

# Planning a Comprehensive MRT Network

Ongoing planning of new routes for the Taipei metropolitan area involves studying feasibility of new routes in areas where MRT service is unavailable and extending existing routes to far-reaching areas. Plans underway include the Wanda-Zhonghe-Shulin line Phase II, Minsheng-Xizhi line, Sanying line, Ankeng line, north and south sections of the Circular line, North-South line, and Shezi-Shilin-Beitou light rail transit network. Upon completion of these routes, the MRT network will extend to more than 270 km and handle an estimated 3.6 million passenger trips per day.

In order to plan and manage MRT construction expenditures and revenues, distribute necessary funds, assess financial plans, and expedite public works, Taipei City Government established the "Taipei MRT Project Fund." The fund promotes sustainable, stable and comprehensive development of the MRT network.

While residents of Taipei and New Taipei City praise the convenience and safety of MRT systems and express their reliance on the network, they have requested easier station access. In response, DORTS continues to build new exits/entrances and better transfer facilities.

## Future Network Planning

### 1. Wanda-Zhonghe-Shulin Line Phase II

Responsible Agency: Taipei City Government

Feasibility Study: DORTS submitted "feasibility analysis reports on constructing MRT routes" in the Wanda area to Taipei City Council in May 2002. New Taipei City Government completed a feasibility study on MRT planning in Shulin District in December 2002.

#### (1) Comprehensive Planning:

- a. Wanda-Zhonghe-Shulin line Phase II is located in New Taipei City. Studies on the route, stations/depot, surrounding land development, and financial planning were commissioned to a consultancy in September 2012. DORTS assisted with reviews. After New Taipei City Government sent the project's financial plan to DORTS on August 13, 2014, DORTS submitted the plans to the Taipei MRT Project and Surrounding Land Development Review Committee. The plans were then sent to the MOTC then the Executive Yuan for approval.
- b. Taking local government autonomy, self-financing sources, station/depot land development, and land acquisition for development use into consideration, in a document sent on October 27, 2014, DORTS requested that New Taipei City maintain rights, interests, and responsibilities when conducting land development in order to avoid subsequent controversy. On December 23, 2014, New Taipei City Government asked that DORTS raise the above issues with related committees for deliberation while launching the basic design.

- c. DORTS continued negotiating with New Taipei City Government on related issues, such as the construction schedule and urban rezoning plans, land development and acquisition, and construction risks and costs. The two agencies jointly sought approval of the financial plan for the second phase from the central government.

## (2) Environmental Impact Assessment

The Environmental Protection Administration approved for future reference environmental impact assessment reports for the full line on August 6, 2008. Since construction will take place in phases, the second phase project's analysis reports on the difference of the environmental impact will be conducted during the basic design stage.

## 2. Minsheng-Xizhi Line

Responsible Agency: Taipei City Government

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

### (1) Comprehensive Planning

For implementation of the Minsheng-Xizhi line, DORTS completed the Taipei MRT Minsheng-Xizhi Line and Surrounding Land Development Comprehensive Planning. At the 3<sup>rd</sup> committee meeting jointly held by Taipei City and New Taipei City governments on August 6, 2014, the need for transfers between the Minsheng-Xizhi line and the Wenhua line was discussed and the cities decided to build stations and exits/entrances on public land to reduce resistance. DORTS followed by conducting feasibility and impact assessments which it submitted to Taipei City Government. In the future, DORTS will continue discussion with New Taipei City Government and submit plans to the MOTC and the Executive Yuan for approval.

### (2) Environmental Impact Assessment

Environmental impact assessment reports were reviewed by the Environmental Impact Assessment Committee under the Environmental Protection Administration on July 13, 2009. The administration approved the first phase (the section between Neihu and Xizhi) project reports for future reference on January 21, 2010.

## 3. Sanying Line

Responsible Agency: New Taipei City Government (New Taipei City Government financed planning by DORTS. A task force, consisting of DORTS, Taoyuan City Government, and related agencies, held regular meetings to review planning proposed by consultants.)

Feasibility Study: The feasibility study was approved by the Executive Yuan on September 3, 2012. After Taoyuan County Government consented to New Taipei City Government acting as responsible agency, on April 1, 2013, the latter commissioned DORTS to conduct planning. Following completion of the feasibility study report on May 26, 2014, DORTS briefed former Taoyuan County Magistrate Wu Chih-Yang on October 7, 2014. Since public hearings have not been conducted, New Taipei City Government will wait until public opinions can be incorporated before submitting the modified feasibility report to the Executive Yuan for review.

(1) Comprehensive Planning:

- a. New Taipei City Government submitted environmental impact assessment reports to the MOTC for review on March 24, 2014. After approval by the MOTC, the reports were submitted to the Executive Yuan for review on November 14, 2014. The National Development Council will hold a review meeting on January 13, 2015.
- b. Overall planning for the land adjacent to MRT stations was integrated into comprehensive planning reports. An urban rezoning draft plan was completed and sent to New Taipei City Department of Rapid Transit Systems on August 29, 2014.

(2) Environmental Impact Assessment:

- a. The Environmental Protection Administration gave conditional approval to environmental impact assessment reports for the Circular line on August 28, 2006 and approval on November 20, 2006. The administration approved changing the development agency to New Taipei City Transportation Department on May 24, 2013.
- b. Final analysis reports on the difference of the environmental impact environmental changes caused by the project were completed and sent to New Taipei City Department of Transportation on October 23, 2014.

#### **4. Ankeng Line**

Responsible Agency: New Taipei City Government (New Taipei City Government financed planning by DORTS. A task force, consisting of DORTS, New Taipei City Government, and related agencies, held regular meetings to review planning proposed by consultants.)

Feasibility Study: Approved by the Executive Yuan on July 1, 2013

(1) Comprehensive Planning

New Taipei City Government submitted comprehensive reports to the MOTC for review on May 7, 2014. The reports were reviewed and approved at the MOTC's 15<sup>th</sup> meeting on November 10. New Taipei City Government then submitted revised "comprehensive planning reports for the Ankeng line light rail transit network and neighboring land development" to the MOTC for review on November 24. These will be reviewed by the National Development Council during a meeting on January 21, 2015.

(2) Environmental Impact Assessment

The Environmental Protection Administration approved for future reference environmental impact assessment reports for the Ankeng line on October 14, 2003. Final analysis reports on the difference of the environmental impact were completed and under review.

#### **5. North and South Sections of the Circular Line**

Comprehensive Planning: Taipei City Government

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

(1) Comprehensive Planning

Comprehensive planning, which began on December 11, 2014, will be submitted to the MOTC and the Executive Yuan for review.

(2) Environmental Impact Assessment:

- a. The Environmental Protection Administration gave conditional approval to environmental impact assessment reports for the Circular line on January 23, 2003.
- b. Analysis reports on the difference of the environmental impact (the 1<sup>st</sup> edition) was approved on January 19, 2006.

## 6. North-South Line

Responsible Agency: Taipei City Government

Feasibility Study: Due to limited space, the depot for the North-South line did not reach grade 5 function. Since the line will be unable to operate independently, it will connect with the north section of the Circular line. After construction of north and south sections of the Circular line is approved by the central government, DORTS will conduct further reviews and draft feasibility reports that incorporate the benefits of tax increment financing, or TIF, and TOD schemes into the financial plans. The reports will be submitted to the MOTC and the Executive Yuan for review.

(1) Comprehensive Planning

After the Executive Yuan approves the construction schedule and the feasibility study of the north and south sections of the Circular line, DORTS will conduct comprehensive planning in accordance with the Regulations for Application and Review of MRT Construction and Surrounding Land Development.

(2) Environmental Impact Assessment

The Environmental Impact Assessment Committee, under the Environmental Protection Administration, determined at its 182<sup>nd</sup> meeting held on July 29, 2009, that second stage environmental impact assessment was necessary. As DORTS followed through with related procedures, budgetary issues and progress requirements associated with the feasibility report led it to commission an environmental impact assessment consultancy to conduct research and analysis on specific issues, such as socioeconomic and financial analyses, carbon reduction efficiency, and survey and trial excavation of the depot's cultural heritage. This work was completed on January 23, 2014. DORTS will conduct follow-up environmental impact assessment based on the feasibility study (once it is approved by the Executive Yuan) and the comprehensive planning report.

## 7. Shezi-Shilin-Beitou Light Rail Transit Network

Responsible Agency: Taipei City Government

Feasibility Study: The Taipei City Cultural Heritage Review Committee, under the Taipei City Department of Cultural Affairs, decided at its 64<sup>th</sup> meeting on December 3, 2014 to designate Shezi Island's Xuanan Temple, Yanlou Lee Residence, Lee He-xing Residence, Lee Zhong-ji Residence, and Xidi Wang Residence as historic buildings. It approved in principle changes in elevation and location for the five buildings in order to accommodate development of Shezi Island. The Xuanan Temple and Yanlou Lee Residence, located on land for the future depot, and the Lee He-xing Residence, located on land for stations, will be preserved in conjunction with the Shezi Island development project.

The feasibility study will not be conducted until the depot land acquisition schedule is decided. The depot, which will be used for train dispatch and maintenance, will be located in the Shezi Island development area. After environmental impact assessment is approved, Taipei City Government will conduct the urban planning legal procedures review. Following approval of the zone expropriation plan, the depot land acquisition schedule can then begin.

After the acquisition schedule is decided, the feasibility study will be conducted in accordance with the "Regulations Governing Application and Review of MRT Construction and Development of Adjacent Land."

(1) Comprehensive Planning

Comprehensive planning and environmental impact assessment were conducted after the feasibility study was approved by the Executive Yuan.

(2) Environmental Impact Assessment

The environmental impact assessment will be conducted during the feasibility study stage after the feasibility study is approved by the Executive Yuan.

## 8. Commissioned Planning of the Taoyuan Metropolitan MRT Network

Responsible Agency: Taoyuan County Government (The project was implemented by the Taoyuan MRT Task Force, consisting of DORTS, Taoyuan County Government, and related agencies. DORTS was commissioned to handle the MRT while Taoyuan County Government coordinated meetings among divisions, departments, and governments. Discussion focused on three work scopes: the MRT project, land development and urban rezoning.

Feasibility Study: Approved by the Executive Yuan on August 26, 2011. The project is the first to be approved in accordance with the "Regulations Governing Application and Review of MRT Construction and Development of Adjacent Land," enacted by the central government in 2011.

(1) Comprehensive Planning:

- a. The project will be implemented in two stages, with one route starting from the Bade expanded urban planning zone and ending at Taoyuan Aerotropolis, and the other starting at Maogang District and ending at Dayuan urban planning district. The latter route can be extended to the Greater Taoyuan Science Park. The 27.8-kilometer network will consist of 21 station and two depots. It will have 15.3 km in elevated sections (with 11 stations) and 12.5 km in underground sections (with 10 stations). The estimated construction fee is NT\$98.267 billion. The network will use LRRT fully automatic system with steel rails/wheels. Transportation volume is estimated to reach 250,800 passenger trips per day with as many as 9,000 passengers on the system at one time during peak travel periods.
- b. Comprehensive planning passed MOTC review on January 21, 2014.
- c. The National Development Council passed the plans in principle on November 25, 2014. Reports were revised by Taoyuan County Government on December 23 and submitted to National Development Council for review and approval on January 7, 2015.

(2) Environmental Impact Assessment:

- a. The Environmental Protection Administration approved for future reference

environmental impact assessment reports on September 9, 2014.

b. The Water Resources Agency, Ministry of Economic Affairs approved for future reference water consumption plans on July 24, 2014.

(3) Project Coordination:

a. On behalf of Taipei City Government, Mayor Hau Lung-bin was commissioned by Taoyuan County Government to conduct the Taoyuan MRT network assessment and planning in 2007. The project will be jointly implemented by a task force, consisting of DORTS and Taoyuan County Government. In accordance with project review regulations enacted by the central government, DORTS was commissioned to conduct the initial construction survey and basic design in 2011.

b. The comprehensive plan was approved in principle by the National Development Council on November 25, 2014, signifying the end of this stage of the mission after seven years.



## MRT Construction Fundraising

The Executive Yuan approved the "Project for Cross-Field Value-Adding in Public Works Financial Planning" on July 24, 2012. The project used specific funds for specific needs in order to facilitate reasonable planning and management of expenditures and revenues, financial planning assessments, and better efficiency and progress of public works.

The "Regulations Governing Application and Review of MRT Construction and Development of Adjacent Land" were enacted by the MOTC on April 11, 2011, and amended on May 30, 2012. Items 4, 5 and 6 of the amended regulations, along with

the Mass Rapid Transit Act, stipulated that fundraising during the feasibility study and comprehensive planning stages should encompass establishment, purpose and use of MRT construction funds or dedicated accounts.

According to the “Self-financed Public Works Budget System Practice” enacted by the Executive Yuan, responsible agencies can establish non-business specific funds for self-financed public works with a self-liquidation ratio of more than 20 percent. Under the premise that the aims and purposes of establishing a fund are met, use of existing funds should be prioritized. If necessary, regulations relating to fund establishment (formulation of laws or fund management and use) should be reviewed and amended. If no existing fund is applicable, establishment of a new fund can be deliberated.

Routes being planned include the Minsheng-Xizhi line, the north and south sections of the Circular line, the Shezi-Shilin-Beitou light rail transit network, and the North-South line. Establishing an MRT construction fund not only aids in receiving approval from the central government but also provides a method for incorporating self-financing, such as land development and tax increment financing (TIF), into fund sources in order to designate a dedicated account for public works. This allows for flexible allocation of financing and fund income to pay for construction costs. Depending on construction needs and government expenditures, establishment of an MRT construction fund is necessary.

After holding meetings with the Department of Finance; Department of Budget, Accounting and Statistics; and Department of Urban Development, DORTS received approval from Taipei City Government to establish an MRT construction fund in July 2014. The drafting of autonomous ordinances then began. Following review by the Taipei City Law and Regulation Commission and Taipei City Executive Meeting, the ordinances were submitted to Taipei City Council. After clearing their 3<sup>rd</sup> reading, the ordinances were promulgated and submitted to the Executive Yuan for reference on November 3, 2014.

A new MRT construction fund will be used in place of special budgets previously used to finance MRT construction. When the Wanda-Zhonghe-Shulin line Phase I and the Xinyi eastern extension were approved at the 8<sup>th</sup> meeting of the 19<sup>th</sup> extraordinary assembly of the 10<sup>th</sup> session of Taipei City Council, a note on sources of revenue stated that “MRT and land development plans would be adjusted according to Executive Yuan review results.” Self-redeeming finance and other revenues and expenditures would be based on a supplementary budget. As this was the nation’s first case of changing implementation from a special budget to a fund, and Stations LG02 and LG06 were tendered on November 15 and 16, respectively, the MRT construction fund could only be implemented after final settlement of the special budget account and completion of fund accounting mechanisms and procedures. As transition time between the two implementation schemes was unclear, the original budget scheme was maintained based on the recommendation of the Taipei City Department of Budget, Accounting and Statistics.

## Others

### 1. Added Exit/Entrance to Beitou Station

A public petition requesting a second exit/entrance to the Tamsui-Xinyi line’s Beitou

Station was approved by Taipei City Government on January 10, 2014.

## 2. Planning Operations Manual

A Planning Operations Manual drafted by DORTS' Comprehensive Planning Division was reviewed in a meeting presided over by Commissioner Tsay Huel-sheng on October 28, 2014. The responsible division and related divisions submitted supplementary articles and technical interface tables according to conclusions made in a discussion meeting presided over by Deputy Commissioner Chang Ze-xiong on November 3, 2014. The Planning Operations Manual was promulgated on December 18, 2014.

