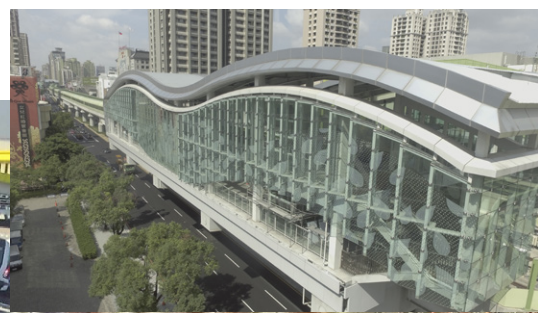




捷運年刊

2018

DORTS ANNUAL REPORT





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A Word from the Commissioner

Organizational Restructuring, Integration, and Starting Again – Creating New Milestones in MRT Route Network Construction



In 2018, DORTS has the joy of having been established for thirty years. In the first year since the thirtieth anniversary of challenges, DORTS was encouraged to create another 30-year. In response to the abolition of regulations for the assignment of personnel, DORTS amended organizational regulations for appointment authority in accordance with additional regulations for the appointment of civil servants for the sustainable management and inheritance of the MRT system. On June 1 DORTS smoothly carried out organizational revisions to commence the promotion of new milestones in MRT route network construction.

MRT construction has always been related to the convenience of the people in the metropolitan area. Furthermore, it shoulders the major responsibilities of the MRT Circular line and Taichung MRT Wuri–Wenxin–Beitun line construction for Taipei City, New Taipei City, and Taichung Metropolitan Area. In 2018 progress was made entirely in accordance with established works in order to complete construction and make all preparations for the opening of the lines. In 2018, construction financial planning and planning for Wanda line Phase II were approved by the Executive Yuan, and to date basic design has been completed, and the handling of tasks for urban planning revisions are underway. With the exception of Station Y15 (Banqiao Station), DORTS has completed civil engineering for all stations on the Circular line, with the EMS also undergoing intensive system integration testing for final preparations for the line to go into operation next year. In addition, with the exception of the



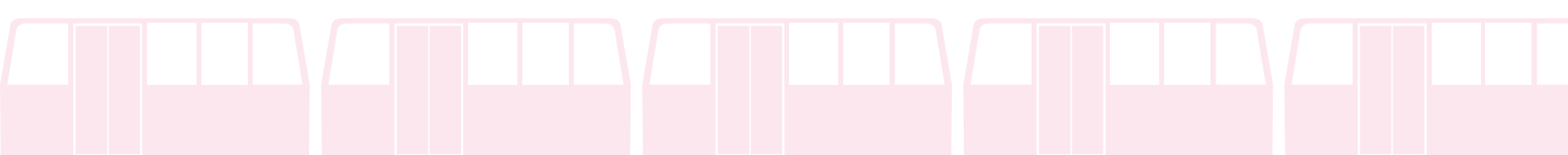
land development for entrance/exits, civil engineering for Taichung MRT Wuri–Wenxin–Beitun line has been completed with EMS also reaching the goal of trial operations. In addition to the on-going construction projects, DORTS is also accelerating the promotion of planned routes, and among these routes, Circular line north section and south section have already been incorporated into the Forward-looking Infrastructure Project by the MOTC. The comprehensive planning report has been submitted for central review, and the projects can be constructed following approval. In addition, the eastern Taipei north-south MRT System feasibility study has also been submitted to MOTC for review, and the Minsheng-Xizhi line environmental impact statement has also been submitted for central environmental assessment in December.

In terms of joint development projects, the tender for the C1/D1 land development project was smoothly awarded to the best applicant, and investor solicitation tasks have also been implemented for Circular line Zhonghe Station, Qiaohu Station, and Zhongyuan Station land development projects. Furthermore, in order to create a friendly and livable city and implement the establishment of an environment for an aging society with full-access for everyone, DORTS is actively engaged in escalator/elevator improvement planning for the MRT's initial network. Guting Station is the first station of Taipei MRT in which the construction for entrance/exit escalator/elevator improvement planning was carried out while the station is operational. Meanwhile, DORTS is also contributing efforts to the government's aging society policies and has completed the construction milestone of completing the newly-constructed "Daan Elder Services and Day Care Center."

DORTS is not merely a governmental technology organization which mainly handles MRT construction. DORTS is also a fully-functional MRT specialized management organization, which handles comprehensive tasks which include tasks related to joint land development, asset management, safety inspections of adjacent buildings, building permit review, MRT system replacement fund management, improvement of operating route section

facilities' functionality, and MRT technological experience heritage. In addition, in accordance with governmental policy goals for quality when establishing a safe, convenient, and high-quality MRT system, DORTS colleagues continue to pursue excellence and innovation while adhering to professional technologies in order to create good work quality and progress. In 2018, DORTS continued to achieve excellent results and won the following engineering awards:

- ◆ Section Contract CJ910 for construction of Taichung MRT Wuri–Wenxin–Beitun line Beitun Depot G0 Station and track zones for the entire line was the recipient of a Chinese Institute of Engineers Award of Excellence at the Engineers 2018 Awards for Construction Excellence.
- ◆ Subcontract CF643B of Circular line Section Contract CF640 was the recipient of a Chinese Institute of Engineers 2018 Award for Construction Excellence, a National Chinese Association of National Competitiveness and Development 20th Annual Golden Architecture Award, and a Chinese Society of Structural Engineering 2018 Structural Engineering Award.
- ◆ Circular line Subcontract CF651A of Section Contract CF650 and Circular line Section Contract CF660B were the recipients of a Chinese Institute of Engineers 2018 Award for Construction Excellence.
- ◆ Circular line north section and south section track section DF114 design planning contract and Wanda-Zhonghe-Shulin line (Phase II) DX105 design planning contract are two cases of design alternative analysis work which won the Value Management Institute of Taiwan 2017 Annual Outstanding Engineering Awards.
- ◆ Daan Elder Services and Day Care Center construction was the recipient of 2018 Taipei City Government Public Works Award of Excellence.
- ◆ Circular line Phase I Subcontract CF642 of Section Contract CF640 won a Golden Award in the Construction Quality Category of the ROC Real Estate Appraiser Association 2018 National Awards of Construction Excellence, as well as a 26th Annual Chinese Architectural Golden Stone Award for Excellent Construction of Public Architecture/Excellent Space Activation



Categories, as well as a Taiwan Concrete Institute 2018 Annual Top Prize of Excellence (Architecture Category) for Concrete Engineering.

- ◆ Taichung MRT Wuri–Wenxin–Beitun line Beitun Section Contract CJ930 for escalators/elevators from Station G10 to G17 was the recipient of a 2018 Taipei City Government Public Works Award of Excellence.
- ◆ Circular line Subcontract CF614A of Section Contract CF640 was the recipient of a 2018 Taipei City Government Public Works Award of Excellence and an 18th Annual Public Construction Commission Public Works Award of Excellence.
- ◆ Taichung MRT Wuri–Wenxin–Beitun line Beitun Section Contract JJG091 was the recipient of a Ministry of Labor 2018 Promotion of Occupational Safety in Health in Public Construction Award.
- ◆ The entrance/exit and land development joint construction project for Taichung MRT Wuri–Wenxin–Beitun line Beitun Section Contract JJG091 Section 1 was the recipient of a Golden Safety Award for the Promotion of Occupational Safety in Health in Public Construction.
- ◆ Contract CA441H for Taipei Main Station Special District C1/D1 High Rise joint construction architectural finishing works project was the recipient of an MOTC 2018 19th Annual Golden Road Award – 3rd Place Prize in the Category of Outstanding Engineering.
- ◆ M2 joint development construction projects at Xinzhuang line Qiaotou Station were the recipients of a 26th Annual Chinese Architectural Golden Stone Award Excellent Public Works/Activation of Space Category Planning Group Golden Stone Award and First Prize Golden Stone Award as well as a 19th Annual National Golden Award for Architecture for Excellent Public Works.
- ◆ Circular line Subcontract CF660B of Section Contract CF640 was the recipient of both a 19th Annual National Golden Award for Architecture for Excellent Public Works, a Public Works Award of Excellence, and an Award of Excellence.

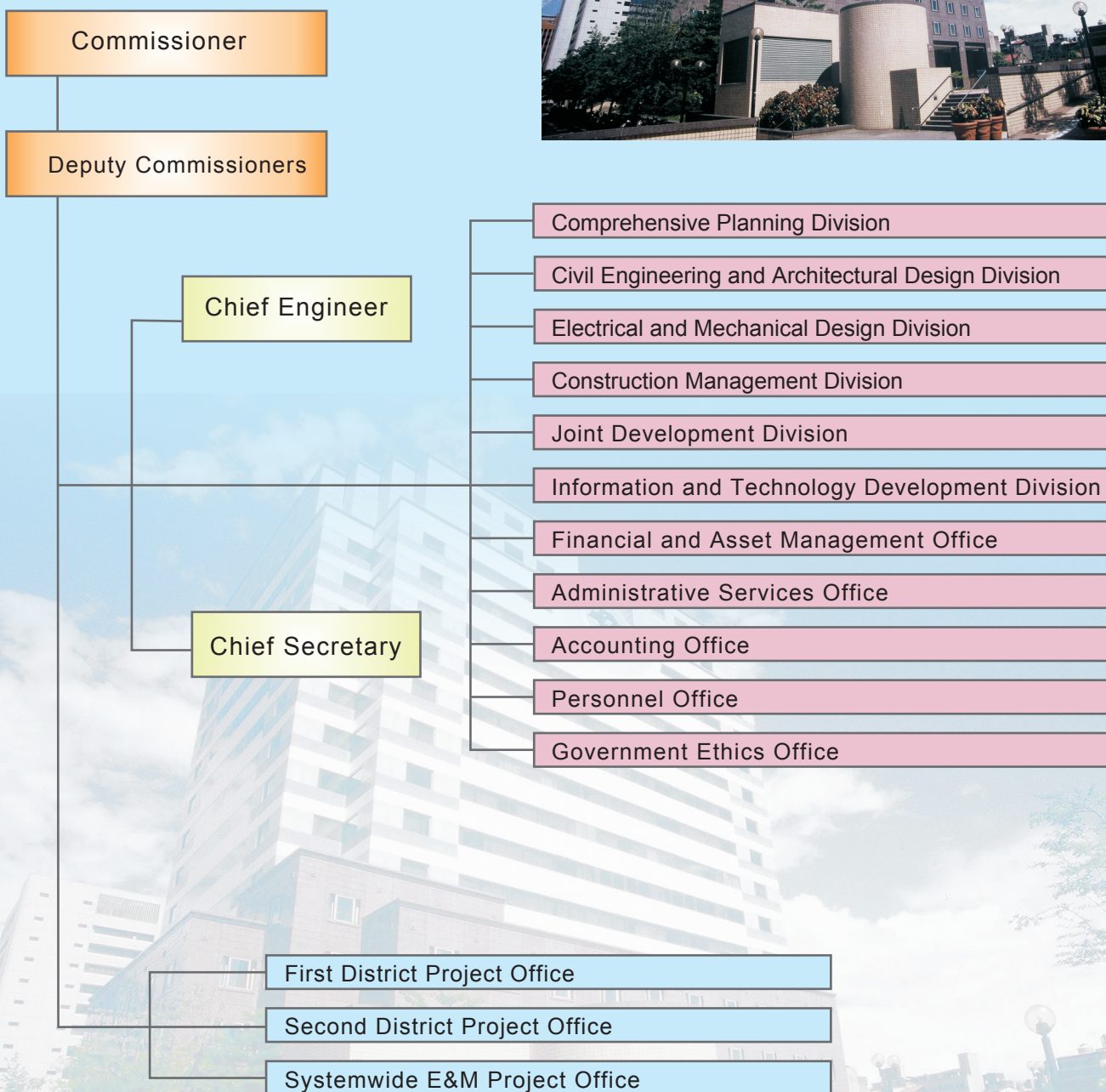
- ◆ Wanda line Subcontract CQ863 of Section Contract CQ860 was the recipient of a Public Construction Commission, Executive Yuan National Supervision of Performance on Public Works Award.
- ◆ MRT Songshan line Songshan Station Public Art Installation was the recipient of a Ministry of Culture Public Arts Creation Award.

The award-winning performance was a way for the outside world to give the MRT teams their highest affirmation for their diligent efforts. Through this phase of organizational consolidation, human resources at DORTS have been fully integrated. With the past thirty years of endeavors as a foundation and professionalism, in addition to actively and rapidly carrying out the construction of Wanda line, Circular line Phase I, Xinyi eastern extension, and Xinzhuang Depot, DORTS is diligently promoting MRT route planning and construction of Circular line north section & south section, Circular line east section, Minsheng-Xizhi line, and Shezi, Shilin, and Beitou light rail transit network. Moreover, with the goals of “building safe MRT construction,” “pursuing a human-oriented rapid transit system,” “creating quality MRT construction,” and “promoting a sustainable MRT environment,” DORTS is continuously producing quality construction, an efficient MRT, and a vision of leisure travel in Taipei to give back to the community which has given support and encouragement to DORTS.

Chang Tzer-hsiung

Commissioner

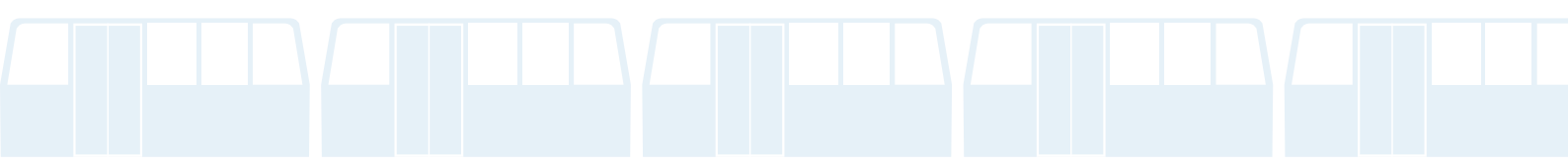
Organization Chart



Newly Completed and Inaugurated Routes

Completed and Inaugurated Routes (As of December 31, 2018)

Route	Terminal Stations	Total Length (km)	Notes
Wenshan Neihu Line	Taipei Zoo Station to Zhongshan Junior High School Station	10.9	Inaugurated on March 28, 1996
	Zhongshan Junior High School Station to Taipei Nangang Exhibition Center Station	14.8	Inaugurated on July 4, 2009
Tamsui Line	Tamsui Station to Chiang 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
Xinzhuan 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



Taipei Metropolitan Area MRT Map – Future Vision

Constructing a World-Class MRT System for the Taipei Metropolitan Area



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.

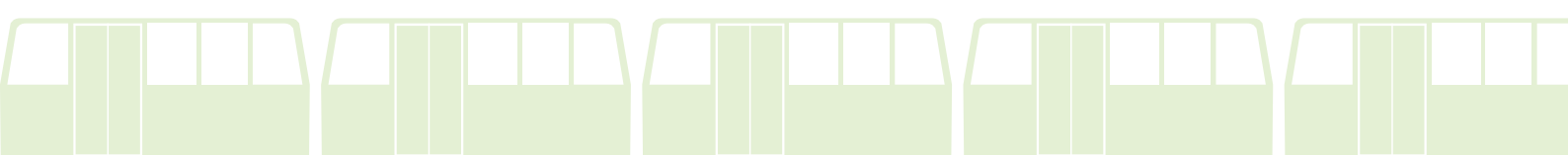
Approved MRT Routes under Design and Construction

Approved MRT routes currently under implementation are the Circular line Phase I, the Xinyi eastern extension, the Wanda-Zonghe-Shulin line Phase I, and the Xinzhuang line (Xinzhuang Depot), totaling 26.6 km. When all routes are completed, the MRT network will reach 163.2 km in total. (The construction of the Danhai light rail, the Sanying line, and the Ankeng line, which are located in New Taipei City, are the responsibility of the New Taipei City Government.)

Planned MRT Routes

Routes planned for future expansion include the Wanda-Zhonghe-Shulin line Phase II, the Circular line north section & south section, the eastern Taipei north-south MRT system (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



MRT Jiantan Station Automatic Monitoring Operations for Roof Suspension System and Structural Safety Review and Assessment

MRT Jiantan Station is considered to be the most iconic and complex landmark in the Taipei MRT system. The MRT Tamsui line has been in operation for over 20 years, and all of the structures have entered peak maintenance. In terms of the full life cycle of the structures, in order to ensure the suspension structure and operational safety of Jiantan Station, maintenance management tasks such as structural testing, assessment, and maintenance are of increasing importance.

Jiantan Station has a special structure of suspension roof, and general maintenance inspection alone is insufficient to understand the stress and slackening conditions inside the suspension system. Therefore, in 2016-2017, DORTS commissioned a professional service provider to handle the “Structural Safety and Monitoring System Planning of Suspension Roof - Taipei MRT Jiantan Station (Phase I),” and the technical services for the case are based on the content of the “Technical Specifications for Regular Inspection Tasks for the Roof Suspension System of MRT Jiantan Station.” Furthermore, testing of the stress and slackening conditions inside the roof suspension system of Jiantan Station will be the primary monitoring (inspection) object of this service case, and it will propose a structural analysis model for the suspension system as well as safety recommendations for follow-up monitoring and analysis solutions and monitoring instruments in order to understand the stress conditions of the Jiantan Station suspension system. Furthermore, the structural verification analysis model and setting of initial values for monitoring of the suspension system will provide MRT operation unit with a basis and maintenance reference for follow-up suspension system stress/displacement monitoring.

To follow up on the previous research results, DORTS has drafted the “MRT Jiantan Station Automatic Monitoring Operation for Roof Suspension System and Structural Safety Review and Assessment” commissioned technical services case, and through the establishment of an automated monitoring system as well as the installation of monitoring equipment and carrying out of automated measurements, the safety of the overall structural system will be monitored and analyzed. Moreover, in accordance with the concept of sustainable management, monitoring and testing management and maintenance mechanisms will be employed in order to increase the operational life span of the structure. The content of the follow-up tasks for this technical service case are as follows:

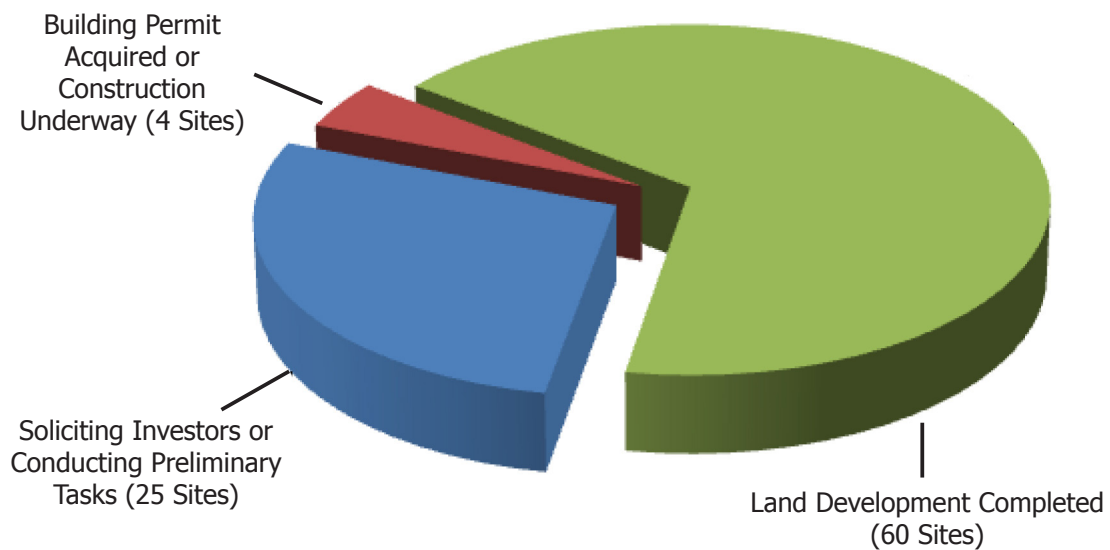
- (1) Procurement and installation of automated monitoring equipment
- (2) Establishment of disaster prevention monitoring system
- (3) Automated monitoring results report submission and structural safety assessment
- (4) Regularly structural inspection surveys and maintenance recommendations
- (5) Functional verification of dampers

Service fees for this commissioned technical service case were arranged in relevant subjects of the 2019 “Taipei Metropolitan Area MRT Fixed Assets Replacement Fund,” and it is a plan for which implementation will continue for four years (2019-2022). Planning and budgeting review tasks were completed in 2018, as well as the preparation work for tender documents before the public tender announcement. Meanwhile public tender reviewing tasks were carried out in mid-December 2018. This commissioned technical service case is scheduled to be publicly announced in early 2019 with the process of selecting manufacturers completed as soon as possible. The automated monitoring operations will be completed in stages in order to ensure the structural safety of the roof suspension system at Jiantan Station.

Land Acquisition and Land Development Fund Implementation Results

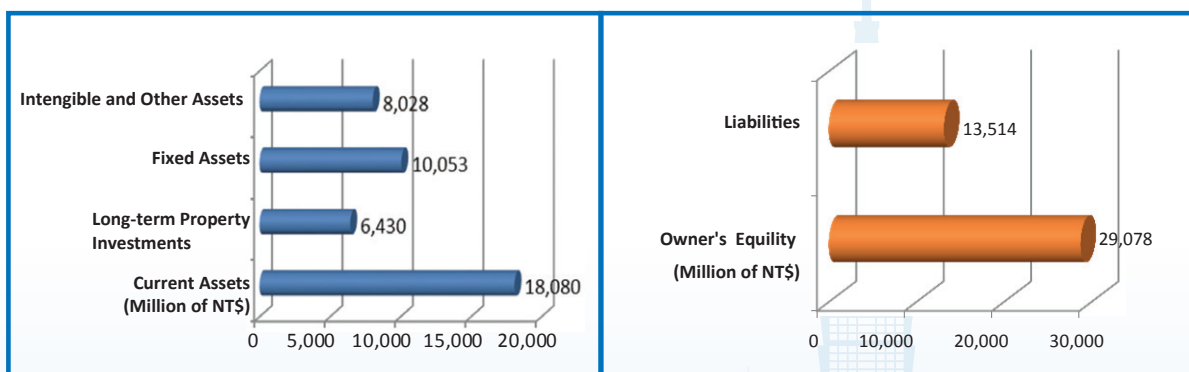
An Overview of Land Development

- The following chart shows 89 station sites approved for land development (including 7 sites on the Circular line.)



➤ MRT Land Development Fund Status

Fund Status: As of late December 2018, performance of total assets amounting to more than NT\$42,593,440,000 was as follows:



Sites in the Building Permit Acquisition or Construction Stage

Three sites under construction: Xinyi Anhe Station (M5), Daqiaotou Station (M2), and Sanchong Station (M6).

- **Xinyi Anhe Station (M5):** As of late December 2018, the project was 89.75% complete.



Rendering photo



Construction photo

- **Daqiaotou Station (M2):** As of late December 2018, the project was 99.88% complete.



Rendering photo



Construction photo

- **Sanchong Station (M6): Building permit acquired on November 4, 2013. Design revision is underway, thus construction has not yet commenced.**



Rendering photo

Performance of Sale by Open Tender of Publicly Owned Property Gained from JD Projects

Tender opening date	Sites	Results
September 20, 2018	Cailiao Station (M4) 40 residential units First Auction	No units were successfully auctioned off after opening 3 bids
October 18, 2018	Xinhai Station (T10) 18 residential units First Auction	One unit was successfully auctioned off after opening 2 bids
December 17, 2018	Xinzhuan Line Taipei Bridge Station (M2) 33 residential units First Auction	No units were successfully auctioned off after opening 1 bid

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	5	0
	Guandu Station(T40)	24			6	30	3	27
Wenhua Line	Technology Building Station (T7)	4	1			5	5	0
	Daan Station (T6)	7				7	7	0
	Gangqian Station (T9)			3	20	23	20	3
	Xinhai Station (T10)	5		1	37	43	19	24
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	31	0
	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, 11)			4		4	4	0
	Xindian District Office Station (M22)	25				25	25	0
	Xindian Depot (MeHAS)	396		9	258	663	651	12
	Xindian Station (M24, 25, 26, 27)				11	11	0	11
Dapinglin Station (M8)				11	11	11	0	
Zhonghe Line	Dingxi Station (M2)	11				11	11	0
	Dingxi Station (M3)			2		2	2	0
	Jingan Station (M5)	4				4	4	0
	Nanshijiao Station (M6)	4	2		8	14	7	7

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
Xinlu Line	Zhongxiao Xinsheng Station (M14)	13				13	12	1
	Xingtian Temple Station (M5)	12	1			13	12	1
	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)				254	254	254	0
	Cailiao Station (M4)				103	103	0	103
	Luzhou Station		14		468	482	332	150
Xinyi Line	Daan Station (M3)	5				5	5	0
Songshan Line	Nanjing Fuxing Station (M4)	6				6	6	0
		585	29	28	1187	1829	1490	339

Current Status of Unified Management at Each Development Building

Site	Commissioned Unified Management Period	Notes
Zhongxiao Fuxing Station (T4, T10)	June 30, 2016 – December 29, 2025	<ol style="list-style-type: none"> This building is for shopping mall use. Operated by Pacific SOGO Department Stores Co., Ltd., it has good operating performance with unified management. The original lease period ended on June 29, 2016 and was renewed with a fixed rent method.
Tamsui Station (Triangle Square)	November 17, 2012 - May 16, 2022 (Operation lease terminated on July 31, 2015)	<ol style="list-style-type: none"> All of the public real estate for this building has been returned to DORTS by all investors. 9th, 10th, and 11th floors have already been leased. Leasing operations will continue on the 4th and 5th floors. Commissioned lawyers are currently engaged in court proceedings for investor rent claims and other matters.
St. Ignatius High School Station (M1)	December 1, 2017 – May 31, 2027	<ol style="list-style-type: none"> The scope of this unified project includes a shopping mall and parking lot with 20 spaces on levels B1 and B2 (covering an area of 814.24 pings). As of December 1, 2017, operation and lease contracts have been signed with investors. The leasing period is from December 1, 2017 to May 31, 2027, and the preparation time for transfer of use is 90 calendar days and handled according to fixed-rents with an additional profit sharing mechanism.
Neihu Station (T11)	December 1, 2017 – May 31, 2027	<ol style="list-style-type: none"> The scope of this unified project includes a shopping mall on the first and second floors with two shops on the first floor. The volume of the parking lots will correspond to parking spaces for the shopping malls. Operations will be handled by Ruentex Development, Co., Ltd. The rental period is from December 1, 2017 to May 31, 2017, and the preparation time for transfer of use is 120 calendar days and handled according to fixed-rents with an additional profit sharing mechanism.

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 investment, 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 bidding was closed on October 1. Three stages of selection tasks (qualifications, specifications, and prices) have already been completed for the selection of optimal applicants, and lease signing tasks will be completed in late March 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 solicitation and signing of contracts have been completed.**
- **Solicitation of investors and signing of contracts have been completed, and 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: 44 city-owned units were handed over to buyers after a one-year warranty period. It was the first such project conducted by Taipei City Government.
 - ✧ Urban renewal tasks consisting of six plots on No. 107-2, Subsection 2, Yixian Section, Xinyi District, Taipei: On June 13, 2016 construction permits were obtained, and the acceptance and property handover for 37 city-owned units have been completed.
 - ✧ Urban renewal project on Land No. 781, Nanshan Section, Zhonghe District, New Taipei City and urban renewal project on Land No. 140, Xinghe Section, Zhonghe District, New Taipei City: Construction permits and use licenses issued by New Taipei City Government were received for two projects and inspections and acceptances are underway.
 - ✧ 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 is underway.

- ✧ Urban renewal project consisting of 38 plots on Land No. 623, Subsection 3, Muzha Section, Taipei: Urban renewal business plan review is underway.

Land Development Fund Implementation Results

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

Among the 45 sites on the initial network, publicly and privately held land in land development programs with completed contract signing accounted for 37.75% of the total land development sites, saving NT\$15.04 billion in land acquisition costs. For the subsequent network of 44 base sites, apart from Songjiang Nanjing Station (M9) on the Xinzhuang line, which was expropriated as city-owned land without negotiation, and Station LG04 (M9) and three base sites at Station LG07 on the Wanda line, which have proceeded with land acquisition after completing urban rezoning operations, negotiation for the remaining 41 sites has been completed, and a total of NT\$31.14 billion was saved in land acquisition costs. Internal and external benefits created are as follows:

- ✧ Internal Benefits: Contracts were signed and usage permits were acquired at 60 base sites. The private sector invested NT\$105.79 billion and provided more than 670,000 pings of floor area for commercial and residential use.
- ✧ External Benefits: To facilitate transfer between transportation modes, transfer facilities established at 10 sites provided 460 parking spaces for cars, 1,268 spaces for scooters, and 994 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 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

efficient implementation 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)

(1) 3 plots of land with a total area of 112 square meters were allocated for construction of Station LG01 (M4) Land Development Site at No. 135-1, Subsection 4, Nanhai Section, Zhongzheng District, Taipei City, and on December 21, 2018 the payment for land requisition was approved by the Executive Yuan. (Official letter Ref. No. 10700387850)

(2) 1 plots of land with an area of 158.18 square meters was allocated for construction of Station LG06 Land Development Site 2 at No. 110, Liancheng Rd. Zhonghe District, New Taipei City, and on December 21, 2018 the payment for land requisition was approved by the Executive Yuan. (Official letter Ref. No. 1070040641)

1 plot of land with an area of 104.91 square meters was allocated for construction of MRT System Xindian District Office Station and land development at No.545, Xindian District, New Taipei City, and on September 27, 2018 the payment for land requisition was approved by the Executive Yuan. (Official letter Ref. No. 10700293720)

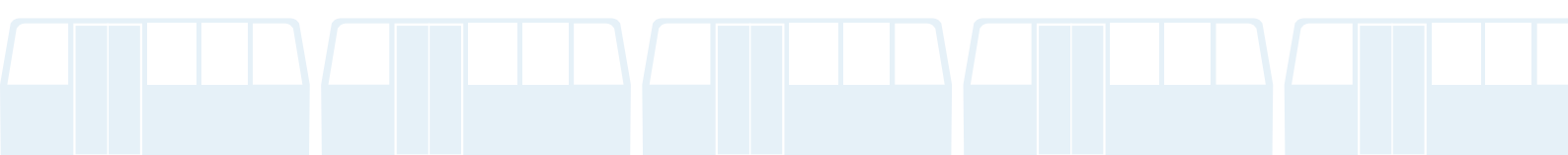

2. Private Land

Wanda Line Phase I Construction:

(1) Purchasing price agreements were made for 132 holdings of land with a total area of 87,752.06 square meters for the Depot (including Station LG08A) at No.1-2, Anhe Section, Tucheng District, New Taipei City and No. 238, Ziqiang Section, Zhonghe District.

(2) A merger purchase was made for 2 plots of land with a total area of 74.3 square meters for the Depot (including Station LG08A) at No.76-1 and No.86-1, Anhe Section, Tucheng District, New Taipei City.

(3) Land expropriation in Zhonghe District for MRT development of the Depot (including Station LG08A): On August 13, 2018, the Ministry of the Interior approved land expropriation for 8 plots of land with a total area of 3,600.63 square meters (Official letter Ref. No. 1071304918), and payment tasks were carried out by New Taipei City Government on November 15, 2018 via New Taipei City Government Land Expropriation Announcement Ref. No. 10718810664 on October 8, 2018.

- 
- (4) Land expropriation for land used (Tucheng District) for construction of the Depot (including Station LG08A): On November 12, 2018, the Ministry of the Interior approved land expropriation for 51 plots of land with a total area of 20,516.26 square meters (Official letter Ref. No. 1070452295), and payment tasks were carried out by New Taipei City Government on December 27-28, 2018 via New Taipei City Government Land Expropriation Announcement Ref. No. 10721740065 on November 14, 2018.
 - (5) Purchasing price agreements were made for 25 holdings of land with a total area of 1,014.483 square meters for Station LG01 (M4) Land Development Site at No. 108, Subsection 4, Nanhai Section, Zhongzheng District, Taipei City.
 - (6) Purchasing price agreements were made for 2 holdings of land with a total area of 966 square meters for Station LG06 Land Development Site 2 at No. 29-1, Anbang Section, Zhonghe District, New Taipei City.
 - (7) Purchasing price agreements were made for 2 holdings of land with a total area of 439.37 square meters for land development at Station LG06 Land Development Site 2 at No. 110, Liancheng Rd., Zhonghe District, New Taipei City.
 - (8) On October 30, 2018, the Ministry of the Interior approved land expropriation for 1 plot of land with a total area of 2,452.1 square meters (Official letter Ref. No. 10720957985) for Station LG06 Land Development Site 2. The payment tasks were carried out on December 14, 2018.
 - (9) Construction land agreement price purchases were carried out for Station LG07 MRT Land Development Site 4 for 11 holdings of land with a total area of 714.068 square meters at No. 191 Taimao Section, Zhonghe District, New Taipei City.
 - (10) Land expropriation for construction projects at Station LG07 MRT Land Development Site 4: On November 9, 2018, the Ministry of the Interior approved land expropriation for 3 plots of land with a total area of 9.89571 square meters (Official letter Ref. No. 10721787173) for Station LG07 Land Development Site 4. Payment tasks were carried out on December 24, 2018 via New Taipei City Government Land Expropriation Announcement Ref. No. 1070452295 on November 14, 2018.
- 

➤ Land Acquisition Status:

Purchased or expropriated land agreements in 2018

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 Depot Construction (including Station LG08A)	Price Purchase Agreement	399	132	87752.06	34 cases from September 1, 2017 to November 8, 2018
Wanda Line Phase I Depot Construction (including Station LG08A)	Merged purchase	6	2	74.3	May 29, 2018 May 30, 2018
Wanda Line Phase I Depot Construction (including Station LG08A) Land Development Site (Tucheng District)	Expropriation	140	51	20516.26	Approved by Ministry of the Interior on November 12, 2018 (Ref. No. 1070452295)
Wanda Line Phase I Depot Construction (including Station LG08A) Land Development Site (Zhonghe District)	Expropriation	25	8	3600.63	Approved by Ministry of the Interior on August 13, 2018 (Ref. No. 1071304918)
Wanda Line Phase I LG01 Station Land Development Site (M4)	Purchase	36	28	1014.483	January 30, 2018 April 18, 2018 December 4, 2018
Wanda Line Phase I Station LG06 Land Development Site 2	Purchase	15	2	966	Approved on November 7, 2018
Wanda Line Phase I Station LG06 Land Development Site 2	Purchase	19	2	439.37	Approved on December 8, 2017
Wanda Line Phase I Station LG06 Land Development Site 2	Expropriation	1	1	2452.1	Approved on October 30, 2018 (Ref. No. 1071306426)
Wanda Line Phase I construction for Station LG07 Land Development Site (M4)	Purchase	10	11	714.068	March 22, 2018 August 29, 2018
Wanda Line Phase I construction for Station LG07 Land Development Site (M4)	Expropriation	1	3	9.89571	Approved on November 9, 2018 (Ref. No. 10721787173)

Annotation Compensation for MRT Routes Passing Beneath Private Land Conducted in 2018

Project Name	Number of Land Lots	Number of Landowners	Amount of Compensation (NT\$)	Area(square meters)
Underground crossing works of Xinyi Eastern Extension	76	272	323,407,697	6392.11

Land Appropriated for Public Construction in 2018

Project Name	Acquisition Method	Landowner	Land Administrator (Authority)	Number of Land Lots	Shared Land Area (square meters)	Approval Reference No.
MRT System Xindian District Office Station and Land Development Site	Paid appropriation	Republic of China	Directorate General of Highways, MOTC	1	104.91	Approved by the Executive Yuan on September 27, 2018. (Official Ref. No. 10700293720)
Wanda Line Phase I Station LG06 (Land Development Site 2) Construction	Paid appropriation	Wangan Township	Wangan Township Hall, Penghu County	1	158.18	Approved by the Executive Yuan on June 5, 2018. (Official Ref. No. 1070040641)
Wanda Line Phase I Station LG01 Land Development Site (M4) Construction	Paid appropriation	Republic of China	National Property Administration	3	112	Approved by the Executive Yuan on December 21, 2018. (Official Ref. No. 10700387850)

➤ Demolition Compensation for Land Improvements

Results of Land Improvements Assessment for the Wanda Line Phase I in 2018

Number	Site Name	Date of Completion	Complete Contents
1	Station LG01 (M4) Land Development Site	December 2018	Transfer of 22 households of land for construction use transferred to DORTS Second District Project Office was completed.
2	Station LG03 (M10) Land Development Site	February 1, 2018	11 households of buildings and 1 miscellaneous work within the scope of land sites were transferred to DORTS Second District Product Office for maintenance management.
3	Station LG04 North Side (M7) Land Development Site	Landlord disputes in progress September 17, 2018	Due to protests from landowners, land improvement inspection cannot be carried out in the buildings. For the sake of obtaining land for use, a proposal for compensation fees was submitted for approval following review revision on the visible parts of the buildings along with relevant data.
4	Station LG06 North Side (M2)	April 17, 2018	The 2nd public hearing for the compensation for the demolition of land improvements was completed.
		April 25, 2018	Assessment tasks of the compensation for the demolition of land improvements were completed.
		July 5-6, 2018	On-site building inspection and evaluation results review was carried out by the Public Works Department, New Taipei City Government and DORTS.
		August 30, 2018	Price purchase negotiation for compensation of land improvements demolition was completed.

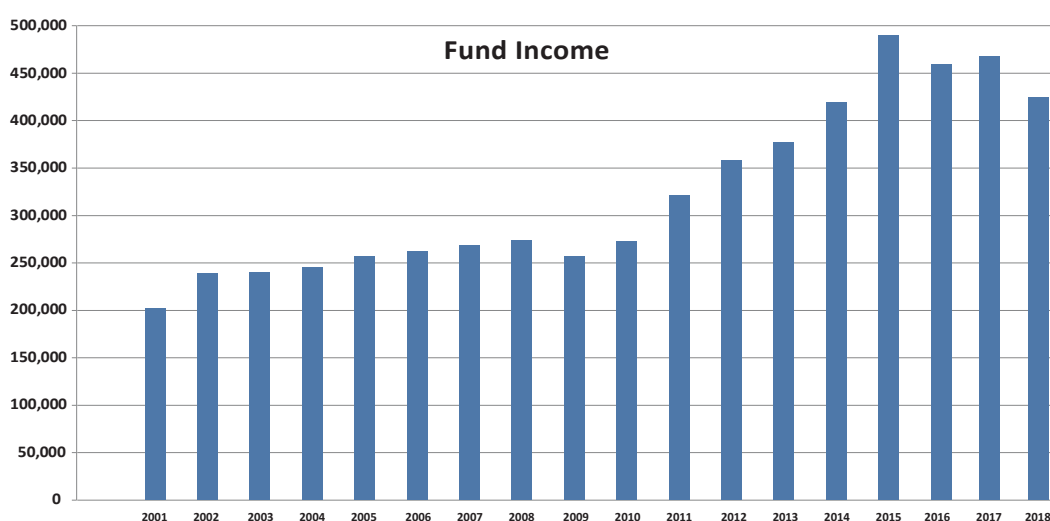
Number	Site Name	Date of Completion	Complete Contents
5	Station LG06 South Side (Land Development Site 2)	October 30, 2018	No. 77 Liancheng Rd. (originally the Huang Cheng Motel) was approved for land expropriation by the Ministry of the Interior and publicly announced by New Taipei City Government on November 6, 2018.
		December 20, 2018	No. 77 Liancheng Rd. (originally the Hnang Cheng Motel) was transferred to DORTS First District Project Office for maintenance management.
6	Station LG07 South Side (Land Development Site 4)	October 11, 2018	3 households of buildings within the land use site were transferred to DORTS First District Project Office for maintenance management.
7	Station LG08 North Side (Land Development Site 5)	Disputes among multiple landlords in progress March 19, 2018	On-site assessment of land improvements was commenced in July 2017. Only 3 households consented for DORTS to enter the property, and subsequently as a result of fierce opposition from numerous residences, assessment tasks were suspended. For the sake of obtaining land for use, this year DORTS recommenced assessments for those who refused to allow DORTS to enter the property by observing building exteriors.
		June 21, 2018	Price purchase negotiation for compensation of land improvements demolition was completed with prices temporarily evaluated according to external appearance. However, it was completed without review by relevant units, so the amounts are reference prices for agreement.
		July 25, 2018	The owner of 1 building structure within the scope of land for use and the Zhonghe Regional Farmers Association consented for DORTS to enter the premises to conduct assessment of land improvements.
		September 10, 12, and 19, 2018	On-site inspection and assessment for the results of land improvements for auditing and identification was conducted along with the Publics Work Bureau, New Taipei City.
		December 7, 2018	A proposal for compensation fees and relevant allowance for the scope of land was submitted for approval following the completion of auditing and identification.
		December 20, 2018	Following the auditing and identification, landowners were notified in writing of the compensation fees and allowances.
8	Wanda Depot and Station LG08A (Land Development Site 7)	August 15, 2018	Zhonghe District building reassessment tasks and compensation payments completed.
		December 14, 2018	The demolishing for land improvements in Zhonghe District was completed and transferred to the District Project Office to carry out construction.
		December 28, 2018	The demolishing of 50 households in Tucheng District were transferred to the District Project Office to carry out construction.

Replacement Fund and Asset Management

Taipei MRT Fixed Asset Replacement Fund

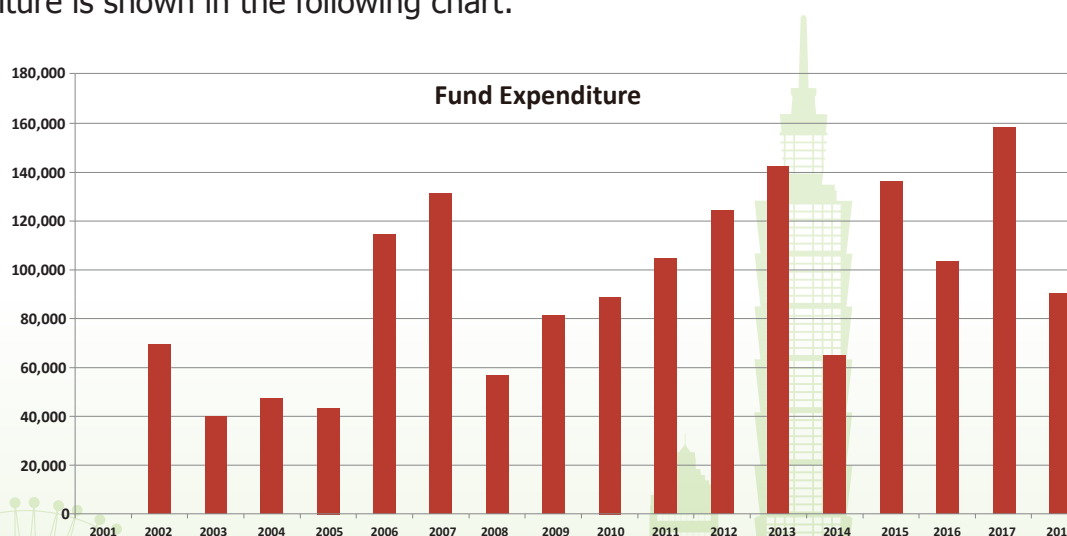
➤ Fund Income

As of December 31, 2018, fund income totaled NT\$58,339,238,486. Historic fund income is shown in the following chart:



➤ Fund Expenditure

As of December 31, 2018, fund expenditures totaled NT\$15,962,371,942. Historic fund expenditure is shown in the following chart:

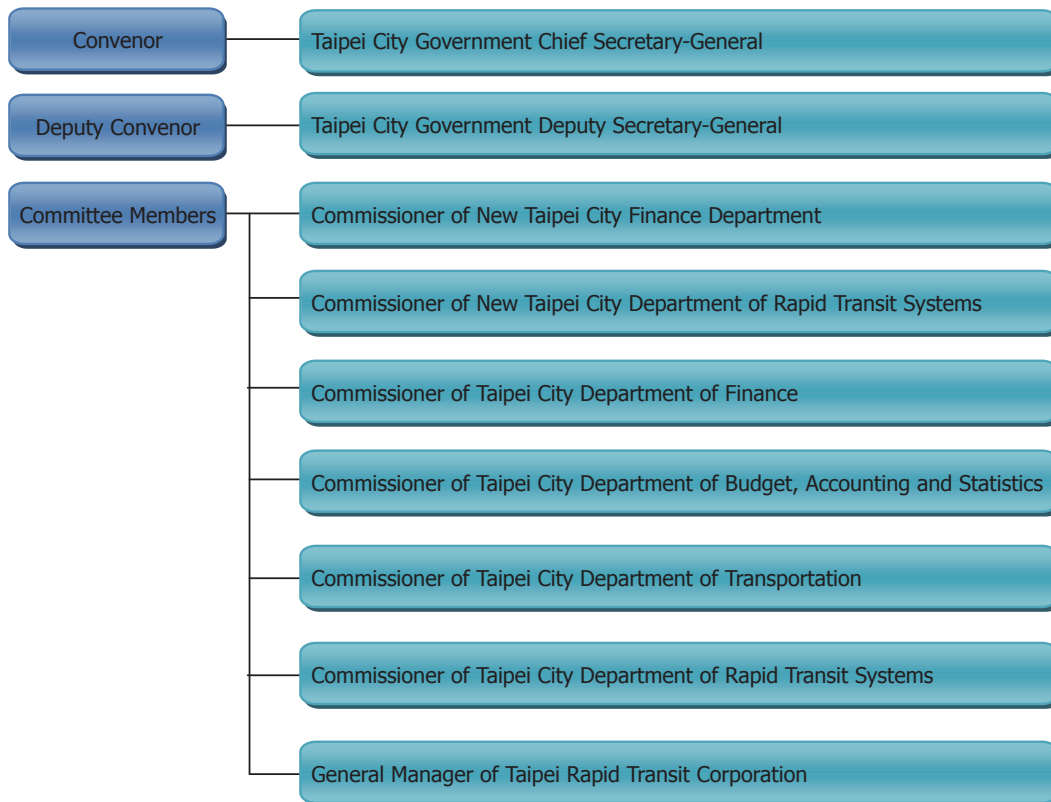


➤ **Operation Status**

Duties of Fund Management Committee:

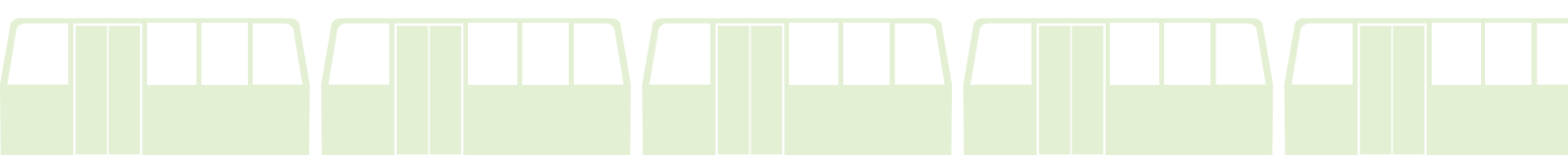
- ✧ Deliberation of systemwide facility replacement plan
- ✧ Supervision of systemwide facility replacement of in-service routes to meet operational needs
- ✧ Deliberation of external financing of the fund
- ✧ Deliberation of other major businesses associated with fund management and operation

Organization of Fund Management Committee



➤ **Business Performance Review**

- ✧ A total of NT\$4,187,871,449, including NT\$4,109,994,460 for rental income, NT\$62,876,989 for interest income, and NT\$15,000,000 for miscellaneous income was arranged for the fund in 2018.
- ✧ Fund purposes: In 2018, 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, Wenhua, 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\$875,661,184, including NT\$38,986,000 for the MRT facility replacement plan, NT\$20,221,405 for general administrative management operations, and NT\$816,453,779 for building and facility plans, was arranged. According to the resolution of the first committee meeting in 2018, 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 21 capital expenditure plans (including continual and new plans) in 2018.
- (2) Non-scheduled Plans: A total of 6 capital expenditure plans in 2018 were subject to procurement of facilities/assets, domestic/foreign import and market prices.
- (3) Deferred expenditure: A total of 7 deferred expenditure plans in 2018 were subject to house repairs and construction.

2. Budget Performance:

(1) Fund Sources:

- a. Asset revenues: Compared with the 2018 statutory budget of NT\$4,172,871,449, as of December, actual expenditures were NT\$ 4,222,076,243.
- b. Other revenues: Compared with the 2018 statutory budget of NT\$15,000,000, as of December, actual expenditures were NT\$11,686,553.

(2) Fund Uses:

- a. MRT facilities replacement plans: Compared with the 2018 statutory budget of NT\$38,986,000, as of December, actual expenditures were NT\$31,037,864.
- b. Regular administrative plans: Compared with the 2018 statutory budget of NT\$20,221,405, as of December, actual expenditures were NT\$19,522,690.
- c. Building and facilities plans: Compared with the 2018 statutory budget of NT\$ 816,453,779, as of December, actual expenditure were NT\$ 842,547,324.

(3) Budget Deficit:

Compared with the 2018 statutory budget surplus of NT\$3,312,210,265, as of December, the actual expenditure were NT\$3,340,654,898.

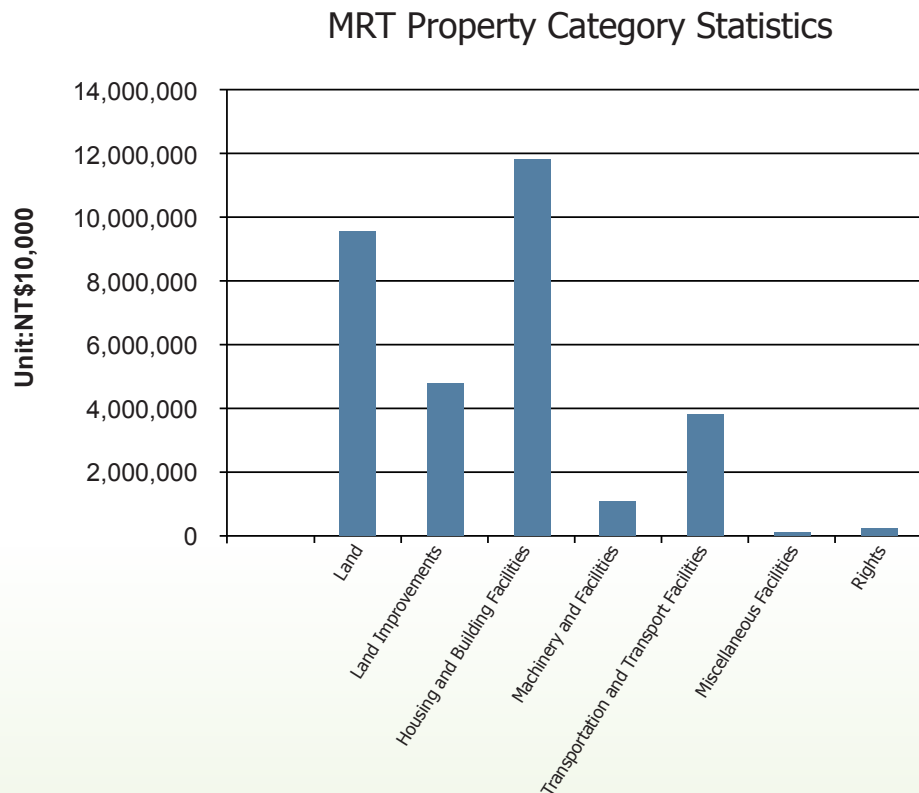
3. Financial Management:

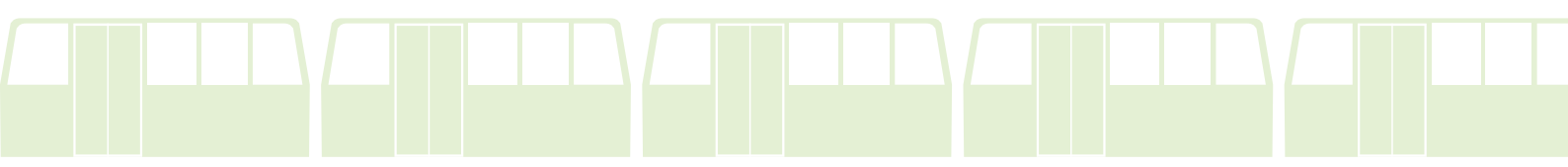
- (1) The primary source of the fund is facility replacement and flexible rent allocations made by TRTC, which includes 2% of annual business revenue and 50% of profits, with the total not to exceed 4% of revenues. The purpose of the fund is to be used as a short-, medium-, and long-term replacement for MRT system equipment.
- (2) To alleviate financial difficulties for fund implementation and municipal treasury distribution demands, after deducting the annual estimated expenditure, a portion of the replacement fund balance amounting to no more than 75% of the surplus fund was applied to be dispatched to the municipal treasury. In view of the municipal treasury distribution needs, the Finance Department repaid in advance the money borrowed from the municipal treasury, in order to reduce the debts of City Government. The municipal treasury had borrowed NT\$10,770,000,000 (with a yearly interest rate of 0.162%) from the fund as of December 31, 2018.

MRT Property Management

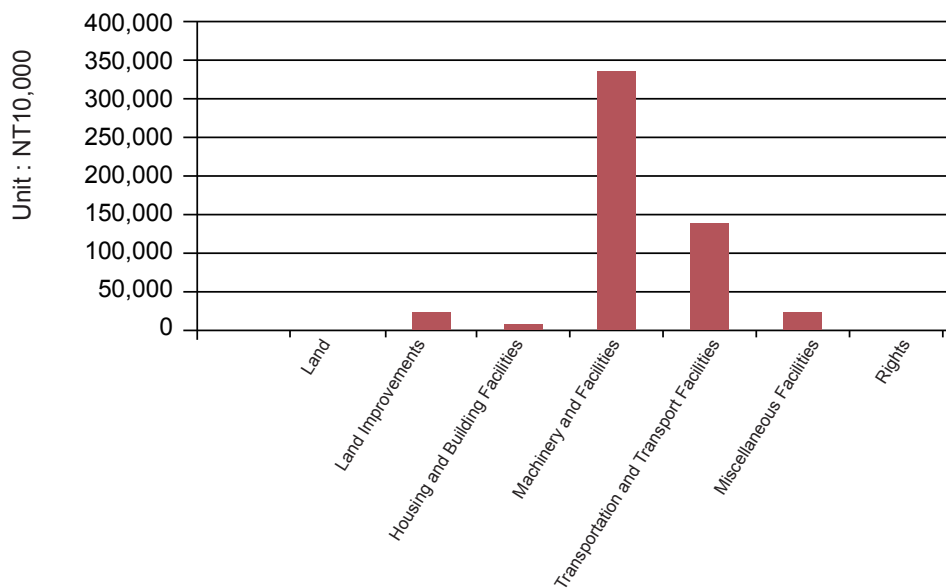
➤ MRT Properties

The amounts of MRT properties and replaced properties for each of the MRT routes as of late December 2018:





Replaced Property Category Statistics



➤ Property Inspection Tasks

In order to manage MRT property thoroughly and effectively, DORTS inspects MRT properties annually with designated staff members from subordinate project offices. 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 from DORTS' associated offices conducted a routine check from November 12 - November 28, 2018. Results were sent to TRTC for improvement and follow-up.



➤ Insurance

Taipei MRT Insurance Claims Statistics

Claims Statistics as of December 31, 2018

(Unit: NT\$)

Route	Claims Amount Prior to Dec. 31, 2017		Claims Amount from Jan. 1, 2018 to Dec. 31, 2018		Total
Xinzhuang Line	\$	201,522,443	\$	-	\$ 201,522,443
Luzhou Line	\$	257,192,062	\$	7,597,435	\$ 264,789,497
Neihu Line	\$	144,115,151	\$	-	\$ 144,115,151
Xinyi Line	\$	88,195,881	\$	-	\$ 88,195,881
Songshan Line	\$	113,551,628	\$	62,366,343	\$ 175,917,971
Circular Line Phase I	\$	35,558,589	\$	13,504,184	\$ 49,062,773
Taichung Wuri-Wenxin-Beitun Line	\$	12,266,465	\$	3,636,946	\$ 15,903,391
Wanda-Zhonghe-Shulin Line Phase II	\$	-	\$	620,752	\$ 620,752
Total	\$	852,402,219	\$	87,752,660	\$ 940,127,859

Public Relations and Marketing Activities

Promotional Activities

In order to cooperate with advocacy of the progress of MRT construction projects, in addition to updating the “Wanda-Zhonghe-Shulin Line Introduction,” DORTS is also strengthening advocacy for MRT route network planning construction achievements and has specially created a practical and beautiful MRT cultural creativity bag and an L-shaped folder as promotional products. In addition, DORTS is also reporting through Taipei MRT Newsletters, various Taipei MRT brochures and publications, as well as advertising designs for the academic societies, associations and annual conferences combined with visions for MRT construction projects, and content related to construction core technologies and joint development operations for the sake of a multi-faceted publicity orientation for MRT construction accomplishments. This will enable citizens to gain a deep understanding of MRT construction projects which are currently underway and being planned in the route network.

The 17 electric multiple units (EMUs) which are required for operations of Circular line Phase I, which is currently under construction, have already arrived at the South Depot, and dynamic testing of EMUs for the entire line is currently in progress. This year, a “Mayor Ko’s Inspection of Circular Line Phase I Construction” event was specially held.

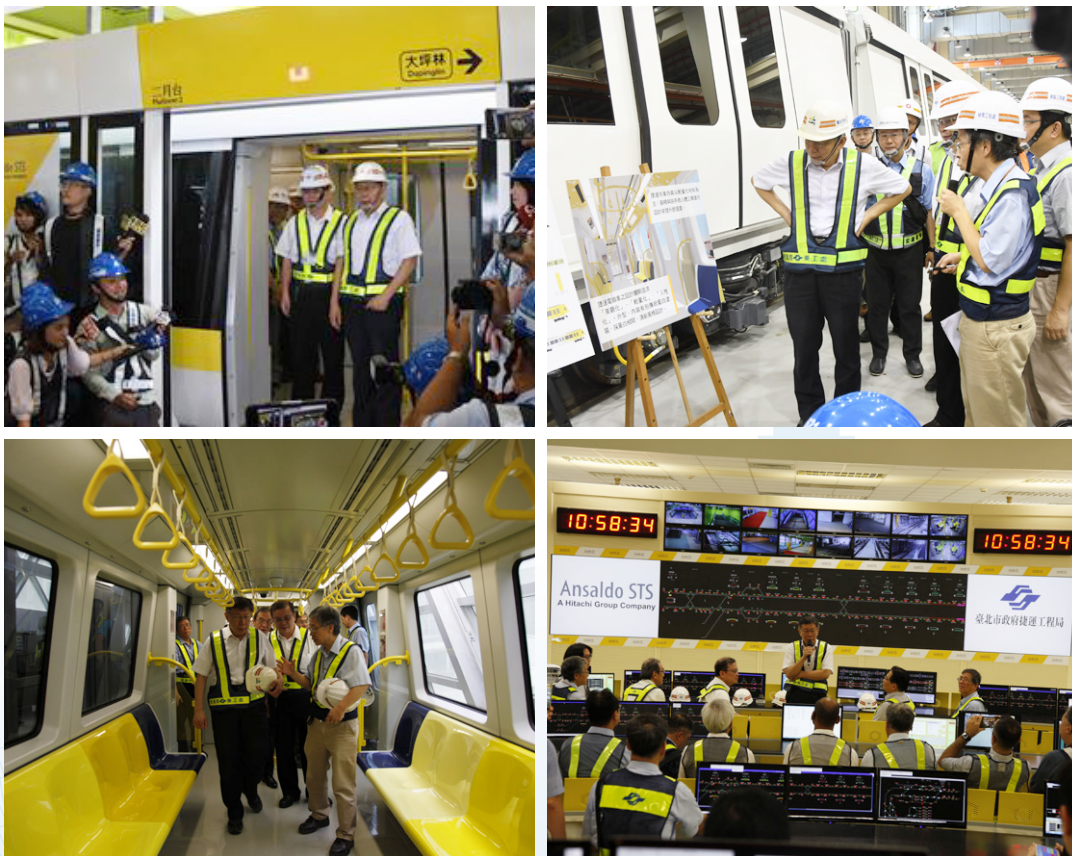


Photo 1: Mayor Ko inspected Circular line Phase I construction (Aug. 10)



Photo 2: In cooperation with MRT planning and construction accomplishments, aesthetically pleasing and practical brochures were created along with a cultural creativity bag and an L-shaped transparent folder.

Promotional Activities

This year a 90-minute promotional film was created in which the Commissioner discussed MRT policies, entitled "Taipei MRT Can Become a Circle for Leisure Lifestyles and Transportation." The content of the film mainly consisted of DORTS' planning blueprint for the circular MRT route network (Circular line, Circular line north section & south section, and Circular line east section and the MRT TOD vision) together with a matching animation which is presented in a creative, lively, and easy-to-understand way. Additionally DORTS' official website provides the public with a search function which is integrated with the city government's Facebook page "HUMANS OF TAIPEI" on marketing promotional activities. These activities attract people to read the web content, which demonstrates the city's vision for construction and enhances the visibility and promotion of policies.

In addition, in order to enable the public to feel and be first witness to the DORTS team's diligence and expenditures for high quality MRT construction, the "Mayor Ko inspects Circular line Phase I Construction" event video was specially produced and shared with the public through the mayor's Facebook page.

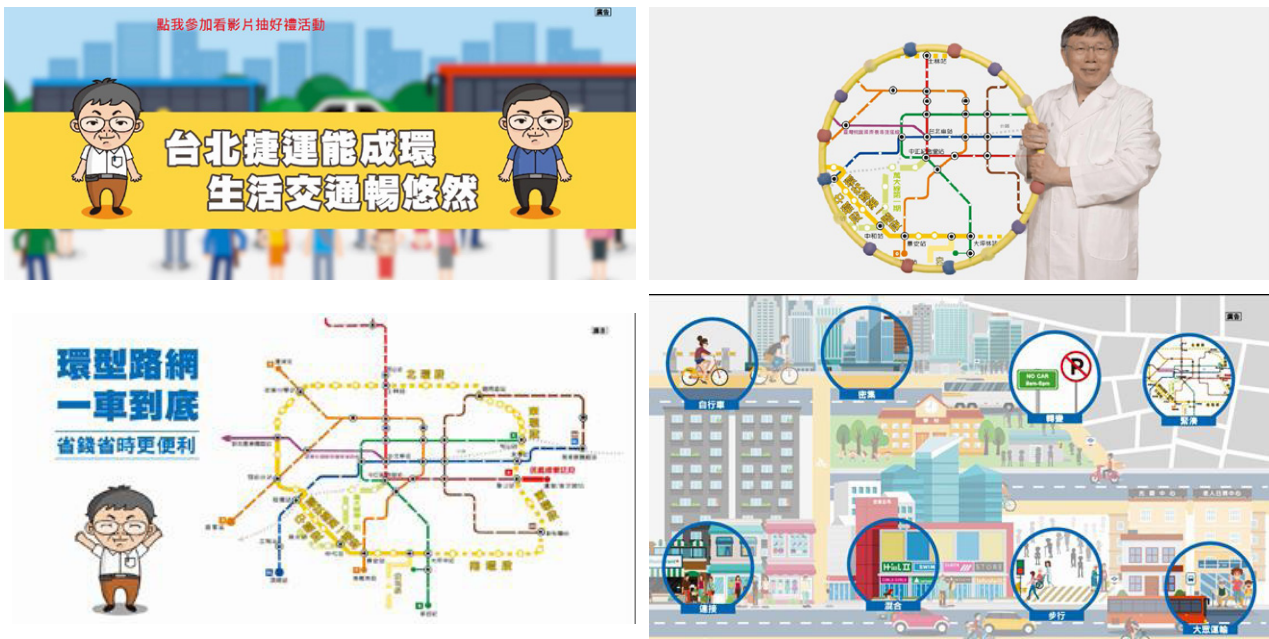


Photo 1: The government policy film "Taipei MRT Can Become a Circle for Leisure Lifestyles and Transportation" publicizes the circular route network and MRT TOD vision.



Photo 2: The results of municipal planning are marketed through the city government's Facebook page and Mayor Ko's Facebook page.

Visitor Events

This year arrangements were made to receive people from all walks of life at forums to listen to briefings. A total of 5 forums were held with 45 participants in attendance.



Czech Republic Railway Industry delegation paid a visit (February 22)



An Ohio State University delegation visited from the United States (March 15)



Singapore's PTC paid a visit (March 28).



Brisbane, Australia City Councilors attended an interview and discussion (November 14).



Guangzhou City Planning Economic and Trade Mission paid a visit (December 4).



MRT Routes Under Construction

The MRT routes currently under construction include Xinzhuang Depot, the Circular line Phase I, Taichung MRT Wuri-Wenxin-Beitun line, Wanda line Phase I, 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 scheduled completion date for this project was May 30, 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, mountain tunnel, working shaft, cut-and-cover tunnel, cut-and-cover tunnel for the extension section, depot connection tunnel, stabling yard (including 400 series stabling tracks), maintenance plant (including employee office), facility substation/power distribution room, bulk supply substation (BSS), sewage treatment plant, electric multiple unit (EMU) cleaning area, MRT police branch office, warehouse for specialized goods, steel structure platform, spare parts warehouse, Huilong Station transfer facilities, plant drainage, landscaping, and surrounding road works.

➤ **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 Sanatorium Hospital at the entrance.
- Maintenance plant (including employee office), spare parts warehouse, police branch office, structure of warehouse for specialized goods.

■ Construction in progress

- Maintenance plant, stabling yard, spare parts 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.



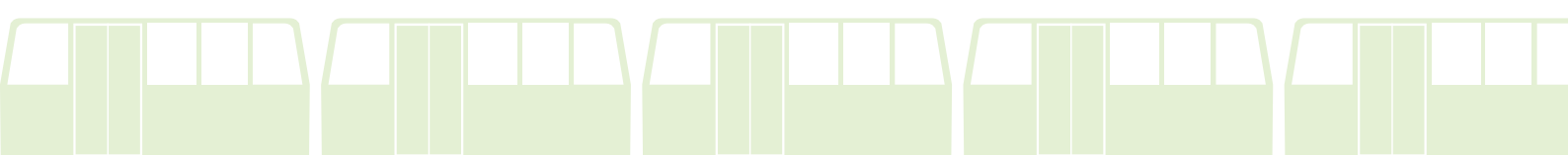
Bird's-eye view of the construction status of Xinzhuang Depot

◇ **Xinzhuang Depot Systems:**

- Construction of Xinzhuang Depot Systems is part of the construction of Xinyi eastern extension and Xinzhuang Depot Electrical and Mechanical Systems, which is divided into Contract CK372A Signaling System Contract, Contract CK373A Power Supply, Contract CK375B/CK375C Communications, and Contract CK379B Depot Maintenance Equipment.

■ **Contract CK372A - Current Status of Signaling Systems:**

- The signaling construction was awarded on June 29, 2018, signed on July 26, and started on September 1. The substantial completion date of Xinzhuang Depot is September 15, 2020, and the finishing date is March 15, 2021.
- Currently, the signaling system is continuing to perform the submission and inspection of the inspection and testing plan for the arrived equipment of Xinzhuang Depot. The arrived equipment for the Signal Equipment Room is expected to be delivered to the Xinzhuang Depot Signal Equipment Room by the end of December, and the subsequent installation and testing is expected to begin in January 2019.
- The system console and layout integration of the train operation control room in Xinzhuang Depot tower are completed and are beginning to be arranged for production.
- The first signal construction prepayment was made on September 28, 2018, and



the second prepayment was made on December 21 of the same year.

- Contract-related documents are continuously submitted for review and approval.

■ **Contract CK373A--Current Status of Power Supply Systems:**

- The power supply construction was awarded on April 19, 2018, signed on May 11, and started on June 1. The substantial completion date of Xinzhuang Depot is September 15, 2020, and the finishing date is March 15, 2021.
- The present electrical/electrical interface and electrical/civil interface of CK373A Xinzhuang Depot Power Supply Systems have been completed, and the relevant administrative operations are being carried out. The inspection plan of the Owner's arrived and checked equipment has been approved. Equipment testing operations are about to be carried out. In February 2019, the availability of the relevant Owner's arrived and checked equipment is expected to be confirmed, and equipment entry and installation should start.
- The first prepayment of the Power Supply Systems construction was made on November 2, 2018, and the second prepayment was made on December 21.
- Contract-related documents are continuously submitted for review.

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

- The communication construction was awarded on May 4, 2018, signed on May 30, and started on June 27. The substantial completion date of Xinzhuang Depot is September 15, 2020, and the finishing date is March 15, 2021.
- The first communication construction prepayment was made on September 11, 2018, and the second prepayment was made on December 14.
- Currently, the Communication Systems are continuing to submit the safety & health plan, quality plan, document control form of contract information submission, and early stage inspection & testing plan for the arrived equipment of Xinzhuang Depot.

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

- The depot equipment construction was awarded on April 16, 2018, signed on May 11, and started on June 1. The finishing date of Xinzhuang Depot is September 15, 2020.
- The four pieces of equipment that have arrived were handed over to CTCI on June 27, 2018. Four pieces of equipment have been delivered to Xinzhuang Depot and have begun inspection and preassembly operations.
- The first-stage prepayment was made on July 19, 2018, and the second-stage prepayment was made on November 15.

■ Related photos of systems contracts:



Inspection of signal cable troughs--spot checks.



Inspection of signal cable troughs--calibration of film thickness meter



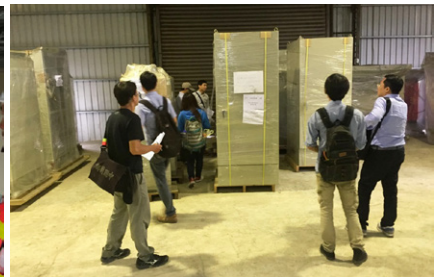
Inspection of signal cable troughs inspection



Inspection of signal cable troughs--measured values meet standards



Joint survey of system console layout integration of the train operation control Room in



Joint survey of arrived equipment for the power supply contract



Arrived equipment of the power supply contract has been handed over to CTCI.



Handover operation of arrived equipment of the depot equipment contract



Arrived depot equipment is delivered to site

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

- Regarding the construction of Contract CK571A Xinzhuang Depot Track, the ballast-free track construction in the mountain tunnel and the ballast track installation in the parking plant have been completed. The turnout in the mountain tunnel is currently under construction, and the other civil construction contract is to deliver the sect area of the track contract within this year. The ballast pavement and turnout are currently being installed.



Construction of the turnout base in the mountain tunnel



Construction of the ballast-free bed base in the mountain tunnel



Survey operation of the ballast pavement in the sect area

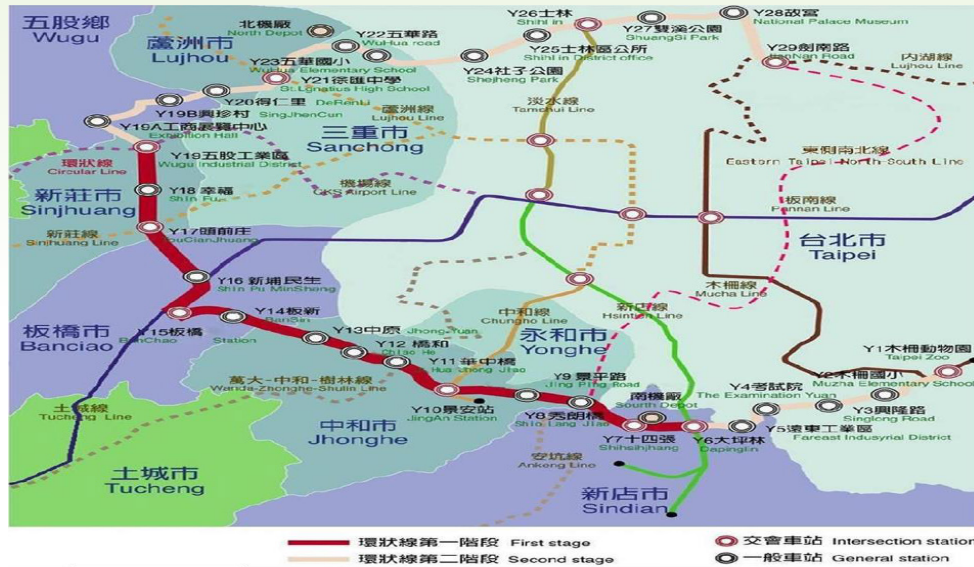


Positioning of the turnout bed in the sect area turnout

Circular Line Phase I

The Taipei Metropolitan MRT Route network connects the main trunk roads in the downtown area of Taipei with a grid road network and expands outwards along the important corridors with radial lines. The planning concept of the Circular line is to connect the radial lines of Taipei Metropolitan MRT by a ring-shape route and transfer it through convenient transportation to build a complete MRT network in the Greater Taipei metropolitan area. The total length of the circular line is about 34.8 kilometers, which crosses Taipei City and New Taipei City with 31 stations and two depots. It is to be built in two phases, with the first phase currently under construction. The route starts from Dapinglin Station in Xindian District, passes through Xindian, Zhonghe, and Banqiao, to Xinzhuang District, and ends at New Taipei City Industrial Park, with a total length of 15.4 kilometers (including 1.2 kilometers underground section and 14.2 kilometers of 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), Xinqu 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 the South Depot; the South Depot is located in the Shisizhang area.

This line combines the grid network of Taipei Metropolitan Center and the radial route network of the important transportation corridors. The future integration of systems and tickets will be able to connect the existing and planned Taipei MRT system into a complete MRT route network structure; from the easternmost Taipei Zoo Station, interconnecting the Wenhua line, Songshan Xindian line, Ankeng line, Zhonghe Xinlu line (Zhonghe), Wanda line, Bannan line, Zhonghe Xinlu line (Xinzhuang), Taiwan Taoyuan International Airport line, Zhonghe Xinluline (Luzhou), Shezi line (Planning), and Tamsui Xinyi line in the clockwise direction, thus meeting the goal of thoroughly connecting Taipei City and New Taipei City in all directions to be simultaneously developed with common prosperity.



Route Map of Circular Line Phase I

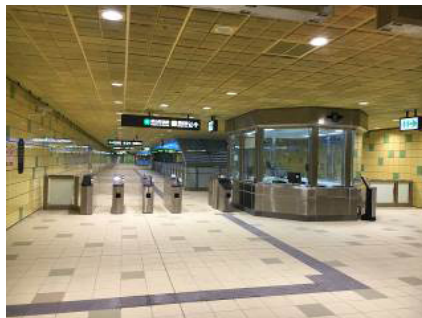
➤ **The construction overview of this project is as follows:**

✧ **Contract CF641: Dapinglin Station Construction:**

- The structural construction of Y6 Dapinglin Station was completed on January 1, 2017; the architectural decoration construction of Contract CF640 was completed on June 22, 2018.



Connecting tunnel to Dapinglin Station on the Xindian line



The completion status of the concourse



The completion status of the platform

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

■ **Contract CF642: Civil works at South Depot**

- The civil works and finishing at South Depot were completed on June 22, 2018.

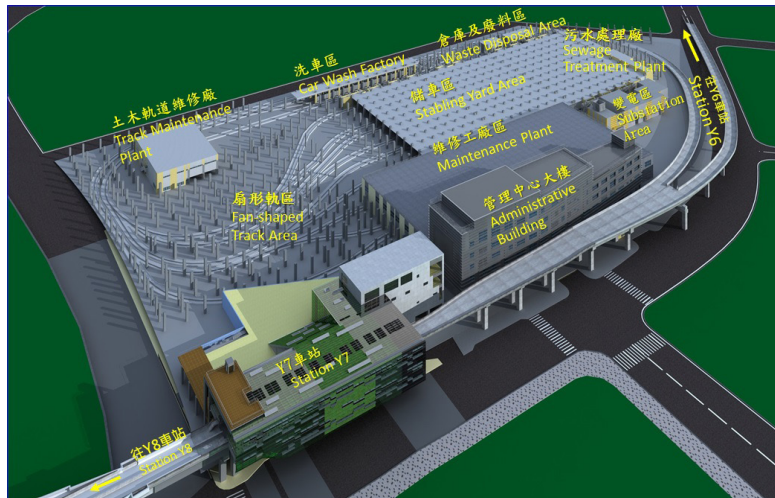
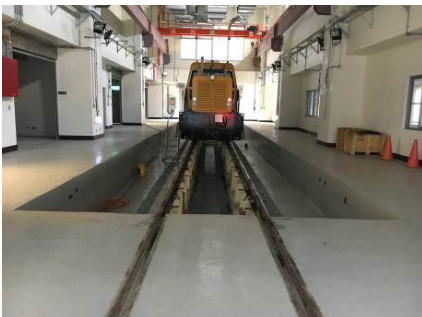


Diagram of Circular Line South Depot



Current Status of South Depot



Civil and track maintenance plant



Surrounding roads and sidewalks



Stabling Yard

- Contract CF643A: Tunnel Section and Daylight Section Civil Construction Works:
 - Shield tunnels, cut-and-cover tunnels, daylight structures, and road restoration have been completed.



Road restoration on Minquan Road



Road surface restoration on Minquan Road



Full-section floodgate



Completion of shield tunnel



Completion of cut-and-cover tunnel



Sound barrier for daylight section

- Contract CF643B: Shisizhang Station Civil Construction:
 - The elevated station's finishing at Shisizhang Station was completed on June 22, 2018.



Platform of Shisizhang Station



Platform of Shisizhang Station



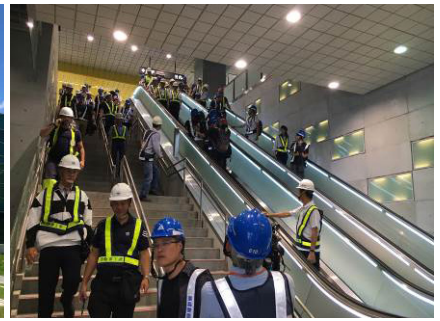
Cross-river steel bridge



Shisizhang Station and landscaping platform



Shisizhang Station and landscaping platform



Entrance/Exit 1 escalator

❖ **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 of the building furnishing of stations in Xiulang Bridge Station, Jingping Station, and Jingan Station are currently being performed; for the viaducts between stations, sidewalk widening and the restoration of permanent pipelines relocation have been performed around stations and in the non-collinear section.



Xiulang Bridge Station and land development building



The noise barrier in the elevated collinear section along Provincial Highway 64



Jingping Station and land development building



Elevated Jingan Station



Motorcycle area inside the median island in the collinear section along Jingping Road



Sidewalk widening in the non-collinear section along Jingping Road

■ Contract CF651B - Zhonghe Station to Banxin Station Construction:

- Currently, the construction of landscaping and Station Signaling Systems is being performed, and the final work of expansion joints and viaducts between stations, facilities of E&M, HVAC systems, and road surface restoration are being carried out in Zhonghe Station, Qiaohe Station, Zhongyuan Station, and Banxin Station.



Bird's eye view of current Zhonghe Station and viaduct



Ceiling and signals at the connecting zone of Zhonghe Station



Completion of the noise barriers on the viaduct along Bannan Road and planting in the median island



Planting in the median island and sidewalk furnishing along Banxin Road



Current completed status of noise barriers along Banxin Road



Ceiling and signals at the concourse of Banxin Station

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

- This year, we continue performing the construction of CF660A Section Contract in Banqiao Station, Xinpu Minsheng Station, and the viaducts between the stations. The construction items include the steel structure lifting, locking and welding, RC structure, furnishing work, E&M and HVAC systems, and escalators; upper and lower structures and 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.



Banqiao Station construction of station main structure and land development building



Banqiao Station construction of station main structure and track



Xinpu Minsheng Station construction of station main structure



Xinpu Minsheng Station construction of electric system and chilling water pipelines



Elevated section construction of Banxin Road restoration



Construction of noise barriers on viaduct section

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

- The main construction items for this contract this year were the finishing works of Touqianzhuang Station, Xingfu Station, New Taipei Industrial Park Station, and land development buildings. The installation of noise barriers and the restoration of pipelines, sidewalks, drains, median island, the pedestrian bridge at Xingfu Station, and the Wugong Road pedestrian bridge were also to be carried out.



Finishing works of Touqianzhuang Station



Finishing works of Xingfu Station



Construction of New Taipei Industrial Park Station and land development building



Construction of noise barrier between the elevated stations across the Dahan River to Touqianzhuang Station



Construction of noise barrier between the elevated Touqianzhuang Station and the elevated section of Xingfu Station



Noise Barriers between Xingfu Station and New Taipei City Industrial Park Station, and beneath the elevated station, the median island between the section

◇ **Contract CF610/CF611/CF617: Electrical and Mechanical Systems**

- Anticipated project progress by the end of November 2018: 92.199%; actual progress: 91.204%.
- The project was awarded on March 2, 2009, signed on March 31, and started on April 7, and was approved to be extended for the third time. It is expected to be substantively completed on April 14, 2019.
- The Monitoring, Depot Maintenance Equipment, EMU, Power Supply, Communication, and Automatic Fare Systems have been installed, and the certifying tests completed.
- The 2018 work items are as follows:
 - The 17th EMU was installed in July of this year and delivered to South Depot for follow-up testing. The first EMU completed its dynamic driving test and train management (including diagnosis and control) system test, train EMC/EMI test, prototype vehicle ride quality and dynamic stability test, and other related testing operations. Each train test operation performed dynamic testing in the depot test track and the main line and was co-tested in association with the Train Management (including diagnosis and control) system testing.
 - The Operation Control System has performed the series 3-7 formal test and system integration test (SIT) test in the functional (mainline) section; series 2 formal test, series 3-7 autonomous test, and SIT autonomous test in the rest of mainline (ROM) section, and series 8 autonomous test in the depot area.
 - The Power Supply Systems operations have begun the subsystem integration test, 161KV/22 KV/750V interlock test, 161KV automatic transfer test, 750V chain system test, 22 KV system configuration reorganization test, and harmonic measurement test.
 - The Communication Systems with the South Depot has started the SAT test of communication equipment, Y06 ~ Y19 on-board communication function

acceptance test, and communication subsystem integration test.

- Depot equipment Subsystem Acceptance Test (SAT): Boring machines, welding equipment, cranes, inspection and measurement equipment, waste oil recovery, cranes, car washing machine, etc., and EMC/EMI testing for special vehicles.
- The Automatic Fare System has started in 13 stations. It is expected that all station equipment installation verification and system operation testing will be completed by the end of this year.



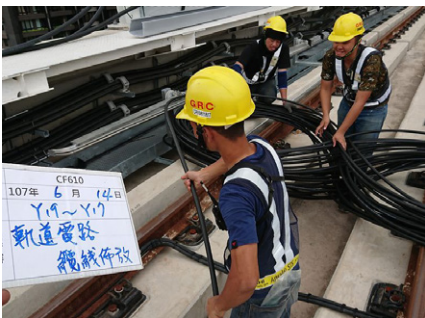
DEQ special vehicle test



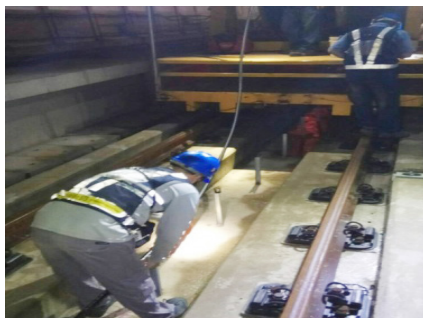
DEQ jacking equipment test



EMU train dynamic operation test



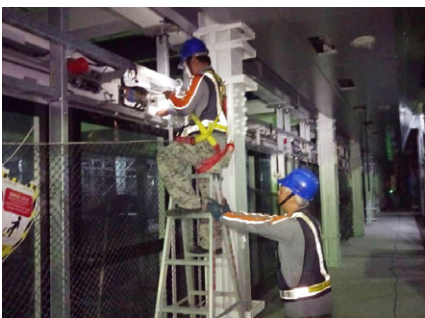
SIG Y17-Y19 track circuit layout



SIG Y17-Y19 leakage cable installation



Installation of automatic fare gates



Station Y15 platform screen display installation



Station Y18 communication public address system acceptance test (COM PA SAT)



Protocol of platform screen door (PSD)

◇ **Circular Line Contract CF611 Track Construction**

- This year, we have completed the construction of the full-track bed, rail laying, power supply track installation, and full-line rail grinding operation; on April 30, 2018, delivered the Electrical and Mechanical Systems to the site for construction and carried out the self-inspection.



Concrete plinths placement



Completion of track and conductor rails



Post-installation inspection of conductor rails



Initial rails grinding

➤ **Financial Plan**

- ◇ On April 30, 2008, the Executive Yuan approved the revision of the financial plan for the Circular line Phase I. Due to price fluctuations and adjustments of the construction period, as well as items added by regulation requirements, the estimated relevant funding was vastly insufficient during the implementation process following project approval. Therefore, the second revision of the proposed plan was approved by the Executive Yuan on May 6, 2015. Although we are still suffering from civilians' sentimental protests, in line with policies and public convenience measures, pipelines relocation and underground obstacles, safety concerns, and other factors impacting construction, the third design-change plan was submitted after being jointly discussed and agreed by Taipei City and New Taipei City, which was then approved by the Executive Yuan on February 13, 2018.

➤ **Environmental Impact Assessment**

- ◇ The third difference analysis report was approved during the 311th meeting of the Environmental Impact Assessment Review Committee under the Environmental Protection Administration held on April 19, 2017, and the final version of this report was approved by the Environmental Protection Agency under the Executive Yuan on July 26, 2017.

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

- ◇ Subcontract CF651A of Section Contract CF650 was awarded the 2018 Excellent Construction Award by the Chinese Institute of Engineers on June 01, 2018.
- ◇ Subcontract CF643B of Section Contract CF640 was awarded the 2018 Excellent Construction Award by the Chinese Institute of Engineers on June 01, 2018.
- ◇ Section Contract CF660B was awarded the 2018 Excellent Construction Award granted by the Chinese Institute of Engineers on June 01, 2018.

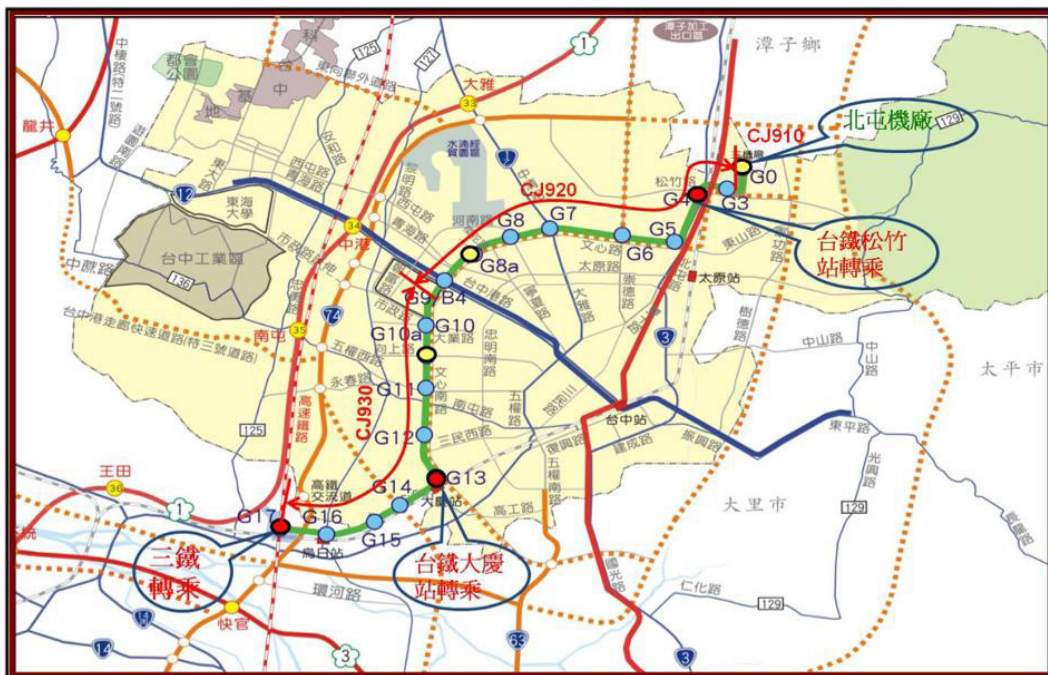
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- ✧ Subcontract CF642 of Section Contract CF640 was awarded the “FIABCI-Taiwan Real Estate Excellence Golden Award” by the FIABCI on July 18, 2018.
 - ✧ Subcontract CF614A of Section Contract CF640 was awarded the “7th Public Construction Excellence Award” on August 17, 2018.
 - ✧ Subcontract CF614A of Section Contract CF640 was awarded the “Public Construction Excellence Award” by the New Taipei City Government on September 12, 2018.
 - ✧ Subcontract CF642 of Section Contract CF640 was awarded the “Chinese Architecture Excellent Public Construction/Excellent Space Activation- Construction Section, Golden Stone Award” on October 04, 2018.
 - ✧ Subcontract CF643B of Section Contract CF640 was awarded the “National Golden Award of Architecture” by the National Golden Award of Architecture Commission, Republic of China National Enterprise Competitiveness Development Association on October 30, 2018.
 - ✧ Subcontract CF642 of Section Contract CF640 was awarded the “2018 Excellent Concrete Construction Award (Architecture)” by the Taiwan Concrete Association on November 30, 2018.
 - ✧ Section Contract CF660B was awarded the “19th National Golden Awards for Architecture” granted by Formosa Association of Sustainable Care for Living Environment on December 13, 2018.
 - ✧ Subcontract CF 643B of Section Contract CF640 was awarded the “2018 Award of Structural Construction Technologies” by the ROC Structural Engineering Association on December 15, 2018.
 - ✧ Subcontract CF614A of Section Contract CF640 was awarded the “18th Public Construction Golden Design Award-Best Award” by the Public Construction Commission on December 18, 2018.

Taichung Wuri-Wenxin-Beitun Line

This 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 across the elevated bridge along Huanzhong Road through Taichung-Changhua Expressway before entering Taichung’s HSR station from the north side of the 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, which contains the CJ910

Section Contract, CJ920 Section Contract, CJ930 Section Contract, JJG091 Section Contract integrated with land development, JJG051 Section Contract, and JJH031 Section Contract. The total length of the route is about 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, including the construction of roads, drainage, civil, structures, geotechnical, buildings, land development, landscape, 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

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

✧ **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).
- In this section contract, Beitun Depot began construction on December 31, 2012. As of the end of 2017, various structures in Beitun Depot, including the bulk supply substations, guard room, sewage treatment plant, training center, administrative

building, vehicle model exhibition room, north stabling yard, main maintenance plant, track maintenance plant, depot substation, car wash factory, waste disposal area, special goods warehouse, water tower, cut-and-cover tunnel, viaduct, north-south flood detention pond, and peripheral retaining wall/flood wall for the depot, Station G0 structure, interior finishing, E&M and HVAC systems have been completed. The installation of ballasted track (9,794 m) and non-ballasted track (72 m) in the depot area, as well as the installation of ballasted track (3,654 m), non-ballasted track (27,890 m), and floating track (3,130 m) on the track of mainline, have been completed. The landscape and planting construction of Beitun Depot and Station G0 are currently underway. The E&M and HVAC systems are working in the administrative building, and equipment installation at each plant and the construction of system control pipelines is being carried out. The Building Management System (BMS) is applied to perform hardware and software connections and integration testing.



Bird's-eye view of the entire construction area



Primary maintenance plant /track
maintenance plant/
north stabling yard



Administrative buildings



Planned site for south
stabling yard



Station G0

◇ **Section Contract CJ920: (Station G3 to G9 and full-line environmental**



monitoring and control systems):

- This section begins from the west bank of the Han River (near the Songzhu Road No. 2 Bridge) and runs westward along Songzhu Road. The route crosses the 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 started on March 15, 2013. The entire section was designed with 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 Section Contract Track section was completed in 2016. In August, all the tracks were put into construction (in total, 8,064M), and the track clearance test was started 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, Ministry of Transportation and Communications, we have completed the new 8m roads and sidewalks and other related facilities at Station G4. 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). As of December 2018, the connecting steel structure lifting operation was started at three stations (G5, G6, G9-1). In the continuous construction of each station finishing works, the E&M and HVAC systems have carried out the equipment installation construction of system instrument control pipelines at each station. In line with the completion of entire station system, BMS is applied to perform software and hardware connections and integration testing.



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



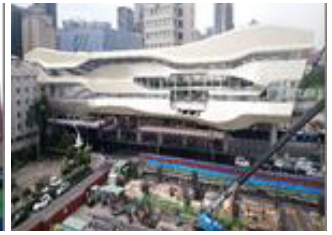
Construction of Station G7 from Zhongqing Road to Xiayi Road



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, then runs southward along Wenxin Road Section 2, and connects to Wenxin Road before crossing 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 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, as 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).
- This section contract began construction on March 1, 2013, and an elevated design was applied to the entire section. As of the end of 2017, the main viaduct structures (including steel box girders, cast-in-place U-beams, precast U-shaped girders, and cantilever beams) and stations have been completed. Auxiliary bridge facilities, such as bridge decks, cable troughs, parapets, central walkways, noise barriers, lipped channels, and expansion joints, have also been completed. The track section of this section contract (a total of 8,696 m) was completely handed over to the contractor on December 1, 2016. In line with the EMU operational testing performed by the Systemwide E&M Project Office, track clearance retest operations began in mid-December 2017. The steel structure part of the Fazi River Steel Bridge has been hoisted and erected, as have all the steel box girders (a total of 45 units). The steel structures at all stations have been hoisted and erected, except for the connecting channel at Station G11, which has not been completed due to the construction of entrances/exits for joint development building (hoisting is expected to begin on December 28, 2018). The road restoration has been completed and handed over to the Taichung City Government. The central median island has been fully planted to complete current ongoing maintenance. The station landscape construction is currently under construction.



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



Current construction of Station G10a and entrances/exits along Wenxin Road



Current construction of Station G11 along Wenxin Road



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



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



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



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



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

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

- The section contract was started on May 31, 2016. G09-1 construction is currently carrying out B1F column wall rebar installation, formwork assembly and section 4.5 steel structure installation work. Meanwhile, G09-2 is carrying out 1FL formwork assembly and rebar installation, and column wall rebar installation at 2F passage handover zone, and wall rebar bundling. G10 is carrying out the landscape operation and underground parking lot of the Shui'an Temple Park, as well as the furnishing operations of MRT E&M and HVAC systems. The three bases of G09-1, G09-2, and G10 are all to be handed over at the same time. In the E&M and HVAC systems part, the station G10 equipment installation and system pipelines construction are underway.



Station G09-1: installation of steel columns/beams at passage handover zone



Station G09-1: Lifting of steel structure



Station G09-2: column rebar installation at 2F passage handover zone



Station G09-2: 1F formwork assembly and rebar installation at 1F

❖ **Section Contract JJG051: (integrated structure of entrance and land development site in the first Section Contract):**

- The Section Contract was started on July 8, 2016. By the end of 2018, the semi-circular full casing retaining piles, artificial retaining columns, intermediate piles, building protection, and basement structure have been completed. The construction handover tunnel to the CJ920 Section Contract at station G5 has been completed. The 3F is currently performing the structural molding rebar-bundling operation. Station G6 is performing the 3F structural molding rebar-bundling operation, the G8a is performing the 2F structural molding rebar-bundling operation, and the G11 handed over the connecting tunnel to the CJ930 Section Contract for construction on December 22, 2018. The 3F structural formwork rebar-bundling operation is currently being performed. Regarding the E&M and HVAC systems, they are in line with the construction of grounding grids and pre-embedded pipe fittings at each station.



Station G5: structural engineering of land development building--2F structure formwork demoulding



Station G6: structural engineering of land development building--3F structural formwork rebar-binding operation



Station G8a: structural engineering of land development building--2F floor curing operation



Station G11: structural engineering of land development building--3F structural formwork rebar-binding operation

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

- The Section Contract was started on June 22, 2017 and was awarded by Yuanyang Construction Engineering Co., Ltd. The construction license declared work commencement on June 21. As of the end of 2018, the construction of the slab-base, floor slab structure from B5 to floor 1, and water supply and electrical pipelines embedment has been completed, and the structure of the floor 1 columns/walls, floor 2 slab, and water supply and electrical pipelines embedment are currently under construction.



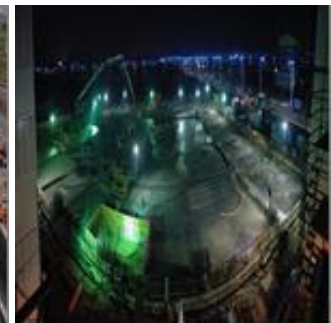
B4 floor rebar construction



Completion of the concrete grouting of B3 floor



Construction of stage 1 excavation support and removing of decking



B1 column/wall and 1F floor concrete placement

❖ **Contract CJ900 – E&M systems:**

- This contract was officially signed on April 1, 2011, and construction began on April 21, 2011. After the second Extension of Time (EOT) was approved, the expected substantial completion date was November 24, 2018, and the final completion date is anticipated to be May 25, 2020. Due to the delay in the handover of the station G10 equipment room and connecting tunnel, the 3rd construction period delay is under process. The scheduled substantive completion date is now May 24, 2019, and the completion date is November 22, 2020.
- The mechanical/electrical subsystems have currently completed on-site installation work and are carrying out the review/approval submission of training materials, operation manuals, maintenance manuals, and consumables and spare parts list, as well as a review of system test procedures and testing.
- In line with the 3rd revision of the project schedule, the Contract of Electrical and Mechanical Systems will adjust the construction sequence according to the current situation, and on-site construction will be actively performed in line with the handover schedule of the station's civil construction with the goal of achieving operation of the entire circular line by December 2020.



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

■ EMU

- The first EMU for the Taichung Line was transported to Beitun Depot on February 12, 2017.
- The last (18th) EMU arrived at Beitun Depot on November 30, 2017.
- The EMUs have completed all test items and are currently in line with the related manufacturers (Track Contract) and subsystems performing related function verification and interface testing to ultimately be in line with the full system for dynamic testing and trial operation verification.

■ Operation Control Systems

- From October to November 2017, the first signaling system controlled the EMUs to drive to the depot main line and test track for testing.
- The vehicle monitoring system has completed all field installations, equipment performance acceptance tests (PAT), and system integration tests (SIT) and is currently undergoing a system inspection and acceptance test (SIAT).

■ Power Supply Systems

- On September 24, 2017, the depot and the 22kV system of main line stations and the third rail 750V DC power supply were completed, and the entire line's power transmission was completed, thus capable of providing the test power for trains.
- On March 30, 2018, the full line DC short-circuit field integration verification test was completed.
- On April 16, 2018, the train startup and field integration test of low inductance load breaking were completed.
- On November 8, 2018, the power supervisory control & data acquisition (SCADA) verification test of the power remote control system was completed.
- On November 22, 2018, the reorganization and power switching system integration verification test of the Power Supply Contract were completed.
- The Power Supply Systems have completed the full line DC750V power supply and all test items and will be in line with the entire system to perform dynamic testing and trial operation verification.

■ Communication Systems

- The Communication Systems have completed the installation of all field devices and deployed pipelines, trays, and cables at stations and depots (except the land development building and the backup vehicle operation control center).
- The Communication Systems field cable trays and conduits had been inspected since October 26, 2016 and were completed on October 3, 2018.
- The system installation testing (SIT) of Communication Systems equipment began on May 22, 2018 and was completed on November 14.

- The Communication Systems are currently conducting system acceptance testing (SAT) and integration testing.
- Depot equipment
 - Field tests of rails grinding cars, track cleaning cars (water tank platform truck), the waste oil recovery system, and lubrication devices were completed in May and June 2018.
 - In July and August 2018, the on-site tests of the track inspection vehicles, rail/road vehicles, and train cleaning system were completed.
 - In November 2018, the on-site tests of mud-sucking truck, re-railing rescue equipment, vehicle maintenance devices, and machine tools were completed.
 - In addition to the maintenance platform cranes and rescue vehicles, the depot equipment is undergoing factory acceptance testing (FAT) in Japan and is expected to be transported in Taiwan in January 2019. The other equipment has been shipped to Beitun Depot and is currently undergoing the system installation test (SIT) and system acceptance test (SAT).



EMU drives to depot test track making test for the first time



18 EMUs have all arrived at Beitun Depot



EMU overhaul training (car doors)



Complete the auto dispatch test of operation control center shift



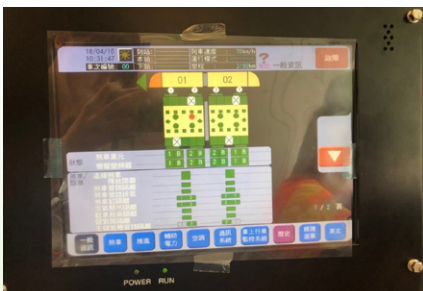
Computer-based interlocking (CBI) subsystem test



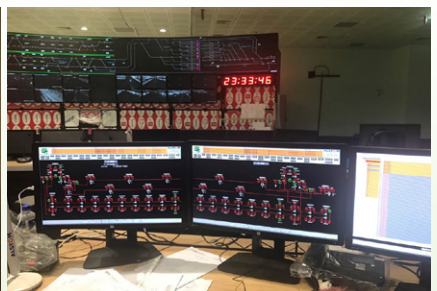
Data Communication System (DCS) subsystem test



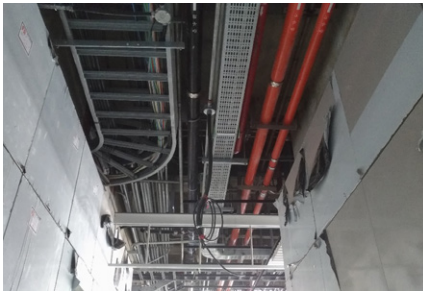
Field integrated short-circuit test of DC System



Onboard information at DC starting test of train



System integration, auto-switch test of 161kV power



Site construction inspection of cable trays/conduits



Installation inspection of Communication Systems equipment



Optic fiber transmission system acceptance tes



Train washing system site test



Mud-sucking truck site test



Machine tools site test

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

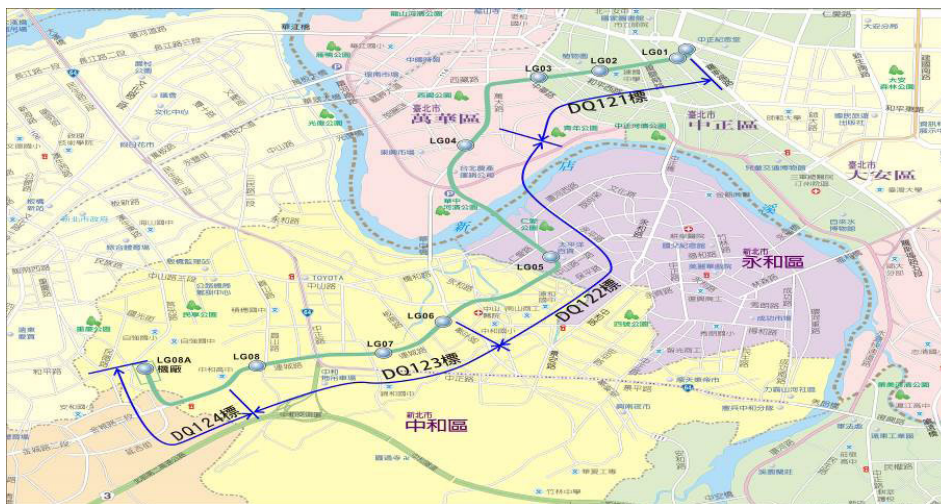
- ✧ Contract CJ910 was awarded the "Construction Excellence Award" granted by the Chinese Institute of Engineers on June 1, 2018.
- ✧ Contract CJ920 and CJ930 Section Contract was awarded the company the 2018 Taiwan Honesty Brand Award and a Public Construction Excellence Award in the construction quality category at the 2018 National Golden Award for Architecture on December 5, 2018.
- ✧ Section Contract CJ930 was awarded the 2017 National Building Gold Award - Public Works Group, "Construction Quality Award", granted by Formosa Association of Sustainable Care for Living Environment on December 13, 2018.
- ✧ Section Contract CJ930 was awarded the "Public Construction Excellence Award (Civil Engineering category)" granted by Taipei City Government on July 10, 2018.
- ✧ Contract JJG091 entrances/exits land development building won the Golden Safety Award granted by the Ministry of Labor, Executive Yuan on September 5, 2018.

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 started in 2010 and included basic design, urban rezoning, land acquisition, detailed design, and construction contracting, which were subsequently carried out. In the second phase of the construction project, which began in 2012, operations including the development of surrounding land

and financial planning are being handled by the Department of Rapid Transit Systems of the New Taipei City Government.

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

➤ Urban Planning Revision

◇ The routes in both cities are explained as follows:

■ Taipei City section:

- For Station LG01, the main plan came into operation by announcement on September 17, 2015, followed by the detailed plan on November 27, 2015.
- For Station LG03 and Station LG04, the main plan came into operation by announcement on October 30, 2015, followed by the detailed plan on March 22, 2016.

■ New Taipei City section:

- The main plan came into operation by announcement on May 10, 2016.
- The detailed plans for the Tucheng and Banqiao urban plan came into operation by announcement on June 30, 2016; the Zhonghe urban plan came into operation by



announcement on August 19, 2016.

- Landowners on the north side of Station LG06, the revised MRT land development M2, did not submit applications to New Taipei City Government for pre-registration within three months from the date in accordance with Article 9 of the Agreement for Changing Three Pieces of Industrial Land, including Parcels No. 23, 29, and 67 in the Anbang Section of Zhonghe District, New Taipei City for the implementation of land development. Therefore, according to the aforementioned provision, the revision operation for the M2 land-use scope, which was announced in an open exhibition held on August 30, 2011 based on the main plan, had to be re-inaugurated, where the MRT development area was converted to land used for MRT systems. The main plan came into operation by announcement on September 20, 2017, and the detailed plan came into operation by announcement on February 01, 2018.

➤ **Planning of MRT stations**

✧ The positions of the MRT stations are as follows:

- Station LG01: located near the intersection of Roosevelt Road and Nanhai Road in Taipei City (transfers can be made to both the Tamsui-Xinyi line and Songshan-Xindian line).
- Station LG02: located near the intersection of Nanhai Road and Heping W. Road in Taipei City.
- Station LG03: located near the intersection of Xizang Road and Zhonghua Road in Taipei City.
- Station LG04: located near the intersection of Wanda Road and Changtai Street in Taipei City.
- Station LG05: located on Baosheng Road in front of Yong Ping Elementary School in Yonghe District, New Taipei City.
- Station LG06: located near the intersection of Liancheng Road and Jingping Road in Zhonghe District, New Taipei City (transfer can be made to the Circular line).
- Station LG07: Shuang Ho Hospital Station: located near the intersection of Liancheng Road and Jinhe Road in Zhonghe District, New Taipei City.
- Station LG08: Zhonghe Senior High School Station: located near the intersection of Liancheng Road and Yuanshan Road in Zhonghe District, New Taipei City.
- Station LG8A: located on the land allocated for the MRT depot to the south of Juguang Road in Zhonghe District, New Taipei City.

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

This Project includes Contract CQ840 (civil construction of station LG01, station LG03, and shield tunnel from station LG03 to station LG04), Contract CQ842 (civil

construction of station LG02 and shield tunnels from station LG02 to station LG03 and from LG02 to LG01), and Section Contract CQ850A (civil construction of station LG04 and shield tunnel from station LG04 to station LG05) in Taipei City; Section Contract CQ850 (civil construction of station LG05 and shield tunnel from station LG05 to station LG06), Contract CQ861 (civil construction of station LG06), Section Contract CQ860 (civil construction of station LG07, station LG08, and shield tunnel from station LG06 to LG08) and Contract CQ870 Section Contract (construction of Jincheng Depot and station LG08A) in New Taipei City. All contracts were contracted to contractors in 2017 and started construction in the same year.

✧ **Section Contract CQ840 (Contract CQ841 - Civil Works for Station LG01 and Shield Tunnel):**

- This section contract was started on February 6, 2017. Its LG01 station is located on the ground floor of Nanhai Road near Sec. 1 of Roosevelt Road. This station is the terminal station and interchange station of MRT Chiang Kai-shek Memorial Hall Station, about 427 meters from station LG02. Station LG01 and the 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 on January 6, 2025. The works completed in 2018 are the diaphragm wall construction on the south side of station LG01, the station LG01 wall stone gutter exposure and survey drawing, excavation of working well for non-stop tap water, the construction of a structural wall, and the preliminary design review of new construction of the South Gate market.



Relic structure of formal gutter made in the Japan-controlled era

Station wall stone gutter exposure and survey

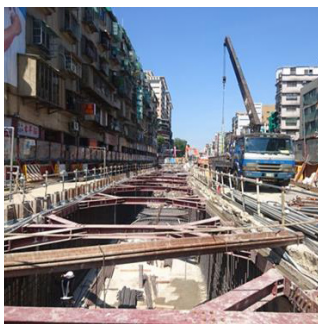
Working shaft excavation for tap water hot tapping installation

Diaphragm wall construction

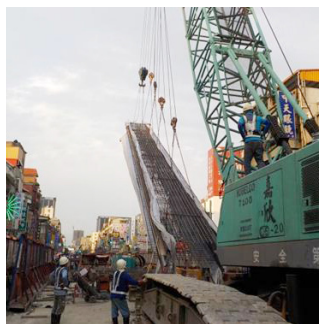
✧ **Section Contract CQ840 (Contract CQ843 - Civil Works for Station LG03 and Shield Tunnel):**

- This section contract was started 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. This section contract has completed the construction of the south side diaphragm wall and temporary drainage box culvert structure of station LG03, the west side of the central shelter line and the central diaphragm wall, the full sleeve construction of middle columns in the pocket track, and the preliminary design review of the integrated Social Welfare Building of Zhongyi Elementary School.



Diaphragm wall construction at the station's south side



Construction of the pocket track and the diaphragm wall



Construction of full sleeve construction of middle columns in the central shelter line



Construction of diaphragm wall

✧ **Contract CQ842 (Civil Works for Station LG02 and Shield Tunnel):**

- This section contract was started on December 11, 2014. The works primarily consist of civil construction (station, tunnel, and foundation construction of Mandarin Experimental Elementary School), relics rescue, Mandarin Experimental Elementary substation construction, and planting works. It is an underground three-story island-type platform station. The construction period is 2,922 days and is expected to be completed on December 10, 2022. The main structure of the LG02 station is to be built within the Botanical Garden Ruins, which is a heritage site of 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 maintenance and fence erection. The first stage was completed on August 5, 2016, while the traffic maintenance, fence erection, and historic site digging, as well as follow-up 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 maintenance and fence erection were completed on December 15, 2017; starting from December 16, the fourth-stage (normal stage) historical site excavation and support in conjunction with traffic maintenance 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) began. Furthermore, the

integrated building site of Mandarin Experimental Elementary School has completed the full-area historic site excavation, construction of the retaining diaphragm walls, and erection of middle piles and underground structure, and the purchase was completed with the vendor on December 5, 2018, to continue to carry out the construction of the above ground structure.



Construction of Jingmei layer dewatering operation at station site



Bird's eye view of station excavation on the south side along Nanhai Road and ground level structure construction at Mandarin Experimental Elementary School integrated building site



Station entrance A diaphragm wall chain-cutting operation



Ground level structure construction at Mandarin Experimental Elementary School integrated building

❖ **Section Contract CQ850A (Contract CQ851 - Civil Works for Station LG04 and Shield Tunnel):**

■ This section contract was started on December 31, 2016. This project consists of an underground three-story island-type platform and a shield tunnel; four connecting tunnels were built at the shield tunnel, along with the facilities of the E&M and HVAC systems and common pipelines. This section contract started on December 31, 2016 with a construction period of 2,677 calendar days. The expected completion date is April 29, 2024. This section contract has completed the construction of the diaphragm wall at the west side and middle section of the station. The diaphragm wall at the east side, the T-joint of the MRT No. 9 Entrance, and the site protecting stratum improvement, dewatering well excavation, etc. are underway; tunnel section, CP1 & CP2, as well as the stratum improvement at stage-1 launching area and the arriving end at station LG05 have been completed. Now the CP3 caisson, the CP4 stratum improvement works are all being carried out.



Stage-3 Traffic maintenance scope



Dewatering well construction



CP3 caisson construction



Stratum improvement

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

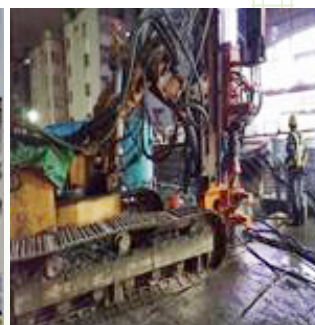
- This section contract was started on January 19, 2016. The contract contents are construction of station, upper and lower tunnels, and ventilation shafts and the escalators reconstruction at Guting Station's Exits 3, 5, 7. Station LG05 is an underground three-story island-type platform station. This section contract has a construction period of 2,677 days and is expected to be completed on May 18, 2023. This section contract has completed the construction of stage 1-4 traffic maintenance, diaphragm wall of ventilation shaft X, and stage-1 & stage-2 stratum improvement of shield tunnel mirror faces at station LG06. Now, the construction of stage-5 traffic maintenance is being performed: diaphragm wall construction on the north side of the station, building protection-stratum modification, stage-2 ground improvement of shield tunnel mirror faces at the east side of the station and relocation of people's livelihood pipelines. We are currently performing the construction of stage-5 traffic maintenance: Construction of diaphragm wall at the north side of station, building protection-stratum improvement, (complete the stage-2 stratum improvement at the mirrors of the shield tunnel on the east side of the station and the relocation of people's livelihood pipelines on the east side). The stage-1 traffic maintenance for the CP6 connecting tunnel at the tunnel section has been completed, and we are now performing stage-2 traffic maintenance construction: Construction of deep guide gutter and 1200mm-diameter sewage protection measures (Yonghe end), temporary migration of existing livelihood pipelines, and the diaphragm wall guide gutter (deep guide gutter) on the east side of the CP6 connecting tunnel. As for the CP6 ventilation shaft, the vendor has so far completed 18 units of the diaphragm wall and has left the construction of the remaining diaphragm wall units and middle piles until the CP6 station has constructed the traffic maintenance of the stage-4 connecting tunnel. The CP6 connecting tunnel of the CP7 shield tunnel section has had the current situation survey performed on the surrounding buildings inside the area of the affected line. Construction is scheduled in 2019 after completing the construction of planting and traffic maintenance.



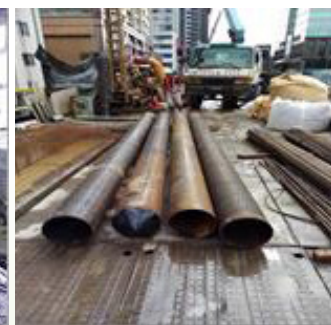
Bird's eye view of stage 5 traffic maintenance at Station LG05



Construction of diaphragm walls at the north side of Station LG05 (hoist rebar cages)



Stratum improvement construction of shield tunnel launching mirrors at the east side of Station LG05



Dewatering well construction of Station LG05

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

- The station diaphragm walls were fully completed on July 28, 2018, and the traffic maintenance was switched to the center of Liancheng Road on November 5; the station excavation support operation is currently underway.



Hoisting and erection of rebar cages for the diaphragm walls



Installation of decking beams



Setting up of decking

◇ **Contract CQ860 - Civil Works for Stations LG07 and LG08 and Shield Tunnel:**

- The construction started on October 15, 2015. The entire section is designed to be underground MRT. 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. At present, the cut-and-cover system at Station LG07 and the south side of pocket tracks, station LG07 and the south side shield line, and Sec. 3 of Jincheng Road, the stratum improvement at launching and arriving zones of the shield tunnel and the temporary migration of pipelines on the north side of Station LG08 are all underway.



Excavation works for the diaphragm walls at Station LG07



Erection of middle piles on the pocket track along Liancheng Road



Stratum improvement of the arriving well at the shield tunnel of Liancheng Road



Stratum improvement of the launching well at the shield tunnel of Station LG08



Middle piles construction at Station LG08



Decking construction at Station LG08



Diaphragm wall rebar cage hoisting of cut-and-cover tunnel section at Sec 3, Jingcheng Road



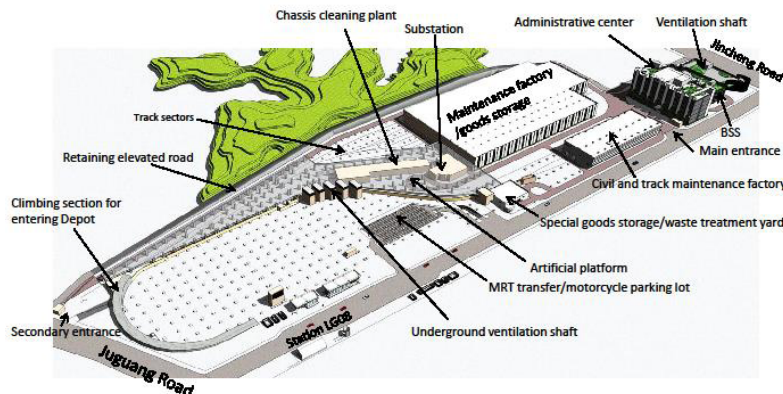
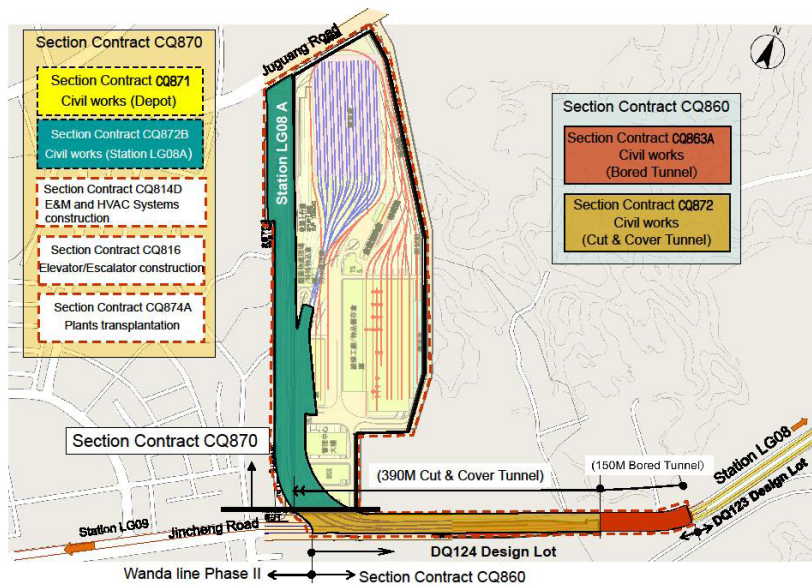
Middle piles construction of the cut-and-cover tunnel section at Sec. 3, Jingcheng Road



Stratum improvement of the arriving well at the shield tunnel of Sec. 3, Liancheng Road

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

- This contract was awarded on October 6, 2017 and was signed on November 6. This project began construction on December 15, will take 88 months to complete, and is scheduled to be completed in 2025. It shall be carried out in conjunction with land acquisition.



Floor map of Jincheng Depot

◇ **Wanda Line Phase I E&M Systems Preparation Works for Tendering:**

- The Executive Yuan approved the Wanda line Phase I construction in March 2010. The E&M core systems were opened for tender on December 13, 2010, February 21, 2011, May 16, 2011, and July 13, 2011. However, the opening of tender failed since no vendors submitted a tender. The main reason for this was that the originally approved budget was insufficient.
- The outsourcing strategy was revised by changing the “Construction of Contract CQ811 Track” to the one combining the Electrical and Mechanical Systems, which was approved by the City Government on March 4, 2013.
- After the 4th tendering for the Wanda line E&M system failed, TRTC sent a letter on December 30, 2013, recommending that the original automated driverless system be replaced with a high-capacity automated control and manned system (requiring that cabs be set up) and proposed a number of system function enhancements. After our department made a request to the Taipei City Government, it agreed on September 29, 2015 to retain the “Fully Automated Driverless System.”
- The revised financial plan was approved by the Executive Yuan on September 23, 2014. The budget for E&M core systems procurement was revised from NT\$7.93 billion to NT\$13.97 billion, an increase of approximately NT\$6.04 billion, which was approved by the Taipei City Council after three readings on January 15, 2016.
- Based on fair, just, and open principles, vendors were expected to provide reference materials after inspecting the tender documents in order to enhance the quality of public works’ planning and design and reduce bidding and performance disputes. The request for Reference Materials from vendors was carried out from August 8, 2016 to August 15, 2016 in accordance with Article 34 of the Government Procurement Act, with a view of collecting opinions and feedback from vendors. A vendor opinion review committee was formed by scholars and experts to review the opinions and feedback provided by vendors.
- Based on current practice, our department published the results of the vendor opinion review committee on our website, sent letters to respond to the opinions and feedback of relevant vendors, and revised the tender documentation.
- The public tender viewing operation for this procurement bid was completed during the period of January 9 to 13, 2017.
- After the review results were submitted for approval on November 18, 2016, the hard copy, text, and scanned files for the Particular Technical Specification (PTS), Bill of Quantities (BOQ), and preface of Contract CQ810 E&M System, Contract CQ817 Automatic Fare Systems, as well as General Standards (GS) of Electrical and Mechanical Systems, grounding, connection, and corrosion protection were delivered to the Project Document Control Center (PDCC) and uploaded to our department’s document management system. A letter was also sent to DORTS’ Systemwide E&M



Project Office for notice.

- This procurement bid was published on April 14, 2017 in Government Procurement Gazette to perform the first tendering.
- This procurement bid was opened on July 13, 2017 and was announced unsuccessful because no vendors bid.
- After this procurement bid was aborted, the relevant entities and authorities of the Bureau published the government procurement bulletin on September 8, 2017 after completing review of the bidding documents and revising the main parts of the procurement bid in accordance with the “Handling Principles for Accelerated Project Purchasing Flow” and re-performed the first tendering.
- This procurement bid was opened on November 7, 2017, and the bid was announced unsuccessful because no vendors bid.
- After the bidding of this procurement bid was aborted, the relevant authorities of the Bureau completed reviewing the bidding documents in accordance with the “Handling Principles for Accelerated Abortive Procurement Tender” and determined that the bidding process of the mechanical/electrical tender was too rigorous; from past experience, the procurement can be achieved. In order to avoid affecting the overall completion schedule of the Wanda line, the Bureau published the government procurement bulletin on January 18, 2018 according to the original bidding condition and went on the second bidding process.
- This procurement bid was awarded on June 12, 2018, and the bid winner completed the contract signing on July 10, 2018.
- This procurement bid notified the winner to commence work on August 9, 2018. At present, it is continuing to carry out detailed design work and follow-up contract performance in accordance with the relevant provisions of the contract.

➤ **Traffic Maintenance Plan**

The Wanda line Phase I construction consists of four design contracts, namely DQ121, DQ122, DQ123, and DQ124. The traffic maintenance plan for each design project is summarized as follows:

- ◇ DQ121: The traffic maintenance plan for Station LG02 was reviewed and approved by the City Road Traffic Safety Supervisory Committee of Taipei City on May 4, 2015, while the traffic maintenance plan for Station LG01 (including the crossover) and LG03 Station (including the central pocket track) were reviewed and approved by the Road Traffic Safety Supervisory Committee of Taipei City on December 13, 2016 and March 14, 2017, respectively.
- ◇ DQ122: The traffic maintenance plan for Station LG04 was reviewed and approved by the Traffic Safety Committee of Taipei City on November 22, 2016, while the traffic maintenance plan for Station LG05 was reviewed and approved by the Road Traffic

Safety Supervisory Committee of New Taipei City on February 3, 2016.

- ◇ DQ123: The traffic maintenance plan was reviewed and approved by the Road Traffic Safety Supervisory Committee of New Taipei City on October 6, 2014.
- ◇ DQ124: The traffic maintenance plan was reviewed and approved by the Road Traffic Safety Supervisory Committee of New Taipei City on December 31, 2015.

➤ Environmental Impact Assessment

- ◇ In response to the staged construction approved by the Executive Yuan, "the Comparison Table for Content Changes" was prepared and submitted to the Environmental Protection Administration under the Executive Yuan on December 14, 2012 for approval and future reference.
- ◇ In response to changes to the type of station for Station LG08A and the adjustment of the shape of the MRT line in the river crossing section from Station LG04 to Station LG05, "the First Environmental Impact Difference Analysis Report" was prepared and submitted to the Environmental Protection Administration under the Executive Yuan on December 29, 2014 for approval and future reference.
- ◇ In response to the adjustment of the position of Station LG03, the Second Environmental Impact Difference Analysis Report for the Wanda line Phase 1 construction project was prepared and submitted to the Environmental Protection Administration under the Executive Yuan on February 15, 2017 for approval and future reference.

Xinyi Eastern Extension



Route map of the Xinyi line eastern extension

The route of this project continues from the east end tail track of Xiangshan Station (R05) on the Xinyi line, extends to the east with heavy-capacity system, 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 at 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, passed the Civic Blvd. intersection and Fude Street and then turns to 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.

➤ **Urban Planning Revision**

- ✧ The primary plan came into operation by announcement on September 16, 2015.
- ✧ The detailed plan came into operation by announcement on October 22, 2015.

➤ **Planning of MRT stations**

- ✧ The positions of the MRT stations are as follows:

- Station R03: Underground along Fude Street in front of Guangci Care Home in Xinyi District, Taipei City.

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

- ✧ Section Contract CQ580C (Station R03 and Shield Tunnel Construction):

- The section contract was started on October 17, 2016. The contract consists of four construction subcontracts in the Xinyi eastern extension section: civil construction of Contract CR285, E&M and HVAC systems construction of Contract CR380E, elevators and escalators construction 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 tunnel working well of Yucheng Park. At present, the main construction items at the north 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 improvement, hoisting of temporary drainage steel aqueduct, middle piles, shallow excavation, and retaining support; the main construction items at the tail track located at Yucheng Park are the excavation support and decking construction.



2018 Xinyi eastern extension section, hazard protection, and rescue drill



Construction of Station R03 temporary drainage steel aqueduct



Construction of diaphragm wall south of Station R03



Construction of retaining support and decking for the working well at Yucheng Park

➤ **Systems Engineering of Xinyi Eastern Extension:**

- Systems Engineering of the Xinyi eastern extension is part of the construction of the Xinyi eastern extension section and the Xinzhuang Depot Electrical and Mechanical Systems. It is divided into Contract CR382A Signaling System, Contract CR383A Power Supply System, Contract CR385A Communication System, and Contract CR387A Automatic Fare System.
- Contract CR382A – Current status of Signaling Systems:
 - The Signaling System contract was awarded on June 29, 2018, signed on July 26, and started on September 1. The substantial completion date of Xinyi eastern extension project is September 30, 2022, and the completion date is March 31, 2023.
 - For Contract CR382A Xinyi eastern extension signaling system, at this stage, the contractor is carrying out the pre-operation of concept design and selecting new equipment vendors under procurement.
 - The first advance payment of the signaling systems was made on September 28, 2018, and the second advance payment was made on December 21.
 - Contract-related documents are being continuously submitted for review.
- Contract CR383A - Current status of the Power Supply Systems:
 - The power supply systems contract was awarded on April 19, 2018, signed on May 11, and started on June 1. The substantial completion date of the Xinyi eastern extension project is September 30, 2022, and the completion date is March 31, 2023.
 - For Contract CR383A Xinyi Eastern Extension Section Power Supply Systems, at this stage, the contractor is carrying out the pre-operation of concept design and selecting new equipment vendors under procurement.
 - The first advance payment of the power supply systems was made on November 2, 2018, and the second advance payment was made on December 21.
 - Contract-related documents are continuously being submitted for review.
- Contract CR385A- Current status of Communication Systems:
 - The communication systems contract was awarded on May 4, 2018, signed on May 30, and started on June 27. The substantial completion date of the Xinyi eastern extension Project is September 30, 2022, and the completion date is March 31, 2023.
 - The first advanced payment of the communication system was made on September 11, 2018, and the second advance payment was made on December 14.
 - At present, the safety & health plan, quality plan, and contract data submission document control forms are being submitted for review and approval.



■ **Contract CR387A - Current status of Automatic Fare Systems:**

- The automatic fare systems contract was awarded on May 29, 2018, signed on June 28, and started on August 2. The substantial completion date of the Xinyi eastern extension project is September 30, 2022, and the completion date is March 31, 2023.
- The first prepayment was made on November 7, 2018, and the second advance payment was made on December 5.
- Currently, contract-related documents are continuously being submitted for review.

➤ **Financial Plan**

As the use of private land for MRT facilities met with opposition from residents along the MRT route, the land acquisition operation was not smooth. Upon review, Station R04 was scrapped, which subsequently reduced both construction costs and land acquisition costs. Meanwhile, the project benefits should be reviewed. Furthermore, the project planning schedule was adjusted due to the revised urban planning. Therefore, the plan was revised for a second time and was submitted to the MOTC on December 14, 2015 for deliberation. The plan was reviewed by the MOTC on January 29, 2016, in a preliminary review meeting on May 17, 2016, and the committee meeting on August 9, 2016; then the MOTC submitted it to the Executive Yuan on December 20, 2016 for review. A letter issued by the Secretary-General of the Executive Yuan dated February 16, 2017 (forwarded by the MOTC on February 22) stated "Please review again before submitting the plan to the Executive Yuan." As a result, the plan was revised according to the opinions of the Secretary-General of the Executive Yuan before being submitted to the MOTC on April 18, 2017. The plan was then forwarded by the MOTC to the Executive Yuan on July 4 and was submitted by the Secretary-General of the Executive Yuan to the National Development Council (NDC) on July 6. On July 10, the NDC forwarded it to the relevant departments under the Executive Yuan for deliberation and asked their opinions. A letter compiling the opinions of the NDC was delivered to the Executive Yuan (Secretary-General) on August 18. However, since some relevant opinions were yet to be reviewed, the Executive Yuan (Secretary-General) wrote to the NDC on August 25, requesting that the council meet with the relevant authorities for review before reporting to the Executive Yuan. On September 19, the NDC held a conference on the revision of the project plan. The plan was revised according to the conclusions made in the conference before being submitted to the MOTC on November 9. On November 29, the MOTC forwarded a letter to the NDC, which was approved by the Executive Yuan on January 18, 2018.

➤ **Traffic Maintenance Plan**

The Road Safety Supervisory Committee of Taipei City approved the traffic maintenance plan on August 3, 2016.

➤ **Changes of Content in the Environmental Impact Statement**

In line with the cancellation of Station R04, a Comparison Table for Changes of Content in the Environmental Impact Statement (first version) was prepared, and the final version of this table was submitted to the Environmental Protection Administration under the Executive Yuan on September 5, 2016 for approval and future reference.



Innovative Measures and Improvements

One MRT managed by two cities with three benefitting parties-- Taipei MRT Luzhou Line--The best model for activating and reusing cross-city management in the linear park stacked with ballast

➤ Origin

1. MRT linear park cross-city management is not easy to integrate

Taipei's MRT system is usually planned in the metropolitan area for underground usage. If the route follows cut-and-cover construction, the land above the route must be obtained for MRT usage, and the ground will be re-planned as a linear park (such as the Tamsui line). For example, the road section of the Xinlu line route at Luzhou Station before entering the Depot is handled in this way (Fig. 1). However, most of this route is located in the territory of New Taipei City, creating the dilemma of having no takeover entity; furthermore, the Xinzhuang Depot is subject to public resistance, and thus construction cannot be carried out. Therefore, in 2010, the tail track section of this linear park was used as the ballast stacking area (Fig. 2) and was abandoned until 2016, when the Second District Project Office of the Department of Rapid Transit Systems (DORTS) (previously the Central District Project Office) cleared the ballast.

2. Build "One MRT managed by two cities with three benefitting parties" cross-city communication and cooperation model

After the ballast was cleared, although the design was restored to the original park type, a new problem arose of handing over the takeover entity after completion. DORTS Second District Project Office visited with the New Taipei City borough chiefs, city councilors, district heads, the Urban and Rural Development Bureau of City Government, etc., and the opinions of the "Alliance of Returning the Figured Park Actions" were also included during the construction period to change contract items or modify the existing facilities, thus handling the handover problems. On December 20, 2017, at the opening ceremony of the "ballast stacking area landscaping", not only the media and city councilors of the two cities, but also Vice Mayor Chen Jing-jun, Vice Mayor Li Si-chuan, and the heads of various agencies attended the ceremony, which provided one more cooperation model among the two cities. The two-city management model built after the planning, design, and bidding and before the construction by DORTS Second District Project actively integrated the needs of both cities and the reuse of resources to create a win-win situation (Fig. 3).

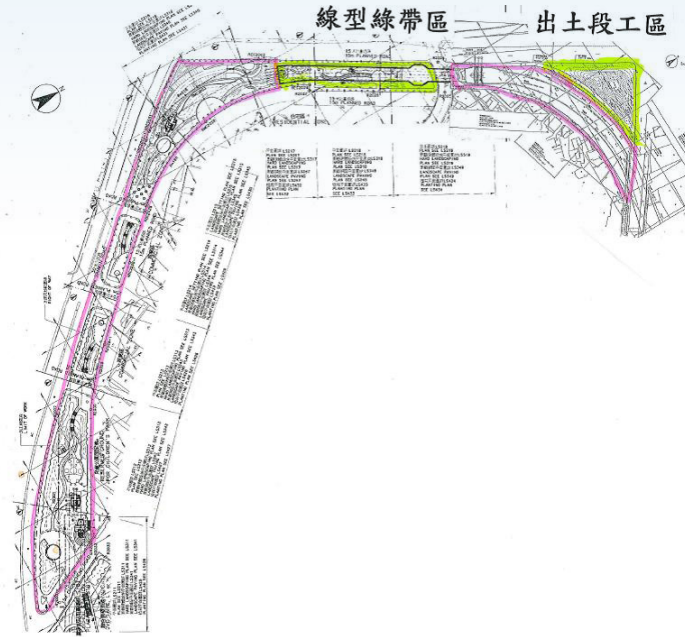


Fig. 1: Plan view of Taipei MRT Luzhou Linear Park--Daylighting Section



Fig. 2: The ballast stacking area at the tail track section of Taipei MRT Luzhou Linear Park

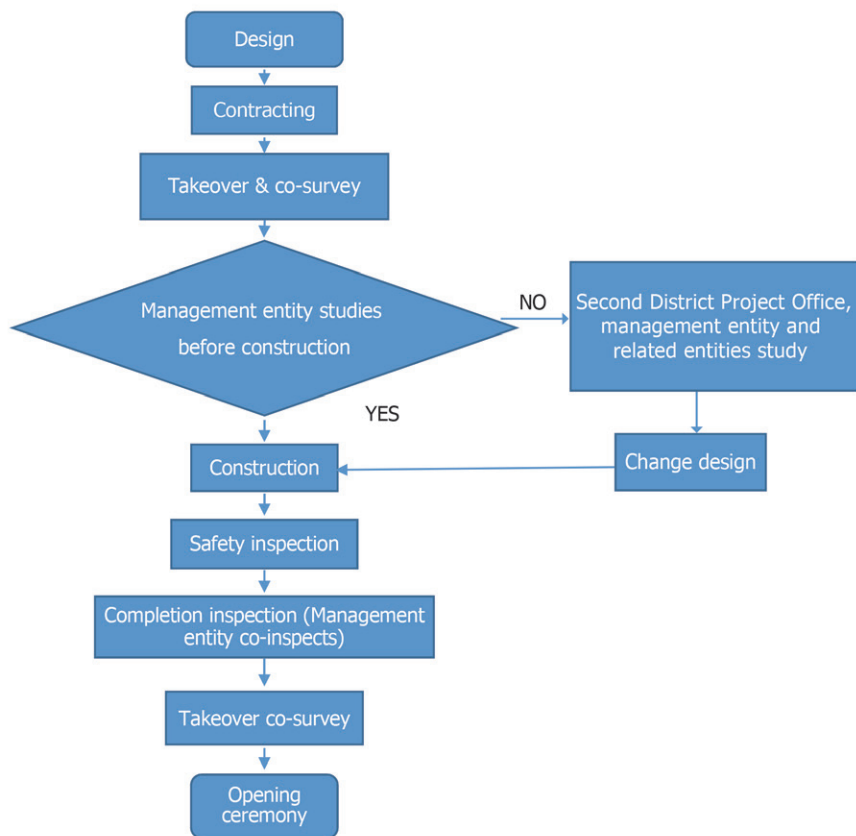


Fig. 3: Flowchart of Taipei MRT Luzhou Linear Park cross-city management model

➤ Method of Implementation

1. Implementation methods and procedures

(1) Negotiation to have consensus on takeover

The original office to which the subjected base is to be handed over was Taipei Mass Rapid Transit Co., Ltd. (hereinafter the Taipei Metro) and the local New Taipei City District Office (hereinafter the District Office), which respectively indicate:

- a. Taipei Metro: The land zoning of the MRT Linear Park is land for the MRT system, which should be handed over to Taipei Metro for maintenance management. However, Taipei Metro proposes the provisions specified in Article 2 of the "Rules Governing the Buildings of the Taipei Mass Rapid Transit System": "The buildings referred to in these Rules refer to the buildings and their ancillary facilities within the scope of Taipei City Mass Rapid Transit System road rights and related to its operation" and admit that Taipei MRT Luzhou Linear Park is a space open to neighboring residents, which does not meet the requirements specified in Article 2 of the aforesaid building management rule and is thus unwilling to take it over.

b. District Office: Because the MRT Linear Park is located in the open space above the daylighting section of the MRT Tunnel, it can provide leisure activities for nearby residents and should be managed by the handover office; however, the District Office expresses that “the Linear Park is a land used by the MRT system; before the land has performed the transfer of property rights, the land-owning competent authorities shall follow the MRT administrative system to budget for maintenance, repair, and management by itself or an outsourcing entity every year” and is also unwilling to take over the Park.

Before contracting and construction, the Second District Project Office invited various agencies of the New Taipei City Government, Taipei Metro, and local city councilors. After several consultation meetings, a consensus was reached that confirmed that the linear green belt area of the project was to be taken over by the Luzhou District Office of New Taipei City. Since the daylighting section is far from residences and has security issues, it was not suitable for park use. Therefore, the design of the park was cancelled and changed to a long-term storage area for occupied vehicles and would be handed over to the Transportation Bureau of the New Taipei City Government for maintenance.

(2) Planning and design of activation and utilization

In addition to the poor environment, the ballast stacking area of Luzhou Linear Park in Taipei MRT could also easily become a security corner uncared for by police. After the ballast is cleaned for transportation, the planning and design is activated and reused as a park, and the zone not suitable for the park was planned as a vehicle storage area. In addition to meeting management needs, the local environment landscape is also improved, thus providing local residents the best place to enjoy leisure activities.

(3) Establishing a model that meets demands

After confirming the takeover and management entity, it is necessary to explore whether the original design items meet the usage requirements of the management entity (Fig. 4).



Fig. 4: The seminar for communicative game-play facility implementation in the green belt work area for Contract ILXX06 “Luzhou Linear Park Ballast Stacking Area Landscape Project”



a. Line-shaped green zone

This area was originally designed to have a Flower Gallery, Gate Ball Stadium, trails, plaza, and planting area. After review, Luzhou District Office, the management entity, invited the "Alliance of Returning the Figured Park Actions" (hereinafter the "Figured Alliance") to participate in the discussion regarding establishing new "communicative game-play facilities" to get rid of the past canned-style game-play facilities in the playground. After many seminars and brainstorming, the final decision was made, changing the square and part of the planting area to establish the "communicative game-play facilities and physical fitness facilities", including the first bunker slide in Luzhou and Sanchong District, flower-shaped crawling nets, three-in-one swings, turntables, back massagers, and abdominal muscle exercising boards, thus using it to meet the needs of the management entity.

b. Daylighting section work area

According to the usage requirements specified by the Transportation Department of the New Taipei City Government as the takeover entity, after discussion, the originally designed park facilities were cancelled, the parking space and guardrails were changed, and the Transportation Department established access control according to its management provisions.

2. Innovative items

(1) Resource activation and reuse

Taipei MRT Luzhou Linear Park tail ballast stacking area was a long-term fence enclosed from the operation of the 2010 MRT Xinzhuang-Luzhou line until 2016, which affected the overall landscape of this area. After the ballast was finally cleaned, the Second District Project Office immediately initiated resource activation and reuse, made plans and designs of the park's landscape, and smoothly contracted and commenced construction on November 14, 2016.

(2) Cross-City cooperation and management model

In view of the previous MRT Linear Park in the territory of New Taipei City, after completing the acceptance inspection, the takeover procedure was performed, and the management entity took over the park. Since the management entity was unclear, the takeover became more difficult. The Second District Project Office then innovatively changed the management mode, that is, before the contracting and construction, the Office started the "Cross-City Cooperation and Management Model" and built a two-way communication platform. The Office first held a management entity confirming coordination meeting; after the management entity was decided, the Office site supervision entity and the management entity reviewed the design items one by one; following demands to change the design, the design-

change content was reviewed to confirm that whether it met the requirements of the management entity. This procedure was repeated until the final decision was made, which could prevent the management entity from raising new requirements that made the Park unable to be taken over and operated.

3. Difficulties and breakthroughs encountered during the driving process

(1) Handover to the management entity

Luzhou Linear Park is an open, non-profit space for residents to enjoy leisure activities, and Taipei Metro insisted on not taking it over. If Taipei Metro were to take it over, it would have closed it with a fence and not opened it. Of course, losing the nature of the park was contrary to common sense. If the local District Office takeover was the most reasonable way, then it needed to propose maintenance funds and changes in demand items, that is, the Second District Project Office faced two major tests, through which the Department of Health and the city councilors negotiated to help the District Office ensure a maintenance budget every year and continued to work with the District Office to hold meetings to negotiate its needs in order to agree to the Park takeover. Furthermore, the Second District Project Office, which was the undertaking Office of the daylighting section, was also actively seeking to hand over the Park to the management entity through the city councilors. Finally, the Transportation Department of the New Taipei City Government took over the Park as a storage area for illegally parked vehicles to improve the city appearance and traffic order of New Taipei City, as well as eliminate road obstructions.

(2) Management entity demanded to increase funding and construction time

After the takeover management entity had decided to take the Park over, it further studied whether the function of the original design items could meet usage needs. After this study, it was necessary to add communicative game-play and physical fitness facilities to provide for children and adults practicing leisure and exercise games and fitness; therefore, it was necessary to increase construction funding and time. In order to solve the two aforementioned challenges, the Second District Project Office immediately discussed with Luzhou District Office and related entities to make additional budget adjustments within the construction budget to overcome the increased expenses and construction time. Due to the recreation aids, the game facilities had to be imported from abroad. The District Office and the construction company reviewed the time schedule of ordering, manufacturing, transportation, and construction one by one. After deciding on the game facilities and before completing the contract changing procedure, the vendor was urged to pre-order and manufacture the game facilities and construct the foundation before delivering it to the site in order to shorten the increased construction time.

4. Input budget and manpower

- (1) The construction budget of this project was NT\$33.73 million; the awarded contract price on October 12, 2016 was NT\$26.5 million. The project started on November 14, 2016, and the increased items were reviewed with the management entity, which increased NT\$4.93 million on the line-shape green belt area and NT\$160,000 on the daylighting section. The total budget increase was NT\$5.09 million, which was still controlled within the approved construction budget. The project reserve did not need to be used.
- (2) This project was supervised by the No 6 Construction Office of Second District Project Office. It was a self-supervised project; according to the assessment of the supervisory operational capacity on MRT projects in the past years, it needed three supervising personnel to complete supervision tasks. The construction was completed on September 30, 2017 pursuant to the required quality; after completing the acceptance inspection on December 12, 2017 (Fig. 5), it was successfully transferred to the management entity on December 15 (Fig. 6), and the Park opening ceremony was held on December 20.



Fig. 5: Acceptance inspection of Contract ILXX06 "Luzhou Linear Park Ballast Stacking Area Landscape Project"



Fig. 6: Transfer Co-inspection of Contract ILXX06 "Luzhou Linear Park Ballast Stacking Area Landscape Project"

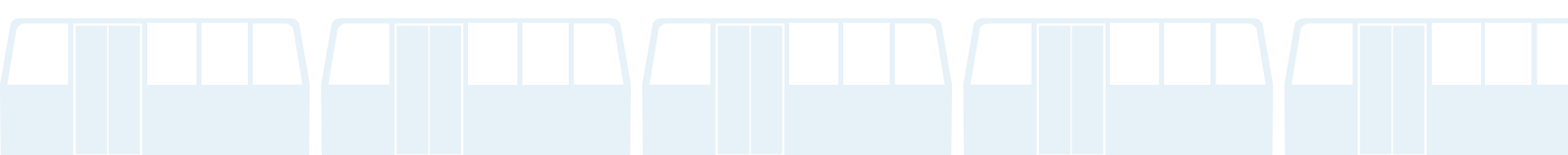
➤ Actual Implementation and Effectiveness

1. Cost-benefit analysis

- (1) Design: The project site is part of the Taipei MRT Luzhou Linear Park. It was originally commissioned to a design consultant but could not be constructed due to the temporary track ballast stacking. Once the ballast was removed, the Second District Project Office directly negotiated with the original design consultant to cooperate with the design free of charge, saving design costs of about NT\$560,000.
- (2) Supervision: This project was managed by way of self-supervision, which saved about NT\$630,000 in outsourcing supervision expenses.
- (3) Design change: If this case is transferred to the management entity after the completion of the construction, and the management entity proposed the usage demand plan and respective additional works, the original facilities would be demolished, that is, the original facilities and the demolition expenses would be wasted. The Second District Project Office changed the previous management mode and negotiated with the subsequent management entity prior to construction to discuss the usage requirements and immediately changed the design to avoid wasting the above funds, which had a value of about NT\$2.7 million.
- (4) Transfer: After the acceptance inspection was completed, the reason for being able to quickly and smoothly transfer this project to the management entity for open use was the key point of explaining the original planning and design concept to the management entity before construction and reviewing the demands for its use to meet local residents' needs. The handover and open-to-use schedule is expected to be shortened to avoid extending the indirect cost of handover operation.

2. Analysis of Internal and External Efficiency

- (1) Internal benefit analysis: This landscape project is a change from the previous takeover management mode; it decided the takeover management entity before construction, invited the management entity to participate in the review of the original design, and handled the change within the construction budget to meet the usage requirements of the management entity, which greatly reduced the takeover time after the acceptance inspection was completed by about three months, thus preventing the waste of public funds and manpower upon transfer.
- (2) Analysis of external benefits:
 - a. The landscape project of the line-shape green belt park was completed and represents the completion of the last piece of the Luzhou Linear Park. It was handed over to the Luzhou District Office of New Taipei City for maintenance and management, and the Vice Mayors of Taipei City and New Taipei City, city councilors, and local village heads were invited to host the "Open Ceremony"



to enhance the cooperation model between the two cities. The "Communicative Game-Play Facility" in the park provides children with a playground for game-play and fun, the "Physical Fitness Facility" provides adult fitness activities, the "Gate Ball Stadium" provides elderly citizens a space to exercise their muscles, and the "Flower Gallery" (41 meters long) provides the residents with a recreation area that enriches the leisure space of Luzhou District and makes the residents of the Greater Taipei Metropolis more willing to live in Luzhou (Fig. 7).

- b. The daylighting section of Luzhou Line was handed over to the New Taipei City Transportation Department as a temporary storage yard for illegally towed vehicles to solve the problem of insufficient space for the illegally towed vehicles and the convenience of vehicle-owners in the Luzhou District to recover their cars after being towed. The New Taipei City Government's efforts to strengthen road traffic safety management was promoted, and illegal parking problems were improved, thus achieving the maximum benefit of smooth road traffic (Fig. 8).
3. This landscape project was planned, designed, and constructed by the Second District Project Office of DORTS. After completion, it was transferred to the relevant entities of the New Taipei City Government for management and maintenance, creating a place for local residents' leisure activities. It can be said to be the best "One MRT managed by two cities, with three parties benefitting" model for cross-city management, making it worthy of being a reference for future transfer models of MRT route network construction (Fig. 9).

Conclusion

This landscape project is the best way to establish a city communication and cooperation model using "One MRT managed by two cities, with three parties benefitting" with the best benefits; it was awarded the "cross-domain cooperation award" in the creative proposal competition of New Taipei City in 2018. We hereby provide this landscape project transfer case as a reference for the construction planning of similar projects.



Flower gallery



The first Gate Ball Stadium in Luzhou District



Communitive three-in-one swing



Turntable



The first bunker slide in Luzhou and Sanchong District



Abdominal training plate

Fig. 7: Game-play and physical exercise facilities in the line-shape green belt zone



Rail, floor, and fence



Storage area of illegally towed vehicles

Fig. 8: Facilities of the unearthed section



Fig. 9: The opening ceremony of the "Luzhou Linear Park landscape project for the ballast stacking area" on December 20, 2017

Planning a Comprehensive MRT Network

Taipei City Metropolitan Area MRT transit network planning continually conducts studies of areas where MRT service is unavailable and extends existing routes to far-reaching areas in order to construct a more complete MRT network service. Plans which are underway 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 the routes on the network will extend over 270 km with a capacity of 3.6 million passenger trips a 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:

- ✧ On August 7, 2017 the comprehensive planning report was submitted to the Ministry of Transportation and Communications (MOTC) for review, and after undergoing revision two times, on September 10, 2018 a preliminary review meeting was convened. After the report was revised by DORTS, on October 16 it was submitted to MOTC for review. MOTC has scheduled for the 29th review committee meeting to be held on January 7, 2019, and the follow-up will be coordinated with central review operations to strive for early approval by the central government.
- ✧ On August 16, 2018, the Executive Yuan at the 3613th session approved the incorporation of the Circular line north section & south section into the Forward-looking Infrastructure Project. Once the comprehensive planning and urban planning has been approved, the detailed design will be carried out.

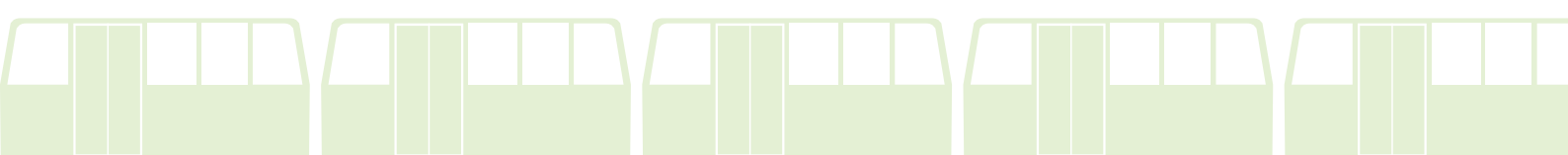
Environmental Impact Assessment:

- ✧ 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 Sections:

- On January 11, 2018 the planning revisions for the project were approved by Taipei Mayor, and the Taipei City Department of Urban Development announced that from March 16 there would be an open exhibition for 30 days. Two explanatory meetings were convened on March 26 and March 30, and the revisions were reviewed and



approved by Taipei City Department of Urban Development on April 24 and June 21 at the 724th and 728th commission meetings. Taipei City Government submitted the revisions to the Ministry of the Interior (MOI) on July 26, and on September 11 the Ministry of the Interior convened the first meeting of an MOI commission task force to review the revisions. After DORTS completed a response of members' comments in accordance with the committee's conclusions and provided supplementary data and amendment proposals, on October 23 Taipei City Government submitted them to an MOI commission for review. On December 11, MOI submitted the revisions to the 936th MOI commission meeting, where they were reviewed and approved. In addition, for the portion of revisions which were beyond the scope of revisions at the public exhibitions, other public exhibitions will be held accordingly. During the public exhibition period, if there are not any opinions of any citizen or public group, or there is no direct relationship between these sentiments and the revision of this project, they will be directly submitted to the Ministry of the Interior for approval, and there will be no need for further deliberation on the part of the commission. During the public exhibition period, opinions submitted by citizens or groups are directly related to revisions, and they will be re-discussed.

New Taipei City Sections:

- Following the submission of revised urban planning diagrams to New Taipei City Government for the handling of urban planning revisions on January 5, on February 23, New Taipei City Government resent revisions and opinions, and on March 9, after inspecting the revisions, DORTS submitted the revised planning diagrams to New Taipei City Government. New Taipei City Government announced an open exhibition of the planning revisions beginning on March 30, and a total of three explanatory meetings were held – two of the meetings were held on April 16 and one of the meetings was held on April 23. The New Taipei City Committee convened four small team meetings on May 30, July 19, August 3, and September 6, and New Taipei City Government presented the "Volume Ratio Setting and Distribution Method of New Taipei City MRT Development Zones" report at the 94th New Taipei City Committee meeting. Following the amendment of the report to include the committee's opinions, the next committee report is also required to be submitted.

➤ **Minsheng-Xizhi Line**

Responsible Agency: Taipei City Government

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

Comprehensive Planning:

- ✧ "Taipei MRT Minsheng-Xizhi Line and Surrounding Land Development Comprehensive Planning" was submitted on August 28, 2015 and April 25, 2016 to the central government for review, and on June 13, 2016 MOTC's 2nd appraisals of review were

returned with the request that the government should follow the procedures to complete the environmental impact assessment and urban planning revision review for the Minsheng West and East Roads and the Donghu branch line in Taipei City in accordance with "Guidelines for Application and Review of Plans for Mass Rapid Transit System Construction Projects & Development of Adjacent Land" regulations. Afterwards, the comprehensive planning report should be revised and submitted for approval. In response to MOTC's review and appraisals, on October 18, 2016, DORTS and New Taipei City Government jointly negotiated to proceed with the environmental impact assessment and urban planning review in advance.

Environmental Impact Assessment:

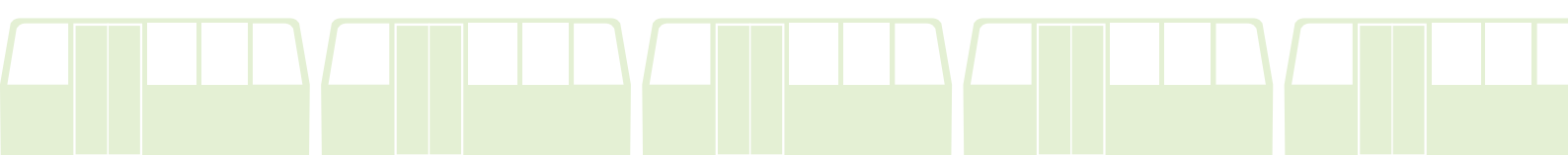
- ✧ The environmental impact statement Phase I (Neihu-Xizhu) was conditionally approved by the Environmental Impact Assessment Committee under the Environmental Protection Administration (EPA) on July 13, 2009. On January 21, 2010, it was approved by the EPA for future reference.
- ✧ Tasks relating to the commissioned technical service of the environmental impact assessment for Minsheng West and East roads and Donghu branch line were awarded on April 10, 2017, and three environmental impact explanatory meetings which were opened to the public were convened on March 31, April 11, and April 12. In accordance with citizens' opinions in response to the open environmental impact meetings, DORTS researched a Minquan East Rd. substitute plan for Taipei Minsheng Community and conducted an opinion poll in order to understand residents' actual opinions regarding the utilization of the Minsheng East Rd. route or revising it to the Minquan East Rd. substitution route. The surveyed area was for four stations within a 500-meter radius for the "Minsheng East Rd. Project" and the "Minquan East Rd. Project" on the Minsheng-Xizhi line. The survey was conducted by mailing questionnaires to addresses located within the surveyed area, and it was implemented during October 2018. The survey results indicated that approximately 66% of local citizens supported adopting the "Minsheng East Rd. Project" for the construction route for the MRT Minsheng-Xizhi line; furthermore, up to 70% of residents of the surrounding area of the Minsheng East Rd. supported adopting the "Minsheng East Rd. Project" for the construction of the MRT Minsheng-Xizhi line. On November 27 the review of the final "Environmental Impact Assessment Report" was completed, and on December 27 it was submitted to MOTC and then submitted to the Executive Yuan EPA for deliberation.

➤ **Circular Line East Section**

Responsible Agency: Taipei City Government

Feasibility Study:

- ✧ Commissioned technological services for the feasibility study commenced on April 28, 2017.



◇ Three explanatory meetings were convened on March 27, March 28, and March 29, 2018, all of which obtained the support of local representatives, neighborhood magistrates, and citizens. After specialized scholars and relevant units of the city government were invited to review and amend the final report of the feasibility study (first draft), it was approved on August 21, and on October 4 Taipei Deputy Mayor Chin-Rong Lin convened a Metropolitan Circular line promotional committee to confirm approval of the research results. On October 11, a Mayoral committee conducted a project report to obtain the Mayor's approval, and the feasibility study and comprehensive route evaluation report was submitted to MOTC for deliberation on November 7.

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

Responsible Agency: Taipei City Government

Feasibility Study:

- ◇ For the Shezi Island Development Project, the depot was originally set to be located on the allotted lands of Shezi Island for train maintenance and dispatch on the Shezi Light Rail. However, in 2015 Taipei City Government began planning research and analysis of an alternative proposal to the area that was originally planned as the site for development on Shezi Island. Thus the planning of Shezi Light Rail route and the depot site will be reconsidered. The subsequent planning tasks will be implemented after a review of the land acquisition schedule for the light rail depot site.
- ◇ "The Revised Principle Planning of the Shezi Island Development Project" was approved by MOI Urban Planning Commission at the 925th commission meeting on June 26, 2018.
- ◇ For the Shezi Island Development Project, the Shezi Light Rail Depot was set to be located on a plot of transportation land of the Beitou-Shilin Technology Park Area after the 2nd zone expropriation. In January 2017 Taiwan Power Company made a request for the construction of an above-ground substation in order to enable land to be utilized for the following three sites: Shezi Light Rail Depot, Taipei Public Transportation Office's Bus dispatching station, and Taipower Substation, for coordinated planning and use; however, after numerous meetings, it has still been difficult to integrate developers' planning. In cooperation with central approval of Shezi Island Development Project in 2018, land ownership of Shezi Light Rail Depot was once again reviewed, and on August 24 the review was signed and approved by the Mayor. The planning for Shezi Island Development Project was amended to include the stipulation that, "only land which is required for use for the Shezi Light Rail route will be used as land which can be provided for use for the light rail depot for future use; and transportation land in the Beitou-Shilin Technology Park Area will be retained for Shezi Light Rail Route."

➤ **Wanda Line Phase II**

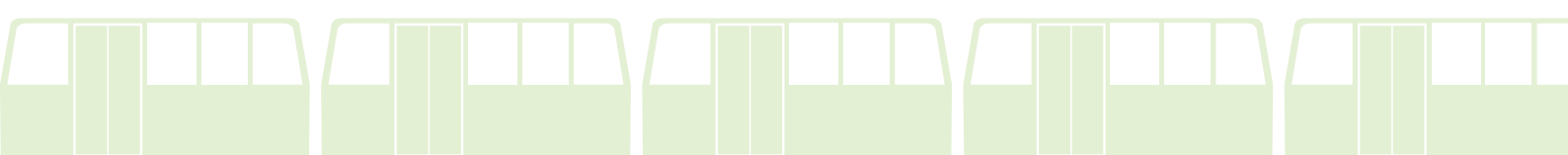
Responsible Agency: Taipei City Government

Comprehensive planning:

- ◇ On February 12, 2010 the route for the Wanda line was approved by the Executive Yuan, and it will be constructed in phases. The entire route falls within the territory of New Taipei City and is funded by the central government and New Taipei City Government. Taipei City Government, the local competent authority, is responsible for all of the design and construction of the Wanda-Zhonghe-Shulin line.
- ◇ Because financial planning for the route had not yet been approved by the central government, on December 8 DORTS convened a promotional meeting presided over by Deputy Mayors of Taipei City and New Taipei City, and the revisions were reviewed and approved by the meeting participants (the meeting confirmed division of powers and responsibilities for the land acquisition: DORTS is responsible for the revision of urban planning projects, and New Taipei City Government is responsible for the reviews of detailed planning content pertaining to land development and helping deliberations for the Urban Planning Commissions in the central and local governments. In addition, Taipei City Department of Rapid Transit Systems is responsible for the acquisition of the non-MRT land used for the stations and route while New Taipei City Government Department of Rapid Transit Systems is responsible for the land acquisition of the land development.)
- ◇ On January 26, 2017, Taipei City Government submitted the first revisions to the Wanda-Zhonghe-Shulin line Phase II (financial planning) to MOTC for review and then passed them on to the Executive Yuan for approval; meanwhile, it was requested that New Taipei City Government be designated as the responsible authority for land development of the Wanda-Zhonghe-Shulin line Phase II. MOTC on September 14, 2017 submitted the transcript of the Ministry's August 31 commission review session by mail, which stated, "regarding the recommendations submitted by Taipei City Government that New Taipei City Government be designated as local competent authority for the second phase of project land development, because all of the route section is located within New Taipei City and Taipei City Government and New Taipei City Government have already coordinated to reach a consensus, Taipei City Government and New Taipei City Government are requested to follow-up in accordance with the results of the coordination between the two parties." On August 16 at the 3613th session, the Executive Yuan approved the incorporation of the MRT Wanda line Phase II into forward-looking infrastructure track construction, and on October 17 the financial planning and planning revisions were also approved.

Environmental Impact Assessment:

- ◇ An environmental impact assessment for this plan (the entire line) was approved by



the Environmental Protection Administration on August 6, 2008 for future reference. Because the design planning will be conducted in separate stages, the second phase of the project's analysis reports on the differences in environmental impacts due to the adjustment of routes and will be conducted during the basic design stage.

Urban Planning Revisions:

- ✧ Urban Planning Commission, New Taipei City convened ten specialized committee research conferences on February 22, April 13, June 8, July 25, August 15, September 7, September 27, September 28, October 23, and November 13. Six MRT development explanatory meetings were also convened on August 31, September 4, September 5, September 7, and September 8.
- ✧ On November 16, New Taipei City DORTS submitted the "Principle of Volume Ratio Setting and Distribution for New Taipei City Urban Planning MRT Development Zone" (draft) in writing to the New Taipei City Urban and Rural Development Bureau. On November 22, New Taipei City Government convened a specialized committee research conference for the "Principle of Volume Ratio Setting and Distribution for New Taipei City Urban Planning MRT Development Zone" draft, and on December 14 at the 94th session of the Urban Planning Commission, New Taipei City, the "Principle of Volume Ratio Setting and Distribution for New Taipei City Urban Planning MRT Development Zone" report was submitted for review. However, it will be necessary to supplement the report with the opinions of the committee members. On December 17 New Taipei City Government convened the 11th specialized committee research conference to discuss regulations on increasing the volume ratio and control of land-use zones.

Other

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

Responsible Agency: Railway Bureau, MOTC

Feasibility Study:


- ✧ On October 3, 2018, the feasibility study was approved by MOTC in a review commission meeting. On November 20, the report was submitted to the Executive Yuan for review, and it will be reviewed by the National Development Council on January 9, 2019. An elevated type construction is planned to be adopted in Taipei City, and the endpoint station will be created above the driveway of High Speed Railway's day-lighting section, just adjacent to MRT Bannan line Taipei Nangang Exhibition Center Station. Taipei City Government will respect MOTC's planning and ask for follow-up suggestion for ways to effectively carry out connections and transfers with Taipei Nangang Exhibition Center Station for the benefit of residents who use the Bannan line and the Neihu line as transfer routes into Taipei City. In



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 to date. The MRT typically carries a daily load of two million passenger trips, and the quality of its services has won praise from all social sectors. As a result, there is public demand in each district for the MRT services to be extended. Considering the overall requirements and types of journeys in the Taipei Metropolitan area, there is still considerable room to make diligent efforts to expand the scope of MRT construction. 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, Department of Rapid Transit Systems (DORTS) will continue to implement the on-going construction routes, including Wanda-Zhonghe-Shulin line Phase I and Phase II, the Circular line Phase I, Xinyi eastern extension, and Xinzhuang Depot with a total length of approximately 39.9 km. In addition, DORTS will continue efforts on the planned routes which include the Circular line north section & south section, the Minsheng-Xizhi line, Circular line east section, and the Shezi, Shilin, and Beitou light rail transit network, with a total length of approximately 70 km. The Taipei Metropolitan Area Rapid Transit System network will eventually reach 290 km in length (including routes undertaken by New Taipei City, DORTS) upon its completion, with an average daily capacity of over 3.6 million passenger trips. We are confident that after the Taipei MRT System Network is completed, the number of private passenger vehicles on the road will be reduced, and the traffic congestion problem in the greater Taipei area will be alleviated. We also believe that we will provide the residents of New Taipei City and Taipei City with better transportation services, mold a good living environment, and create a lively Taipei Metropolitan Area.



2018 Major Events

01 January 18

The second revision plan of the Xinyi eastern extension was approved by the Executive Yuan.



02 February 7

The Mayor of New Taipei City Government inspected the construction site of the Circular line CF640 project.



03 March 2

The problem of property registration of MRT Wenhua line Xinhai Station (T10) JD buildings that the land could not be transferred due to the Grand Justice's interpretation of No. 743 of the Judicial Yuan was resolved, and the property registration was completed on March 2, 2018.



03

March 14

Taipei Main Station Special District Parcel C1/D1 Land Development Project investors solicitation:

1. Investor solicitation explanatory meeting (March 14, 2018)
2. Open tender announcement (March 31, 2018)
3. Deadline of submission (October 1, 2018)
4. Qualifications review (November 30, 2018)
5. Specifications review (December 21, 2018)



03

March 16

The groundbreaking and praying ceremony for the Section Contract CQ870 of the Wanda -Zhonghe -Shulin line Phase I was held.



03

March 26, 30, June 6, December 11

Urban planning revision for the Circular line Phase II Taipei City section was publicly exhibited on March 26, 30. The revision was approved by the 728th Urban Planning Commission of Taipei City on June 21, 2018, and approved by the 936th Urban Planning Commission of the Ministry of the Interior on December 11, 2018.



03

March 27-29

Public explanatory meetings of eastern Taipei north-south MRT System (Circular line east section) were held.



03

March 31, April 11, 12

Public explanatory meetings were held for working out the Environmental Impact Assessment of the Minsheng-Xizhi line Phase II.

04

04

April 12

New Taipei City Government Public Works Department visited the Taichung Rapid Transit System Beitun Depot.



05

May 30

The tender documentation for the commissioned renewal works of the HVAC systems on the B1, B2 level, and the ceiling lighting on the B1 level at Longshan Temple Underground Mall was completed.



06 June 1

With the revisions to the rules of organization, DORTS was re-organized. With the exception of retaining the organization of the Systemwide E&M Project Office, the four project offices in the North, East, South, and Central districts were merged into the First and Second District Project offices. Director Jian Zhe-hong and Director Zhou Wen-bin were sworn on June 1, 2018.



06 June 7

For MRT Xinzhuang line Cailiao Station (M4) JD building, an agreement of "Rights and Interests Allocation" was signed on April 17, 2018, and the property registration was completed on June 7, 2018.



06 June 14

Compilation of planning manual of civil engineering, HVAC and E&M systems as well as fixing of facilities and equipment for the medium capacity system was completed.





06

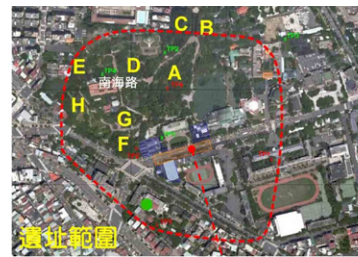
June 22

The tender documentation for the turnkey contract ITTX68- the HVAC systems renewal--ITTX68 Trnkey Contract—at the Taipei Main Station underground mall was completed.

06

June 25

Rescue excavation at Botanical Garden archaeological site of the -- MRT Wanda-Zhonghe-Shulin line Contract CQ842 at Station LG02--was completed.



07

July 5

The opening ceremony of the Contract CZ208 project for Taipei Astronomical Museum's Exhibition Hall Renovation and Special Exhibition Area Expansion Projects was held.



07

July 9

The architectural finishing works of Xinzhuang line Daqiaotou Station (M2) JD building were completed.



07

July 10

Taipei MRT Wanda-Zhonghe-Shulin line Phase I, E&M Systems procurement contract was signed by Mr. Liu, Director of SEMPO, Miss Ling FANG, President of the ALSTOM Asia Pacific, and Mr. John T. Yu, Chairman and CEO of CTCI, with the witness of Mr. Chang Tzer-siung, Commissioner of Taipei City Department of Rapid Transit Systems, and M. Benoît GUIDEE, Director of Bureau Français de Taipei.



07

July 18

161KV Power Supply for BSS2 of the Circular line Contract CF610 was completed.



08

August 1



DORTS, SEMPO chiefs and Manufacturer HRI Vice President witnessed the Taipei Circular line all 17 trains parades.

08

August 3

The selection of technical services vender for the mid-term elevators and escalators improvement project at the station entrances of the initial network (detailed design of Contract DX106) was finalized.



08

August 10

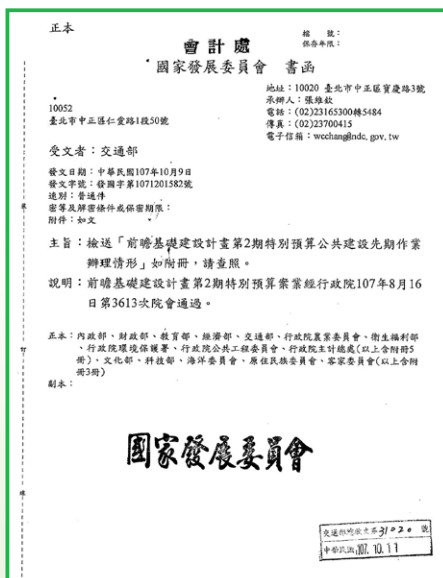
The Mayor of Taipei City Government inspected the construction of the Circular line by train.



08

August 16

The 2nd-stage special budget for the Circular line north section & south section was incorporated into the Forward-looking Infrastructure Project by the Executive Yuan at the 3613rd meeting on August 16, 2018.



08

August 27

Compilation of E&M systems planning manual of the medium capacity system was completed.



09

September 10

Comprehensive planning report of the Circular line north section & south section in the preliminary meeting by the Ministry of Transportation and Communications.



09

September 17

Anarchaeological investigation and excavation of stones from Taipei City Walls at Wanda line Section Contract CQ840 was completed.



10

October 4

The opening ceremony of elevators/escalators improvement project at MRT Guting Station was held.



10

October 17

The adjustment of financial plans and construction period of Wanda-Zhonghe-Shulin line Phase II was approved by the Executive Yuan.



10

October 26、27

Headquarters of Systemwide E&M Project Office moved to 2F, No 265, Jingmao 1st Rd., Nangang Dist., Taipei City, Taiwan (R.O.C.)



10

October 28

The opening ceremony of the additional entrance and exit for MRT Beitou Station of the CT207B construction project was held.



11

November 7

The Feasibility Study of Circular line east section was submitted to the Ministry of Transportation and Communications for review.



11

November 11

Joint opening ceremony of Daan Senior Service & Day Care Center and Daan District Activity Center was held.



11 November 19

Members of the Control Yuan visited Jingan Station (Y10) -- the Circular line CF651A contract.

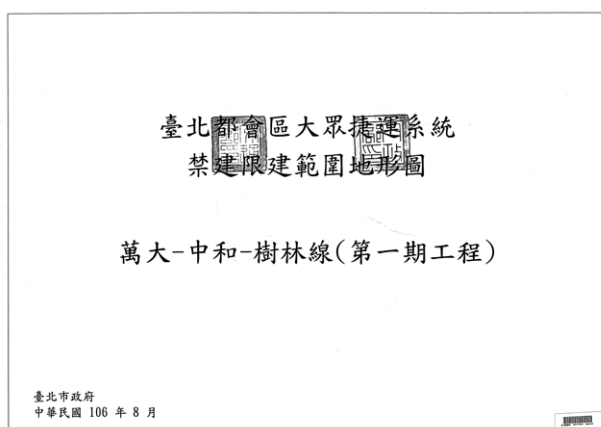


11 November 22

1. "Topographic map of Building Permit Bans and Restrictions alongside MRT Facilities on the Wanda-Zhonghe-Shulin line Phase I and the Xinyi eastern extension" has been approved by the Ministry of Transportation and Communications together with the Ministry of the Interior (official letters No. 10750036491 and No. 1070816777) on October 24, 2018.
2. The above map was announced by Taipei City Government (official letter No. 10760107221) on November 22, 2018.

12 December 16

DORTS' Second District Project Office was relocated.



2018 Awards

Serial Number	Issuing Authority	Prize Time	Award Name	Notes
1	Chinese Institute of Engineers	April 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 2018 Chinese Institute of Engineers Award of Excellence.	Second District Project Office
2	Chinese Institute of Engineers	June 1	Subcontract CF651A of the Circular line Section Contract CF650 won the 2018 Engineering Project Excellence Award.	First District Project Office
3	Chinese Institute of Engineers	June 1	Subcontract CF643B of the Circular line Section Contract CF640 won the 2018 Engineering Project Excellence Award.	First District Project Office
4	Chinese Institute of Engineers	June 1	Circular line Section Contract CF660 won the 2018 Engineering Project Excellence Award.	First District Project Office
5	Value Management Institute of Taiwan	June 29	Deputy Commissioner Chen Yao-wei honored with Outstanding Engineer Award.	Deputy Commissioner's Office
6	Value Management Institute of Taiwan	June 29	Track section DF114 basic design contract of Circular line north section and south section and DX105 basic design contract of Wanda-Zhonghe-Shulin line Phase II--two cases of design alternative analysis work--won the Value Management Institute of Taiwan 2017 Annual Outstanding Engineering Awards.	Civil Engineering and Architectural Design Division
7	The Estate Association R.O.C./ FIABCI-Taiwan	July 18	Circular line (Phase I) Subcontract CF642 of Section Contract CF640 won a Golden Award in the Construction Quality Category of the ROC Real Estate Appraiser Association 2018 National Awards of Construction Excellence	First District Project Office
8	Executive Yuan's Public Construction Commission	July 31	Subcontract CQ863 of the Wanda line Section Contract CQ860 was the recipient of Outstanding Award for Supervision of Public Construction	First District Project Office
9	Taipei City Government	August 17	Daan Elder Services and Day Care Center construction was the recipient of 2018 Taipei City Government Public Works Award of Excellence (Architecture Category).	Second District Project Office
10	Taipei City Government	August 17	Taichung MRT Wuri–Wenxin–Beitun line Beitun Section Contract CJ930 was the recipient of a 2018 Taipei City Government Public Works Award of Excellence (Civil Engineering Category).	Second District Project Office
11	Taipei City Government	August 17	Circular line Subcontract CF614A of Section Contract CF640 was the recipient of a 2018 Taipei City Government Public Works Award of Excellence (Civil Engineering Category).	First District Project Office

Serial Number	Issuing Authority	Prize Time	Award Name	Notes
12	Ministry of Labor	September 5	Taichung MRT Wuri–Wenxin–Beitun line Beitun Section Contract JJG091 the integrated construction of entrance/exit and land development site was the recipient of a Ministry of Labor 2018 Promotion of Occupational Safety in Health in Public Construction Award.	Second District Project Office
13	Ministry of Transportation and Communications	September 12	Contract CA441H for Taiwan Taoyuan International Airport line was the recipient of an MOTC 2018 19 th Annual Golden Road Award – 3 rd Place Prize in the Category of Outstanding Engineering.	First District Project Office
14	New Taipei City Government	September 12		First District Project Office
15	Chinese Architectural Golden Stone Award Contest Advisory Board	October 4	The Xinzhuang line Daqiaotou Station JD project (M2) won the 26 th Golden Stone Awards Frist Prize in the Public Construction/Excellent Space Activation Category.	Joint Development Division
16	Chinese Architectural Golden Stone Award Contest Advisory Board	October 4	Subcontract CF642 of the Circular line Section Contract CF640 won the Golden Stone Award in the public construction/excellent space activation category.	First District Project Office
17	Republic of China National Enterprise Competitiveness Development Association/ Selection Committee of National Golden Award for Architecture	October 30	Subcontract CF643B of the Circular line Section Contract CF640 won the Annual National Golden Award for Architecture.	First District Project Office
18	Taiwan Concrete Institute	November 30	Subcontract CF642 of the Circular line Section Contract CF640 won 2018 Annual Top Prize of Excellence (Architecture Category) for Concrete Engineering.	First District Project Office
19	Formosa Association of Sustainable Care for Living Environment	December 13	The Xinzhuang line Daqiaotou Station JD project (M2) won the 19 th Annual National Golden Awards for Architecture.	Joint Development Division
20	Formosa Association of Sustainable Care for Living Environment	December 13	The Circular line Section Contract CF640 won the 19th Annual National Golden Awards for Architecture, Public Works Award of Excellence and Top Award of Excellence.	First District Project Office

Serial Number	Issuing Authority	Prize Time	Award Name	Notes
21	Formosa Association of Sustainable Care for Living Environment	December 13	The Circular line Section Contract CF660B was the recipient of 19 th Annual National Golden Award for Architecture, Public Works Top Award of Excellence.	First District Project Office
22	Formosa Association of Sustainable Care for Living Environment	December 13	Taichung MRT Wuri–Wenxin–Beitun line Beitun Section Contract CJ920 was the recipient of a 2017 Taipei City Government Public Works Award of Excellence.	Second District Project Office
23	Formosa Association of Sustainable Care for Living Environment	December 13	Taichung MRT Wuri–Wenxin–Beitun line Beitun Section Contract CJ930 was the recipient of a 2017 Taipei City Government Public Works Award of Excellence.	Second District Project Office
24	Formosa Association of Sustainable Care for Living Environment	December 13	Taichung MRT Wuri–Wenxin–Beitun line won the First Prize for Construction Quality at 2017 Annual National Golden Awards for Architecture,	Second District Project Office
25	Ministry of Culture	December 14	MRT Songshan line Shongshan Station Public Art Installation won the 6 th Ministry of Culture Public Arts Creation Award.	Civil Engineering and Architecture Design Division
26	Chinese Society of Structural Engineers	December 15	Subcontract CF643B of the Circular line Section Contract 640 won the 2018 Structural Engineering Technology Awards.	First District Project Office
27	Executive Yuan's Public Construction Commission	December 18	Circular line Subcontract CF614A of Section Contract CF640 was the recipient of the 18th Public Construction Commission Golden Quality Award in the Public Works and the Distinguished Public Works Award of Excellence.	First District Project Office



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