Huilongguan-Shangdi Bicycle-only Lane opened for trial operation on May 31

On May 31, Huilongguan-Shangdi Bicycle Lane was put into trial operation, and a green traffic corridor connecting Huilongguan and Shangdi came into being. After being opened, the bicycle lane will directly serve about 11,600 commuters along the line, and bicyclists can ride from Huilongguan in Changping to Haidian Shangdi Software Park within 30 minutes, which will effectively alleviate the traffic pressure on Line 13 between Huilongguan and Shangdi and will improve the regional green travel environment.

Previously, the route from Huilongguan of Changping to Haidian Shangdi Software Park was blocked by Beijing-Tibet Expressway and Beijing-Xinjiang Expressway, the connectivity by bicycle between the two places was poor and the residents had to take subway at peak hours in the morning and evening. Due to a long queue time, they had to spend about 40 minutes in average for their daily travel. The completion of the bicycle lane will play a positive role in optimizing the traffic organization structure and promote the sustainable traffic development in this area.

It is learned that Huilongguan-Shangdi Bicycle Lane is the first road specially used for bicycle traffic in Beijing. The completion of this lane is of great practical significance to the implementation of Beijings new general planning and the promotion of green mobility. In addition, this project is also an important part of the three-year action plan of "Huilongguan and Tiantongyuan Area".

The Bicycle Lane is 6.5 kilometers long and its newly-built 5.5-kilometer-long section is a totally enclosed lane only used for non-powered bicycles

The bicycle lane starts from the intersection of Tongcheng Street and Wenhua Road, runs along the north side of Subway Line 13, passing by Huilongguan and Longze Subway Station in the west, crossing Beijing-Tibet Expressway on the ground and passing through Subway Line 13 and Beijing-Baotou Railway under the ground, and then extends along Longyu Ring Road to Xi erqi North Road, connecting with the current bicycle system. The ending point of the lane is located at the intersection of Houchangcun Road and Shangdi West Road, and the length of the whole lane is about 6.5 kilometers. The newly-built section is 5.5 kilometers, which is a totally enclosed non-powered bicycle-only lane. Therefore, pedestrians, electric bicycles and other vehicles are forbidden to enter the lane. The original auxiliary road of the West Erqibei Road is a 1-kilometer-long reconstructed section, and all traffic participants can use it as usual.

The fully enclosed non-assisted bicycle lane is 6-meter wide, with a design speed of 20km/h and a speed limit of 15km/h.

The construction of the bicycle lane started in September 2018. After 9-month construction, it was completed smoothly although there were unfavorable factors such as limited time, heavy tasks and complicated environment. Now a new "green" lane is available for all citizens who seek green travel. During the construction process, the relevant departments of the municipal government gave strong support to the project. For example, the governments of Changping District and Haidian District completed a great deal of tasks such as coordination, housing demolition and resident relocation, which effectively guaranteed the advancement of the project.

The Bicycle Lane opens 24 hours a day, with special personnel arranged to maintain traffic order at its entrances and exits

The Bicycle Lane opens 24 hours a day, except that it will be closed in special circumstances like extreme weather.

In order to meet the needs of different bicyclists and improve the convenience and comfort of the lane, a bicycle booster is installed for the first time at the entrances and exits of the lane used to help them climb up the ramp section of the lane. A bicycle conveyor belt was equipped on the upward side of the system, which can reduce users' difficulty in pushing bicycles; a resistance device was equipped on the downward side to improve riding safety. At present, seven sets of boosting systems were installed at the entrances and exits of six viaduct sections. By referring to the running time of Subway Line 13, the bicycle boosting system opens in the period of 5:00-00:30 to facilitate subway passengers to use the lane. When using the boosting system, citizens only need to put bicycle tires into the grooves of the boosting system, and the system starts automatically, so that the rider can move forward only by grasping the handles.

According to the travel characteristics in the region, a tidal flow lane is set on the Bicycle Lane. With clear and striking colors marked, it can not only meet the traffic demand in rush hour, but also effectively save road resources. The opening hours of tidal flow lane from the east to the west is 0: 00-12: 00; the opening hours from the west to the east are from 12: 00 to 24: 00.

In order to maintain the traffic order on the lane, inspect and use the facilities on it, the maintenance management unit implements 24-hour inspection service, and a special person is arranged at each entrance and exit to keep the traffic order and advise those using electric bicycles, motorcycles and pedestrians to leave the lane.

According to the tips of the transportation department, for everyones travel safety, citizens are requested to abide by the traffic regulations of the Bicycle Lane to ride safely, while riders of electric bicycles and motorcycles and

pedestrians are prohibited from entering the totally enclosed non-powered section.

The Bicycle Lane has eight entrances and exits with an average space of 780 meters between each other and about 3,900 parking spaces set at these entrances and exits and surrounding subway stations

Considering the surrounding residential areas, subway stations, bus stops and intersection roads, there are 8 entrances and exits set for the Bicycle Lane as well as 6 bridge sections and 2 subgrade sections, with an average space of 780 meters. Service areas are set along the Lane to provide bicyclists with services such as toilet, parking and rest.

In addition, by considering the connection between the Bicycle Lane and subway stations, bus stations and the current non-motorized system, 108 sets of parking stands are arranged at the starting point, Longze Station, Huilongguan Station and the subgrade section to the west of Beijing-Tibet Expressway, which can meet the parking demand of 3,240 bicycles. A three-dimensional parking garage is set at the east side of Huilongguan Subway Station, which can provide 650 bicycle parking spaces for private bicycles and shared bicycles, thus realizing the connection of various transportation modes within a short distance. At the same time, 8,600 bike-sharing parking spaces have been set in Huilongguan and Software Park in Changping and Haidian districts, and the information about the parking spaces is collected by Beidou positioning system. Bike-sharing enterprises will use the function of electronic fence to guide bicyclists to park bicycles in a standardized way. Changping, Haidian District and various bike-sharing enterprises will also send more operation and maintenance personnel to

dispatch and manage parking areas, maintain parking order, and jointly create a good parking environment for non-motored vehicles.

Eight regulations should be followed by bicyclists using the Bicycle Lane and pedestrians, electric bicycles and other vehicles are prohibited to use the lane

In order to strengthen the management of the Bicycle Lane, maintain traffic order, and ensure the safety and smoothness of traffic, according to the *Road Traffic Safety Law of the Peoples Republic of China* and relevant laws and regulations, combined with the actual situation of this city, the Municipal Public Security Traffic Management Bureau and the Municipal Traffic Commission jointly issued the *Notice on Traffic Management of the Bicycle Lane from Huilongguan to Shangdi* (hereinafter referred to as the Notice), which defined that the Bicycle Lane only serves non-powered bicycles, and pedestrians, electric bicycles and other vehicles are prohibited from entering it. This *Notice* is only applicable to the 5.5-kilometer-long totally enclosed section for non-powered bicycles.

The Notice stipulates that when riding on a bicycle-only lane, the following eight regulations should be observed:

Bicyclists should ride on the right, and shall not ride in the opposite direction. A tidal flow lane is set in the center of the Bicycle Lane, and bicyclists should follow the indication marks to ride their bicyclists. No parking is allowed on the Bicycle Lane. If bicyclists cant ride their bicycles due to bicycle failure and other reasons, they should push their bicycles out of the lane along its right side from the nearest exit. Do not ride by exceeding the maximum speed indicated by the speed limit sign, and the maximum bicycle speed shall not exceed 15 kilometers per hour. The height of the load on a bicycle should not exceed 1.5m from the ground, its width shall not exceed the space between the handlebars by 0.15m, the front end of the load shall not exceed the wheels, and its rear end shall not exceed the vehicle body by 0.3m. Bicyclists who want to turn should give priority to straight-riding bicyclists. Before turning, do slow down your speed and stretch out your hand to give a signal, and dont turn suddenly; when overtaking other bicycles, you must not interfere with them. Do not grasp hands of other bicyclists to ride in parallel, do not chase each other or ride in twists and turns. Bicyclists should also follow other traffic rules stipulated by laws and regulations.

At the same time, no unit or individual is allowed to set, move, occupy or damage the facilities for the Bicycle Lane without authorization.

In case of natural disasters, bad weather or major traffic accidents that seriously affect traffic safety, the public security traffic management

department can implement traffic control if other measures cannot ensure traffic safety.

Multiple energy-saving technologies were adopted for the Bicycle Lane, which fully reflects environmental protection features

In order to reflect the circular economy and whole life cycle concept, combined with the lightness of bicycle-only bridges, the elevated section of the Bicycle Lane adopts the prefabricated steel structure system with large cantilevers. Each component of the bridge was processed in the factory in a modularized manner and assembled at the site, which greatly shortened the construction period and reduced the impact of construction on the surrounding environment.

Combining the concept of sponge city, a rainwater system was designed for the Bicycle Lane. As a result, surface water can be effectively utilized with the rainwater infiltration and storage technology. Super-capacitor photovoltaic street lamps are used for lightning along the lane. Compared with the traditional battery solar street lamps, these new type lamps feature the advantages of long service life, charge at low light level, no heavy metal pollution, etc., and they are more energy-saving and environment-friendly.

In order to maximize the space under the bridge, this project adopted light-type bridge piers, embedded the lighting facilities in the railings and hid them in the pipelines of the bridge body. The bridge deck was installed with novel shaped perforated plate railings and a waterproof shock-absorbing telescopic device. The overall design of the bridge fully reflects the humanized and refined bridge structure.

The bridge striding across Beijing-Tibet Expressway adopted a four-span variable cross-section V-pier rigid frame system, and the overall bridge type is streamlined, showing elegance, dynamics and vitality. The main structure is made of weather-resistant steel, which has the characteristics of environmental protection, corrosion resistance and maintenance-free. The railings were designed with four functions including windproof, anti-throwing, anti-glare and noise reduction. At the same time, the bridge deck was widened, which can solve the problem of pedestrians crossing the street on both sides of Beijing-Tibet Expressway, and barrier-free elevators were set up to meet the needs of special people crossing the street.

An urban greenway and a bicycle themed cultural park were created to popularize riding culture vigorously

In order to integrate the Bicycle Lane with the surrounding environment and improve the quality of the blocks, a greening landscape project was built along the lane simultaneously. A bicycle-themed cultural park was built at the starting point and a green corridor and a flower pool terrace were built at the lower section of the bridge. A total of 1,602 trees and 2,506 shrubs, 19,000 square

meters of ground cover plants, 24,000 square meters of lawn were planted. The total green area was up to 53,000 square meters, providing a comfortable leisure and fitness space for citizens.

After the Bicycle Lane has opened, it will strengthen the close connection between Shangdi Industrial Park and the large-scale communities at Huilongguan, effectively improve the living quality of the large-scale communities, enhance the residents happiness index, and play a strong supporting role in the development of Shangdi Industrial Park.

As the first bicycle-only lane in Beijing, its safety, comfort and convenience will attract more citizens to choose green transportation mode, which is of great significance to realize "low-carbon and energy saving transportation".