in 2017, and following 18 months of design and decoration work, the Xindian IKEA opened in this location this May. In addition to a land development fund with approximately NT$11.7 million in rental income per month, it will also create 300 employment opportunities; moreover, in addition to driving the development of peripheral commercial functions, it will also increase the transportation capacity at Xiaobitan Station. DORTS has also launched a rent concession matrix scheme for various types of residential housing, and under this refined program the overall occupancy rate for commercial and residential real estate has reached 93%. Located at the "National Gateway • Capital Landmark," investor solicitation has been successful for the C1/D1 land development project, and in December of this year a contract was formally signed with Taipei TWAIN STAR CO., LTD. With total investment in the project amounting to NT$60.6 billion, it is expected to provide 16,000 employment opportunities in the future and generate an annual economic output value of more than NT$100 billion.

With a focus on quality construction, DORTS has won acclaim from people of all walks of life and in 2019 was the honorary recipient of engineering awards which included:

- Taichung MRT Wuri-Wenxin-Beitun line Section Contract JJG091 was the recipient of the Taiwan Geotechnical Society "2018 Outstanding Geotechnical Engineering Award".

- Circular line Contract CF643A was the recipient of the Chinese Institute of Engineers "2019 Engineering Award of Excellence".
- Taichung MRT Wuri-Wenxin-Beitun line Contract CJ930 won the Chinese Institute of Engineers "2019 Engineering Award of Excellence".
- Taichung MRT Wuri-Wenxin-Beitun line Joint Construction of entrance/exit with the land development in the 2nd Section Contract JJG051 was the recipient of Taipei City Government "2019 Excellent Creative Proposal Competition Award".
- Circular line Section Contract CF650 Subcontract CF651B was the recipient of the "2019 8th Annual Public Engineering Excellence Award".
- Wanda line Contract CQ842 won the Ministry of Labor "Public Works Golden Safety Award".
- Wanda line Contract CQ842 was the recipient of a "20th Annual National Architecture Golden Award Public Construction Quality Award and First Prize Award".
- Urban renewal project on Land No.781, Nanshan Section, Zhonghe District, New Taipei City won a "20th Annual National Golden Award for excellent public works" in the category of construction quality.
- Urban renewal project on Land No.781, Nanshan Section, Zhonghe District, New Taipei City won a "27th Annual Chinese Architectural Golden Stone Award"--the first prize golden stone award.
- Taichung MRT Wuri-Wenxin-Beitun line Section Contract CJ910 Beitun Depot Station G0 and the track construction for the entire line won a "2019 Engineering Environment and Beautification Award of Excellence" in the engineering beautification and landscaping category.
- Taichung MRT Wuri-Wenxin-Beitun line Contract CJ930 was the recipient of a "19th Annual Public Works Golden Award for Outstanding Public Construction Quality".
- The detailed design of Taipei Metropolitan MRT Wanda-Zhonghe-

Shulin Underground Station (Wanda line Station LG01) won the "2019 Engineering Digital Innovative Application Award".

With the recognition and encouragement of these awards, in the future after joining various networks, DORTS anticipates being able to build a top quality MRT in the corridor linking Taipei City and New Taipei City to bring more convenient transportation to citizens and enable the co-prosperity sphere in Taipei Metropolitan Area to be more closely connected and developed while driving regional development and giving back to people from all walks of life for their supervision and support of DORTS.

Chang Tzer-hsiung

Commissioner

Organization Chart

- Commissioner
  - Deputy Commissioners
    - Chief Engineer
      - Comprehensive Planning Division
      - Civil Engineering and Architectural Design Division
      - Electrical and Mechanical Design Division
      - Construction Management Division
      - Joint Development Division
      - Information and Technology Development Division
    - Chief Secretary
      - Financial and Asset Management Office
      - Administrative Services Office
      - Accounting Office
      - Personnel Office
      - Government Ethics Office
    - First District Project Office
    - Second District Project Office
    - Systemwide E&M Project Office

Newly Completed and Inaugurated Routes

Completed and Inaugurated Routes (As of December 31, 2019)

Route	Terminal Stations	Total Length (km)	Notes
Wenshan Neihu Line	Taipei Zoo Station to Zhongshan Junior High School Station Zhongshan Junior High School Station to Taipei Nangang Exhibition Center Station	10.9 14.8	Inaugurated on March 28, 1996 Inaugurated on July 4, 2009
Tamsui Line	Tamsui Station to Chaing Kai-Shek Memorial Hall	23.8	Section between Tamsui and Zhongshan stations was inaugurated on March 28, 1997 Section between Zhongshan and Taipei Main stations was inaugurated on December 25, 1997 Section between Taipei Main Station and Chiang Kai-Shek Memorial Hall Station was inaugurated on December 24, 1998
Zhonghe Line	Guting Station (excluded) to Nanshijiao Station	5.4	The entire line was inaugurated on December 24, 1998
Xindian Line	Chiang Kai-Shek Memorial Hall (excluded) to Xindian Station	11.2	The entire line was inaugurated on November 11, 1999 (The 1.9-kilometer Xiaobitan branch line was inaugurated on September 29, 2004)
Xiaonanmen Line	Ximen Station to Chiang Kai-Shek Memorial Hall Station	1.6	Inaugurated on August 31, 2000
Nangang Line	Ximen Station to Kunyang Station	11.0	Section between Ximen and Taipei City Hall stations was inaugurated on December 24, 1999. The entire line was inaugurated on December 30, 2000
Banqiao Line	Ximen Station (excluded) to Fuzhong Station	7.1	Section between Ximen and Longshan Temple stations was inaugurated on December 24, 1999 Section between Longshan Temple and Xinpu stations was inaugurated on August 31, 2000 Section between Xinpu and Fuzhong stations was inaugurated on May 31, 2006
Tucheng Line	Fuzhong Station (excluded) to Yongning Station	5.6	The entire line was inaugurated on May 31, 2006
Nangang Eastern Extension	Kunyang Station to Taipei Nangang Exhibition Center Station	2.5	Section between Kunyang and Nangang stations was inaugurated on December 25, 2008 Section between Nangang and Taipei Nangang Exhibition Center stations was inaugurated on February 27, 2011
Luzhou Line	Luzhou Station to Sanchong Elementary School Station	6.4	The entire line was inaugurated on November 3, 2010

Route	Terminal Stations	Total Length (km)	Notes
Xinzhuang Line	Taipei City Section: Daqiaotou Station to Zhongxiao Xinsheng Station	6.1	Inaugurated on November 3, 2010
	Zhongxiao Xinsheng Station to Guting Station	2.3	Inaugurated on September 30, 2012
	New Taipei City Section: Daqiaotou Station to Fu Jen University Station	8.2	Inaugurated on January 5, 2012
	Fu Jen University Station to Huilong Station	2.8	Inaugurated on June 29, 2013
Xinyi Line	Chiang Kai-Shek Memorial Hall Station to Xiangshan Station	6.4	Inaugurated on November 24, 2013
Songshan Line	Ximen Station to Songshan Station	8.5	Inaugurated on November 15, 2014
Tucheng Extension to Dingpu	Yongning Station (excluded) to Dingpu Station	2	Inaugurated on July 6, 2015
total		136.6 km	

Completed MRT Routes

Routes completed for operation include the Wenhu, Tamsui-Xinyi, Songshan-Xindian, Zhonghe-Xinlu, and Bannan lines, totaling 136.6 km with 117 stations.

Approved MRT Routes under Design and Construction

Approved MRT routes currently under implementation are the Circular line Phase I, the Xinyi eastern extension, the Wanda-Zhonghe-Shulin line Phase I, the Wanda-Zhonghe-Shulin line Phase II, the Circular line north section & south section, and the Xinzhuang line (Xinzhuang Depot), totaling 60.6 km. When all routes are completed, the MRT network will reach 197.2 km in total. (The construction of the Danhai light rail, the Sanying line, and the Ankeng line, which are located in New Taipei City, is the responsibility of the New Taipei City Government.)

Planned MRT Routes

Routes planned for future expansion include the Circular line east section, the Mingsheng-Xizhi line, and the Shezi, Shilin, and Beitou light rail transit network. When all routes are completed, the MRT network of Taipei Metropolitan Area will extend for a total of 270 km with an average of over 3.6 million daily passenger trips.

Taipei Metropolitan Area MRT Map

Introduction to the Architectural Design and Public Art on Circular Line Phase I

Circular line Phase I spans a length of 15.4km (1.2km underground and 14.2km elevated) and traverses the following four urban districts: Xindian, Zhonghe, Banqiao, and Xinzhuang with a total of 14 stations. Because it was divided into three design contracts (DF111, DF112, and DF113), which were assigned to three detailed design companies, in order to integrate cohesive imagery for the entire line and bring shape to the characteristics of the line, DORTS has designated "Like the clouds' swift passage, the dragon travels thousands of miles" as the public art theme of the entire line and made the elevated beams and columns more image-based. The sub-theme of each public art contract is divided into the following respective architectural design themes: "Nature," "Photosynthesis," and "Heart LOHAS," with the following geometric shapes as design elements: "square", "triangle" and "circle." The architectural modeling of each station is predominantly steel structure and glass; however, design themes and theme colors have also been designated in accordance with local geographical features, appropriately displayed on the station remodeling. The themes and elements of the contracts are described below:

1. Because Contract DF111 (Y6 Dapinglin Station to Y7 Shisizhang Station) includes Liugong Aqueduct and agricultural land at Shisizhang, crosses the Xindian River, and features abundant natural resources, "Nature" has been designated as the architectural design concept, and the design elements are in the shape of a square (which appears on the facade and on seats). Meanwhile, the colors of the Circular line have been utilized in abundance for the interior design.
2. For Contract DF112 (Y8 Xiulang Bridge Station to Y14 Banxin Station), the design theme is photosynthesis (the 7 natural reaction processes of plant photosynthesis are employed to portray the interplay between stations and local characteristics), and the design elements are in the shape of a triangle (appearing on facade). The side wall of the vertical moving line area is set in conjunction with the public art theme, and color-designed artistic decorations are features of the contract; furthermore, the ceilings in the ticketing gate area also feature artistic decorations, and the ceilings in the concourse level have a specialized design with striped lamps.
3. Contract DF113 (Y15 Banqiao Station to Y19 New Taipei Industrial Park Station) traverses local districts which include Banqiao New Station Special District as well as suburban centers in Xinpu, Touqianzhuang, Xinzhuang Fuduxin and New Taipei Industrial Park district. This is not only an important transportation hub area but also a rapidly-growing new and burgeoning urban area. Therefore, "Heart LOHAS" has been designated as the architectural design concept in anticipation of a new vision.

The design elements are in the shape of a circle (which is applied at indoor columns, ceiling grooves and seats). The sidewall of the vertical moving line area is the work of artist Emmanuelle Moureaux with a color collage designed in accordance with the theme color of each station making each station unique.

After discussion by the public art executive team, it was decided that one or two master works with concentrated budgets would be installed instead of regular small objects scattered at each station. In accordance with this expectation, the public art on this section has been divided into two areas. Area one is the scheme for the elevated columns, beams, drainage pipes, sound barrier walls, and the exteriors and interiors of MRT cars.

Area two is scheme for the whole of Banqiao (Y15) Station. With many discussions, nominated by the public art executive team and approved by the public art committee of New Taipei City Government, the artists have been confirmed as follows: Area one was commissioned to a French architect, Ms. Emmanuelle Moureaux, who is highly proficient in color design and now lives in Japan. Area two was commissioned to the world famous artist, Mr. Daniel Buren, to create a classic model. The main theme of public art at this section is "Like the clouds' swift passage, the dragon travels thousands of miles".

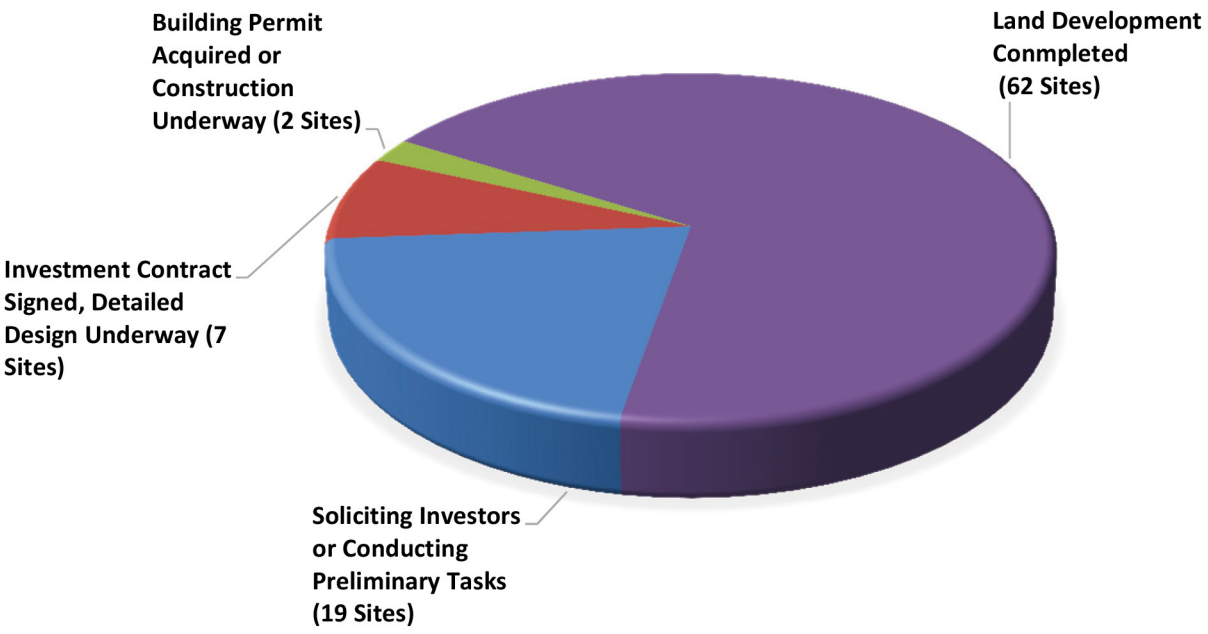
Circular Line Phase 1 Area 1 Public Art

Circular Line Phase I Area 2 Public Art

Land Acquisition and Land Development Fund Implementation Results

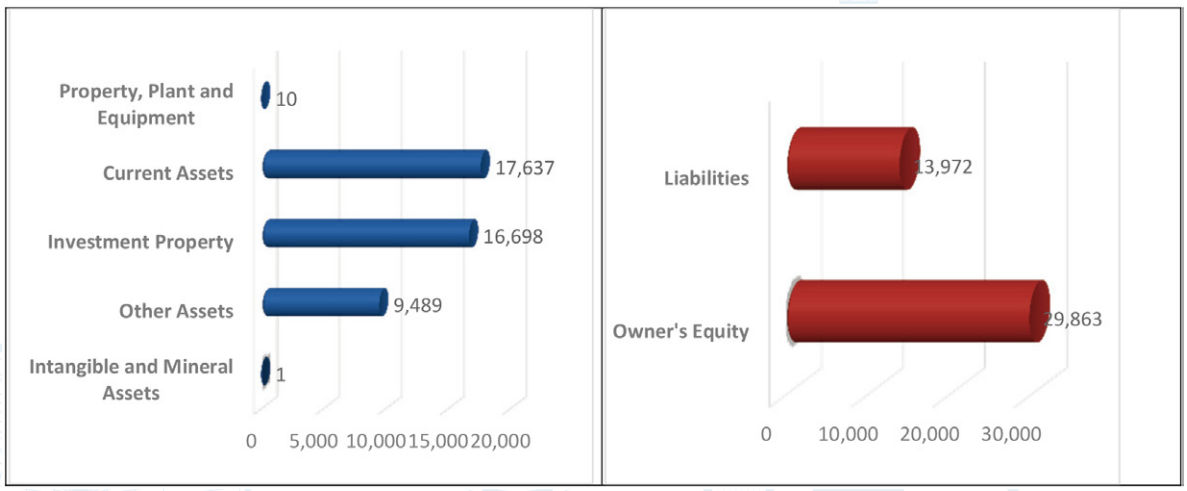
An Overview of Land Development

➢ **The following chart shows 90 station sites approved for land development (including 7 commissioned sites of the Circular line.)**



➢ **MRT Land Development Fund Status**

Fund Status: As of late December 2019, performance of total assets amounting to more than NT$43,835,130,000 was as follows:



Sites under construction

Two sites under construction: Xinyi Anhe Station (M5), and Sanchong Station (M6).

- **Xinyi Anhe Station (M5): As of the end of December 2019, the project was 99% completed.**

Rendering photo

Construction photo

- **Sanchong Station (M6): As of the end of December 2019, the site was 4.07% completed.**

Rendering photo

Performance of Publicly Owned Property Gained from JD Projects

103 bids were successfully auctioned off in the open tender of publicly owned property by JD Projects in 2019, with total price of NT$ 1.37 billion.

Open Tender Sales Performance of Publicly Owned Property by JD Projects

MRT Route	JD Building	Announcement Date	Auction Completed	
			Tender Opening Date	Units auctioned off
Wenhu Line	Xinhai Station (T10)	January 22	February 18	7
			March 18	
		March 28	April 29	
		May 21	June 14	
			July 12	
		July 17	August 12	
			September 6	
		September 23	October 18	
			November 15	
			December 11	
Xinlu Line	Taipei Bridge Station (M2)	March 26	January 21	89
			March 11	
			April 22	
		May 28	June 21	
			July 19	
		August 14	September 11	
			October 9	
		October 25	November 22	
			December 13	
	Cailiao Station (M4)	January 15	January 28	7
			February 25	
		March 21	April 15	
		June 4	June 28	
			July 26	
		July 31	August 23	
			September 20	
		September 23	October 16	
			November 8	
			December 6	

Operation and Management of Publicly Owned MRT Land Development Property—for Rent

MRT Route	JD Building	Number of Offices	Number of Stores	Number of Shopping Malls	Number of Residential Spaces	Total	Number of Units Rented	Number of Units for Rent
Tamsui Line	Taipei Main Station(T1)	9				9	9	0
	Tamsui Station			5		5	4	1
	Guandu Station(T40)	24			6	30	15	15
Wenhu Line	Technology Building Station (T7)	4	1			5	5	0
	Daan Station (T6)	7				7	7	0
	Gangqian Station (T9)			3	20	23	23	0
	Xinhai Station (T10)	5		1	37	43	38	5
	Neihu Station	53				53	53	0
Bannan Line	Yongchun Station (T19)		3			3	3	0
	Yongchun Station (T21)		1			1	1	0
	Houshanpi Station (T24)	1	1			2	2	0
	Houshanpi Station (T25)		3			3	3	0
	Jiangzicui Station (M1)	2				2	2	0
	Longshan Temple Station (T1)				11	11	11	0
Xindian Line	Guting Station (T14)	4				4	4	0
	Guting Station (T15)	5	2			7	7	0
	Taipower Building Station (T13)	4				4	4	0
	Gongguan Station (T11)	27		4		31	30	1
	Wanlong Station (T6, T7)	1	1			2	2	0
	Jingmei Station (T3)	1				1	1	0
	Jingmei Station (T4)	5				5	5	0
	Qizhang Station (M10, M11)			4		4	4	0
	Xindian District Office Station (M22)	25				25	25	0
	Xindian Depot (MeHAS)	396		9	258	663	663	0
	Xindian Station (M24, 25, 26, 27)				11	11	9	2
	Dapinglin Station (M8)				11	11	11	0

MRT Route	JD Building	Number of Offices	Number of Stores	Number of Shopping Malls	Number of Residential Spaces	Total	Number of Units Rented	Number of Units for Rent
Zhonghe Line	Dingxi Station (M2)	11				11	11	0
	Dingxi Station (M3)			2		2	2	0
	Jingan Station (M5)	4				4	3	1
	Nanshijiao Station (M6)	4	2		8	14	13	1
Xinlu Line	Zhongxiao Xinsheng Station (M14)	13				13	13	0
	Xingtian Temple Station (M5)	12	1			13	13	0
	Xingtian Temple Station (M7)	4				4	4	0
	Xingtian Temple Station (M8)	1				1	1	0
	Dongmen Station (M1)	5				5	5	0
	Taipei Bridge Station (M2)				218	218	217	1
	Cailiao Station (M4)				103	103	103	0
	Luzhou Station		14		468	482	429	53
Xinyi Line	Daan Station (M3)	5				5	5	0
Songshan Line	Nanjing Fuxing Station (M4)	6				6	6	0
Total Units		638	29	28	1151	1846	1766	80

Current Status of Unified Management at Each Development Building

MRT Line	Site	Commissioned Unified Management Period	Notes
Wenhu Line	Zhongxiao Fuxing Station (T4, T10)	June 30, 2016 ~ December 29, 2025	1. This building's property (car park included) is handled by a joint holding of shares and trust deed, operated by Pacific SOGO Department Stores Co., Ltd. 2. The initial lease ended on June 29, 2016 and was renewed with a fixed monthly rent method, from June 31, 2016 until December 29, 2025.
	Neihu Station (T11)	December 1, 2017 ~ May 31, 2027	1. The public property of this building includes a shopping mall and two shops on 1F, rewarded car parks on 5F-7F with total 511 spaces, and parking spaces on B1F-B3F for the shopping mall, operated by Ruentex Development Co., Ltd. 2. The lease began on December 1, 2017 and will end on May 31, 2027, with a fixed monthly rent method. An excess profit sharing mechanism is applied (a revenue check is performed every May according to an accounting approved financial report)
Luzhou Line	St. Ignatius High School Station (M1)	December 1, 2017 ~ May 31, 2027	1. The public property of this building includes a shopping mall on B1F and B2F, and a car park (20 spaces) on B3F and B5F, operated by Fudeng Construction. 2. The lease began on December 1, 2017 and will end on May 31, 2027, with a fixed monthly rent method.

Taipei Main Station District Parcel C1 and D1 Land Development Project

Taipei Main Station District Parcel C1/D1 land development project is the highlight of the West District Gateway Plan. All public facilities of the West District Gateway Plan have fallen into place one after another. The inauguration of the Taoyuan Airport MRT line on March 2, 2017 together with the MRT-integrated structure of the Taipei Main Station District Parcel C1/D1 land development project with Taoyuan Airport MRT A1 Taipei Main Station have provided more advantageous investment conditions for this development project. On October 14, 2014, Taipei City Government announced the termination of the fifth open tender for the project, and the government has already proclaimed new standard land development operating procedures for the improvement of land development tasks. For the Taipei Main Station District Parcel C1/D1 land development project, international biddings will be utilized to attract investments, and standard operating procedures will be employed to select professional service consultants with international investment experience as well as for tasks in preparation for the recruitment of contractors. Public bidding was announced on March 31, 2018, and the bidding was closed on October 1, 2018. Three stages of selection tasks (qualifications, specifications, and prices) have already been completed for the selection of optimal applicants, and lease signing tasks have been completed on December 17, 2019. After the construction of this development project is completed, it will bring a refreshing national gateway to city citizens and nationals.

Commissioning of Urban Renewal for City-owned Land

- **DORTS was commissioned to conduct urban renewal on six sites, and the solicitation and signing of contracts has been completed. The progress of the six sites is as follows:**
  - ✧ Urban renewal tasks at city-owned military dormitory land and adjacent land on Roosevelt Road, Wenshan District, Taipei: Building use-permits were obtained on November 12, 2012; 44 city-owned units were handed over to buyers on April 30, 2013.
  - ✧ Urban renewal tasks consisting of six plots on No. 107-2, Subsection 2, Yixian Section, Xinyi District, Taipei: On June 13, 2016 building use-permits were obtained; the acceptance and property handover for 37 city-owned units was completed on February 1, 2018.
  - ✧ Urban renewal project on Land No. 781, Nanshan Section, Zhonghe District, New Taipei City and urban renewal project on Land No. 140, Xinhe Section, Zhonghe District, New Taipei City: use-permits were obtained on August 10 and September 4, 2018; 208 city-owned units were handed over to buyers in January and February, 2019.
  - ✧ Urban renewal project consisting of eight plots on Land No. 580, Subsection 4, Zhongshan Section, Zhongshan District, Taipei: The right exchange plan review for the

urban renewal was completed on April 23, 2019; the application for the construction permit was completed on September 9.

✧ Urban renewal project consisting of 39 plots on Land No. 623, Subsection 3, Muzha Section, Taipei: The business plan approval was obtained in January 31, 2019; the right exchange plan (Section A) review is in progress.

Land Development Fund Implementation Results

➢ **Reduction of Huge Land Expropriation Costs and Smooth Acquisition of Land for MRT Use**

Among the 44 sites on the initial network, publicly and privately held land in land development programs with completed contract signing accounted for 40.37% of the total land development sites, saving NT$15.05 billion in land acquisition costs. For the subsequent network of 46 base sites, apart from Songjiang Nanjing Station (M9) on the Xinzhuang line and Station Y26 on Circular line Phase II, the station land-uses were expropriated as city-owned land without negotiation, land acquisitions for Station R01 (M3) on Xinyi Eastern Extension, Jiala Station (M7) on Wanda line and Zhonghe High School Station (M5) and Station Y3 on Circular line Phase II are underway, negotiation for the remaining 40 sites has been completed, and a total of NT$28.7 billion was saved in land acquisition costs. The created internal and external benefits are as follows:

✧ Internal Benefits: Contracts were signed and usage permits were acquired at 62 base sites. The private sector invested NT$109.36 billion and provided more than 700,000 pings of floor area for commercial and residential use.

✧ External Benefits: To facilitate transfers between transportation modes, transfer facilities established at 14 sites provided 970 parking spaces for cars, 3,066 spaces for scooters, and 2,276 spaces for bikes. Taipei City Government also established YouBike facilities near MRT station entrances/exits to provide an accessible, convenient, and environmentally-friendly mode of transportation.

➢ **Provision of Land for MRT Facilities and Integrated Construction to Achieve MRT Operational Goals**

Construction permits were requested for land development buildings, whether or not they were integrated with MRT facilities. In 1987, the Executive Yuan defined MRT facilities as special buildings which were required to be completed prior to the scheduled operation date in order to ensure the smooth operation of the MRT. Therefore, DORTS typically launched the design and construction of integrated structures or MRT facilities prior to investor solicitation.

➢ **Yielding of MRT Facility Construction at Land Development Sites to Investors to Increase Efficiency and Reduce Interface**

Investors were permitted to launch construction at eight sites: Xinzhuang line's

Xingtian Temple Station (M8); Daqiaotou Station (M2); Xinyi line's Daan Park Station (M2) and Daan Station (M3); Songshan line's Nanjing Sanmin Station (M9, M10); Nanjing Fuxing Station (M4); and Songjiang Nanjing Station (M10). This practice not only led to eight efficient implementations and fewer design changes but also reduced disbursement for integrated construction.

Land Acquisition

➢ **Land Acquisition and Compensation Operations:**

1. Public Land

   Wanda-Zhonghe-Shulin line Phase I Construction (Referred to below as Wanda Line Phase I Construction)

   Two plots of land with a total area of 279 square meters were allocated for construction of Station LG01 (M4) Land Development Site at No. 135, Subsection 4, Nanhai Section, Zhongzheng District, Taipei City. On October 28, 2019 the payment for land requisition was approved by the Executive Yuan. (Official letter Ref. No. 10800317770)

2. Private Land

   (1) Purchasing price agreements were made for 2 holdings of land with a total area of 12.6875 square meters for Station LG01 (M4) Land Development Site at No. 108, Subsection 4, Nanhai Section, Zhongzheng District, Taipei City.

   (2) There is an agreement on the Superficies of the site No.555-1, Subsection 2, Wanda Section, Wanhua Dist., Taipei City, for the underground passage construction of Station LG04 (Changtai St.), with a total area of 25 square meters.

   (3) Land expropriation in Zhonghe District for MRT development of the Depot (including Station LG08A): collective expropriation of No. 308-1, Ziqiang Section, Zhonghe District, with a total area of 257.76 square meters.

   (4) Land expropriation for construction projects at Station LG08 MRT Land Development Site 5: On October 7, 2019, the Ministry of the Interior approved land expropriation for 5 plots of land with a total area of 478.42 square meters (Official letter Ref. No. 1080265541), and payment tasks were carried out by New Taipei City Government on October 21, 2019, via New Taipei City Government Land Expropriation Announcement Ref. No. 10819087084 on December 4, 2019.

➢ Land Acquisition Status:

Purchased or expropriated land agreements in 2019

Project Name	Acquisition Method	Number of Landowners	Number of Land Lots	Shared Land Area (square meters)	Approved by Ministry of Interior (Date and Ref. No.)
Wanda Line Phase I Station LG01 Station Land Development Site (M4)	Purchase	1	2	12.6875	Approved on August 21, 2019
Underground passage construction of Station LG04 (Changtai St.), Wanda Line Phase I	Superficies Agreement	1	1	25	Approved on October 9, 2019
Wanda Line Phase I Depot Construction (including Station LG08A) Land Development Site (Zhonghe District)	Merged Expropriation	1	1	257.76	Approved on August 22, 2019 (Ref. No. 1080264618)
Wanda Line Phase I Station LG08 Land Development Site 5	Expropriation	1	5	478.42	Approved on October 7, 2019 (Ref. No. 1080265541)

Land Appropriated for Public Construction in 2019

Project Name	Acquisition Method	Landowner	Land Administrator (Authority)	Number of Land Lots	Shared Land Area (square meters)	Approval Reference No.
Wanda Line Phase I Station LG01 Land Development Site (M4) Construction	Paid appropriation	Republic of China	National Property Administration	2	279	Approved by the Executive Yuan on October 28, 2019. (Official Ref. No. 10800316340)

➢ Demolition Compensation for Land Improvements

Results of Land Improvements Assessment for the Wanda Line Phase I in 2019

No.	Site Name	Date of Completion	Complete Contents
1	Station LG01 Land Development Site (M4)	December	The transfer of 33 household properties for construction use to DORTS Second District Project Office is completed.
2	Station LG03 Land Development Site (M10)	December	One household building was transferred to DORTS Second District Product Office for maintenance management.
3	Station LG04 North Side Land Development Site (M7)	Landlord disputes in progress till December	Due to protests from landowners, land improvement inspections cannot be carried out in the buildings. Negotiations with landlords are in progress.

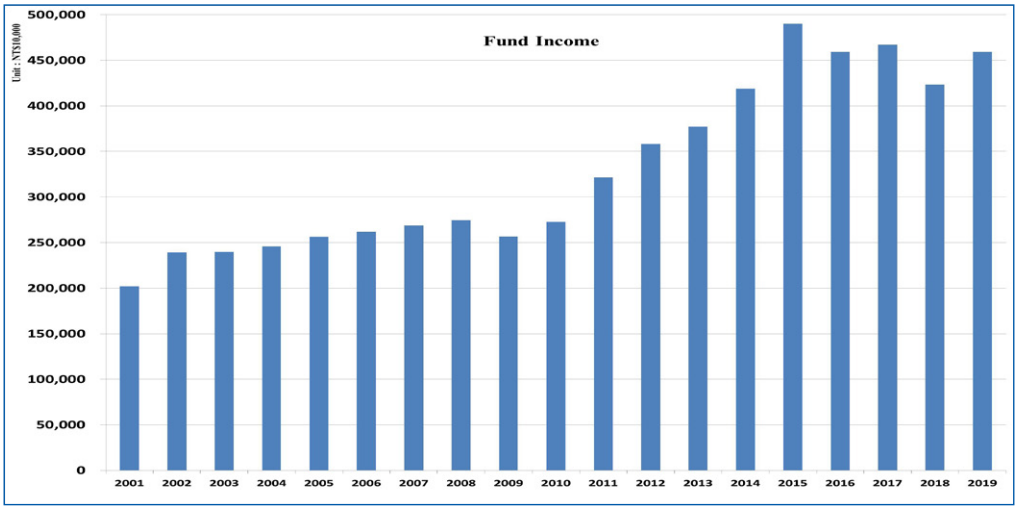
No.	Site Name	Date of Completion	Complete Contents
4	Station LG06 North Side (M2)	February 25	The transfer of land is to be conducted in two phases as per approval.
		March 12	Phase I land transfers to DORTS First District Project Office for construction is completed.
5	Station LG06 South Side (Land Development Site 2)	August 30	Related rights holders of the remaining property within the site were notified via mailing of relation in due day.
6	Station LG07 North Side (Land Development Site 3)	July 23	Related rights holders of the property within the site were notified via mailing of relocation in due day.
7	Station LG07 South Side (Land Development Site 4)	June 26	One household building was transferred to DORTS Second District Project Office for maintenance management.
		October 1	Related rights holders of the remaining property within the site were notified via mailing of relocation in due day.
		December	Two household buildings were transferred to DORTS First District Project Office for maintenance management.
8	Station LG08 North Side (Land Development Site 5)	October 7	The land expropriation for improvements and the purchase of the land of Zhonghe District Farmers' Association of New Taipei City was approved and recorded by the Executive Yuan on October 7, 2019. (Official Ref. No. 1080265541)
9	Wanda Depot and Station LG08A (Land Development Site 7)	January 28	Construction improvements on expropriated land in Tucheng Dist. were transferred to DORTS Project Office (crops and plants included).
		February to March	Around 15 construction improvements were demolished, 5 households migrated and 15 factories were relocated in Tucheng Dist.
		March 23	The tombs inside the depot was relocated and were transferred to the Project Office for construction.
		March 29	Three Illegal buildings in Tucheng Dist. were demolished mandatorily.
		May 15	The SEDA Chemical factory in Tucheng was relocated and the land was transferred to the Project Office.

Replacement Fund and Asset Management

Taipei MRT Fixed Asset Replacement Fund

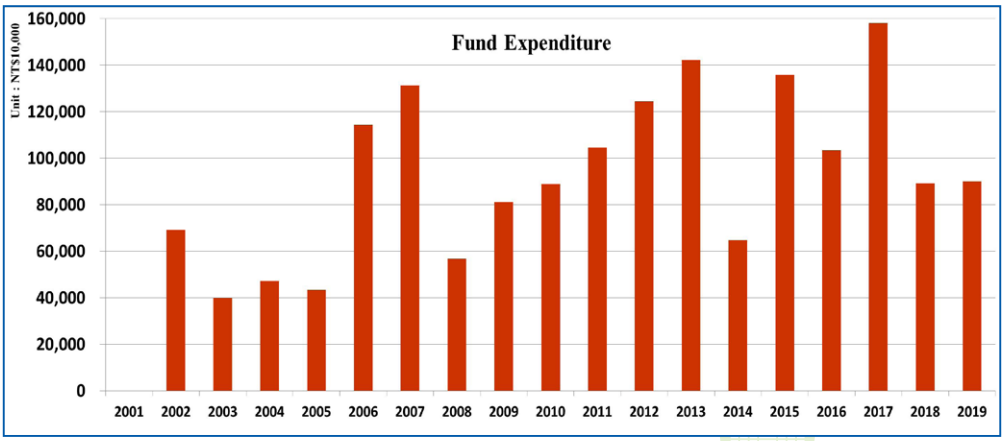
➢ Fund Income

As of December 31, 2019, fund income totaled NT$62,932,403,643. Historic fund income is shown in the following chart:



➢ Fund Expenditure

As of December 31, 2019, fund expenditures totaled NT$16,864,002,240. Historic fund expenditure is shown in the following chart:

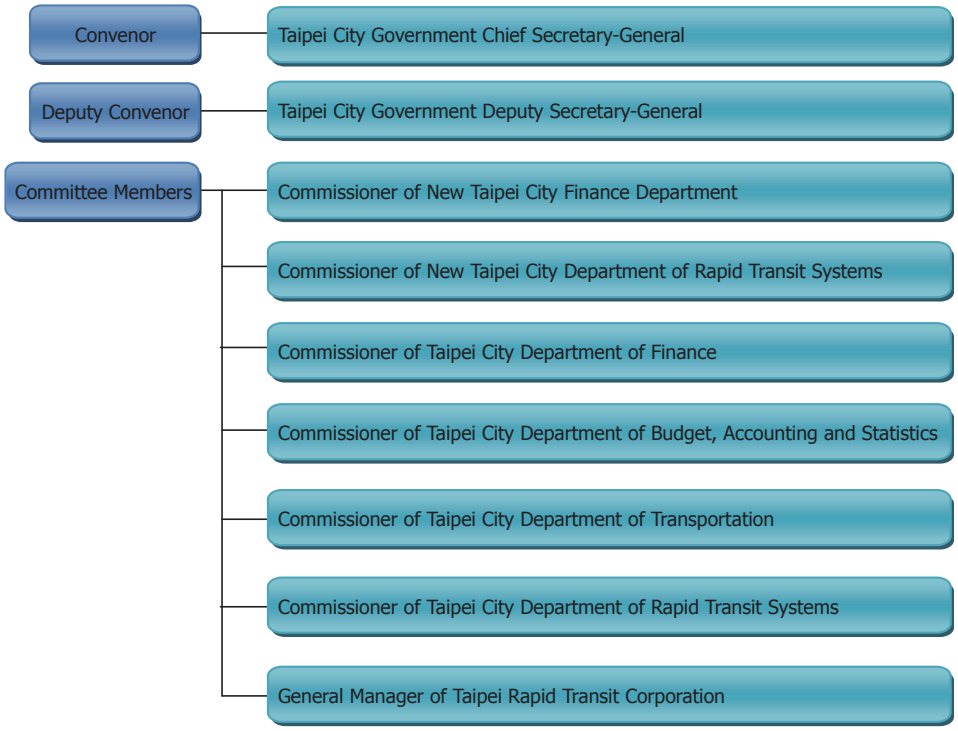


➢ Operation Status

Duties of Fund Management Committee:

- ✧ Deliberation of systemwide facility replacement plan
- ✧ Supervision of systemwide facility replacement of in-service routes to meet operational needs
- ✧ Deliberation of external financing of the fund
- ✧ Deliberation of other major businesses associated with fund management and operation

Organization of Fund Management Committee



➢ Business Performance Review

- ✧ A total of NT$4,464,167,000, including NT$4,370,132,000 for rental income, NT$94,035,000 for interest income, and NT$20,000,000 for miscellaneous income was arranged for the fund in 2019.
- ✧ Fund purposes: In 2019, the fund was mainly spent on replacement of electrical and mechanical equipment, civil works facilities on the MRT Tamsui (including Xinbeitou Branch), Zhonghe, Xindian (including Xiaobitan Branch), Xiaonanmen, Nangang, Banqiao, Tucheng, Wenhu, Nangang eastern extension, Luzhou, Xinzhuang, Xinyi, Songshan, and Tucheng extension to Dingpu lines, as well as administrative business

associated with the fund. A total of NT$770,744,000, including NT$126,377,000 for the MRT facility replacement plan, NT$26,918,000 for general administrative management operations, and NT$617,449,000 for building and facility plans, was arranged. According to the resolution of the first committee meeting in 2019, DORTS' Civil Engineering and Architectural Design Division, its subordinate First District Project Office, and Taipei Rapid Transit Corporation (TRTC) were commissioned to conduct budget performance of fixed asset purchases.

✧ Annual Performance

1. Business Plans:

(1) Scheduled Plans: A total of 26 capital expenditure plans (including continual and new plans) in 2019.

(2) Non-scheduled Plans: A total of 12 capital expenditure plans in 2019 were subject to procurement of facilities/assets, domestic/foreign import and market prices.

(3) Deferred expenditure: A total of 8 deferred expenditure plans in 2019 were subject to house repairs and construction.

2. Budget Performance:

(1) Fund Sources

a. Asset revenues: Compared with the 2019 statutory budget of NT$4,464,167,000, as of December, actual expenditures were NT$ 4,588,737,217.

b. Other revenues: Compared with the 2019 statutory budget of NT$ 20,000,000, as of December, actual expenditures were NT$4,427,940.

(2) Fund Uses

a. MRT facilities replacement plans: Compared with the 2019 statutory budget of NT$126,377,000, as of December, actual expenditures were NT$136,384,866.

b. Regular administrative plans: Compared with the 2019 statutory budget of NT$26,918,000, as of December, actual expenditures were NT$25,583,328.

c. Compared with the 2018 statutory budget surplus of NT$3,713,423,000, as of December, the actual surplus was NT$3,691,534,859.

(3) Budget Deficit

Compared with the 2019 statutory budget surplus of NT$3,312,210,265, as of December, the actual expenditure were NT$3,340,654,898.

3. Financial Management:

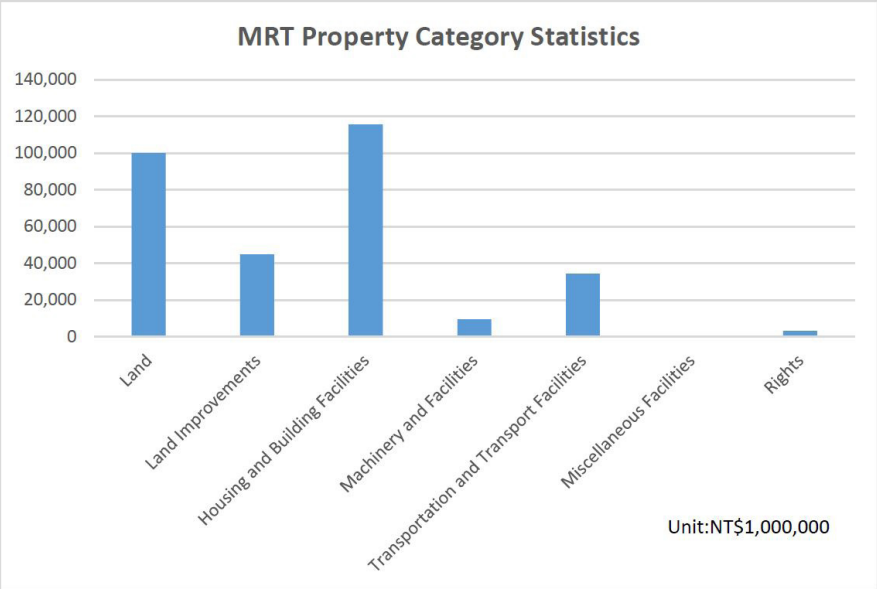
(1) The primary source of the fund is facility replacement and flexible rent allocations made by TRTC, which includes 2% of annual business revenue and 50% of profits, with the total not to exceed 4% of revenues. The purpose of the fund is to be used as a short-, medium-, and long-term replacement for MRT system equipment.

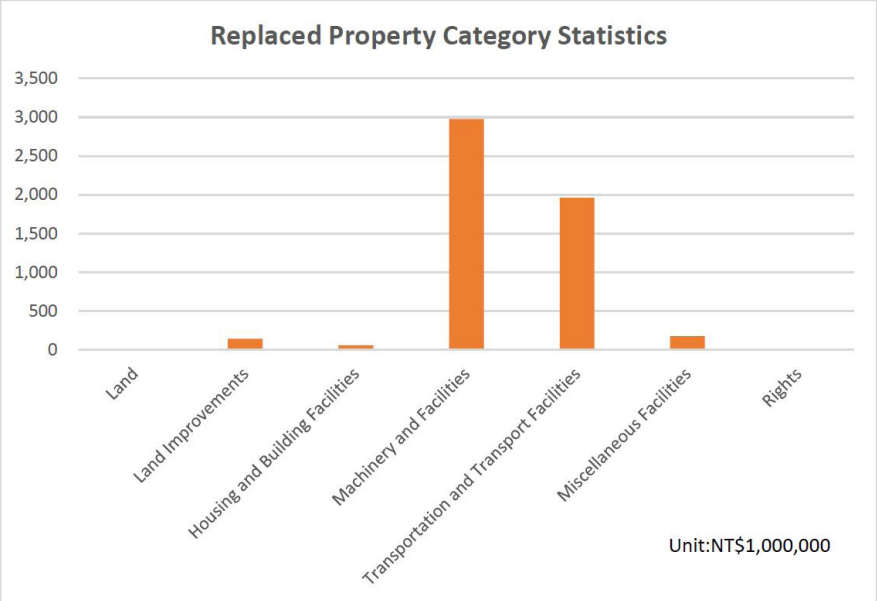
(2) The fund is used in comply with the short-, medium- and long-term financial resources for replacement, and TRTC's flexible rent allocations, and deducting the estimated annual expenditure, the liquid fund is required to be used effectively, thus financial management of the fund is of great importance.Taking into account liquidity and security considerations, DORTS contacts financial institutions for price inquiries for time deposits, and as of December 31, 2019, the Fund's term deposits amounted to NT$43.3 billion.

MRT Property Management

➢ MRT Properties

The amounts of MRT properties and replaced properties for each of the MRT routes as of late December:





➢ Property Inspection Tasks

In order to manage MRT property thoroughly and effectively, DORTS inspects MRT properties annually. These inspections allow DORTS to understand how TRTC manages, uses and maintains the city-owned properties which are commissioned by DORTS, and how TRTC handles the illegally occupied or idled land and buildings along MRT routes. Staff members dispatched by the affiliated engineering departments from DORTS' associated offices conducted a routine check from December 10 - December 20, 2019. Results were sent in writing to TRTC for improvement and follow-up.

➢ Insurance

Taipei MRT Insurance Claims Statistics

Claims Statistics as of December 31, 2019 (Unit: NT$)

Route	Claims Amount Prior to Dec. 31, 2019	Claims Amount from Jan. 2019 to Dec. 31, 2019	Total
XinZhuang Line	$ 201,522,443	$ 1,411,164	$ 202,933,607
Luzou Line	$ 264,789,497	$ 5,166,117	$ 269,955,614
Neihu Line	$ 144,115,151	$ -	$ 144,115,151
Xinyi Line	$ 88,195,881	$ -	$ 88,195,881
Xinyi Eastern Extension	$ -	$ 885,203	$ 885,203
Songshan Line	$ 175,917,971	$ -	$ 175,917,971
Circular Line Phase I	$ 49,062,773	$ 18,990,712	$ 68,053,485
Taichuing Wuri-Wenxin-Beitun Line	$ 15,903,391	$ 1,803,974	$ 17,707,365
Wanda-Zhonghe-Shulin Line Phase I	$ 620,752	$ 1,396,433	$ 2,017,185
Total	$ 940,127,859	$ 29,653,603	$ 969,781,462

Public Relations and Marketing Activities

Promotional Activities

Metropolitan Circular line (Circular line Phase I, north section, south section, and east section) is the next phase of the vision for MRT construction being promoted by the government. Detailed design work for north section and south section is currently underway, and connected with Circular line Phase I, which will soon be completed and commence operations and the east section, which is under review by the National Development Council, it will form a 49.2-km complete metropolitan ring-shaped route network. This year in cooperation with the promotion of Circular line Phase I, light and cute promotional items such as "Taipei MCT EMU Key Rings" and "Circular Line EMU-shaped Mineral Water Bottles" have been created. Moreover, MRT project construction vision advertising designs have been revealed through publication in Taipei MRT Newsletters and various promotional leaflets or combined with promotional items for various societies, associations, and annual meetings. In addition, DORTS' introduction video "Viewing Taipei MRT" along with the "Taipei MRT" brochure and MRT construction vision map have also been updated this year to promote various aspects of MRT construction achievements in order to enable the public to have a deep understanding of the MRT route network which is currently under construction and planning.

In order to show the accomplishments of MRT construction, on April 21,2019 Premier Su Tseng-chang inspected DORTS Circular line Phase I construction along with the milestone of the first shield tunneling machine entering the shield tunnel construction for Wanda line Phase I. On August 30 when Mayor Ko Wen-je inspected MRT Wanda line Taipei Botanical Garden Station, he was briefed on the progress of the two lines project and media reports enabled the public to gain an understanding of the MRT construction situation.

Caption 1: Premier Su inspected Circular line Phase I construction on April 21, 2019

Caption 2: Taipei Mayor Ko Wen-je inspected MRT Wanda line Taipei Botanical Garden Station on August 30, 2019

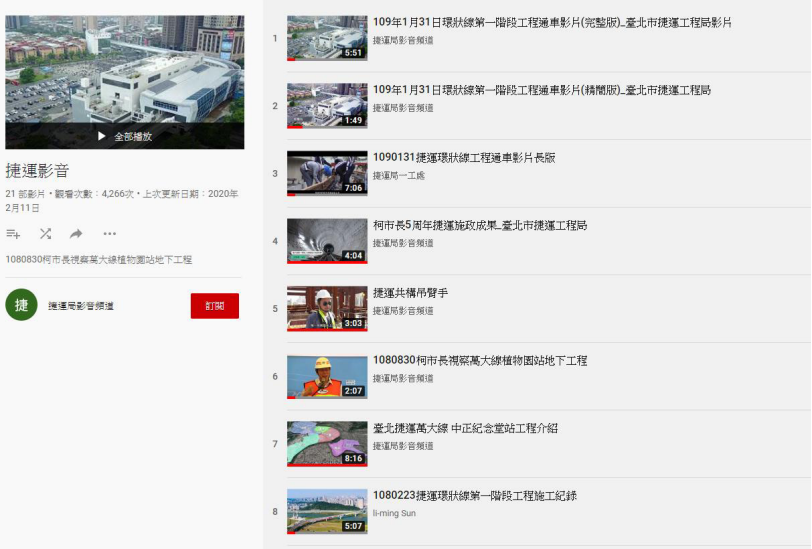
Caption 3: In cooperation with MRT planning and construction results, DORTS has made beautiful and practical EMU-shaped Mineral Water Bottles and EMU Key Rings.

Caption 4: Promotional MRT construction elements are incorporated into a variety of advertising designs of societies, associations, and annual meetings.

Marketing Activities

On DORTS' official website, the public can browse through DORTS' construction vision and the progress of government policy promotion, and in the MRT audio-video section, they can watch and read event videos such as "MRT Circular Line Phase I Construction Record", "Introduction to Taipei MRT Wanda Line Chiang Kai-shek Memorial Hall Station Construction," and "Mayor Ko Inspects Wanda Line Taipei Botanical Garden Station Construction", being the first to witness and feel the high-quality MRT construction produced by the MRT team.

In order to pass on Taipei MRT track construction expertise to young students, DORTS has specially arranged onsite internship observation courses. This year students were led to enter the main station structure of cut-and-cover construction areas on the Wanda line, and the intern students were allowed to see the introduction of the first large-scale hot tapping installation in Taiwan. Arranging curriculum which combines academic theory with practical work enables students to understand the actual operating situation of MRT construction projects while simultaneously confirming their learning and enhancing their professional knowledge. All of the students who participated in the summer internship activities stated that it was an unprecedented experience and felt that it was greatly beneficial. In this activity, DORTS not only earned many affirmations in its professional expertise, the curriculum also inspired students to move towards future employment goals. Showing the expansion of MRT engineering experience and cultivating the new generation of basic talent for MRT technology in Taiwan can effectively enhance DORTS' professional image.



Caption 1: policy advocacy films in the official websites' audio-visual section

Caption 2: Through the arrangement of summer internships, students visit construction sites in order to cultivate Taiwan's next generation of MRT technical personnel

Visitor Events

This year arrangements were made to receive people from all walks of life at DORTS, and a total of eight forums were held.

Members of Chinese Institute of Engineers visited Taichung MRT Green line construction site (April 26)

National Taiwan University of Science and Technology students visited Xinyi eastern extension construction site. (April 30)

Taichung City Mayor Lu Shiow-yen visited Taichung MRT Green line (May 8)

Taichung City Government DORTS visited Wanda line (September 5)

Kaohsiung City Government visiting panel (September 19)

Members of National Central University Tunnel Construction Lecture visited Xinyi eastern extension construction site.(October 5)

Japan National Institute of Technology, Akashi College observed Xinyi eastern extension (October 30).

Construction Bureau of Taichung City Government visited Wanda line (November 21).

MRT Routes Under Construction

The MRT routes that are currently under construction include Xinzhuang Depot, the Circular line Phase I, Circular line north and south section, Taichung MRT Wuri-Wenxin-Beitun line, Wanda line Phase I & II, and Xinyi eastern extension.

Xinzhuang Depot

In line with the Lo-Sheng Sanatorium Hospital Cultural Heritage Preservation Project, the Xinzhuang Depot Construction Project was re-tendered in 2008 following a design change and officially commenced on November 26. The substantial completion date for this project was July 21, 2019. The detailed design consultant for this project was CECI Engineering Consultants, Inc., Taiwan, and the contractor was Continental Engineering Corporation. The main project items were as follows: a connecting bridge between the new and old buildings of Lo-Sheng Sanatorium Hospital, slope retaining facilities, a mountain tunnel, a working shaft, a cut-and-cover tunnel, a cut-and-cover tunnel for the extension section, a depot connection tunnel, a stabling yard (including 400 series stabling tracks), a maintenance plant (including employee office), a facility substation/power distribution room, a bulk supply substation (BSS), a sewage treatment plant, an electric multiple unit (EMU) cleaning area, an MRT police branch office, a warehouse for specialized goods, a steel structure platform, a backup items warehouse, Huilong Station transfer facilities, plant drainage, landscaping, and surrounding road works.

➢ Urban Planning Revision

Regarding the restoration of landuse from the MRT system to the medical building, the urban planning revision was approved on the basis of the Subparagraph 4 of Paragraph 1 of Urban Planning Law Article, submitted in reply by Ministry of the Interior (MOI) on December 5, 2018 through official document No. 1070083183. Both New Taipei City and Taoyuan City jurisdictions are involved in the Case. New Taipei City conducted 30 days of public exhibition from August 9, 2019, and the public presentation was held at Xinzhuang District Office at 10:30, August 26. The last day of the public display was September 7. The case was reviewed in the 110th Urban Planning Commission (UPC) meeting, and passed to the Urban and Rural Development Bureau, New Taipei City on November 20 for MOI's approval. Taoyuan City conducted 30 days of public display from August 19, and held a public briefing at Guishan District Office on September 5. The final day of the public display was September 17. The case was reviewed in the 40th Taoyuan Urban Planning Commission meeting, and was then passed on to the Urban and Rural Development Bureau, New Taipei City on December 17 for the MOI's approval.

➢ **The construction overview of this project is as follows:**

✧ **Civil Works for Section Contract CK570J**

■ Completed construction

- Connecting bridge between the new and old buildings of Lo-Sheng Sanatorium Hospital
- Side slope earthwork and grid-type anchor construction
- Bulk supply substation, facility substation/power distribution room
- Sewage treatment plant and EMU cleaning area
- Mountain tunnel
- Cut-and-cover tunnel, cut-and-cover tunnel for extension section, and connection tunnel
- Steel structure platform
- 2nd land bridge and structural platform in line with the Image Project of Lo-Sheng
- Maintenance plant (including an employee office), backup items warehouse, police branch office, warehouse structure for specialized goods
- Maintenance plant, stabling yard, backup items warehouse, police branch, architecture finishing works for the special warehouse, and HVAC systems
- Plant drainage system and piping arrangement
- Surrounding drainage system, roads, and wall works

■ Construction in progress

- The addition of subcontract IKTX23: Phase I of the long-term side slope monitoring
- The addition of subcontract IKTX24: wheelchair accessible elevator structure and attached slope constructions

Bird's-eye view of the construction status of Xinzhuang Depot

✧ Construction of Xinzhuang Depot and Xinyi eastern extension Electrical Systems:

- The construction of electrical and mechanical systems of Xinzhuang Depot and Xinyi eastern extension is divided into CR382A/CK372A Signaling System Contract, CR383A/CK373A Power Supply Contract, CR385A/CK375B/CK375C Communications Contract, CR387A Automatic Fare Collection System Contract and CK379B Depot Maintenance Equipment Contract.
- Overview of all systems of E&M systemwide construction proceeding with design submission for review, equipment procurement, manufacturing phase, on-site installation and testing:
- **CR382A/CK372A - Current Status of Signaling System:**
  - The signaling construction was awarded on June 29, 2018. It was then signed on July 26, and commenced on September 1. The substantial completion date of the Xinyi eastern extension is September 30, 2022, and the final completion date is March 31, 2023. The substantial completion date of Xinzhuang Depot is September 15, 2020, and the final completion date is March 15, 2021.
  - The inspection together with the report for the equipment that arrived for the Xinzhuang Depot signal systems was completed on July 17, 2019. Two of the items passed the inspection, and 3 are yet to be re-purchased. The repurchased items have completed the changing procedures and their parts are currently being changed.
  - Three new additions to the Xinzhuang Depot, including Single-Split-Type air conditioners, VDU computers and server racks for the control room, arrived on November 29, 2019. The air conditioners and server racks have been installed and the computers are set to be in place before the end of April 2020.
  - The first prepayment for the signal construction was made on September 28, 2018, and the second prepayment was made on December 21 of the same year. The 3rd prepayment was made on September 12, 2019 (Contract Baseline Schedule approved N1).
  - The construction of Xinzhuang Depot Signal Equipment Room began on March 4, 2019. On May 14, Xinzhuang Depot's wayside signal construction began.
  - Currently the signal track circuit, switches and signals of the Signal Cabin Room (SCR) and wayside are under construction. Signal racks have been installed and the cable work is ongoing.
  - The design concept for the Xinyi eastern extension is currently in process, and the submissions are under review.
- **Contract CR383A/CK373A--Current Status of Power Supply Systems:**
  - The power supply construction for the Xinyi eastern extension/ Xinzhuang Depot

was awarded on April 19, 2018, and signed on May 11 with a commencement date of June 1. The substantial completion date of the Xinyi eastern extension is September 30, 2022, and the final completion date is March 31, 2023. Xinzhuang Depot construction began on April 8, 2019, and the substantial completion date is September 15, 2020, with a final completion date of March 15, 2021.

- The contractor's concept design/equipment paperwork review and equipment supplier selection for Contract CR383A--Xinyi line eastern extension power supply system is still underway.
- Contract CK373A--Xinzhuang Depot power supply system: (1) equipment installation for station substation and on-site installation-acceptance-test (IAT) have been completed. The 22KV Cable connections and IAT tests for the operation section will be completed by January. The 22KV high voltage power transmission is to be completed in early February, 2020. (2) Power substation installations were completed by the end of December, 2019. IAT tests are to be completed in mid March of 2020, and 750V DC power supply for the third rail will be finished in April, 2020.
- The third prepayment for power supply construction was made on September 26, 2019; the payment for the first construction evaluation was made on December 17.
- Contract-related documents are continuously being submitted for review.

■ **CR385A/CK375B/CK375C--Current Status of Communication Systems:**

- The communication construction was awarded on May 4, 2018. It was signed on May 30, and commenced on June 27. The overall completion date for the Xinyi eastern extension is September 30, 2022, and the completion date is March 31, 2023. The substantial completion date of Xinzhuang Depot is September 15, 2020, and the final completion date is March 15, 2021.
- The first prepayment for the construction communications was made on September 11, 2018, and the second prepayment was made on December 14.
- Tests and reports for equipment that had arrived at the Xinzhuang Depot were completed by November 28, 2019. Of those items, 5 repurchases are currently in progress.
- Xinzhuang Depot construction began on June 27, 2019.
- Communication system racks, electrical tubing and cable trough for Xinzhuang Depot communication room were put in place. Communication systems for Xinzhuang Depot and the cable laying between Xinzhuang Depot and the Huilong Station operation section are currently in progress.
- Design concept for the Xinyi eastern extension is currently being designed, and the paperwork has been submitted for review.

■ **Current Status of the automatic fare system:**

- The construction of the automatic fare system was awarded on May 29, 2018, then signed on June 28, and commenced on August 2. The substantial completion date for the Xinyi eastern extension is September 30, 2022, and the final completion date is March 31, 2023.
- The first prepayment was made on November 7, 2018. The second prepayment was made on December 4, and the third prepayment was made on July 5, 2019.
- Completed concept designs and detailed designs together with the paperwork are currently under review.

■ **Contract CK379B--Current Status of Xinzhuang Depot Maintenance Equipment:**

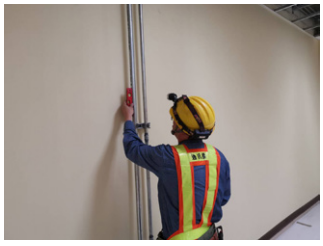
- The construction of the depot equipment was awarded on April 16, 2018. It was then signed on May 11, and commenced on June 1. The final completion date for the Xinzhuang Depot is September 15, 2020.
- Four pieces of Depot equipment (a car lift, a bogie lift, an electric bogie turntable and a manual bogie turntable) have arrived and undergone inspection (report compiled) on May 17, 2019. They were installed in September, and IAT was completed by November 6.
- Of the eight additions to the Depot facilities, the installation of the jib crane was completed in October, and it was inspected on December 6. The remainder, overhead crane; bogie cleaning equipment; waste oil recovery system; chassis cleaning equipment; stinger system; compressed air system; and the train car cleaning system, have arrived and are currently undergoing installation.
- The third prepayment was made on August 27, 2019. The first cost estimate is set for November 14, and second for December 18.

Cable laying in Xinzhuang Depot's signal room

Xinzhuang Depot signal installation and connection

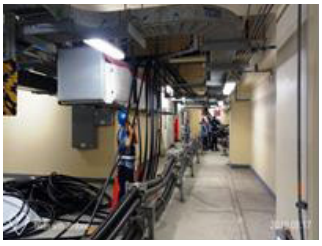
Wayside signal track circuit construction at Xinzhuang Depot

Positioning of the turnout sleeper in the track sector



Installation of electric conduits (communication contract)

Erection of Depot station's substation equipment (Power supply contract)



22KV cable laying of power supply at Xinzhuang Depot

RMU IAT test for substation power supply at Depot station

IAT test for 22kV/380V transformers and substation for Depot power supply

Hoisting the overhead crane at Xinzhuang Depot

Jib crane installation at Xinzhuang Depot

Hositing car lifting equipment at Xinzhuang Depot

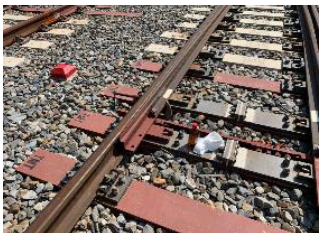
✧ Construction of Xinzhuang Depot CK571A Track/Xinyi Eastern Extension Contract CR581A Track

- CK571A track work at Xinzhuang Depot has been completed on July 18, 2019.

The turnout installation in the mountain tunnel is completed

Aerial shot of track laying completed at Xingzhuang Depot

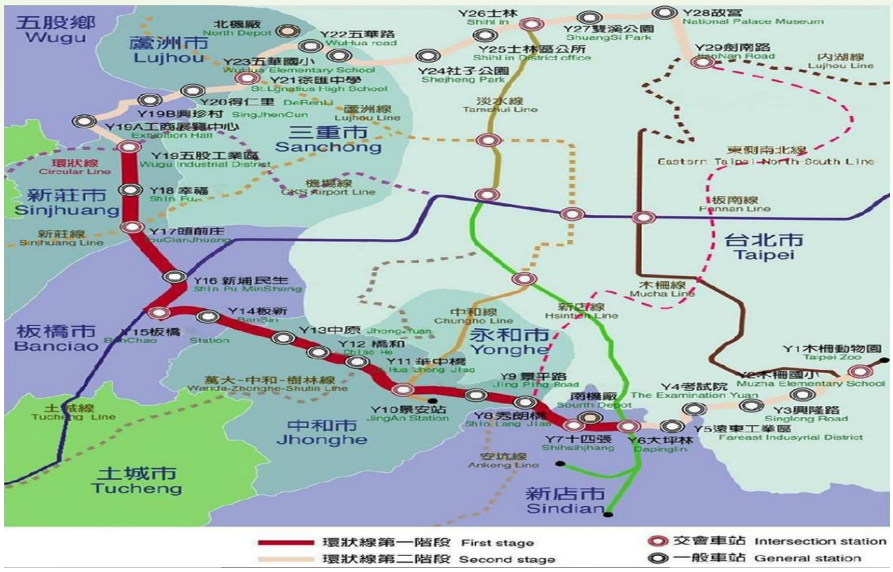
Surveying the ballast pavement completed in the track sector



Positioning of the turnout sleeper in the track sector

Circular Line Phase I

The route of Phase I starts at Dapinglin Station in Xindian District, passes through Xindian, Zhonghe, and Banqiao, to Xinzhuang District, and it ends at New Taipei City Industrial Park. This includes a total length of 15.4 kilometers (including a 1.2-km underground section and a 14.2-km elevated section), with Dapinglin Station (Y6), Shisizhang Station (Y7), Xiulang Bridge Station (Y8), Jingping Station (Y9), Jingan Station (Y10), Zhonghe Station (Y11), Chaohe Station (Y12), Zhongyuan Station (Y13), Banxin Station (Y14), Banqiao Station (Y15), Xinpu Minsheng Station (Y16), Touqianzhuang Station (Y17), Xingfu Station (Y18), and New Taipei City Industrial Park (Y19) along the way, for a total of 14 stations and South Depot. South Depot is located in the Shisizhang area.



Route Map of Circular Line Phase I

➢ **The construction overview of this project is as follows:**

✧ **Contract CF641: Dapinglin Station Construction**

■ The structural construction of Dapinlin Station (Y6) was completed on January 1, 2017. The architectural decoration construction of Contract CF640 was completed on June 22, 2018.

✧ **Section Contract CF640 - South Depot, Tunnel Section, Daylight Section, and Shisizhang Station Construction:**

■ Contract CF643A: Tunnel Section and Daylight Section Civil Construction Works:

- Shield tunnels, cut-and-cover tunnels, daylighting structures, and road restorations have been completed.

Passage connecting Dapinglin Station on the Xindian line

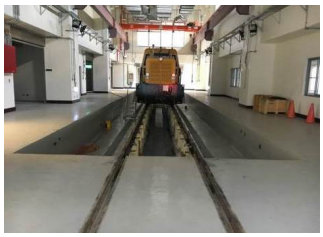
Completion status of the concourse

Completion status of the platform

Sound barrier for daylight section

■ Contract CF642: Civil works at South Depot

Current status of South Depot



Civil and track maintenance plant

Surrounding roads and sidewalks

Stabling yard

■ Contract CF643B: Shisizhang Station Civil Construction:

- The elevated sections at Shisizhang Station were completed on June 22, 2018.

Platform of Shisizhang Station

Shisizhang Station and landscaping platform

Cross-river steel bridge

Shisizhang Station and landscaping platform

✧ Section Contract CF650: Xiulang Bridge Station to Banxin Station Construction

■ Contract CF651A: Xiulang Bridge Station to Zhonghe Station (Excluded):

- The land development and final works for the furnishing of buildings/stations in Xiulang Bridge Station, Jingping Station, and Jingan Station are currently in progress. The sound barriers for the viaducts between these stations, the widening of the sidewalks around the stations, and the roads between Jingan and Zhonghe stations, the restoration of relocated permanent-pipelines, asphalt concrete paving, and planting have all been performed.

Xiulang Bridge Station and land development building

Jingping Station and land development building

Jingan Station

Entrance/Exit 1, Xiulang Bridge Station

Jingan Station platform level

Asphalt concrete paving

Greenery

Widened sidewalks

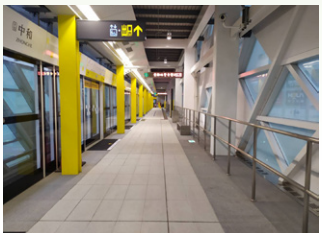
■ Contract CF651B: Zhonghe Station to Banxin Station Construction

- In Contract CF651B, construction of Zhonghe, Qiaohe, Zhongyuan, and Banxin stations and the elevated bridges connecting these stations have been completed. Based on the suggestions for engineering optimization from DORTS after

engineering inspection and the operational unit-TRTC, better accessibility features such as railings and a parapet, a splash proof grille, and sound barriers were added to improvie light pollution, privacy and sound proofing effects.

Road surface restoration on Zhongshan Rd. Sec. 2, Zhonghe

Surface restoration on Bannan Rd., Zhonghe



Protective parapet and priority seats newly installed at Zhonghe Station platform

Wi-Fi table in Zhonghe Station

Zhongyuan Station exit and signboard

The Construction of sound barriers of the original contract at Banxin Rd.

Enhanced construction on top of sound barriers at Banxin Rd.

Splash proof grille in Qiaohe Station

✧ Section Contract CF660A: Banqiao Station to Xinpu Minsheng Station Construction

- This year, we are continuing with the construction of CF660A Section Contract in Banqiao Station, Xinpu Minsheng Station, and the viaducts between these stations. The construction items include: steel structure lifting, locking and welding, RC structures, furnishing works, E&M and HVAC systems, and escalators; upper and lower structures of the viaduct section and parapet walkway along the bridge deck; track, noise barriers, expansion joints, the coordination and restoration of pipelines, and road restoration of Banqiao Station, Xinpu Minsheng Station, and the Land Development Building (including the BSS2 Second Substation); and the restoration of buildings under the Dahan Bridge. With the exception of Banqiao Bus Station, the constructions of the remaining items were completed by October 20, 2019.

Bird's eye view of Banqiao Station (Circular line)

Banqiao Station (Circular line)

Banqiao Station and land development building (Circular line)

Elevated section of Banqiao Station (Circular line)

Bird's eye view of Xinpu Minsheng Station

Xinpu Minsheng Station

Xinpu Minsheng Station and land development building

Elevated section of Xinpu Minsheng Station

✧ Section Contract CF660B: Touqianzhuang Station to New Taipei Industrial Park Station Construction

- The main construction items for this contract this year were the construction of Touqianzhuang Station (Y17), Xingfu Station (Y18), New Taipei Industrial Park Station (Y19) and the improvements of their station exits/entrances. Items also included the installation of noise barriers for elevated sections between these stations, and permanent asphalt concrete pavement on fast lanes and slow lanes on Siyuan Rd.

Touqianzhuang Station (Y17) southbound viaduct across the Dahan River Bridge Section

Bird's eye view of Touqianzhuang Station (Y17)

Connecting passage (O3) between Y17 and O3 Touqianzhuang Station (Y17)

Aerial shot of Xingfu Station (Y18)

Xingfu Station (Y18) and Xingfu overpass

Elevated section between Xingfu Station (Y18) and New Taipei Industrial Park Station (Y19)

Bird's eye view of New Taipei Industrial Park Station (Y19)

Connecting bridge at New Taipei Industrial Park Station between A3 (THSR) and Y19 (Xinzhuang MRT line)

✧ Contract CF610/CF611/CF617: Electrical and Mechanical Systems

- January 15, 2019 Circular line power supply system local training began.
- January 28, 2019 Circular line EMU system local training began.
- February 12, 2019 Circular line signaling system local training began.
- February 20, 2019 Circular line communication system local training began.

- February 20, 2019 Circular line checks were conducted for the arrival of backup items and specific tools for CF610's EMU, Operation Control System, power supply, communication and depot equipment.
- April 30, 2019, Circular line full system dynamics and consolidation tests
- June 13, 2019 substantial completion of Circular line CF610
- August 21-27, 2019 Circular line CF610 system stability test completed
- September 2, 2019 Circular line CF610 system check and hand-over began
- October 25, 2019, Circular line preliminary inspection


EMU local training


EMU local training

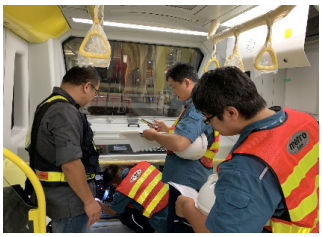

Power supply local training

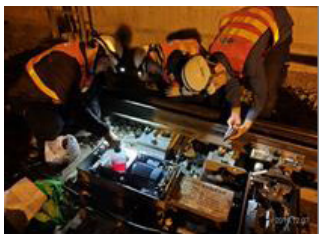

Power supply local

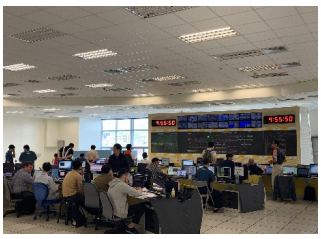

Depot equipment local training

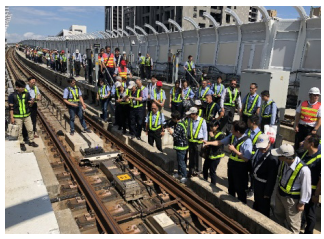

Depot equipment local training


EMU system check and hand-over training


Communication system vehicle carrying equipment check and handover


Signaling system switch check and handover


Circular line system stability test


Circular line preliminary inspection

✧ Circular Line Contract CF611 Track Construction

- The final completion date fell on June 13, 2019.


Line track and conductor rails completion


Completion of special track and conductor rails in special track zone


Completed track work in maintenance plant


Completed track and conductor rails at South Depot

➢ **Circular Line Contract Honors in 2018:**

✧ Subcontract CF643A of Section Contract CF640 was awarded the 2019 Excellent Construction Award by the Chinese Institute of Engineers on May 31, 2019.

✧ Subcontract CF651B of Section Contract CF650 was awarded the 8th Public Construction Excellence Award (in the category of Civil Engineering) on August 16, 2019.

➢ **Environmental Impact Assessment**

✧ Fourth difference analysis report

According to EPA official letter 10800439998, the revised fourth difference analysis report was approved during the 358th meeting of the Environmental Impact Assessment Review Committee under the Environmental Protection Administration which was held on July 9, 2019. The final version of this report was approved by EPA official letter 1080058889 on August 21.

➢ **Preliminary Inspection Before Operation**

✧ The implementation of preliminary and final inspections was submitted by DORTS together with TRTC on October 9, 2019 for approval.

✧ Preliminary Inspection Committee meeting was convened on October 18, 2019.

✧ Preliminary inspection was conducted by Taipei City Government on October 25, 2019.

✧ DORTS worked with TRTC on December 6, 2019, to finalize items that needed improvements prior to the final inspection.

✧ Inspection team pre-meeting was convened by Ministry of Transportation and Communications (MOTC) on December 14.

✧ The pre-meeting supplementary information from committee member was submitted on December 18, 2019.

✧ The second inspection team pre-meeting was convened by MOTC on December 28, 2019. The Final Inspection was set to be conducted on January 5, 2020.

Circular Line North Section and South Section

The comprehensive planning of the Circular line north section, which was approved by the Executive Yuan on May 31, 2019, is the extension of Circular line Phase I. The north section connects the Phase I route at Wugong Rd. Wugu District from the elevated section and runs underground along the south side of Wuquan Rd. highway, Siwei Rd., Jixian Rd. in Luzhou, through Chongyang Bridge to Shezi, Shihlin, and Zhongzheng Rd., Zhiahan Rd., and Beian Rd. in Dazhi, and then arrives at Jiannan Rd. Station on the Wenhu line. The 14.93-km length is served by 12 stations, and a North Depot near the farming area north of Luzhou. For the Circular line south section, the route starts at Taipei Zoo Station on the Wenhu line, and connects underground along Xinguang Rd., through a mountainous area to Xiuming Rd.

Sec. 2, Siwei Boulevard inside the campus of Chengchi University, and runs along the Jingmei River, Muxin Rd., Muzha Rd., and the dike path next to the industrial Z1 around Xindian Ronggong Plant site to Minquan Rd., then links with Dapinglin Station for transfer to the Xindian line. The 5.73-km route is served by six stations (Y6 Dapinglin Station excluded). A Medium-capacity Transit system was adopted for this, and it is built underground to connect the Phase I to the East Section (which is still undergoing planning) and it then makes a complete Circular line that incorporates systems, operation and maintenance. Passengers do not need to make any transfers throughout the Circular line.

Route Map of Circle Line North Section and South Section

➢ Planning of the MRT Stations

✧ The location of each station is as follows.

- Station Y1: The land used for the rotes is located underneath Xinguang Rd. Sec. 2, Wenshan District, Taipei, (southwest side of Taipei Zoo Station on the Wenhu line). (with connecting passage for in-station transfer to the Wenhu line Taipei Zoo Station)
- Station Y1A: located underneath the city plans road, east of the intersection of Wanshou Rd. and Zhinan Rd., Wenshan Dist., Taipei City
- Station Y2A: located underneath Wenshan Park and the road west to the intersection of Muxin Rd. Sec.1 and Muzha Rd. Sec.3, Wenshan Dist., Taipei City
- Station Y3: located underneath Muzha Rd. at the intersection of Muzha Rd. Sec. 2 and Lane 138, Wenshan Dist., Taipei City
- Station Y4: located underneath Muzha Rd. between Xinhai Rd. and Shiyuan Rd., Wenshan Dist., Taipei City

- Station Y5: located within the site reserved for a Public Park, based on the "Xindian Rong Plant Site Urban Renewal Planning and Urban Planning Revision Draft", Xindian, New Taipei City
- Station Y19A: located underneath Wugong Rd, Wuquan Rd. Entrance, New Taipei Industrial Park, Wugu Dist., New Taipei City
- Station Y19B: located within a block of industrial land use, surrounded by Zhongxing Rd. Sec. 2 and Lane 37, and Wugu Floodway/southeast National Highway No.1, Wugu Dist., New Taipei City
- Station Y20: located underneath Zhongshan 1 Rd. northeast of the intersection of Zhongshan 1 Rd. and Yungan S. Rd. Sec. 1, Luzhou Dist., New Taipei City
- Station Y21: located underneath Jixian Rd., at the intersection of Zhongshan 1 Rd. and Jixian Rd., in front of St. Ignatius High School (in-station transfer to Luzhou line), Luzhou Dist., New Taipei City
- Station Y22: located underneath Jixian Rd. at the intersection with Wuhua St., the border between Sanchong Dist. and Luzhou Dist.
- Station Y23: located underneath Jixian Rd., between the Chongyang Bridge and Sanxin Rd., Sanchong Dist., New Taipei City
- Station Y24: located underneath Shezheng Park and the Parking lot, west of the intersection of Zhongzheng Rd. and Tonghe W. St. Sec. 2, (transfer at planned Station LO04 of Shezi/Shihlin/Beitou LRT), Shihlin Dist., Taipei City
- Station Y25: located underneath Zhongzheng Rd, at the intersection of Zhongzheng Rd./Jihe Rd., in front of Shihlin District Office, Shihlin Dist., Taipei City
- Station Y26: located underneath Zhongzheng Rd., at the intersection with the Tamsui line (connecting passage to transfer to the Tamsui line), Shihlin Dist., Taipei City
- Station Y27: located underneath Zhongzheng Rd., west of the intersection of Zhongzheng Rd. and Yunong Rd., Shihlin Dist., Taipei City
- Station Y28: located underneath Zhishan Rd. Sec. 2, east of Gugong Rd., Shihlin Dist., Taipei City
- Station Y29: located underneath Beian Rd., between Jingye 2 Rd. and Jingye 3 Rd. (with connecting passage for in-station transfer to the Wenhu line at Jiannan Rd. Station), Zhongshan Dist., Taipei City

➢ **Urban Planning Revision**

✧ The following content describes the progress of the routes which pass through the jurisdiction of the two cities.

- Taipei Section:
  - The master plan went into operation after it was announced on August 31, 2019.
  - The detailed plan went into operation after it was announced on October 18, 2019.

- Station Y1A land use as Type III Planning sub-area residential area was managed by National Chengchi University (NCCU), and the detailed plan modification, was implemented. The public display commenced on December 20, 2019 and lasted 30 days.

■ New Taipei City Section:

- The result of the 5th and 6th NTUPC (New Taipei Urban Planning Commission) ad hoc team meetings on February 14 and April 1, 2019, were passed on to the 101st NTUPC meeting for review on May 6, and MOI's approval was requested on June 1. MOI Urban Planning Commission ad hoc team meetings were held on August 8 and December 12.

➢ Environmental Impact Assessment

✧ The environmental impact assessment report for the entire Circular line was granted initial approval after being reviewed by the Environmental Protection Administration, and it was conditionally approved on January 23, 2003.

➢ The Progress of Detailed Design:

✧ DF115 Design Contract

■ Construction Range

- Design Contract DF115 is the commissoned technical services of the Circular line south section, which covers Taipei Zoo Station, connecting underground along Xinguang Rd. Sec.2, through the mountainous area southbound to Xiuming Rd. Sec. 2, taking Siwei Path in NCCU, across the Jingmei River, along the floodway next to Far East Industrial Z1, running west along Minquan Rd. to connect Y6 Dapinglin Station (not included) to the east--the construction of Circular line Phase I. Transfer is available for the Songshan line. There are six underground stations (Y1, Y1A, Y2A, Y3, Y4 and Y5) and six shield tunnels on the 5.81-km route. With the exception of the underground stations and a shield tunnels, the entire work proceeds with a cut-and-cover method.

Route Map of South Section DF115 Contract

■ Stations:

- Station Y1: the south side of Xinguang Rd. Sec. 2 (west of Wenhu line Taipei Zoo Station exit)
- Station Y1A: located underneath east of the intersection of Wanshou Rd. and Zhinan Rd., Wenshan Dist., Taipei City
- Station Y2A: located underneath the intersection of Muxin Rd. Sec. 1 and Muzha Rd. Sec. 3
- Station Y3: located underneath Muzha Rd. Sec. 2, east of the the intersection of Muzha Rd. Sec. 2 and Xinglong Rd. Sec. 4, Taipei City
- Station Y4: located underneath Muzha Rd. Sec. 1, east of the intersection of Muzha Rd. Sec. 1 and Shiyuan Rd., Taipei City
- Station Y5: located underneath the site reserved for the public park in"Far East Industrial City at Baoqiao Rd., Xindian, next to the dike of Jingmei River at Xindian, in accordance with "Xindian Rong Plant Site Urban Renewal Planning and Urban Planning Revision"

■ Detailed designer: CECI Engineering Consultants, Inc., Taiwan

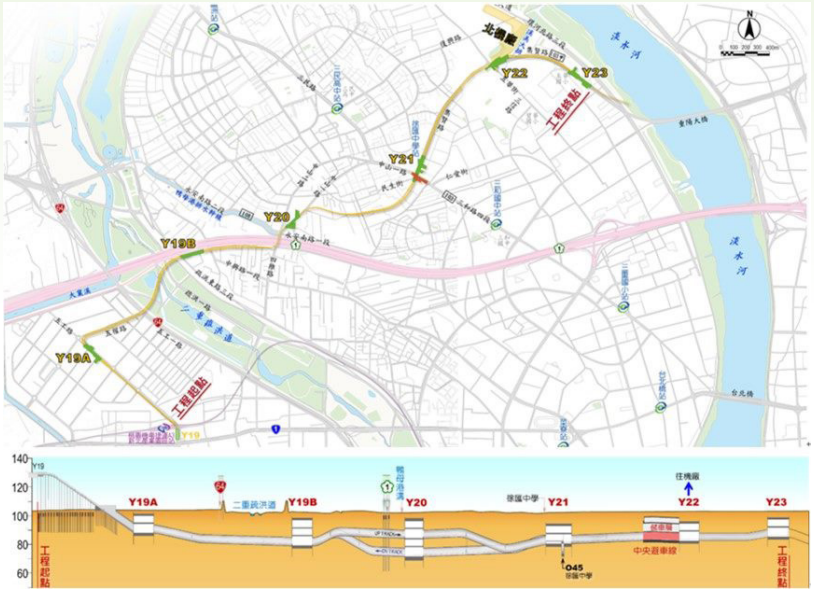
■ Current Progress

- Announcement for open tender on April 26, 2019
- Awarded on July 17, 2019
- Detailed design commenced on July 19, 2019
- Contract was signed on July 31, 2019
- Kick-off meeting held on August 2, 2019
- Implementation report submitted on September 12, 2019

✧ DF116 The Design:

■ Construction Scope:

- Starting from Station Y19, the route of DF116 ("Design Contract") goes underground along the longitudinal gradient at station Y19A on Wugong Rd., then turns to Wuquan Rd. and passes beneath Erchong Floodway to go to Station Y19B, then runs south along No.1 Highway until Siwei Rd, turning north across No.1 Highway, to Station Y20 at Zhongshan 1 Rd./Zhongshan 2 Rd. of Luzhou, east to the intersection of Jixian Rd. and Zhongshan Rd., through station Y21 which connects to O52 St. Ignatius High School, along Jixian Rd. to Y22 on Wuhua St. and Y23 near Wu Hua Elementary School of Sanchong. The work involves six underground stations, five shield tunnels, two cut-and-cover tunnels, one elevated section, one Depot entrance and exit, and 1 maintenance depot (primary substation included), creating a 6.41km route (excludes the 435m section into the Depot).



Route Map of North Section DF116

- Stations:
  - Station Y19A: located underneath Wugong Rd. at Wuquan Rd. Entrance, New Taipei Industrial Park Station
  - Station Y19B: located at the industrial land within the block of Zhongxin Rd. Sec. 2 and Lane 37, Wugu Floodway dike/southeast of National Highway No.1
  - Station Y20: located underneath Zhongshan 1 Rd. northeast of the intersection of Chungshan 1 Rd. and Yungan S. Rd. Sec. 1
  - Station Y21: located underneath Jixian Rd., at the intersection of Zhongshan 1 Rd. and Jixian Rd., in front of St. Ignatius High School, Luzhou. (Transfer within the station for the Luzhou line)
  - Station Y22: located underneath Jixian Rd., at the intersection of Wuhua St. and Jixian Rd., bordering Sanchong and Luzhou
  - Station Y23: located underneath Jixian Rd., between Chongyang Bridge and Sanxin Rd., Sanchong.
- Detailed designer: joint-tendered by CECI Engineering Consultants, Inc., Taiwan/MOH AND ASSOCIATES, INC.
- Current Progress
  - Announcement for open tender on May 10, 2019
  - Awarded on July 17, 2019
  - Contract signed on July 30, 2019
  - Detailed design commenced on August 6, 2019
  - Kick-off meeting held on August 7, 2019
  - Implementation report submitted on October 2, 2019

✧ Design Contract DF117

■ Construction Scope:

- The Design Contract DF117 is the commissioned technical services of the Circular line north section, starting from Station Y23 (not included), the shield tunnel goes under the Tamsui River, passes by the Chongyang Bridge to go to Shezi in Shilin, and crosses the Keelung River to go to Zhongzheng Rd. Zhishan Rd. then turns right and passes through Wenjian Mountain to reach Beian Rd. to meet the Wenhu line at Jiannan Rd. Station before turning and stopping at Jingye 3 Rd. where the tail-track is set to terminate the line. The 8.43-km contract is made up of six underground stations (Y24, Y25, Y26, Y27, Y28 and Y29), seven shield tunnels, two cut-and-cover tunnels and two access shafts.

Route Map of North Section DF117

■ Stations:

- Station Y24: located within the block-- Chongqing N. Rd. and north of Zhongzheng Rd. Entrance, Taipei
- Station Y25: located underneath Zhongzheng Rd. at the intersection of Zhongzheng Rd./Jihe Rd., in front of Shihlin District Office
- Station Y26: located underneath Zhongzheng Rd., at the intersection of Zhongzheng Rd. and the Tamsui line
- Station Y27: located underneath Zhongzheng Rd., in front of Zhicheng Park, Shihlin
- Station Y28: located underneath Zhishan Rd. Sec.2, east of Gugong Rd., Shihlin
- Station Y29: located underneath Beian Rd., between Jingye 2 Rd. and Jingye 3 Rd.

■ Detailed designer: CECI Engineering Consultants, Inc. Taiwan

■ Current Progress

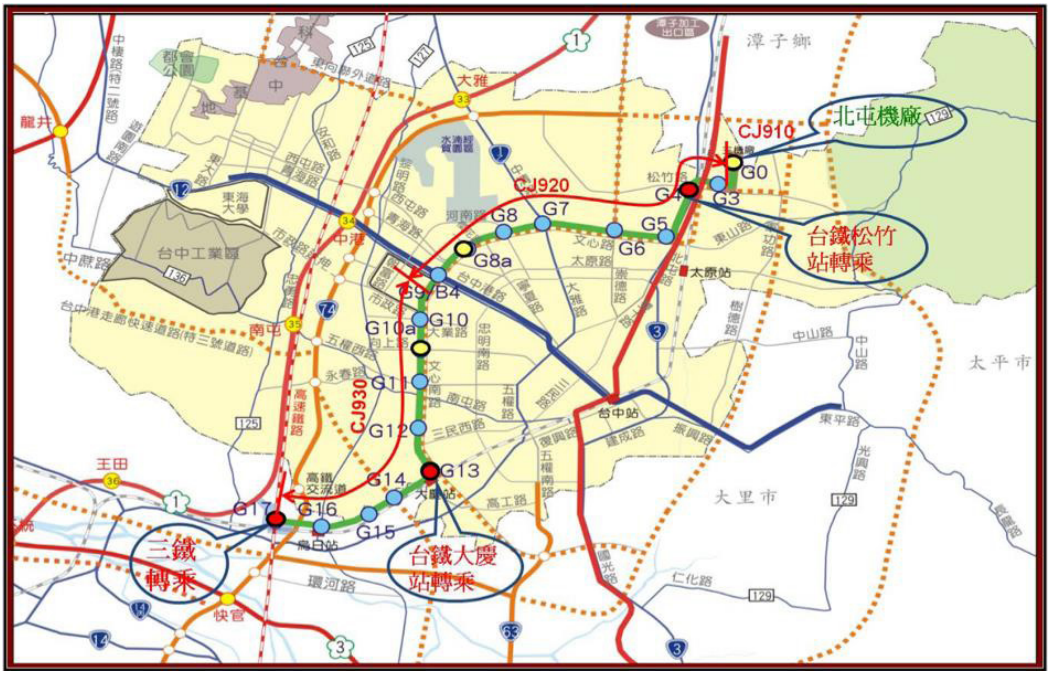
- Announcement for open tender on May 2, 2019
- Awarded on July 17, 2019
- Contract signed on July 29, 2019

- Detail design commenced on July 31, 2019
- Kick-off meeting held on August 7, 2019
- Implementation report submitted on September 27, 2019

Taichung Wuri-Wenxin-Beitun Line

The route begins somewhere near the Songzhu Road No. 2 Bridge in Beitun District, Taichung City and runs westward along Songzhu Road in an elevated mode across Taiwan Railways before turning left onto Beitun Road. This route then continues along Beitun Road until the intersection of Wenxin Road Section 4, before turning right onto Wenxin Road. This route then runs along Wenxin South Road and turns onto Jianguo Road from the rear section of Chung Shan Medical University and runs across the elevated bridge along Huanzhong Road through Taichung-Changhua Expressway, before entering Taichung HSR Station from the north side of Taiwan Railways across the Fazi River. This route uses a medium-capacity transit system.

The project consists of six section contracts of the main line, covering Section Contract CJ910, Section Contract CJ920, Section Contract CJ930, and Section Contract JJG091 which is integrated with land development, Section Contract JJG051, and Section Contract JJH031. The total length of the route is approximately 16.71 kilometers, passing through Beitun District, North District, Xitun District, Nantun District, South District, and Wuri District of Taichung City. The elevated section is about 15.94 kilometers, while the ground section is about 0.77 kilometers. This route has 16 elevated stations, two ground stations, and one depot, and it includes the construction of roads, drainage, civil, structures, geotechnical works, buildings, land development, landscaping, signals, environmental protection, water supply, electricity, environmental control, environmental monitoring and control systems, elevators/escalators, full-line tracks, etc.



Route map of the Wuri-Wenxin-Beitun line of the Taichung Mass Rapid Transit System

➢ Construction Overview

✧ Section Contract CJ910: (Beitun Depot, Station G0, and full-line track construction)

- The construction site of this section contract is located to the north of Songzhu Road, with the Han River on its east side and Jiushe Lane adjacent on its west side. This base covers an area of approximately 19.5 hectares, including a 336 m-long viaduct, Beitun Depot, and one ground station (Station G0).
- The construction site of this section contract is located to the north of Songzhu Road, with the Han River on its east side and Jiushe Lane adjacent on its west side. This base covers an area of approximately 19.5 hectares, including a 336-meter long viaduct, Beitun Depot, and one at-grade station (Station G0).
- Three subcontracts of Section Contract CJ910--CJ910A (civil works), CJ914A (HVAC systems), and CJ901 (full-line track construction)--began construction on December 31, 2012. Construction of Beitun Depot includes bulk supply/traction power substations, guard room, sewage treatment plant, training center, administrative 2018 Annual Report 54 building, vehicle model exhibition room, north stabling yard, primary maintenance plant, track maintenance plant, depot substation, car wash factory, waste disposal area, special goods warehouse, water tower, cut-and-cover tunnel, viaducts, north and south flood detention ponds, a retaining wall/flood wall, greenery, and Station G0 (Beitun Main Station) at the west of the Depot. The entire track work includes a ballasted track (9,794 m) and a non-ballasted track (72 m) in the depot area, as well as a ballasted track (3,654 m), a non-ballasted track (27,890 m), and a floating track (3,130 m). Construction of the section contract was finished on February 18, 2019. CJ910A was examined and passed on November 8; CJ910A was examined and passed on December 5, and preliminary inspection of CJ901 began on August 12.

Aerial shot of the entire construction area

✧ Section Contract CJ920: (Station G3 to G9 and full-line environmental monitoring and control systems)

- This section begins at the west bank of the Han River (near the Songzhu Road No. 2 Bridge) and runs westward along Songzhu Road. The route crosses Taiwan Railways and turns left onto Beitun Road, then runs along Beitun Road to Wenxin Road Section 2, and Shizheng North 3rd Road. The section contract is 8.064 km long, encompassing a viaduct (including a pocket track) and eight elevated stations (Station G03 to Station G08, Station G08a, and Station G09).
- The Section Contract commenced on March 15, 2013. The entire section was designed as an elevated MRT. In July 2017, the bridge structure was completed (well foundation, pier cap beam, cast-in-place beams, precast beams, steel box girder, and cantilever beam), the other auxiliary facilities above the bridge (noise barriers, expansion joints, cable troughs, pocket track, and central walkways) were fully completed in December 2017. The track section of the Section Contract was completed in 2016. In August, all of the tracks were under construction (totaling 8,064 m), and the track clearance test commenced on August 31, 2017. The entrance equipment rooms, automatic fare collection areas, cash rooms, information centers, and automatic fare collection equipment rooms of Station G4 and G7 were completed in September 2017 and provided access to Electrical and Mechanical Systems Contract vendors. In September 2018, in line with the Taichung Railway Elevation Project (Songzhu Station) of the Railway Bureau under the Ministry of Transportation and Communications, the new roads and sidewalks which encompass a distance of 8 meters, and other related facilities at Station G4 have been completed. The other roads in this contract were completed in August 2018 and handed over to the Taichung City Government. This contract has six interfacing tunnels with six land development building entrances (G5, G6, G8, G8a, G9-1, G9-2). The integration work is complete, with the Section work being completed on November 27, 2019.

Construction of Station G3 from Jiushe Lane to Hanxi West Road

Construction of Station G4 from Qiaoxiao Street to Songzhu Road

Construction of Station G5 from Chongde Road to Hebei Road

Construction of Station G6 from Chongde Road to Hebei Road

Construction of Station G7 from Zhongqing Road to Xiaxi Road

Construction of Station G8 from Ningxia Road to Henan Road

Construction of Station G8a from Yinghua Road to Xitun Road

Construction of Station G9 from Taiwan Boulevard to Dalong Road

✧ Section Contract CJ930: (Station G10 to G17 and full-line elevators/ escalators):

- The route for this section begins from Wenxin Road Section 2 to somewhere near Shizheng North 3rd Road, and then runs southward along Wenxin Road Section 2, and connects to Wenxin Road before crossing the Tuku Drainage Ditch via Wenxin 2nd Bridge. Next, the route runs across the empty land behind Chung Shan Medical University before turning onto Jianguo North Road and reaching G13 Station, which is located near Daqing Street. The route then continues to run along Jianguo North Road and crosses the Huanzhong viaduct. After passing the Zhongzhang Expressway, the route crosses the Fazi River and ends at Station G17, which is located at TRA Taichung Station, which is the tail track. The entire route is 8.69-km long, including viaducts, eight elevated stations (Station G10 to Station G16, and Station G10a) and one ground station (Station G17).
- Construction of the Section contract began on March 1, 2013, and was completed on October 25, 2019 (inclusive of the completion of CJ930A, and overall completion of CJ934A and CJ906A). The road restorations have been completed and handed over to the Taichung City Government. Preliminary inspections began on December 20, 2019. Works that are currently in-progress include outside improvement projects, noise barrier works, phase II splash proofing, image design works for the link between G17 and THSR, and category 6 and 7 signs.

Current construction of Station G10 with entrances/exits along Wenxin Road

Current construction of Station G10 with entrances/exits along Wenxin Road

Current construction of Station G11 along Wenxin Road

Current construction of Station G12 with entrances/exits along Wenxin Road

Construction status of Station G13 with entrances/exits along Jianguo Road

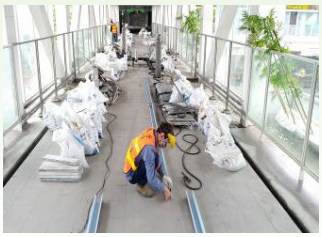
Construction status of Station G14 with entrances/exits along Jianguo Road

Construction status of Station G15 with entrances/exits along Jianguo Road

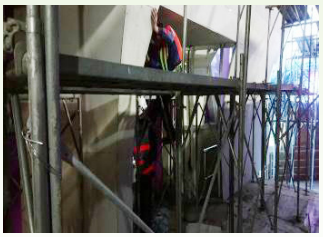
Construction status of Station G16 with entrances/exits along Jianguo Road

Construction status of Station G17 with entrances/exits along Jianguo Rd.

Jianguo Rd. sound barrier works



Splash-proof construction phase II at Station G16 along Jianguo Rd.



Passage image construction linking MRT Station G17 and THSR

✧ Section Contract JJG091: (integrated structure of entrance and land development station in the first Section Contract)

- The section contract commenced on May 31, 2016. The automatic fare collection areas, cash rooms, information centers, and automatic fare collection equipment rooms for the Station were completed prior to July 1, 2019, including the passage for CJ907 works. The G09-1 structure was completed, and the outer wall concrete plate sheet installations and paint work are still in progress; the G09-2 structure construction was completed, and the ALC aggregate for the outer wall was still in progress; the G10 structure was completed on June 28, 2019, and the permit-to-use for Shuian Park underground parking was obtained on October 14. Telecommunications are in place; however, the electricity and water permits are not yet in place.

Station G09-1: insulated concrete panels installation on outer wall and painting

Station G09-1: current structure

Station G09-2: current structure

Station G10: current entrances/exits status

✧ Section Contract JJG051 (integrated structure of entrance and land development site in the second Section Contract):

- The work starts at Beitun Park (nearby Beitun Rd.) and runs west along Wenxin Rd., crossing Taiwan Boulevard then turns south and terminates at the intersection of Wuquan W. Rd. Sec.2 and Wenxin Rd. The 7.5-km route passes through stations G5, G6, G8, G8a and G11, of which the contract contents of Station G8 covers interior decoration and HVAC systems, while the elevator/escalator construction of G9-1 and G9-2 are also included in the Contract.
- The Section Contract commenced on July 8, 2016 and is fully RC structured. By May 2018 the structure of G5, G6, G8a and G11 was completed. The automatic

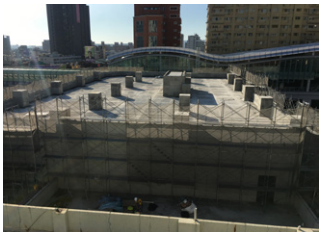
fare collection areas, cash rooms, information centers, and automatic fare collection equipment rooms were completed and handed-over prior to August. Passages were in place for Electrical and Mechanical Systems Contract vendors. Under the Section Contract, construction and interior installations of HVAC systems are expected to be completed in September, 2020.

Contract JJG051 stations distribution


Station G5: Exits/ Entrances construction at Wenxin Rd. and Tianjin Rd. intersection


Station G6: Exits/ Entrances construction at Wenxin Rd. and Chongde Rd. intersection

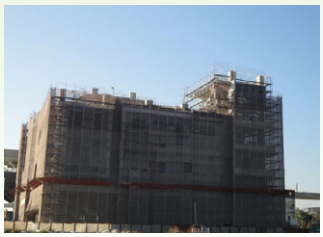

Statoin G8: Exits/ Entrances construction at Wenxin Rd. and Yinghua Rd. intersection


Station G11: Exits/ Entrances construction at Wenxin Rd; and Wuquan W. Rd. intersection

✧ **Section Contract IJG031 (construction of the entrance and the integrated administration building of Station G03):**

■ The Section Contract commenced on June 22, 2017 and was awarded to Yuanyang Construction Engineering Co., Ltd. The construction license declared a commencement date of June 21. As of the end of 2019, the entire structure (five underground levels, five elevated levels, and two roof protrusions) has been completed together with the installation of HVAC systems and decorations. However, the elevator/escalator works are still under construction. The construction and handover of the automatic fare collection system contract was completed on May 31, 2019, and the backup vehicle operation control center was completed on December 31 awaiting the system contractor to perform installation work.


Aerial shot of Station G3


North of the Administration Building


Station G3 Concourse


Backup operations control center

✧ **Contract CJ900 – E&M systems:**

- This contract was officially signed on April 1, 2011, and construction began on April 21, 2011. Due to a delay in construction work, the fourth Extension of Time (EOT) was applied for. The assumed substantial completion date for phase I was October 31, 2019, and September 31, 2020 for phase II. The final completion date was March 1, 2021.
- The tests for mechanical/electrical subsystems have been completed as stipulated in the contracts together with System Dynamic Integrated Test (SDIT), trial runs, verification tests, full route systems and equipment handovers from all stations (October 1, 2019 until January 31, 2020). Current progress includes BOCC, pipe chasing, cable distribution and cable auto-examination, Operation Control System, G3 land development BOCC pipe chasing and cable distribution for the land development stations (G3, G5, G6, G8, G8a, G9 and G11).
- In response to the requirement by Taichung City Government and TMRT, Beitun Depot (the OCC and OCSER in the Administration Building are not included) and Station G10a management rights were handed over to TMRT on December 16, 2019. The full line management rights are to be handed over to TMRT by February 3, 2020, so as to facilitate the operation of the entire MRT line by December 2020.

✧ **Contract CJ900 - Current status of E&M systems:**

- EMU
  - Completion of System Dynamic Integration Test (SDIT), and verification testing for trial run
  - EMUs (model vehicle included) handover completed on November 11, 2019. The improvement of defects is currently being checked under supervision.
  - Backup items, BTU/PTU test equipment and special tools, EMUs keys (to Main Control, Emergency Switches and maintenance cover), specific papers (maintenance manual, operation manual), vehicle history records and approved design were handed over by December 20, 2019.
- Operation Control System, OCS
  - SDIT, trial run completion
  - Operation Control Subsystem for the communication room, track-side, OCC, depot

and equipment on 18 cars was handed over prior to December 20, 2019. The contractors are supervised to perform defect improvements.

- Backup items, test equipment and special tools hand-over was completed on December 25, 2019.

■ PWR Power Supply System

- SDIT and trial run completion
- The contract for the power supply construction was completed and examined on September 29, 2019.
- The power supply equipment was handed over prior to December 12, 2019. The handover for backup items and special tools should be completed by the end of December.
- Examination of 22kV able IR-connectors and partial discharge.
- Beitun/Wuri line bulk supply substation high/low voltage equipment annual examinations were completed by Taipower.

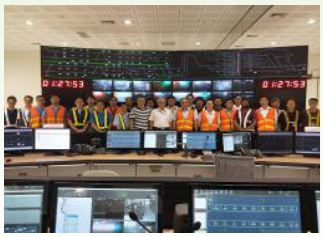
■ Communication Systems

- The SDIT and trial runs are completed
- The Operation Control Centers (OCC), station G0-G17 (JD stations not included), Beitun Depot and trackside, BSS1, BSS2, backup items and special tools/special instrument were handed over. Defect improvements are still in progress.
- The Communication Systems have completed the Conduit distribution, cable trough installation, cable distribution for backup operation control center (BOCC) and land development building (G3, G5, G6, G8, G8a, G9 and G11).
- The conduit distribution, cable duct installation, cable distribution for backup operation control center (BOCC) and land development building (G3, G5, G6, G8, G8a, G9 and G11) has been completed.

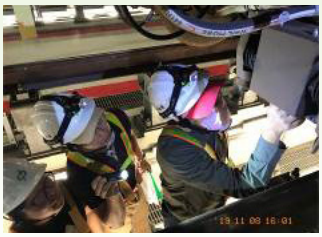
■ DEQ Depot Equipment

- The onsite tests for six overhead traveling cranes were completed on February 26 and February 27, 2019.
- The on-site tests for 6 platform trucks, maintenance platform cranes, and rescue vehicles were completed between March 5 and March 12, 2019.
- The on-site tests for 3 overhead traveling cranes, gantry cranes and jib cranes were completed between March 20 and March 22, 2019.
- Three Auto tests for work desks and accessory checks were completed prior to December 17, 2019.

(SDIT)
EMU-SDIT

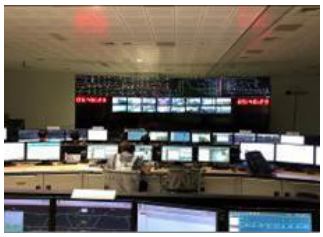


EMU-trial run, verification tests



EMU-handover

EMU-TR17- defect improvements checked and handed over



Operation Control, full system dynamic tests

Operation Control, depot track-side equipment handover

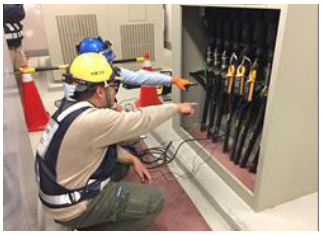
Operation Control, track-side equipment handover

Operation Control, Communication Room equipment handover

PWR, station equipment and construction examination

PWR, backup items arrival checks

PWR, track-side equipment handover

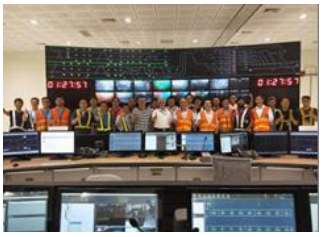


PWR, 22kV cable voltage sensor checks

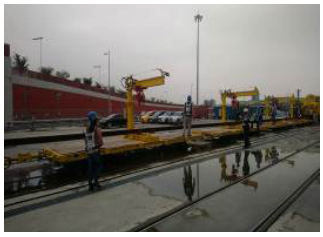
Communication system-cable trough Work and distribution

Communication system - handover to TMRT

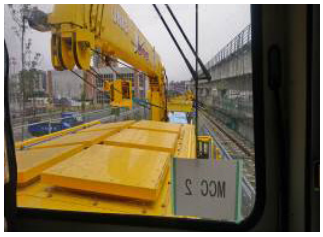
Communication system - cable trough work



Communication system -SDIT and trial run verification test



Depot equipment, flatcar on-site test



Depot equipment, repair terrain crane on-site test

Depot equipment, gantry crane on-site test

Depot equipment, jib crane on-site test

➢ **Taichung Wuri-Wenxin-Beitun line annual recognition:**

✧ November 23, 2018, Contract CJ910 was awarded the 2019 Engineering, Environment and Landscaping Award in the Beautifying Landscape Award of Excellence.

✧ August 2, 2018, (JJG051) the 2nd Section Contract of Contract JJG051--the integrated structure of entrance and land development--was awarded the 2019 Creative Proposal Competition award of Taipei City Government.

✧ March 9, 2019, Contract JJG091 entrances/exits land development building was awarded the 2018 Geotechnical Engineering-Excellent Engineering award.

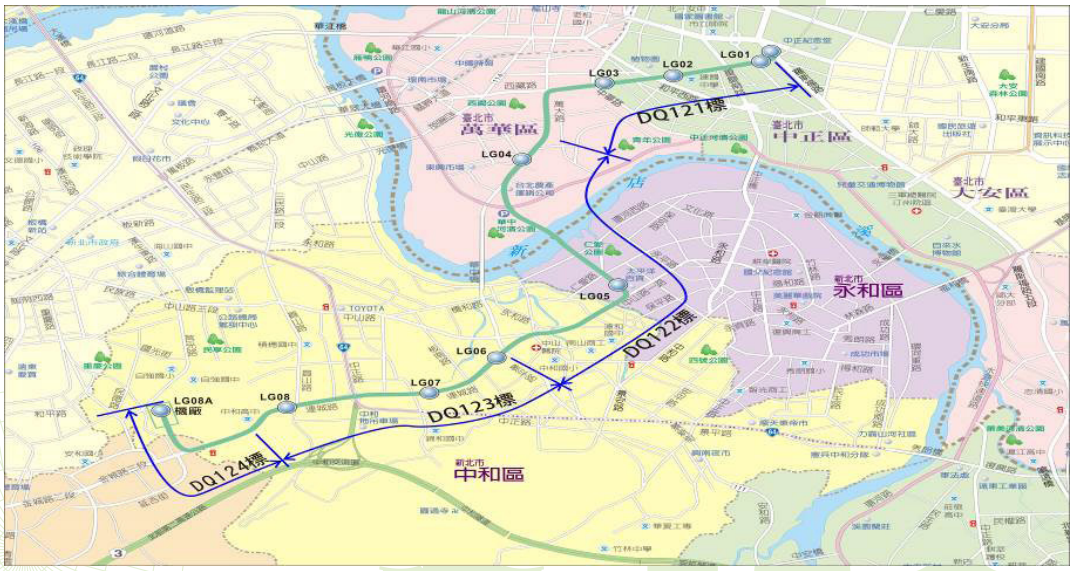
✧ May 31, Section Contract CJ930 was awarded the 2019 Excellent Construction Award granted by the Chinese Institute of Engineers.

✧ December 24, 2019, Contract CJ930 was awarded the 19th Public Construction Golden Award in the Track Engineering category.

Wanda Line Phase I Construction

The entire route of the Wanda line has already been approved, and its construction has been divided into two phases. The first phase of construction commenced in 2010 and included basic design, urban rezoning, land acquisition, detailed design, and construction contracting, which were subsequently carried out.

Phase I construction: The route begins at Chiang Kai-shek Memorial Hall Station, runs westward under Nanhai Road and passes through Heping Road before connecting to Xizang Road and turning onto Wanda Road. Next, the route crosses the Fruit and Vegetable Market and the Xindian River, then runs along Baoshun Road and Baosheng Road in New Taipei City before turning onto Zhongshan Road, Liancheng Road, and Jincheng Road. A depot has been established in the agricultural area located north of Jincheng Road, while a branch line station has been established adjacent to Juguang Road. The entire route is 9.5 km long (8.8 km along the main line and 0.7-km along the branch line), with a total of nine underground stations and one depot.



Route map of the Wanda line

➢ **Planning of MRT stations**

✧ The positions of the MRT stations are as follows:

- Chiang Kai-shek Memorial Hall (LG01/R08/G10): located near the intersection of Roosevelt Rd. and Nanhai Rd. (transfers can be made to both the Tamsui-Xinyi line and Songshan-Xindian line).
- Taipei Botanial Garden Station (LG02): located near the intersection of Nanhai Rd. and Heping W. Rd.
- Xiaan Station (LG03): located near the intersection of Xizang Rd. and Zhonghua Rd.
- Jiala Station (LG04): located near the intersection of Wanda Rd. and Changtai St.
- Yonghe Station (LG05): located on Baosheng Rd. in front of Yongping Elementary School.
- Zhonghe Station (LG06/Y11): located near the intersection of Liancheng Rd. and Jingping Rd. (transfers can be made to the Circular line).
- Station LG07: Shuang Ho Hospital Station: located near the intersection of Liancheng Rd. and Jinhe Rd.
- Zhonghe Senior High School Station (LG08): located near the intersection of Liancheng Rd. and Yuanshan Rd.
- Station LG08A: located on the land allocated for the MRT depot to the south of Juguang Rd.

➢ **The construction overview of this project is as follows:**

This Project includes Contract CQ840 (the civil construction of Station LG01, Station LG03, and a shield tunnel from Station LG03 to Station LG04), Contract CQ842 (the civil construction (Report 65) of Station LG02 and shield tunnels from Station LG02 to Station LG03 and from LG02 to LG01), and Section Contract CQ850A (the civil construction of Station LG04 and a shield tunnel from Station LG04 to Station LG05) in Taipei City, Section Contract CQ850 (the civil construction of Station LG05 and a shield tunnel from Station LG05 to Station LG06), Contract CQ861 (the civil construction of Station LG06), Section Contract CQ860 (the civil construction of Station LG07, Station LG08, and a shield tunnel from Station LG06 to LG08) and Contract CQ870 Section Contract (the construction of Jincheng Depot and Station LG08A) in New Taipei City. All contracts were awarded to contractors in 2017 and construction commenced in the same year.

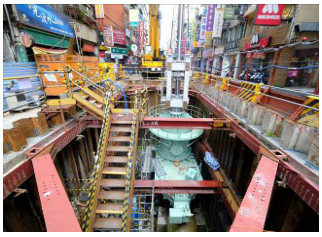
✧ **Section Contract CQ840 (Contract CQ841 - Civil Works for Station LG01 and a shield tunnel):**

- This section contract commenced on February 6, 2017. Station LG01 station is located on the ground floor of Nanhai Road near Sec. 1 of Roosevelt Road. This station is a terminal and interchange station for MRT Chiang Kai-shek Memorial Hall Station and is about 427 meters away from Station LG02. Station LG01 and Chiang Kai-shek Memorial Hall Station are connected by an underground passage tunnel. This station

is an underground two-story island-type platform station. The section contract has a construction period of 2,892 days and is expected to be completed by January 6, 2025. The LG01 station's north secant pile wall, middle column, diaphragm wall, and 1650 mm new-old pipe exchange using hot tapping fitting method were completed; detailed design for the Nanmen Market's new construction are underway, and the demolition of the existing buildings took place in late December, 2019.

Secant pile wall work along the junction of Station LG01 and CKS Memorial Hall Station

Station LG01 middle column work

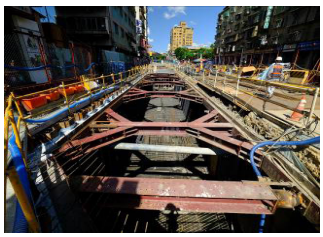


Hot tapping work

Station LG01 diaphragm wall work

✧ **Section Contract CQ840 (Contract CQ843-Civil Works for Station LG03 and a shield tunnel):**

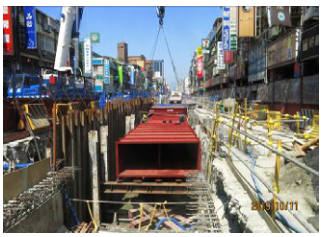
■ The section contract commenced on February 6, 2016. Station LG03 is located below Xizang Road in front of the Zhongyi Elementary School. It is about 390 meters away from Station LG02 and about 484 meters away from the central shelter line. This station is an underground two-story island-type platform station; the section contract has a construction period of 2,892 days and is expected to be completed on January 6, 2025. For the section contract, the construction of the south and north side diaphragm wall and temporary drainage box culvert structure in Station LG03 have been completed. Constructions of diaphragm wall, middle column and drainage steel aqueduct for the central shelter line were completed. The detailed setting and urban planning review for the integrated Social Welfare Building of Zhongyi Elementary School are in progress.



Station LG03 north temporary drainage box culvert construction

Station LG03 north diaphragm wall construction

Diaphragm wall construction to the east of the central shelter line

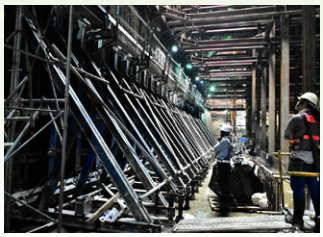


Drainage steel aqueduct construction for the central shelter line

✧ **Contract CQ842 (Civil Works for Station LG02 and a shield tunnel):**

- This section contract commenced on December 11, 2014. The works primarily consist of the civil construction (station, tunnel, and the foundation construction of Mandarin Experimental Elementary School), relics rescue, Mandarin Experimental Elementary School substation construction, and planting works. Station LG02 (Botanical Garden) is an underground three-story island type platform station. The construction period is 2,922 days and is expected to be completed by December 10, 2022.
- The main structure of Station LG02 is to be built within the Botanical Garden Ruins, which is a heritage site that is an approximately 2,000-year-old "Botanical Garden Culture" and an approximately 4,000-year-old "Xuntanpu Culture." To maintain the completeness of the historical remains and preserve cultural relics, an archaeological team first entered the historical site to carry out excavation works in conjunction with traffic management and fence erections. The first stage was completed on August 5, 2016, while the traffic management, fence erection, and historic site digging, as well as a follow-up with retaining diaphragm walls, erection of middle piles, first-layer excavation, and support works, covering system and dewatering works were completed on October 6, 2017. The third-stage historical site excavation and support in conjunction with traffic management and fence erection was completed on December 15, 2017. Starting from December 16, the fourth stage (normal stage) of historical site excavation and support in conjunction with traffic management and fence erection, excavation support, covering system, entrance A diaphragm wall chain cutting, and Jingmei layer dewatering (including external drainage path and temporary high-voltage substation) had already begun. By June 25, 2018, the cultural heritage site excavation and preservation work were completed. As of the end of 2019, the structure plate, track level side wall and equipment laminates (east and west work wells not included) have been completed. The ongoing work includes equipment level side walls and concourse plate work. The down track in shield tunnel between Station LG02 and Station LG01 was completed prior to December 18, 2019. The disassembling of the TBM shield tunnel is in progress, and works are continuing onto the digging of down track between Station LG02 and Station LG03.
- Furthermore, the integrated building site of Mandarin Experimental Elementary School has been completed together with the full-area historic site excavation, construction of the retaining diaphragm walls, and erection of middle piles and underground structures. Purchases were completed with the vendor on December 5, 2018, to assist in carrying out the construction of the structures. The construction of the above ground structure (6-level above the ground) began on January 15, 2019. As of the end of 2019, steel erections on level 2-4 floors and pipe laying work have been completed. Fifth level floor structures and pipe laying works are still in progress.

Bird's-eye view of the north Nanhai Rd and Mandarin Experimental Elementary School Joint Building road surface structure works



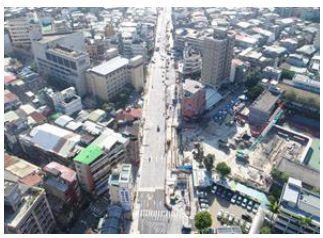
System plate assembly of the station side wall structure

Shield tunnel machine assembly

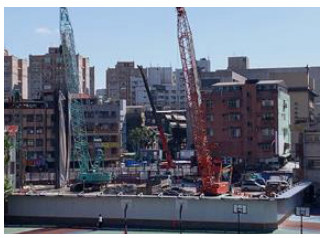
Station LG02-Station LG01 down track in shield tunnel

✧ Section Contract CQ850A (Contract CQ851--Civil Works for Station LG04 and a shield tunnel)

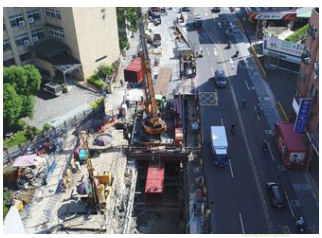
■ This section contract commenced on December 31, 2016. This project consists of an underground three-story island-type platform and a shield tunnel; four cross passages were built between shield tunnels, along with the facilities of the E&M and HVAC systems and common pipelines. This section contract commenced on December 31, 2016 with a construction period of 2,677 calendar days. The expected completion date is April 29, 2024. All stations and entrances diaphragm walls, the site protecting stratum improvements, shallow excavations and metro decks are complete. For the tunnel section, CP1 & CP2, as well as the stratum improvement at the station's south well launching area and the arriving end at Station LG05 have been completed. The diaphragm wall for the substructure of the exit/entrance of Dongyuan Elementary School, deep excavations (station), and mold fabrications of the TBM steel segment are in progress.



Stage 5 MOT area



Diaphragm wall around Dongyuan Elementary School



Steel drainage container hoisting

West side shallow excavation

✧ Section Contract CQ850 (Contract CQ852--Civil Works for Station LG05):

■ The section contract commenced on January 19, 2016. The contract content consists of construction of the station, up and down tracks, ventilation shafts and escalator reconstructions at Guting Station Exits 3, 5, 7. LG05 is an underground three-story island-type platform station. This section contract has a construction period of 2,677 days and is expected to be completed on May 18, 2023. All station buildings and the X and Y diaphragm walls for the ventilation well have been completed. Structure

excavation and scaffolding (Stage-6 normal traffic maintenance construction) construction works are in progress. Excavations to the west of station were completed prior to October, 2019, and the structure plate work is still in progress; stage-7, stage-8 excavation works to the east of station, structure and scaffolding works are still in progress; the temporary plate to the west of station is completed and followed by the pre-work for the shield tunnel advancement, which is in progress. Stage III improvements for shield tunnel mirror faces at station LG06 have been completed. Stage-2 traffice maintenance for CP6 cross-passage construction in tunnel section is completed and Stage-3 traffic maintenance is in progress: the stratum improvement for diaphragm wall special units, shield tunnel mirror faces and Shuanghe Bridge pile protection of the Phase has been completed; shallow excavation and restoration, temporary migration of existing livelihood pipelines are in progress and yet to be connected by Stage-4 MOT prior to mid-January, 2020; the CP6 cross-passage construction, and 18 diaphragm wall units have been completed for ventilation shafts, and the remainder will be continued together with the diaphragm walls and central pile work after the CP6 tunnel cross-passage construction are moved. The CP7 tunnel cross-passage section, current-progress surveys over the surrounding buildings, and the shifting of plants and traffic management of the area inside the influence line have all been completed and caisson work is in progress.

Bird's eye view of Station LG05 Stage-6 normal traffic maintenance and construction

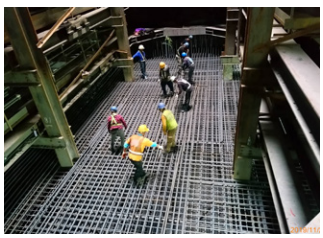
Station LG05 west structure plate work (rebar and embedding pipe assembly)

CP6 tunnel cross-passage Stage-3 traffic maintenance (diaphragm wall special unit work)

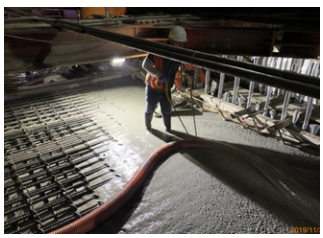
CP7 tunnel cross-passage Stage-2 traffic maintenance-- caisson work (concrete pouring after the assembly of cutting edge at the bottom)

✧ **Contract CQ861--Civil Works for Station LG06:**

- The station diaphragm walls were fully completed on July 28, 2018, and the traffic management was switched to the center of Liancheng Road on November 5; structure plate works and connecting links for the station together with the removal of buildings around Exit B, are in progress.



Rebar tying for base plate



Base plate concrete pouring

Rebar tying for the base plate of linking passsage

Demolition of buildings around Exit B

✧ Contract CQ860--Civil Works for Station LG07 and Station LG08 and a shield tunnel:

■ The construction commenced on October 15, 2015. The route section includes two underground stations, LG07 and LG08, two cut-and-cover tunnels, and three shield tunnels; so far, the diaphragm walls and middle piles at the south side have been completed. Construction of Station LG07 and central pocket tracks, Station LG08 and diaphragm wall at Jingcheng Rd. Sec. 3, north of the excavation section are underway; north diaphragm wall construction for excavation work, Station LG07 shield tunnel contact passage stratum improvements, and the north side pipelines relocation are still in progress.

diaphragm wall digging work at Central pocket tracks

Rebar cage forming for diaphragm wall at Central pocket tracks

Pipeline moving at Central pocket tracks

Stratum improvement for passage to Liancheng Rd

Station LG08 diaphragm wall digging work

Station LG08 Rebar cage hoisting and placing for diaphragm wall

Concrete placing for diaphragm wall of station LG08

Pipeline moving for Station LG08

Diaphragm wall digging for cut-and-cover tunnel on Jincheng Rd. Sec. 3

Rebar cage hoisting and placing for diaphragm wall of the cut-and-cover tunnel on Jincheng Rd. Sec. 3

Concrete placing to form diaphragm wall of the cut-and-cover tunnel on Jincheng Rd. Sec. 3

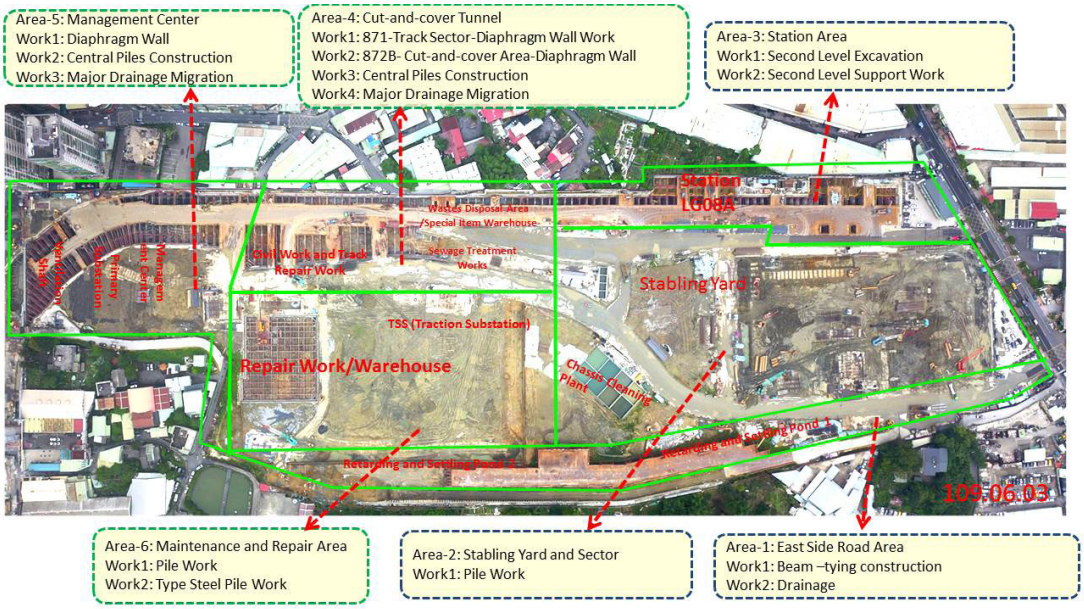
Boring for piles in the cut-and-cover tunnel on Jincheng Rd. Sec. 3

✧ Section Contract CQ870--Civil Works for Jincheng Depot and Station LG08A:

■ The Section Contract includes a depot and an underground station. The depot is located east of Yanshou Rd., Tucheng Dist., north of Jincheng Rd., and south of

Juguang Rd., Chungho Dist. Station LG08A is 160m in length, 19m wide, and 15m tall and composed of two underground levels. It is located northwest of the depot, with a 390m cut-and-cover tunnel as a linking passage between Jincheng Rd. and Juguang Rd. The contract includes an HVAC system and elevator/escalator works at each construction site in Stage 1. The entire area of the work is 11.8 hectares.

- The 5 subcontracts under CQ870 are (1) civil engineering: CQ871 depot work, CQ872B station work, CQ874A greenery work; (2) HVAC construction: CQ814D; (3) elevator/escalator work: CQ816 (inclusive of CQ816A, CQ816B, CQ816C and CQ816D) which have commenced on December 15, 2017, and are expected to be finished by March 7, 2025. The works will take a total of 2,640 construction days.
- The construction work in each of the 6 areas of the Section Contact is as follows.



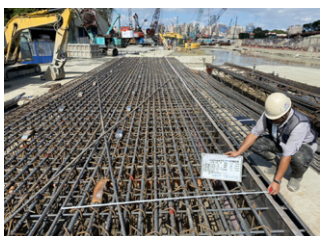
Retaining pile and tie beam work at east side of the road (Area 1)

Pile and rebar cage connection on Stock yards (Area2)

Supporting work at Station LG08A (Area 3)

Excavation work at Station LG08A (Area 3)

Diaphragm wall excavation at cut-and-cover tunnel (Area 4)



Diaphragm wall rebar cage work at management center (Area 5)

Diaphragm wall excavation at management center (Area 5)

Steel pile work at Maintenance Area (Area 6)

✧ CQ810/CQ817/CQ811 Wanda Line Phase I E&M Systems Current Status:

- The construction progresses by section contracts and covers EMU, Operation Control System, power supply, telecommunications, depot, automatic fare collection system and track works. The contract was awarded on June 12, 2018, to ALSTOM BRASIL ENERGIA E TRANSPORTE LTDA/Alstom/CTCI, as a joint-tender. The contract was signed on July 10 and the work commenced on August 9.
- Detail designs and meetings with civil work contractors are being conducted to forge a coordination connection. The construction work is expected to begin in the first half of 2022 to achieve a substantial completion by the end of 2025.

Wanda Line Phase I 2019 E&M systems quality inspection report

Wanda Line Phase I 2019 E&M systems quality inspection report paper check

Wanda Line Phase II

MRT Wanda-Zhonghe-Shulin line Phase II connects the routes ongoing construction of Phase I along Jincheng Rd., and goes to the elevated section after passing Mingde Rd., then continues to run along Jincheng Rd., crosses over the Chenglin Bridge to reach Zhonghua Rd. in Shulin, then runs to Bade St., Daan Rd.,and turns to Zhongcheng Rd. to go directly to link with the Xinzhuang line at Huilong Station. The 13.3-km Wanda line phase II comprises two underground stations and 11 elevated stations.

Route Map of Wanda Line

➢ Planning of MRT stations

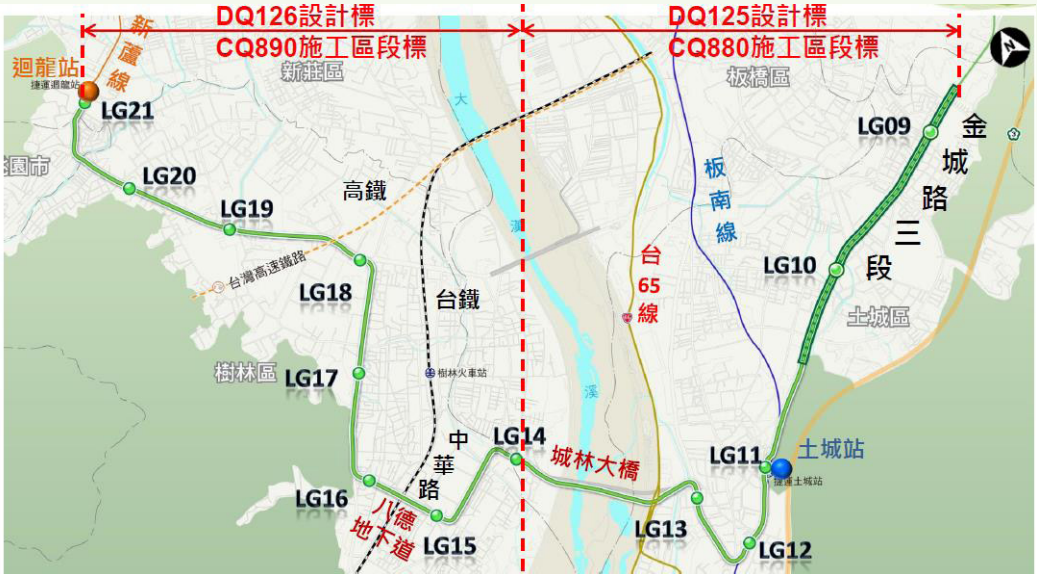
✧ The positions of the MRT stations are as follows (for reference only. Actual locations subject to the finalized urban planning)

- LG09: located in the neighborhood of Jincheng Rd. Sec.3 and Yanhe Rd. Entrance
- LG10: located underneath Jincheng Rd. near Zhongzheng Junior High School
- LG11: located at Jincheng Rd. Sec.1, inside Jincheng Park (transfer to the Tuchenbg line at Tucheng Station)
- LG12: located in the neighborhood of Rd. Sec.1 and Zhongyi Rd. Entrance
- LG13: near the neighborhood of Zhonghua Rd. and Chenglin Rd. Entrance
- LG14: located in the neighborhood of Xicheng Rd. and Zhonghua Rd. Entrance
- LG15: located in the neighborhood of Bade St. and Zhonghua Rd. Entrance
- LG16: located in the neighborhood of Bade St. and Daan Rd. Entrance
- LG17: located on Daan Rd. near by Shu Jen High School Of Home Economics & Commerce
- LG18: located in the neighborhood of Daan Rd. and Zhongzheng Rd. Entrance
- LG19: locted in the neighborhood of Zhongzheng Rd. and Guangwu St. Entrance
- LG20: located in the neighborhood of Zhongzheng Rd. and Sanjun St. Entrance
- LG21: located on Zhongzheng Rd. near by Huilong Station (to transfer to Xinzhuang Line)

➢ Urban Planning Revision

On February 25, March 6 and March 18 of 2019, the 12th-14th NTUPC (New Taipei Urban Planning Commission) ad hoc team meetings took place. The revision was passed on the 99th NTUPC meeting on March 28, and on April 26 the revised urban planning diagrams were submitted to the Urban and Rural Development Bureau (URDB), and on May 10 for the MOIA's approval. On July 12, August 23 and September 26, the 3rd ad hoc team meetings were conducted by MOI for the review of the proposal. On November 12, a petition letter was sent to URDB to be forwarded to MOI; on November 20 it was forwarded to MOI for further review. On November 29, the suggested revision for primary substation and its detail was submitted to URDB to be proposed as a reference for the review of the proposal by MOI. On December 4, a submission was made by MOI to be recorded in the MOI Urban Planning Commission ad hoc team meeting.

➢ The Progress of Detail Design



Route Map of Wanda Line Phase II

✧ DQ125 Design Contract

■ Construction Range

- DQ125 Design Contract extends 6.63 km and consists of underground and elevated sections. The underground section starts at the west side of Station LG08's cut-and-cover tunnel which is part of Wanda Line Phase I, and ends at Jincheng Rd. of Tucheng Dist. It includes two underground stations (LG09 and LG10), three shield tunnels, and a cut-and-cover tunnel (cut-and-cover tunnel and the daylight section included), spanning a total of 2.77km. The elevated section begins at the daylight section, proceeds along Jincheng Rd. onto Zhonghua Rd. in Tucheng Dist., turns again along the south of the Chenglin Bridge, crossing the Dahan River to Xicheng Rd. of Banqiao, and stops at Station LG14 (not included), covering three elevated stations (LG11, LG12 and LG1) and an underground substation (BSS),spanning a total of 3.86km.

■ Stations

- LG09: located underneath Jincheng Rd. Sec. 3, near Jincheng Rd. Sec. 3 and Yanhe Rd. intersection, Tucheng Dist., New Taipei City
- LG10: located underneath Jingcheng Rd. Sec. 2, near Zhongcheng Junior High School, Tucheng Dist., New Taipei City
- LG11: located inside Heping Parking Lot and Jincheng Park, west of Jincheng Rd. Sec. 1, Tucheng Dist., New Taipei City
- LG12: located on Jincheng Rd. Sec. 1 near Zhongyi Rd. Entrance, Tucheng Dist., New Taipei City

- LG13: located on Zhonghua Rd. Sec. 2 near Chenglin Rd. Entrance, Tucheng Dist., New Taipei City

■ Detailed designer: Sinotech Engineering Consultants

■ Current Progress

- Announcement for open tender on April 15, 2019
- Awarded on July 8, 2019
- Contract signed on July 11, 2019
- Detail design commenced on July 23, 2019
- Kick-off meeting held on July 23, 2019
- Implementation report submitted on September 5, 2019

✧ **DQ126 Design Contract**

■ Construction Scope:

- The contract begins at the elevated Station LG14 (included) and goes on to Zhonghua Rd., Shulin and stops at Station LG15 at Bade St. It then goes along Bade St. to stops at Station LG16 at Daan Rd., the line continues on Daan Rd. toward Station LG17 near Shu Jen High School Of Home Economics & Commerce and turns onto Zhongzheng Rd., Shulin Dist. It then stops at Station LG18, off the south side of Zhongzheng Rd., and Station LG19 is located above Zhongzheng Rd., near Guangwu St. Entrance; Station LG20 is above Zhongzheng Rd., near Sanjun St. Entrance. The line proceeds along Zhongzheng Rd. and turns at Wanshou Rd. Sec. 1 in Taoyuan City, to arrives at Station LG21 on Zhongzheng Rd. near Huilong Station in Xinzhunag Dist. At Station LG21, transfers can be made to the Xinzhuang line's Huilong Station and Taoyuan MRT Brown line, completing a total of eight elevated stations.

■ Stations

- Station LG14: located above Xicheng Rd. Banqiao Dist. and near Zhonghua Rd. Entrance, Shulin Dist., New Taipei City
- Station LG15: located above Bade St., near Zhonghua Rd. Entrance, Shulin Dist., New Taipei City
- Station LG16: located above Bade St., near Daan Rd. Entrance, Shulin Dist., New Taipei City
- Station LG17: located above Daan Rd., near Shu Jen High School Of Home Economics & Commerce, Shulin Dist., New Taipei City
- Station LG18: located off the south side of Zhongzheng Rd., near Daan Rd. and Zhongzheng Rd. Entrance, Shulin Dist., New Taipei City
- Station LG19: located at Zhongzheng Rd., near Guangwu St. Entrance, Shulin Dist., New Taipei City

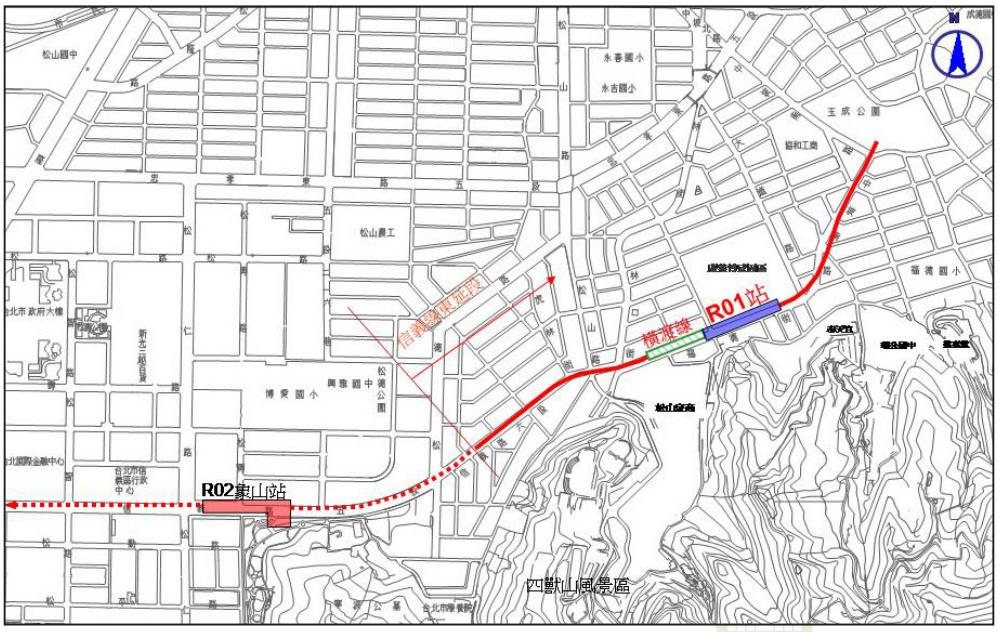
- Station LG20: located above Zhongzheng Rd., near Sanjun St. Entrance, Shulin Dist., New Taipei City
- Station LG21: located above Zhongzheng Rd., near the intersection of Zhongzheng Rd. and Lane 929, Zhongzheng Rd., next to Huilong Station, Xinzhuang Dist., New Taipei City

■ Detailed designer: joint-tendered by Sinotech Engineering Consultants/TY Lin Engineering Consultants

■ Current Progress

- Announcement for open tender on April 24, 2019
- Awarded on July 12, 2019
- Contract signed on July 26, 2019
- Detailed design (NTP) commenced on July 26, 2019
- Kick-off meeting held on August 1, 2019
- Implementation report submitted on September 23, 2019

Xinyi Eastern Extension



Route map of the Xinyi eastern extension

The route of this project stretches from the eastern end tail track of Xiangshan Station (R05) on the Xinyi line, extends to the east with heavy-capacity systems, along Sec. 6 of Xinyi Road (the originally planned Station R04 was cancelled) to the Station R03 which was added in front of Guangci Care Home on Fude Street and the front crossover. A shield tunnel was built from the east of Station R05, moving forward along Sec. 6 of Xinyi Road,

passing the intersection of Civic Blvd. and Fude Street and then turning towards Zhongpo S. Road to Yucheng Park. The length of the route is about 1.42 kilometers with one underground station, and a tail track for operational scheduling.

To accommodate foreign passengers with code-friendly station identification, all stations in operation are given new codes as TRTC complies with City Government policy. The originally planned Station R03 in front of Guangci Care Home on Fude St. is now Station R01. Station R04 on Xinyi Rd. Sec. 6 has been revoked, and R05 Xiangshan Station is now changed to Station R02.

➢ **Planning of MRT stations**

✧ The positions of the MRT stations are as follows:

■ Guangci/Fengtian Temple (R01) Station: Underground along Fude St. in front of Guangci Care Home in Xinyi Dist., Taipei City.

➢ **The construction overview of this project is as follows:**

✧ Section Contract CR580C (Station R03 and Shield Tunnel Construction)

■ The section contract commenced on October 17, 2016. The contract consists of four subcontracts for Xinyi eastern extension construction; the civil construction of Contract CR285, E&M and HVAC systems construction of Contract CR380E, elevator/escalator constructions of Contract CR386K, and track construction of Contract CR581A. The construction scope includes the cut-and-cover construction of Station R03, the shield tunnel from the tail track working-well of Xiangshan Station to Station R03, and the shield tunnel construction from Station R03 to the tail track working-well of Yucheng Park. At present, the main construction items at the northern part of Station R03 are the diaphragm wall and middle piles; the main construction items at the south part of Station R03 are the diaphragm wall, stratum improvements, hoisting of temporary drainage steel aqueducts, middle piles, shallow excavations, and retaining supports; the main construction items at the tail track located at Yucheng Park are the excavation supports and decking construction.

Panoramic aerial view of Xinyi eastern extension section

Construction of pilot hole for the diaphragm wall north of Station R03

Construction of diaphragm wall north of Station R03

Retaining support and decking construction for the tail track working-well at Yucheng Park

Innovative Measures and Improvements

Energy-dissipating Tyres Plate with Both Safety and Protection

Innovation and Improvement of the Hand-dug Retaining Pile Construction Method

➢ **Background**

Section Contract JJG051 of MRT construction in Taichung includes G5, G6, G8a, and G11 MRT Joint Development Buildings Construction. As the construction base is surrounded by high-rise buildings, in order to make good use of the basement space, parts of retaining piles are constructed closer to existing buildings. Considering that earth disturbance is more likely to happen when digging with machines, leading to risk of damaging surrounding buildings; constructors decided to adopt the hand-dug retailing pile construction method (commonly known as the "couple pile" method) to perform retaining-pile work after inspection of the geological condition of Taichung. The unique method was developed for the Taichung area. Due to the narrow working space and the usage of simple lifting equipment, the workers at the bottom of the piling were exposed to risk of falling rock. The limited visibility at the bottom also increases construction risk. Tiny working spaces add uncertainties to the quality of the work and to progress control. Therefore, the constructors have gone through pre-work risk identifications, risk preventive measures, and attended risk control meetings dealing with specified risks and are looking for ways to improve the work conditions, with a view to minimizing negative and uncertain factors. The team developed an "energy-dissipating tyres plate" composed of waste tyres as a temporary protective measure. By assembling standard and specified components they were able to systematically create an effective working space with enclosed/cut-off simulations that overcome the high risks of the work content and the working space restrictions; this has greatly improved the working efficiency and end-results. The energy-dissipating tyres plate method also provides a wider protection area which minimizes the risk of falling construction objects and creates a buffering zone that safely protects those workers at the bottom from the direct contact of falling pieces. The adoption of the method works wonderfully and provides a high-quality, safe, and highly efficient working environment. This innovation is a good national example for future reference for domestic construction teams.

➢ **Method, Process and Investment**

The "hand-dug retaining pile" literally means to dig piling spaces with manual construction. The construction was originated from manually digging wells before the era of industrial development--an ancient application. In the recent era where construction tools have tremendously advanced, machines have now come into play in the cases of well-digging, piling and retaining-pile. Workers are replaced by mechanical power, except for in the case of the intense solid stratum of the Taichung Basin. The gravel formation requires unique machines to perform underground drilling. For small scale construction

projects or shallow excavations, the hand-dug retaining pile construction is the best option--one of the features of underground digging works in Taichung area.

Two people work as a team to perform the construction method. One of them digs from the well-bottom while the other stands by the well-head to operate a lift, dispose rocks and earth, deliver fresh air to the well-bottom, give his/her teammate proper tools, materials and drinking water, and assist them with entering and exiting the well. In other words, the worker at the well-bottom counts on his/her work partner (on the well-head) to deliver supplies, or more for the sake of his/her life safety. The work requires two people who mutually trust one another. It is best performed by a married couple, father-and-son, or brothers. The term "Couple Piling Method" comes from such a background.

This method does not require any specific equipment to perform the work, and causes minimal disturbances to the earth level. When the basement excavation begins, the collapse of the wall surface between piles is less likely to occur, and the consumption of sprayed concrete is reduced. For one construction base, more than one piling work can be conducted simultaneously to shorten the construction period, which is one of the advantages of this method. However, the safety of the work environment has been the foremost issue for such applications. Before the digging reaches a conclusion, the workers at the bottom remain exposed to falling objects. The deeper the well goes, the more the risk of such incidences increases. To minimize the chances of injury, the contracted construction team began to study the hazards associated with this method, and eventually concluded with a safety-and-security protective buffer placement which sufficiently enlarged the protection area to optimize the working space and safety guard. The buffer installation helps in reducing the overall risk factors and impact levels.

I. Planning Content and Innovation

The three stages of the hand-dug retaining pile (Figure 1) are positioning and fixing, digging, and the lifting of earth and stones. Limited by the site condition, the traditional digging method can only be performed with a single worker at the bottom. The intensive labor and bad working conditions amplify variables such as high-precision, the falling of lifting objects and workers' safety and security; this makes the construction much more difficult.

The major hazards of such a method are a collapse of the structure and injuries caused by falling objects. The former hazard can be ameliorated through an accurate geological survey and proper excavation management before the work begins; furthermore, stratum improvement can be adopted as a preventive measure when encountering geological variability, hence it is a measurable hazard. Injuries caused by falling objects are unpredictable due to negligence or the malfunction of the hoist. In the past, safety measures were never adopted during this process and accidents of injury or death occurred frequently. Insurance companies also assess hand-dug retaining pile construction workers and well-diggers as the careers with the highest

risk. To adequately protect the safety of workers when working at the well-bottom, our construction team developed the energy-dissipating tyres plate and validated its buffer capacity. The concept and realization are as follows.

Idea & Concept

A shelter is installed against the wall pit inside the well for workers at the bottom to hide from falling objects during hoisting.

Condition

The width of the shelter must be large enough for a person to fully hide under it, while keeping the proper functioning of hoisters. In this contract the diameter of the hand-dug retaining pile is 120 cm, and after calculations the coverage has a 40 cm protrusion from the wall surface.

Plate Material

The plate material should be lightweight, rigid, reusable, easy to install, and inexpensive. Here we use the retired motorcycle tyre tubes as the materials to fabricate the shelter.

Location

The wall surface where the plate is implemented must be solid and stable enough to support the impact of falling objects, otherwise it will lose the ability to protect. Each day, a well goes about three meters further down and through, and the wall surface is only treated with patting cement mixture which does not meet the strength requirements of the plate. To tackle this problem the construction team digs into the wall surface at the well-bottom, after the daily digging progress, and sets in circle-shaped steel segments and grouts it to make a circle beam so that the piling wall is solidified and can serve as a supporter for the cushion tires.

Testing and Validation

To validate the effect of the energy-dissipating-plate-tires, a hand-dug retaining pile is tentatively made at the G5 site, and an inflated rubber tire tube (as designed) is installed, with a 3-mm-thin plywood at the well-bottom as the receiver of the impact. A sand bucket is then tipped over at the well-head and the contents tumbled down to simulate an impact. The plywood without the energy-dissipating-plate-tyres was penetrated by the falling stones, while under the shelter the plywood remains intact, and the part not covered by the shelter received less damage than that without the protection. It is assumed that the stones and sand rebounded from the tire tube after falling, and then directly hit the falling ones with its partial energy canceled out by such a rebound. (Figure 2)

Execution

"The energy-dissipating tyres plate" was applied to the hand-dug retaining piles

construction during the construction of joint buildings in Contract JJG051 at Station G5, G6, G8a and G11 exits. We successfully completed eighty-two 120 cm diameter semicircle hand-dug retaining piles, with a total of 2,185 meters dug. During the work there were three false alarms but no personnel were injured; proving the protective effect of the plate.

II. The challenges encountered on the construction site were tackled by the construction team with innovative solutions, and the strategies are described as follows.

1. Improved Pit-Mouth Protection:

At the beginning of excavation, the side wall at the well-head posed the most danger. After reviews and discussions, prior to excavation the well-head was grouted with concrete and leveled as a platform for the support of excavation. A leveled surface properly distributes pressure from the digging, and the slope of welded wire mesh around the pit mouth is cemented with shotcrete mortar to keep loose gravel from falling into the well (enhancing the work safety).

2. Optimized Usage Area:

In this Contract, the four MRT joint developed buildings located on Wenxin Rd. and other main routes are densely surrounded by other buildings. The use of the hand-dug retaining piles can avoid damage to the neighboring buildings due to earth disturbances from mechanical excavation. Semicircle rebar cages were used at the bottom of the retaining-pile to optimize the floor area.

3. Safety and Security:

Via this innovative improvement, the energy-dissipating tyres plate can be fully installed to the existing pile area to provide a protective zone during construction that acts as a buffer for hiding under from falling objects. Moreover, workers may be protected by comprehensive equipment to further prevent occupational disasters.

III. Expense and Manpower Contributed at Each Stage:

For the feasibility of the energy-dissipating tyres plate of this temporary protective improvement, prior to the construction, a ball dropping test and dumpling test were implemented to decide the optimal cost-saving accessories size and cross section. Also, on-site trials were carried out, and the experiences and outcomes were provided as feedback and studied; thus, the key factors of the initial planning--manpower, machinery, materials, equipment and methods--can serve to further advance the strategies and guidelines of this innovative improvement. To make a set of the energy-dissipating tyres plate, 12 inner tubes from waste tyres are gathered and tied for only TWD 2,000, and they are reusable according to the work planning and assembled on-site. For the construction project, it took only 25 sets of energy-dissipating tyres plate to cover the needs. At the cost of TWD 50,000, they provide the workers with priceless

protection. Practically speaking, through science and data, improvements can be made to efficiency, quality, cost reduction, together with environmental safety as a cycle of an engineering construction goal.

➢ **Execution Result**

The cost efficiency as well as the internal and external cost analysis of the temporary protective application of the energy-dissipating tyres plate in the Taichung MRT Section Contract JJG051 joint development station construction are as follows:

I. Cost-Effectiveness Analysis (5M)

1. **Labor:** Comparably, the improved method and its procedure are of a better help for safety issues and the manpower access. The number of workers needed at each stage of the construction is easily manageable, and the work is less likely to be affected by sudden safety incidents. The energy-dissipating tyres plate installation has reduced 20% direct manpower costs compared to those without the energy-dissipating tyres plate.
2. **Machine:** General machinery and hand tools are required to be moved and installed instead of many hoists or lifts. It is practical in remote areas and places with little resources. The method saves around 10% on machine costs.
3. **Material:** All types of station constructions can be installed with the construction platform of the energy-dissipating tyres plate, and the tyres plates are reusable which results in carbon reduction.
4. **Money:** The improvement derived from this method contributes to safety and protection for falling prevention. Therefore the relevant SHE expenses fall into regular procedures instead of high risk work which demand increased expenses to meet SHE requirements. This leads to entirely different results and greatly reduces the direct expenses on SHE requirements.
5. **Method:** All works can start in full swing with relevant resources concentrated, reducing the impact duration towards the surroundings, and shortening the time for equipment fabrication and mobilization. Resources are adjustable according to the work demand. there are obvious improvements on overall construction progress due to the major minimization of impact from force majeure, reducing indirect costs of rushing the progress of the construction.

II. Analysis of QCDS

1. **Quality:** The improved temporary protective measure of the energy-dissipating tyres plate helps workers to have precise measurements and control during the construction of the hand-dug retaining pile, thereby greatly lowering the impact of influential variables (workers falling, construction deviation, error propagation and more). Neighboring structures are exempted from damage caused by the vibration of

mechanical excavation, which reduces negative impressions and citizen complaints.

2. **Cost:** Labor safety is increasingly emphasized in the traditional manufacturing and construction industries. The improvement case helps in concentrating workers and machines for construction, lowering the SHE expenses for high risk works, and effectively reducing indirect costs by 30%. The improvement also prevents contractors from jacking up prices by using the mass volume of the MRT construction; this achieves a free market stability mechanism.
3. **Delivery:** The construction duration can be standardized, specified and proceed in a systematic manner that reduces safety issues during construction and minimizes construction time. With the time saved, workers can work on items which require more time or more sophisticated techniques. Costs of rushing the progress of construction are lessened while ensuring that the work quality is maintained. Citizens support and recognize civil construction more from the moving of MRT construction through the addition of works.
4. **Safety:** The energy-dissipating plate tyres provide a better working environment and better safety measures as it minimizes relevant uncertainties, giving the workers a safer, care-free working environment.

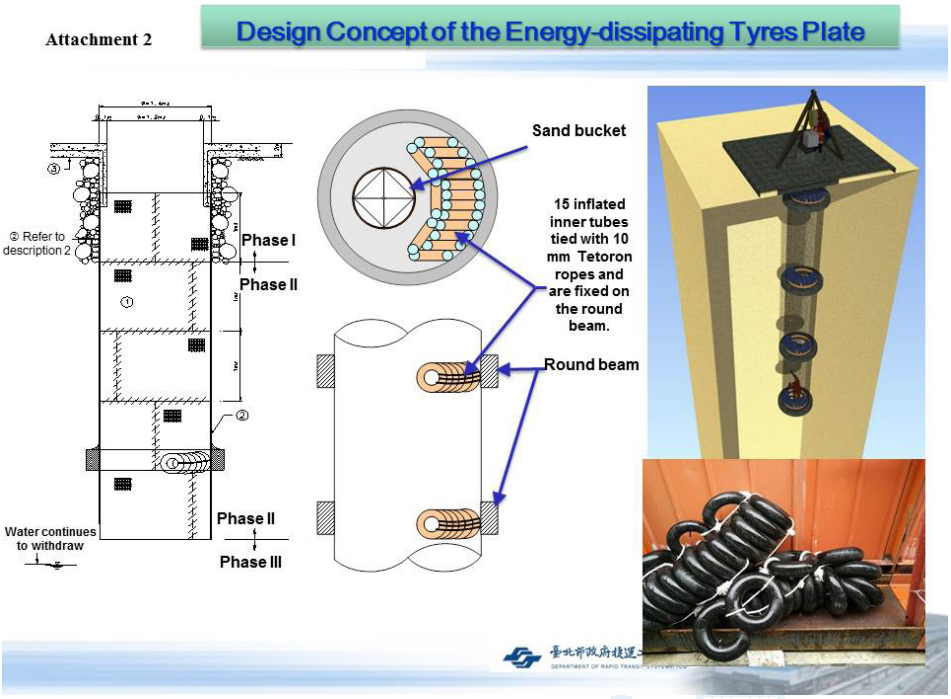
➢ **Conclusion**

The artificial-retaining-pile is characterized by "less time to complete" and "no damage to neighboring structures;" hence it is applied to small-scale underground excavations. The high risk it imposes is the major disadvantage; accordingly, nowadays the young generation is hardly engaged in this construction method of which the master is worried that their will be no heir to this technique. The development of the energy-dissipating-plate-tyres by our construction team not only completed the highly difficult hand-dug retaining pile in the joint-development building of "Section Contract JJG051 between exit/entrance and land development station of TMRT Green Line," but it is also expected to appeal to more people in terms of joining and passing down the technique of this method.

The construction team inspected the feasible precautionary measures through risk identification, with reference to a number of hand-dug retaining pile constructors, and developed a temporary protective measure in the form of the energy-dissipating-plate-tyres with simple, standardized, regularized, and systematic safety protection assembly which does not affect work efficiency and quality. The energy-dissipating-plate-tires were applied to the artificial-retaining-pile in the construction of the joint building in Contract JJG051 at Station G5, G6, G8a and G11 exits/entrances and successfully utilized to complete eighty-two 1.2-meter diameter half round retaining-piles, with a total of 2,185 meters dug. During the work there were three false alarms; however, no personnel were injured, proving the protective effects of the shelter. This protective measure was solely developed by the construction team, and it was the recipient of the 2019 City Government Creative Projects award. This measure is provided for relevant domestic constructions' reference.

Attachment 1: Procedure of Hand-dug Retaining Pile Construction

Attachment 2: Design Concept of Energy-dissipating Tyres Plate



Attachment 3: Development Structure and Process

Development Structure and Process

Attachment 3

■ The study process and implementation method

The major hazards of such a Method are collapse and injury from falling objects. The former hazard can be improved through accurate geological surveys and proper excavation management before the work begins. Stratum improvement is an adopted method when encountering geological variability, hence it is a measurable hazard. Injury from falling objects is a non-predictable hazard which occurs due to negligence or the malfunction of hoist. In the past, safety measures were never adopted during this process, and the injuries or death of workers continued to take place. Insurance companies also list the artificial pile workers and well-diggers as careers of the highest risk. To better protect the safety of workers at the well-bottom, our construction team developed the "energy-dissipating tyres plate" and validated its buffer capacity. The concept and realization are enlisted as the flow chart on the right.

Attachment 4: Protection Capacity Validation

Attachment 4

Protection Property Validation

To validate the effect of the energy-dissipating-plate-tyre, a hand-dug retaining pile is constructed at the G5 site, and an inflated rubber tire as designed is installed, with a 7mm thin plywood at the well-bottom as the receiver of the impact. A sand bucket is then tipped over at the well-head and the contents tumbled down to simulate the impact. The plywood without the energy-dissipating-plate-tire was penetrated by the falling stones, while under the shelter the plywood remains intact, and the parts not covered by the shelter were less damaged than those without the protection. It is assumed that the stones and sand rebounded from the inner tire after falling, hitting on the direct falling ones, with its partial energy canceled by such a rebound.

Planning a Comprehensive MRT Network

Taipei City Metropolitan Area MRT transit network planning continually conducts studies of areas where MRT services are unavailable and extends existing routes to far-reaching areas in order to construct a more complete MRT network service. Plans for 2019 include the Circular line north section & south section, the Minsheng-Xizhi line, the Circular line east section, and the Shezi, Shilin, and Beitou light rail transit network. Upon completion of these routes, the total length of network routes will extend over 277 km with a capacity of 3.6 million passenger trips per day.

Future Network Planning

➢ **Circular Line North Section & South Section**

Responsible Agency: Taipei City Government

Feasibility Study: Approved by the Executive Yuan on November 3, 2014

Comprehensive Planning:

✧ The Ministry of Transportation and Communications (MOTC) convened a review committee meeting on January 7, 2019, and then the comprehensive planning was transferred to the Executive Yuan on March 22 to be reviewed by National Development Council (NDC). Following the NDC's review on April 17, it was approved by the Executive Yuan on May 31, 2019.

✧ The project detail design is in progress and is expected to be completed by the end of 2020 for contracting and construction.

Environmental Impact Assessment:

The environmental impact assessment report for the entire Circular line was granted initial approval after being reviewed by the Environmental Protection Administration, and on January 23, 2003, it was conditionally approved.

Urban Planning Revisions

Taipei City Section:

✧ For alterations that were not included in the public display but approved by Department of Urban Development (DUD) of the Ministry of the Interior (MOI), the City Government should organize another public display for 30 days starting from March 21, 2019 along with an explanatory meeting on April 1. One petition was received during the public display. On April 29, the public display illustration and petition paper were delivered to MOI for the second time and approved at the 948th review meeting on June 18, and the meeting minutes were sent to DORTS. DORTS delivered the revised master planning diagram to DUD (Dpt. of Urban Development) on August 1, which reported to MOI for approval on August 16. On August 29

the content was approved, and on August 30 the City Government announced implementation on the 31st of the same month. The detailed design of the plan was announced on October 17 and implemented the following day. The public display for the detailed design revision of the 3rd Type Residential Zone, which was managed by the National Chengchi University (NCCU), for Station Y1A was held from December 20 for 30 days, and the public display explanatory meeting was held on January 6, 2020.

New Taipei City Sections:

✧ On February 14 and April 1, New Taipei City Government conducted the 5th and 6th MOI commission task force research and discussion meetings. The proposal was approved at the 101st review committee on May 6. The City Government submitted it to MOI on June 19, which convened the MOI commission task force review meeting on August 8 and December 12.

➢ **Minsheng-Xizhi Line**

Responsible Agency: Taipei City Government

Feasibility Study: Approved by the Executive Yuan on December 19, 2011

Comprehensive Planning:

✧ DORTS task force was established to conduct the revision of partial general plan report on March 20, 2019. The content is to be reviewed after the confirmation of environmental impact assessments and the Keelung Light Rail Plan of the second stage plan (Dadaocheng-Neihu section).

Environmental Impact Assessment:

✧ The first stage plan (Neihu-Xizhi section) was approved by EPA on January 21, 2010 and was filed for future examination.

✧ The procedure review for the second stage plan (Dadaocheng-Neihu section) was conducted by EPA on January 15 and April 2, 2019. On May 7 it was transferred by MOTC to EPA, which conducted the suggestion and opinion meeting and field inspection of "Taipei Metropolitan MRT Mingsheng Xizhi line Second Stage Route Environmental Impact Assessment" on July 2. The "Task Force Preliminary Review Meeting" was conducted on July 12 and the second task force review meeting was held on December 9. The conclusion was, "Please submit supplementary and revised content according to the review result for further examination by March 31, 2020." The suggestion and opinion feedback together with the report revision are to be conducted according to the remarks (results) of the review.

➢ **Circular Line East Section**

Responsible Agency: Taipei City Government

Feasibility Study:

✧ The feasibility report was approved by MOTC in the Urban Planning Commission

meeting on September 24, 2019. It was then transferred on December 5 by MOTC to the Executive Yuan, and a review meeting was convened by NDC on January 6, 2020.

✧ The Comprehensive Network Assessment was approved on November 14, 2019 in the Railway Bureau's review meeting. Report modifications were signed by the City Government on December 23 and transferred to DOT for review.

Comprehensive Planning and Environmental Impact Assessment:

✧ The commissioning technical service was awarded on September 23, 2019; and on the 25th of the same month, the comprehensive planning commenced. On November 19 an overall execution report review was held and principally approved. The plan is in progress with the Environmental Impact Assessment set to be initiated on December 25.

➢ **Shezi, Shilin, and Beitou Light Rail Transit Network**

Responsible Agency: Taipei City Government

Feasibility Study (to be reviewed for rerun):

✧ The Shezi Island Flood Prevention Project was approved by the Executive Yuan on December 12, 2019.

✧ It was suggested that the implementation of the Shezi Light Rail Plan should only be conducted depending on the City Government's specific time schedule for adopting the Shezi Light Rail Transit in the Shezi Island Development Project after the approval of the Shezi Island Development Project (detail project to be implemented base on zone expropriation plan), Environmental Impact Assessment and expropriation plan.

Other

➢ **Keelung-Nangang Commuter Track Construction Plan (Keelung Light Rail)**

Responsible Agency: Railway Bureau, MOTC

Feasibility Study:

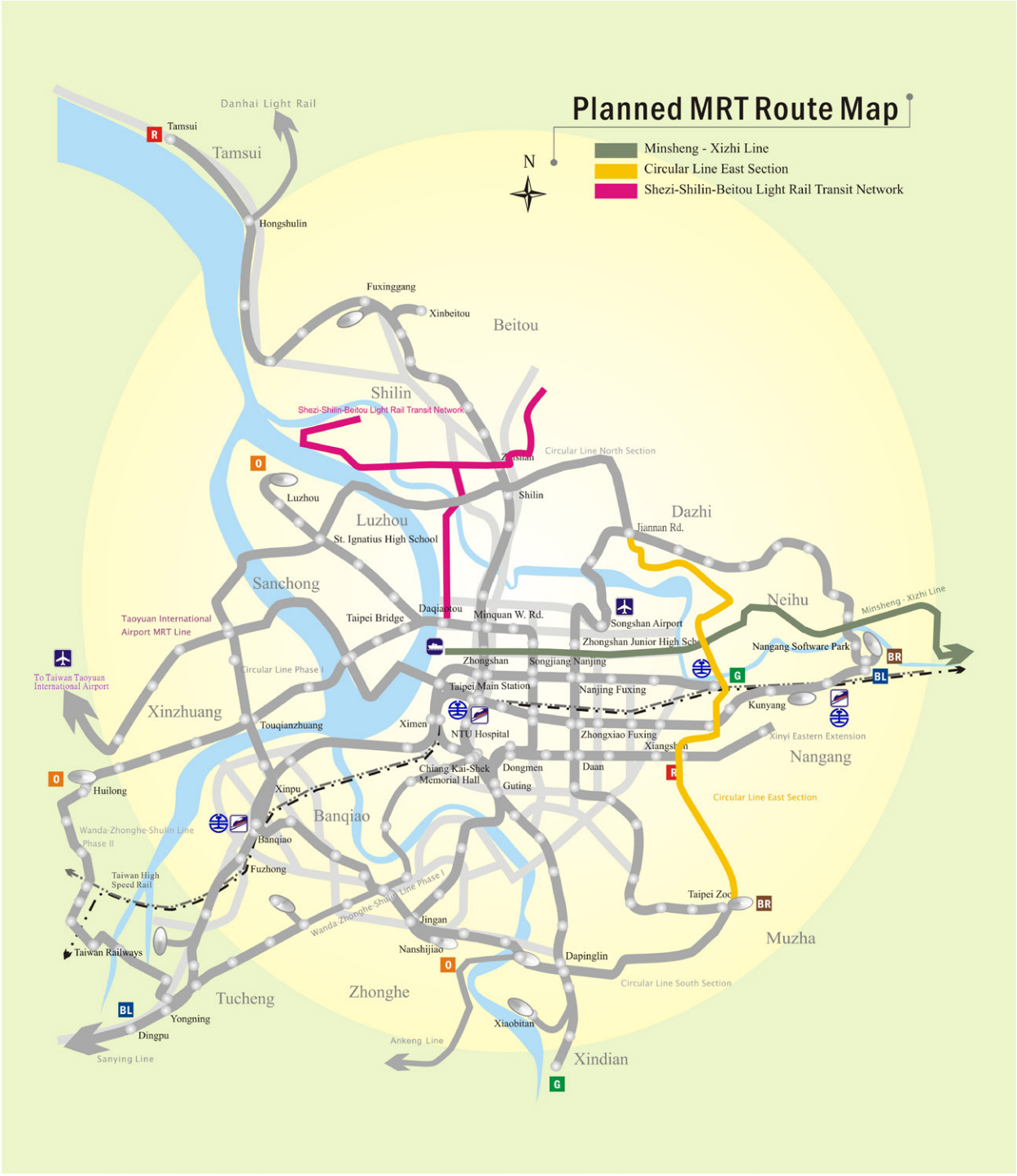
✧ The feasibility report was approved by the Executive Yuan on April 10, 2019. An elevated type construction is planned to be adopted in Taipei City, and the endpoint station will be created above the driveway of the High Speed Railway's day-lighting section, just adjacent to MRT Bannan line Taipei Nangang Exhibition Center Station.

Comprehensive Planning:

✧ Comprehensive Planning and Environmental Impact Assessment were initiated on August 30, 2019.

✧ The Railway Bureau conducted its first communication meeting on November 14, 2019, and established contact platforms among each unit according to different subjects. The meeting was attended by Taipei City Department of Transportation, Urban Development and DORTS. In Xizhi, the route of the Keelung Light Rail overlaps

with that of the planned Minsheng-Xizhi line by 1.1 km from Zhangshuwan Station to Xizhi Science Park Station, and the interface issue is currently being discussed by the Railway Bureau and related units.



Retrospect and Prospects

Taipei Rapid Transit System has been established for over thirty years and has amassed a great deal professional talent in the domains of domestic and foreign planning, design, construction, and operations and invested it into the ranks of MRT construction. Under the leadership of the mayors who have served in office during this time and the assistance of the other related units, the construction of 136.6 kilometers of the MRT network has been completed as of the end of 2019. The MRT typically carries a daily load of 2.1 million passenger trips, and after the 15.4-km Circular line Phase I passed final inspection, it joined the ranks of operating routes in the system with a total of 152-km MRT network. With the fact that Taipei MRT won praise from people of all walks of life both domestically and abroad. As a result, there is public demand in each district for the MRT services to be extended. Considering the overall requirements and the trend of gradual growth in the Taipei Metropolitan Area, there is still room for continual growth to make diligent efforts to expand the scope of MRT operations. In accordance with the public's expectations and the requirements of the mayor and commissioner, DORTS will be fully dedicated to further increasing efforts to develop objectives and strategies for future work with a view to fulfilling DORTS' vision-- "Excellent Construction, Efficient MRT, and Easy Travel in Taipei."

Looking to the future, Taipei City Department of Rapid Transit Systems (DORTS) is engaged in hard work and actively promoting the formation of the Circular line (Circular line Phase I, Circular line north section & south section, and Circular line east section connect in series to form a Circular line that facilitates taking just one train to arrive at destinations). This route will traverse 14 districts across Taipei City and New Taipei City and connect emerging major development projects along the route. In addition, the line will connect 16 radiating tracks in Taipei Metropolitan Area, including Taiwan High Speed Rail (THSR), Taiwan Railways Administration (TRA), the Taipei MRT, and light-rail lines. After the Metropolitan Circular line is completed, residents on the periphery of Taipei Metropolitan Area will not need to enter the downtown area for transfers, and transfers on the Circular line will greatly reduce traveling time. Convenient transportation services will be achieved through seamless transfers between various integrated transport modes,

effectively improving the accessibility and mobility of public transportation. A substantial reduction in travel time between districts will result in the promotion of balanced and sustainable development of regional industry and the environment. Furthermore, in consideration of limited land resources and sustainability of operations, the Metropolitan Circular line will move towards system simplification and maintenance (including depots) as well as resource sharing and lead the route network into a state which supports sustainable environmental development.

The promotion of MRT routes which are under construction will also continue on routes which include Wanda line Phase I and Phase II construction, Circular line north section & south section, Xinyi eastern extension, and Xinzhuang Depot, spanning a distance of 45.2 km. Routes which are currently undergoing planning include Circular line east section, Minsheng Xizhi line, and Shezi, Shilin and Beitou light rail transit network, and these routes span a total distance of 47.1 km. Following the completion of the overall Taipei Metropolitan MRT network, the length will reach a total of 244.3 km, and if the routes which New Taipei City are responsible for are included, the total length of the routes will reach a total of over 277 km. In the future, the volume of daily MRT traffic is expected to reach more than 3.6 million passenger trips. It is believed that following the completion of the Taipei Metropolitan MRT route network, it will be possible to reduce relatively the number of private vehicles and alleviate traffic congestion in the Greater Taipei Metropolitan Area. Moreover, it will provide high-quality travel services for citizens of Taipei City and New Taipei City, shaping a fine living environment and working collectively to create a more dynamic living circle in Greater Taipei.

2019 Major Events

01 **January 15**

Contract IPYX13 Longshan Temple B1, B2 air conditioning equipment replacement and B1 ceiling lighting update turnkey project commenced. (Second District Project Office)

01 **January 15**

Circular line power supply system domestic training courses formally commenced. (Systemwide E&M Project Office)

01 **January 20**

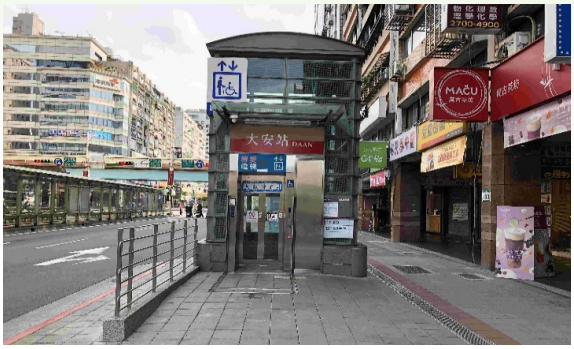
DORTS Commissioner Chang Tzer-hsiung inspected Taichung MRT Wuri–Wenxin–Beitun line Contract CJ920. (Second District Project Office)

01 **January 28**

Circular line power supply system domestic training courses formally commenced. (Systemwide E&M Project Office)

02 February 1

On February 1, 2019, the obstacle-free elevator at Xinyi line Daan Station entrance/exit 3 was opened for operations. (Second District Project Office)



02 February 14

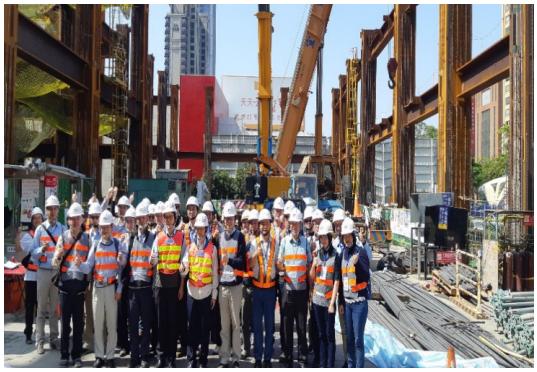
Taichung City Government Labor Inspection Office visited Taichung MRT Wuri–Wenxin–Beitun line Station G12 to conduct observation activities. (Second District Project Office)

02 February 18

Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ910 completed. (Second District Project Office)

02 February 22

Taiwan Institute of Steel Construction visited Taichung MRT Wuri–Wenxin–Beitun line Stations G9-1 and G9-2. (Second District Project Office)



03 March 6

Wanda line Contract CQ842B Taipei Mandarin Experimental Elementary School complex construction groundbreaking ceremony. (Second District Project Office)

03 March 7

A board meeting convened in Taichung and inspected Taichung MRT Wuri–Wenxin–Beitun line Station G17 construction. (Second District Project Office)

03 March 9

Taichung MRT Wuri–Wenxin–Beitun line Section Contract JJG091 was the recipient of the "2018 Land Engineering Award for Outstanding Engineering" at an awards ceremony (National Taiwan University of Science and Technology Conference Room 101). (Second District Project Office)

03 March 11

The Control Yuan 2018 2nd Annual Local Government Inspection Group carried out a field inspection of Wanda line construction. (Second District Project Office)

03 March 14

Taichung City Deputy Mayor Chen inspected Taichung MRT Wuri–Wenxin–Beitun line construction. (Second District Project Office)

03 March 19

Wanda line Contract CQ842 Station LG02 nine-level excavation was completed with a depth of 30.3 meters. (Second District Project Office)

04 April 2

The New Taipei City Construction Safety Award Jury evaluated Wanda line Section Contract CQ850. (Second District Project Office)

04 April 17

Taipei City Government carried out an unannounced construction inspection of Wanda line Section Contract CQ850. (Second District Project Office)

04 April 18

Preliminary inspection commenced for Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ910 and CJ914A utilities and HVAC systems. (Second District Project Office)

04 April 19

Taichung City Government Construction Examination Team inspected Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ930. (Second District Project Office)

04 April 21

Executive Yuan Premier Su Tseng-chang inspected Circular line Phase I construction and announced that North Section & South Section had been approved. "Circular line North Section & South Section Comprehensive Planning Report" was approved by the Executive Yuan on May 31. (Comprehensive Planning Division)

04 April 25

"Taipei Metropolitan MRT System Planning Manual" (2019 edition) was promulgated. (Comprehensive Planning Division)

04 **April 26**

The first biannual 2019 Disaster Prevention Operations and Drill was carried out, and Wanda line Section Contract CQ840 was awarded first prize for all of DORTS. (Second District Project Office)

04 **April 26**

Chinese Institute of Engineers visited Taichung MRT Wuri–Wenxin–Beitun line. (Second District Project Office)

04 **April 30**

System-wide dynamic integration testing commenced for the Circular line. (Systemwide E&M Project Office)

05 **May 2**

National Cheng Kung University visited Taichung MRT Wuri–Wenxin–Beitun line Station G12 construction. (Second District Project Office)

05 May 8

Taichung City Mayor Lu Shiow-yen inspected Taichung MRT Wuri–Wenxin–Beitun line construction(entire line). (Second District Project Office)

05 May 9

Initial inspection was completed for Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ910 and CJ914A utilities and HVAC systems construction. (Second District Project Office)

05 May 14

Xinzhuang Depot rail transfer electrical and mechanical system construction commenced. (Second District Project Office)

05 May 15

Taichung MRT Wuri–Wenxin–Beitun line first construction inspection. (Second District Project Office)

05 May 24

The Control Yuan inspected Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ910 Station G0. (Second District Project Office)

06 June 13

The first phase of the track construction for Circular line Contract CF611 was completed. (Second District Project Office)

05 May 31

Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ910 was the honorary recipient of the Chinese Institute of Engineers Engineering Award of Excellence (National Kaohsiung University of Science and Technology Nanzih Campus). (Second District Project Office)

07 July 2

"Taipei Metropolitan MRT System Minsheng-Xizhi Line 2 Environmental Impact Study Explanation" opinion presentation meeting and on-site survey. (Comprehensive Planning Division)

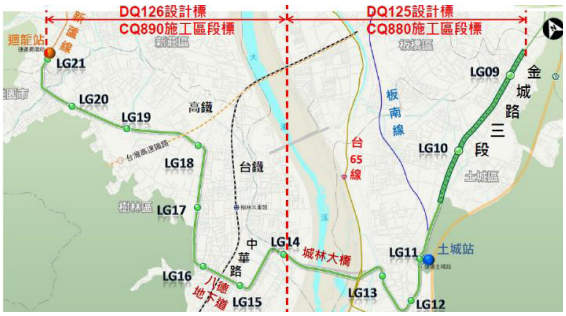
07 July 3

New Taipei City Mayor Hou visited Circular line Zhonghe Station. (First District Project Office)

07 July 11

For Wanda line Phase II construction, the technical services of the design contract DQ125 was noticed to proceed (NTP). (Civil Engineering and Architectural Design Division)

萬大-中和-樹林線第二期工程



07 July 19

For Circular line south section, the technical services of the design contract DF115 was noticed to proceed (NTP). (Civil Engineering and Architectural Design Division)

環狀線南環段DF115設計標

07 July 21

MRT Section Contract CK570J Xinzhuang Depot construction was substantially completed on July 21, 2019. (First District Project Office)

07 July 22

Taipei City Government Research, Development, and Evaluation Commission conducted an interim verification of Wanda line and Xinyi eastern extension construction. (Second District Project Office)

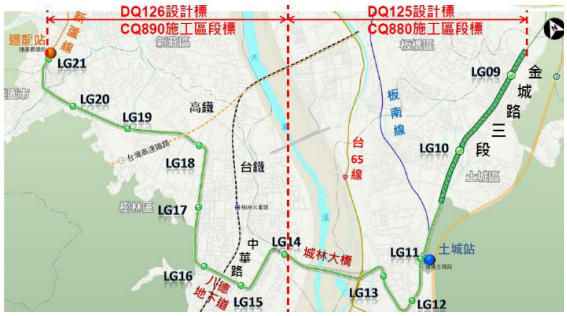
07 July 24

Taichung MRT Wuri–Wenxin–Beitun line trial operation verification test was completed, and it passed inspection. (Systemwide E&M Project Office)

07 July 26

For Wanda line Phase II construction, the technical services of the design contract DQ126 was noticed to proceed (NTP). (Civil Engineering and Architectural Design Division)

萬大-中和-樹林線第二期工程



07 July 31

For Circular line north section, the technical services of the design contract DF117 was noticed to proceed (NTP). (Civil Engineering and Architectural Design Division)

環狀線北環段DF117設計標

08 August 6

For Circular line north section, the technical services of the design contract DF116 was noticed to proceed (NTP). (Civil Engineering and Architectural Design Division)

環狀線北環段DF116設計標

08 August 12

The President inspected Wanda line Phase II construction. (Comprehensive Planning Division. (Comprehensive Planning Division)

08 August 21-27

Stability testing of Circular line E&M Systems was completed from August 21-27. (Systemwide E&M Project Office)

08 August 22

The National Development Council conducted a site verification for Wanda line construction. (Second District Project Office)

08 August 23

Wanda line Subcontract CQ874A of the Section Contract CQ870 construction standard planting and transplanting project completed. (First District Project Office)

08 August 28

New Taipei City Mayor Hou inspected Circular line pedestrian sidewalk restoration project and Banxin Station. (First District Project Office)

08 August 29

At the end of June, location selection for the Xinzhuang line Daqiaotou Station (M2) Base Development High-rise Building project was completed, and on August 29 the results of consultation on the distribution of rights and interests were submitted to city government for approval. (Joint Development Division)

08 **August 30**

Mayor Ko Wen-je took a guided tour of Wanda line Contract CQ842 Station LG02 Taipei Botanical Garden Station underground shield tunnel construction. (Second District Project Office)

08 **August 30**

Contract IYZX01 mid-term improvement project of entrance escalators and elevators of MRT initial network stations construction commenced. (Second District Project Office)

09 **September 2**

Handing-over works of the MRT EMUs for the Circular line commenced. (Systemwide E&M Project Office)

09 **September 9**

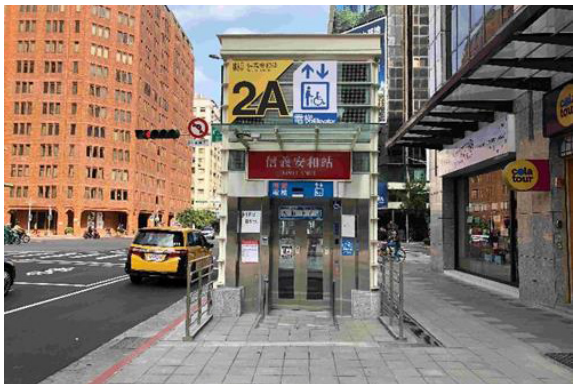
Acceptance tasks for Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ910 – Contract CJ914A utilities and HVAC systems construction commenced. (Second District Project Office)

09 **September 10**

The replacement turnkey project construction for Contract ITTX68 for underground street air conditioning system in front of the station commenced. (Second District Project Office)

09 September 11

On September 11, 2019 construction of the obstacle-free elevator at Xinyi line – Xinyi Anhe Station entrance/exit 2A was completed. (Second District Project Office)

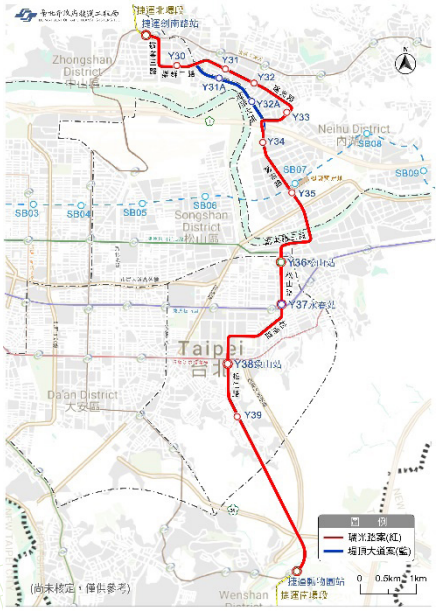


09 September 19

Xindian line Xindian District Office Station (M23) base development building and investor signing was completed. (Joint Development Division)

09 September 24

Circular line east section feasibility study was submitted to MOTC and approved at the preliminary review meeting. (Comprehensive Planning Division)



09 September 27

Down-track tunneling commenced for Wanda line Contract CQ842 shield tunnel from Station LG02 to Station LG01. (Second District Project Office)

10 October 1

Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ930 was a participant in the "19th Annual Public Works Golden Awards" Public Works Quality Award on-site inspection and won an award of excellence. (Second District Project Office)

10 October 5

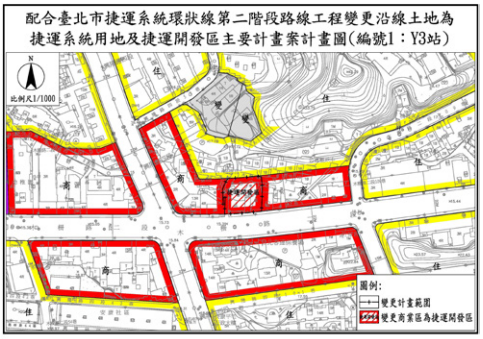
The National Central University Tunnel Engineering Lecture visited the Wanda line Section Contract CQ850 for an activity at the site. (Second District Project Office)

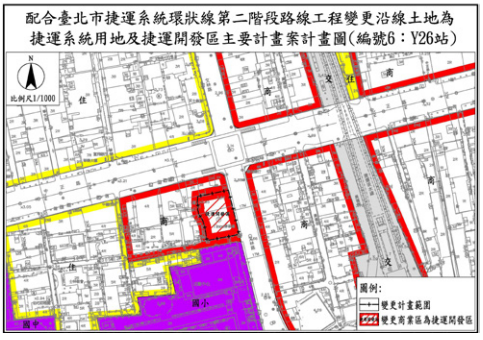
10 October 14

Xinzhuang line Daqiaotou Station entrance/exit 1A hand over and commencement of operations was completed. (Second District Project Office)

10 October 18

The announcement of Circular line north section & east section Taipei City Section urban planning revision detailed planning was implemented. (Comprehensive Planning Division)





10 October 20

Civil Engineering Subcontracts CF661A and F662 (except for the Banqiao transfer station) of Circular line Section Contract CF660A construction were completed. (Second District Project Office)

Y15 station

Y16 station

10 October 21

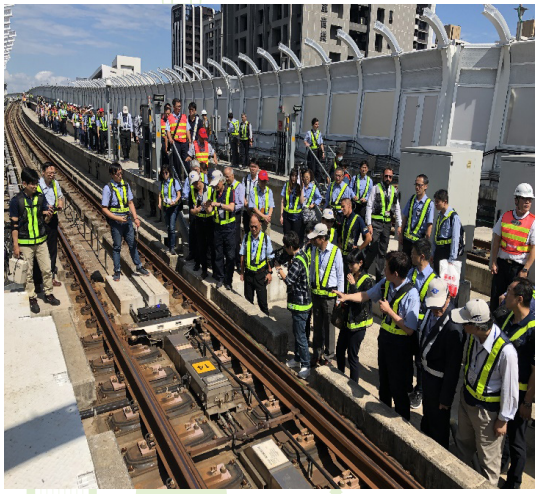
The Mayor Ko approved Xinbeitou Station simple installation of Exit 2 project. (Comprehensive Planning Division)

10 October 24

Legislative Yuan Finance Committee Member Fai, Hrong-Tai inspected the construction situation of Xinyi eastern extension. (Second District Project Office)

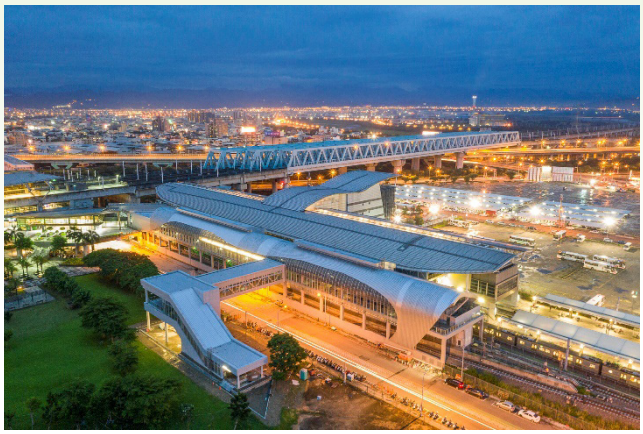
10 October 25

Circular line Phase I Dapinglin Station to New Taipei Industrial Park Station preliminary inspection. (Comprehensive Planning Division, First District Project Office, Second District Project Office, Systemwide E&M Project Office)



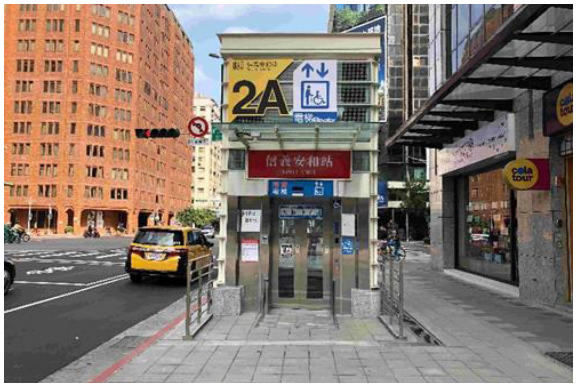
10 **October 25**

Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ930 construction was completed. (Second District Project Office)



10 **October 28**

Xinyi line – Xinyi Anhe Station Exit 2A obstacle-free elevator was opened for operations. (Second District Project Office)



11 **November 7**

Legislative Yuan Finance Committee Member Lai, Shyh-Bao inspected the status of planning implementation for Circular line south section & north section. (Comprehensive Planning Division)

11 **November 7**

Wanda line Contract CQ842B Taipei Mandarin Experimental Elementary School MRT integrated building construction beam-raising ceremony. (Second District Project Office)

11 **November 7**

Wanda line Zhonghe Senior High School Station (LG08 MRT Development Section 6) Base Development High-rise Building project and investor signing completed. (Joint Development Division)

11

November 11

The Control Yuan 2019 annual oversight of Taichung City Tri-rail planning visited Taichung MRT Wuri–Wenxin–Beitun line Station G17 construction. (Second District Project Office)

11

November 12

Mayor Ko Wen-je issued the government "2019 Best Work for Creative Proposal Competition" award to Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ920. (Second District Project Office)

11

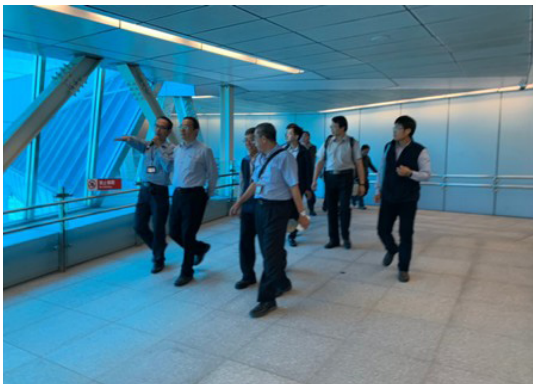
November 26

Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ930 – CJ934A utilities and HVAC systems construction preliminary inspection commenced. (Second District Project Office)

11

November 12

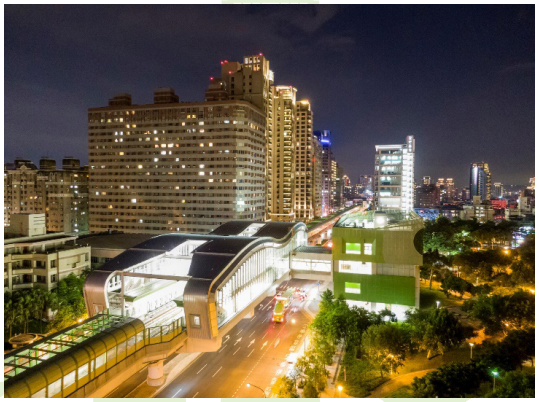
The National Development Council officers inspected Circular line Station Y19 of the Section Contract CF660B. (First District Project Office)



11

November 18

Wanda line Shuang Ho Hospital Station (LG07 MRT Development Area 3) Base Development High-rise Building project and investor signing was completed. (Joint Development Division)



11 **November 27**

Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ920 construction was substantially completed. (Second District Project Office)

11 **November 29**

Taichung City Council totaling 30 members visited Taichung MRT Wuri–Wenxin–Beitun line Station G17 construction. (Second District Project Office)

12 **December 5**

Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ910 – CJ914A utilities and HVAC systems construction acceptance work was completed. (Second District Project Office)

12 **December 7**

"Contract IYZX01 mid-term improvement project of entrance escalators and elevators of initial MRT network stations construction" Zhongxiao Dunhua Station Exit 3 escalator was dismantled and lifted. (Second District Project Office)

12 December 11

Legislative Yuan Finance Committee members Shih Yi-fang and Chiang Yung-Chang inspected Circular line Jingan Station. (First District Project Office)

12 December 11

New Taipei City Mayor Hou inspected Circular line Xiulang Bridge Station. (First District Project Office)

12 December 17

Taipei City Mayor Ko Wen-je and Taipei TWAIN STAR CO., LTD. signed the contract for "Taipei Main Station District Parcel C1/D1 (Eastern Part) Land Development Project (C1/D1 Land Development Project)" at an official ceremony. (First District Project Office)

12 December 18

Blessing ceremony for Contract IYZX01 mid-term improvement project of entrance escalators and elevators of initial network stations construction. (Second District Project Office)

12 December 20

The Wanda line Contract CQ842 shield tunnel from Station LG02 reached Station LG01. (Second District Project Office)

12 December 23

On December 23, 2019 the obstacle-free elevator at Xinyi line – Daan Station entrance/exit 3 and the obstacle-free elevator at Xinyi Anhe Station entrance/exit 2A were accepted. (Second District Project Office)

12 December 24

Circular line Zhonghe Station (Y11) Base Development High-rise Building project and investor signing were completed. (Joint Development Division)

12 December 24

Circular line Zhongyuan Station (Y13) Base Development High-rise Building project and investor signing were completed. (Joint Development Division)

2019 Awards

Serial Number	Issuing Authority	Prize Time	Award Name	Notes
1	Taiwan Geotechnical Society	March 9	Taichung MRT Wuri–Wenxin–Beitun line Section Contract JJG091 was the recipient of a 2019 Taiwan Geotechnical Society Outstanding Engineering Award.	Second District Project Office
2	Chinese Institute of Engineers	May 31	Circular line Contract CF643A won the 2019 Engineering Project Excellence Award.	First District Project Office
3	Chinese Institute of Engineers	May 31	Section Contract CJ930 of Taichung MRT Wuri–Wenxin–Beitun line won the 2019 Engineering Project Excellence Award.	Second District Project Office
4	Taipei City Government	August 2	For Taichung MRT Wuri–Wenxin–Beitun line 2nd Section Contract JJG091, the integrated structure of entrance/exit with land development site was the recipient of the Best Work Award in the 2019 Creative Proposal Competition.	Second District Project Office
5	Taipei City Government	August 13	The periodical article entitled "Taichung MRT Green Line Features and Construction Innovation" journal won the 2019 "Government Employees Publication in Academic Journals and Professional Books Award"	Second District Project Office
6	Taipei City Government	August 16	Circular line Subcontract CF651B of Section Contract CF650 was the recipient of the 8th Annual Public Works Award of Excellence (Architecture Category).	First District Project Office
7	Ministry of Labor	September 11	Wanda line Contract CQ842 construction was the recipient of the Ministry of Labor Public Works Golden Safety Award.	Second District Project Office
8	Formosa Association of Sustainable Care for Living Environment	September 19	Wanda line Contract CQ842 construction won the 20th Annual Golden Award for Architecture Public Construction Quality Award and First Prize.	Second District Project Office
9	Formosa Association of Sustainable Care for Living Environment	September 19	Urban renewal project on land lot No. 781, Nanshan Section, Zhonghe District, New Taipei City, won a Public Works Quality Award at the 20th Annual National Golden Awards for Architecture in the Public Works Category.	Joint Development Division
10	Chinese Architectural Golden Stone Award Contest Advisory Board	October 21	Urban renewal project on land lot No.781, Nanshan Section, Zhonghe District, New Taipei City won the First Prize in the 27th Annual Golden Stone Award.	Joint Development Division

Serial Number	Issuing Authority	Prize Time	Award Name	Notes
11	Executive Yuan's Public Construction Commission	November 15	Taichung MRT Wuri–Wenxin–Beitun line Section Contract CJ930 for construction from station G10 to G17 and elevator/escalators for the entire line was the recipient of the 19th Annual Pubic Works Golden Award of Excellence.	Second District Project Office, Systemwide E&M Project Office
12	Chinese Institute of Civil and Hydraulic Engineering	November 23	Section Contract CJ910 of Taichung MRT Wuri–Wenxin–Beitun line-- Beitun Depot (Station G0) and track works for the entire line – was the recipient of the 2019 Construction Environment and Beautification Award and Award of Excellence in the Construction Beautification and Landscaping Category.	Second District Project Office
13	Chinese Institute of Civil and Hydraulic Engineering	November 23	Detailed design for Station LG01 underground station on the Taipei Metropolitan MRT Wanda-Zhonghe-Shulin line was awarded the 2019 Construction Digital Innovation Application Award.	Civil Engineering and Architectural Design Division

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