Quarterly Newsletter of GEF China Sustainable Cities Integrated Approach Pilot Project

GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

WORLD BANK GROUP
Social, Urban, Rural & Resilience

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Project Progress (As of September 15, 2020)

The World Bank

During August 10-12, 2020, the World Bank's task team met with the core members of the Ningbo PMO to discuss the proposed activities to be funded under contract GENB-2. They visited the sites for the study and reached a consensus on updating the procurement plan and preparing the new TORs.

During August 17-18, 2020, a virtual mid-term review mission and a Transit-Oriented Development(TOD) knowledge sharing workshop were held virtually via Webex. Mr. Francis Ghesquiere, Practice Manager of GSURR in the EAP Region, gave the opening remarks and urged all PMOs to maintain strong commitment and stable staffing during project implementation. The mid-term review discussion summarized the project progress, intermediary outputs, disbursement status, and proposals for adjustment to TA activities. Representatives from the eight PMOs (i.e., MOHURD and seven project cities) had a detailed discussion on project implementation progress since effectiveness and agreed on actions to be taken. Selected consultants shared their latest work on city-level TOD strategies as well as corridor-level and station-level applications.

Ministry of Housing and Urban-Rural Development of PRC

China Academy of Urban Planning and Design (CAUPD) conducted the first round of field visits to Guiyang and Nanchang for "The Development and Applications of TOD Policies, Technical Standards, and Management Tools in Chinese Cities (Contract Number: GEMH-01A)" Project.

Photo 1: CAUPD team in Nanchang

Photo 2: CAUPD team in Guiyang

Beijing

GEBJ-1A: The inception report for Preparation and Implementation of a City Transit-oriented Development and Project Management Support for Beijing was submitted to the World Bank in April 2020. The diagnostic research on the TOD in Beijing is currently underway. Public engagement will focus on the development and testing of the online system.

GEBJ-2: Beijing PMO has completed the contract negotiation for the corridor-level and station-level application of TOD strategy (Stations on Metro Line 17, and the corridor along Pinggu Metro Line) on August 23rd,

2020. The contract was officially signed on August 24th, 2020.

GEBJ-3: Beijing PMO has reviewed and evaluated the technical proposal for District-level application of TOD strategy (Urban regeneration of Life Science Park near Jingzhang HSR and Changping Metro Line) on July 28th, 2020. Contract negotiation has started on August 10th and the contract is expected to be signed in October 2020.

Tianjin

GEFTJ-1: Task 5 of the Preparation and Implementation of a City Transit-oriented Development and Project Management Support for Tianjin: provide TOD suggestions, guidebook and toolkits, and evaluation index based on local conditions was complete. Task 6: develop the TOD action plan and the operation manual are expected to be completed by the end of September 2020.

GEFTJ-2: Tianjin PMO has completed the review and evaluation of the technical proposal for Study on Private sector engagement in infrastructure investment around TOD. The PMO planned to conduct the contract negotiation in September 2020. The contract is expected to be officially signed in October 2020.

GEFTJ-3: Tianjin PMO has consulted relevant government departments for feedback on the first draft for Research on TOD Development Strategy of Tianjin Metro Line 4 (phase II) First draft is expected to be submitted to the World Bank in October 2020.

Shijiazhuang

GESJ-1-2: Shijiazhuang PMO invited five domestic TOD experts to review and provide suggestions on the inception report of Preparation and Implementation of a City Transit-oriented Development and Project Management Support for Shijiazhuang. The final version of the report is expected to be completed and submitted to the World Bank in September 2020.

GESJ-2-2: Project Land Adjustment Plan for Shijiazhuang Urban Rail Transit Line 4 has received 4 REOIs. Review and evaluation for the technical proposal is expected to start on October 10th, 2020.

GESJ-3: The TOR for Station-level application of TOD strategy is in the editing stage. The draft TOR is expected to be submitted to the World Bank in October 2020.

Nanchang

GENC-1A: Task 1: data collection and scoping, Task 2: beneficiary analysis and public participation, and Task 3: the vision of the Preparation and Implementation of a City Transit-oriented Development and Project Management Support for Nanchang has been completed. Nanchang TOD Data Collection and Inventory Survey Report, the Beneficiary Opinion Survey and Impact Assessment Report, Analysis Report on the Necessity of TOD in Nanchang, and Report on the Objectives and Strategies of TOD in Nanchang were complete.

GENC-2A: The contract of Corridor-level application of TOD strategy (Metro line 2 and a BRT corridor) was officially signed on July 23rd, 2020. The inception report is expected to be completed and submitted to the World Bank in September 2020.

GENC-3A: The TOR of Station-level application of TOD strategy (Jiulonghu New Town Station area) is still under the editing stage. It is expected to be completed and submitted to the World Bank in September 2020.

Ningbo

GENB-1: Preparation and Implementation of a City Transit-oriented Development and Project Management Support for Ningbo has completed the beneficiary survey during the month of June and August 2020 and has processed relevant survey contents and data. The research on the Ningbo TOD data platform has started. Some contents on the data platform, such as modules, compositions, and functional requirements, were initially identified.

GENB-2: The project was originally proposed to explore the sustainable TOD+PPP financing model for Ningbo West Integrated Transportation Hub. However, the planning and construction scheme of the Hub has not yet been decided and the project cannot be started as planned. Ningbo PMO and PLG conducted an internal discussion with the World Bank task team on August 11, 2020, and reached the agreement to adjust the scope to the areas around Kaiming Street with the topic of District-level TOD Application: Integrated Design of TOD Development for Kaiming Street Area and its Financing Mechanism. The PMO submitted the amendment application and draft TOR to the World Bank in September 2020.

GENB-3: Task 2: Case Studies at Home and Abroad and TOD Policy Study and Task 3: Construction of Evaluation Index System of Studies on TOD-based Improvement of Built Rail Stations project has been completed through online data collection and expert review. Phased results were achieved.

Guiyang

GEFGY-1: The framework of Preparation and Implementation of a City Transit-oriented Development and Project Management Support for Guiyang was determined by the end of July 2020. Research Report on the Seminar of Guiyang TOD Strategies Development Department was completed.

GEFGY-2: The outline of Corridor-level application of TOD strategy Part A: Metro Line 3 and Line S2 was completed. Request for Express of Interest was published on September 10th, 2020.

GEFGY-3: The outline of Corridor-level application of TOD strategy Part B: BRT corridors was completed. Request for Express of Interest was published on September 10th, 2020.

Shenzhen

GESZ-1: The inception report for “Preparation and Implementation of a City Transit-oriented Development and Project Management Support for Shenzhen” was finalized in August 2020. It is expected to be submitted to the World Bank by the end of September 2020.

GESZ-2A: The contract negotiation for District-level and station-level application of TOD strategy: Bainikeng district was finalized on September 3rd, 2020. The contract is expected to be officially signed in September/ October 2020.

Project Progress (As of September 15, 2020)

PMO	Activity	Draft TOR	TOR	Bidding Announcement	Shortlist Review	Bid Evaluation	Contract Negotiation	Contract Signing	Inception Report	Intermediary Output	Mid-term Report	Draft Report	Final Report
MoHURD	National TOD Platform												
Beijing	City-level TOD Strategy												
	Corridor and Station-level TOD Application												
	District-level TOD Application												
Tianjin	City-level TOD Strategy												
	Research on Private Sector Engagement in TOD Financing												
	Corridor-level TOD Application												
Shijiazhuang	City-level TOD Strategy												
	Corridor-level TOD Application												
	Station-level TOD Application												
Ningbo	City-level TOD Strategy												
	District-level TOD Application												
	Station-level TOD Application												
Nanchang	City-level TOD Strategy												
	Corridor-level TOD Application												
	Station-level TOD Application												
Guiyang	City-level TOD Strategy												
	Corridor-level TOD Application												
	Corridor-level TOD Application												
Shenzhen	City-level TOD Strategy												
	District and Station-level TOD Application												

Knowledge Events

From June 22 to 23, 2020, Shanghai Shine Consultant held the 13th Annual Urban Rail International Summit 2020 in Shenzhen, with joint support from the Institute of Comprehensive Transportation of National Development and Reform Committee, Shenzhen Urban Rail Transit Association, Shenzhen Metro, Beijing Subway, Shanghai Metro, Xiamen Rail Transit Group Ltd., Chengdu Metro Corporation Ltd., SBS Transit, Wuhan Metro Group Co., Ltd., and Zhengzhou Rail Transit Co., Ltd.

On the theme of "Industrial Innovation, Intelligence and Efficiency, High-quality Development," the Summit provided insights into the development of the rail transit industry system. (Link)

With joint support from the Asia-Pacific Economic Cooperation Organization, Ministry of Transport of the People's Republic of China, and Chinese Academy of Sciences, 2020 China International Railway Conference for Urban & Intercity Transit was held in Shanghai from September 2 to 3, 2020. And 10 offline thematic forums focusing on new technologies in the field of rail transit were held, sharing insights into the integrated development of regional transportation. (Link)

Industry News

• Industrial Cooperation

On August 31, 2020, China Railway Construction Real Estate Group Co., Ltd. and Huawei Technologies Co., Ltd. signed an agreement of strategic cooperation and established a long-term cooperative relationship. Their relationship will focus on the integration among transportation, real estate and other industries" to promote comprehensive TOD development, smart city, future community, overseas real estate with digitalized intelligent technology. Meanwhile, the two enterprises will deepen their cooperation in joint innovation and standard formulation, new infrastructure construction and industries localization. (Link)

On August 24, 2020, Chengdu Rail Urban Development Group, an affiliation of Chengdu Rail Transit Group, signed strategic cooperation agreements with Wal-Mart (China) Investment Co., Ltd., Suning Holdings Group Co., Ltd., and Red Star Macalline Group Corporation Ltd. They will bring in trendy consumption concepts and models based on regional characteristics, factor endowments, consumer groups, and functional positioning, as well as develop the first-store economy and famous-store economy. Starting from TOD integrated project of Chengdu Metro Shuangfengqiao Station, Chengdu Rail Urban Development Group and their partners will match Chengdu TOD integrated projects with advantage resources to achieve strategic cooperation in all businesses. (Link)

• TOD Projects

On August 28, 2020, one of the major projects of Wuxi Municipal Government - the Comprehensive Demonstration Project of Quju Road Metro Station has started its integrated construction. The project is the largest TOD project with an investment of more than RMB 20 billion, aiming to connect Metro Line 4 seamlessly. The project is located in Wuxi Economic Development Area, covering 41 acres of land for housing, business, and commercial purposes. On the principle of compound land utilization and upholding the concepts of "Ecology, Happiness, Wisdom," three stated-owned enterprises, namely Wuxi Metro, Metro Land Corporation, and China Tiesiju Civil Engineering Group, were the

first to introduce the WELL standards after a thorough survey of demands of nine types of consumers. Members in the project plan team come from AECOM and Tsinghua University and are committed to setting the benchmarks of world-leading integrated development of WELL metro and depot, national intelligent community construction, and innovative ecological cities. (Link)

Kumingxi Integrated Transportation Hub project, which was planned and constructed by Kuming Urban Integrated Transportation Hub Co., Ltd., an affliation of Kunming Traffic Investment Co., Ltd., received total investment of RMB 20.9 billion. The construction of the station will adopt the "station-city integration development" approach. The project plans to start the initial construction in late September 2020 and complete the fixed assets investments of RMB 2 billion by the end of the year. The company issued the Pre-qualification Examination Announcement on the Global Call for the Building Concept Design & Urban Design Proposals for Kumingxi Railway Station Integrated Transportation Hub in August 2020. (Link)

On July 8, 2020, the first TOD Integrated Development Project promotion event was successfully hosted by Chengdu. This event aimed to recruit partners from around the world for five TOD comprehensive development projects (Changgongyan, Chengdu Academy of Governance, etc). These five projects will be the pilot projects using “equity-based” cooperative development model. To be qualified as a partner, domestic candidates should be enterprises who rank among the top 50 in the China Real Estate Development Enterprise or the top 30 in the China Commercial Estate Development Enterprise in the previous year; foreign candidates should be enterprises who rank among the top 10 in the China Real Estate Development Foreign Investment Enterprise in the previous year. Chengdu plans to launch five additional TOD projects this year. Upon the implementation of these projects, there will be 19 projects under construction, covering more than 17 million m2. After the completion of all these projects, the total investment thereinto will exceed RMB 160 billion. (Link)

• Integrated Regional Development and Rail Network Development

◦ Guangdong-Hong Kong-Macau Greater Bay Area

In July 2020, the National Development and Reform Committee approved the Plan for the Inter-urban Railway Construction in Guangdong-Hong Kong-Macau Greater Bay Area. As planned, high-speed rails, regular rails, and urban and sub-urban rails in the Greater Bay Area will constitute a multi-layered railway network turning the area into “the Greater Bay Area on Rail.” This railway network features one-hour transit between the majors cities of the Greater Bay, two-hour transit between major cities and inland cities in Guangdong Province, and three-hour transit between major cities and capital cities in the surrounding provinces. 13 inter-city railways projects and 5 transportation hub projects covering a mileage of approximately 775 kilometers, with a total planned investment of RMB 474.1 billion, will be implemented soon. (Link)

In September 2020, Ministry of Transportation issued the Opinion on the Construction of High-quality Innovative International Aviation Hub - the Pilot Project of the Building National Strength in Transportation in Shenzhen. In this document, the Ministry proposed that Shenzhen should coordinate with the surrounding cities to further the railway integration in Shenzhen-Dongguan-Huizhou. This document also push forward the construction of the intercity railways in Shenzhen-Huizhou, Shenzhen-Daya Bay, and Huizhou-Dongguan, so as to expand

Shenzhen urban rail transit network to its surrounding cities. The document points out that, learning from the construction process of the Xili Transportation Hub and the East of Shenzhen International Airport Transportation Hub, Shenzhen should explore the model where the local government is in charge of the unified planning, designing, construction, and management of the hub; in terms of the land utilization for railway hubs, Shenzhen should assign responsibilities for and grant land use rights to stakeholders at different levels, so as to overcome challenges, such as inefficient coordination and communication among the stakeholders. (Link)

◦ Guangdong-Hong Kong-Macau Greater Bay Area

In April 2020, Chongqing Municipal Transportation Bureau, together with Sichuan Provincial Department of Transport, formulated the Plan for **Integrated Three-Dimensional Transport Network in Chengdu-Chongqing Economic Zone**, in which 8 major corridors, 5 transportation networks, and "143 objectives[1]" were proposed.

In July 2020, the **3-Year Action Plan for Integrating Transportation in Chengdu-Chongqing Economic Zone (2020-2022)** has been issued, which identifies the objectives and the path of the Sichuan-Chongqing Transportation Integration. It aims to promote the construction of "Two High-speed Railway Corridors, 8-lane Express, Thousand-ton Waterway" between Chengdu and Chongqing. (Link)

"143" Objectives are as follows: building 8 corridors from Sichuan and Chongqing to the Beijing-Tianjin-Hebei Region (North-east Asia), Yangtze River Delta and Guangdong-Hong Kong-Macau the Greater Bay Area (Pacific), the North Bay (ASEAN), Tibet (South Asia), Xinjiang (European and Central Asia) and so on; building railway, express, waterway, aviation and channel networks; achieving 1 strategic goal—building an international-level integrated transportation hub for Chengdu-Chongqing by promoting airports and ports services support; building 4 "one-hour transit" circles - "one-hour transit" between Chengdu and Chongqing, "one-hour transit" within Chengdu or Chongqing, "one-hour transit" from Chengdu or Chongqing to the surrounding cities and "one-hour transit" between the cities in the Chengdu-Chongqing Economic Circle; promoting infrastructure integration, transportation integration and governance system integration.

Summary of Policies by Chinese Government in Response to COVID-19

The origin of modern urban planning is closely related to the demand for the improvement of urban public health conditions. For example, in the United States, the rapid expansion and concentration of urban population during the process of early industrialization led to the recurrence of infectious diseases, such as cholera and yellow fever. The introduction of the 1916 Zoning Resolution in New York City had set the requirements for buildings, such as the amount of natural light should be received, ventilation system, and functional zoning. This law also stipulated the isolation between polluting industrial land and residential land as well as specifying/standardizing the constructions of infrastructure that affected public health, such as water supply and drainage. Looking back at the history, a reason for the emergence of urban planning and design is to respond to the public health concerns, caused by the relatively low capacity of city governance that cannot keep up with the rapid growth of urban population. Nowadays, the basic sanitation conditions of the city have been guaranteed and the traditional infectious diseases have been eliminated. With the advent of new infectious diseases, urban planning and spatial development will take on new challenges.

The outbreak of the COVID-19 exposed the following deficiencies in urban planning and city governance:

a)Lack of emergency management planning and strategic space reservation mechanism in land spatial planning

b)Lack of special planning for public medical and health emergency facilities in land spatial planning

c)Lack of emergency response capacity.

The current disaster response mechanism only emphasizes static facilities allocation.

d)Lack of relevant mandatory technical specifications for infectious disease control and public safety facilities

e)Lack of planning and design methods to control the epidemic of infectious diseases

Learning from the epidemic, urban life requires better planning and design. Specifically, urban residents need more public facilities, better environmental quality and healthy public space. Moreover, the capacity to recover from emergency and disasters, and technologies integration for fine-tuning city governance.

This paper sorts out relevant policies issued by the national and local governments for 1) urban planning and management, 2) architectural design and space use, and 3) public transportation infrastructure during the phase of emergency response for the epidemic and the implementation of regular prevention and control after the epidemic. We hope this paper will provide references for urban planning and city governance in the post-epidemic period.

I. Phase one: the emergency response during the epidemic

1.1 Urban Planning and Management

1.1.1 National level

In February 2020, General Office of the Ministry of Natural Resources issued the Notice on Land Use Guarantee for Construction Projects for Epidemic Prevention and Control, which gives the land use priority to the projects for epidemic prevention and control. This policy adheres to economical and intensive land use to ensure there are certain amounts of land preserved for epidemic prevention and control.

In February 2020, the State Council's Joint Prevention and Control Mechanism for the COVID-19 Epidemic issued the Notice on Scientific and Accurate Prevention and Control of the COVID-19 Epidemic in Accordance with the Law, which includes a total of 15 precise prevention and control technical schemes for offices, public places, passenger stations, transportations, medical institutions, communities and other places.

1.1.2 Local level

- **Sichuan Province**

Notice on Further Strengthening the Management of Domestic Waste during Epidemic Prevention and Control: Based on the requirements of collecting and disposing medical waste, such as used masks, specialized personnel will collect, transport, and dispose medical waste directly and immediately. Disinfection and sterilization procedures should be completed to prevent the spread of the virus and secondary contamination.

- **Beijing Municipality**

Regulations of Beijing Municipality on Prevention and Control of Environmental Pollution by Hazardous Wastes (Draft): The second review of the Regulations further stipulates source control, timely collection and transportation, and emergency disposal of medical wastes and epidemic-related domestic wastes. Among them, some domestic waste that are generated by epidemic units and residential areas are under the management for medical waste. Thus, when disposing domestic waste in these areas, properties should implement emergency measures, such as on-site disinfection and classified collection and transportation domestic waste. With the consent from the municipal government, domestic waste incineration facilities can be used for epidemic-related medical waste emergency treatment.

- **Ningbo Municipality**

Notice on Clarifying the Management of Domestic Waste Disposal during Epidemic Prevention: This policy standardizes the disposal, classification, disinfection, collection, and transportation of discarded masks and household garbage from both healthy people and people in home quarantine.

- **Guangzhou Municipality**

Guangzhou has also achieved 100% harmless treatment of special domestic waste for the purpose of epidemic prevention and control.

1.2 Specifications/Standards for Architectural Design and Space Use

A. Technical guidelines for emergency operation and management of non-medical buildings during epidemic prevention phase

1.2.1 National level

The Ministry of Housing and Urban-Rural Development issued the Technical Guidelines for Operation and Management of Office Buildings in Response to the Prevention and Control of the Sudden Epidemic. This document provides suggestions on how to use, operate, and manage office buildings during the epidemic from seven aspects: general principles, ordinary provision, intelligent systems, air conditioning systems, water supply and drainage systems, epidemic prevention and control in key areas, and service management.

The Ministry of Housing and Urban-Rural Development issued Operational Guidelines for Emergency Management of Hotel Buildings Used as Temporary Quarantine Zones: It provides operational guidelines for emergency management of using hotel buildings as quarantine zones. Subjects in the Guidelines include but are not limited to receiving target groups, hotel selection requirements, hardware conditions, personnel, equipment management, operation guidelines for public areas' cleaning and disinfection and waste disposal, warning signs, daily service guidelines for guest rooms, post-epidemic suggestions, etc.

Architectural Society of China issued the Guidelines on Measures Taken for Operation Management and Emergency Treatment of Office Buildings in Response to COVID-19 to guide office buildings regarding building operations, building management, and emergency response during the prevention and control of the pandemic. The Guidelines provides guidance from the perspective

of general principles, air conditioning and ventilation, drainage system, systematic cleaning and sanitation, as well as garbage collection and storage.

China Property Management Institute issued the Operational Guidelines for Epidemic Prevention and Control of COVID-19 in Residential Property Management Area (Trial) and the Operational Guidelines for Epidemic Prevention and Control of COVID-19 in Office Property Management Area (Trial). This document provides basic guidelines for property management and operation in terms of basic protection, resumption of work, virus prevention and control operations, communication and coordination, etc.

1.2.2 Local level

- **Hubei Province**

The Department of Housing and Urban-Rural Department of Hubei Province issued the Guidelines for the Prevention and Control of COVID-19 in Office Buildings in Hubei Province. This document was the outbreak response to the epidemic through making detailed requirements for property service enterprises, public areas, central air conditioning systems, elevators, public toilets, water supply and drainage systems, garbage disposal, etc.

The Department of Housing and Urban-Rural Department of Hubei Province issued the Guidelines for the Prevention and Control of COVID-19 in Residential Districts in Hubei Province. This document was the outbreak response to the epidemic through making detailed requirements for accessway, residential areas, public areas, central air conditioning systems, elevators, public toilets, water supply and drainage systems, garbage disposal, etc.

- **Zhejiang Province**

UAD Technical Guidelines on the Operation of Public Buildings for Epidemic Prevention: The technical guide serves as a reference for the operation and management of normal public buildings during the period of epidemic prevention and control. The subjects which are focused on in public buildings includes buildings, ventilation, air conditioning and heating systems, water supply and drainage systems, cleaning and disinfection, garbage disposal, etc.

UAD Technical Guidelines on the Operation of Residential Buildings for Epidemic Prevention: The technical guide serves as a reference for the operation and management of ordinary residential buildings in hot summer and cold winter areas, hot summer and warm winter areas, and mild areas during the period of epidemic prevention and control. The subjects which are focused on includes ventilation systems, air conditioning systems, water supply and drainage systems, garbage disposal, etc.

Technical Guidelines on the Operation and Management of Educational Buildings for Prevention of Epidemic during the COVID-19 Epidemic Period: The operation and management of epidemic prevention in educational buildings are special because of their characteristics, such as high occupant density in a short period of time and the people flow based on different time period in public areas. This guidance focuses on the operation and management of educational buildings, including air conditioning and ventilation system, water supply and drainage system, toilet and shower room, classrooms and teaching auxiliary room, administrative office, living service room, campus environment, disinfection, and garbage disposal, etc.

- **Shanghai Municipality**

Guidelines on Emergency Technical Measures for Commercial Buildings in Shanghai in Response to the COVID-19 Infection Stage: This document provides guidelines for the use, operation, maintenance, and emergency management of ventilation and air conditioning systems, water supply and drainage systems in shopping malls, supermarkets, and restaurants in commercial buildings during the epidemic prevention and control period.

Guidelines on Emergency Technical Measures for Medical Buildings in Shanghai in Response to the COVID-19 Infection Stage: This document provides guidelines for the use, operation, maintenance, and emergency management of ventilation and air conditioning systems, water supply and drainage systems in medical buildings during the epidemic prevention and control period.

- **Wenzhou Municipality**

In February 2020, Wenzhou Housing and Urban-Rural Development Bureau issued Technical Guidelines for the Prevention of COVID-19 on the Emergency Operation of Residential Buildings and Residential Districts in Wenzhou (Trial). This document is the technical guideline for the management of public spaces and facilities in residential districts, indoor facilities in residential districts and other buildings, providing reference for local practical operation.

B. Guidelines for the design of treatment facilities in COVID-19 epidemic

1.2.3 National level

The National Health Commission and the Ministry of Housing and Urban-Rural Development:

Guidelines for the Design of Emergency Treatment Facilities in COVID-19 Epidemic (Trial): Following basic principles of controlling the source of infection, cutting off the infection chain, and isolating susceptible population, this document provides guidance for designing local centralized treatment facilities for COVID-19 patients in these contents: site selection and architectural design, structural form selection, water supply and drainage, heating, ventilation and air conditioning, electricity and intelligence, medical gas, operation and maintenance, etc. Guidelines also gives suggestions on how to precisely allocate medical resources and adjust current functions of medical facilities. It is applicable to the reconstruction, expansion, and new construction projects of relevant medical institutions or temporary buildings.

Technical Guidelines for Construction of Negative Pressure Wards - Emergency Treatment Facilities in COVID-19 Epidemic (Trial): it provides guidance for the construction and renovation of negative pressure wards and emergency treatment facilities during the COVID-19 epidemic. The contents in the Guidelines includes construction, structure, water supply and drainage, heating, ventilation and air conditioning, electrical and intelligentization, medical gas design, operation and maintenance of negative pressure wards (including negative pressure ward, isolation ward and medical corridor).

1.2.4 Local level

Hubei Province

Relevant Technical Requirements for Design and Reconstruction of Mobile Cabin Hospitals: Mobile cabin hospital is the solution to provide centralized treatment for a large number mild COVID-19 patients. Based on the needs of using minimum time and construction cost, following the principle of safety first in temporary design and reconstruction, this document specifies:

The requirements for selecting the reconstructed building, the reconstruction contents of mobile cabin hospitals;

The requirements for building layout and partition isolation;

Other requirements for structural safety, fire-fighting facilities, water supply and drainage, ventilation, electrical appliances and intelligent management, site construction, etc.

Guidelines for the Design of Temporary Hospitals for Respiratory Infectious Diseases (Trial): After learning and drawing on the practical experience of Wuhan Huoshenshan Hospital and Leishenshan Hospital, the Guidelines provide references from the aspects of site selection and planning, architectural design, structural design, water supply and drainage design, ventilation and air conditioning, medical gas, electrical design, intelligent design, municipal supporting projects, design budget estimation, etc. This document also attaches some design schemes and selection of prefabricated steel structure, etc.

Technical Requirements for the Reconstruction of Hotel Buildings into Temporary Hospitals for Patients with Respiratory Infectious Diseases: In order to accelerate the transformation of hotel buildings into temporary hospitals for patients with respiratory infectious diseases, this document makes specific technical requirements for the selection of the transformed buildings, floor plans, partition isolation, fire-fighting facilities, evacuation safety, fire lanes, building transformation, temporary shelter setting, special parts of the building, safe guarde, sewage and waste water treatment, waste gases treatment, trash disposal, water supply and drainage safety, electricity and intelligentization, ventilation and air conditioning, structure, etc.

Jiangsu Province

Recognizing that hospitals cannot meet the soaring demand for medical treatment during the epidemic outbreak, and the rapid transformation of existing large buildings into temporary medical centers is the inevitable choice for public health emergencies, the Department of Housing and Urban-Rural Development in Jiangsu Province issued the Guidelines on the Design of Emergency Transformation of Gymnasiums into Temporary Medical Centers in Public Health Emergencies in February 2020 to provide guidance and reference for the design of emergency transformation of temporary spaces for medical treatment and other related works.

Zhejiang Province

Technical Guidelines for Epidemic Prevention on the Operation and Management of Office Buildings in the Epidemic Period of Covid-19 (Trial):

Based on the characteristics of large quantity and wide area of office buildings and relatively dense personnel in the buildings, the document provides management guidance for air conditioning and ventilation systems, water supply and drainage systems, offices, conference rooms, and other functional divisions to ensure the normal operation, management, and use of office buildings during the epidemic.

Technical Guidelines for Emergency Reconstruction of Wards in Severe Infectious Diseases Areas in Hospitals (Trial):

The guidelines provide technical references for the emergency transformation design of medical buildings during outbreak of epidemic. This document listed contents that are related to the reconstruction of wards, such as environment and general layout, architectural design, electricity and intelligentization, water supply and drainage, heating, ventilation and air conditioning, emergency solutions, and reference planes.

Technical Guidelines for the Construction of Respiratory Infectious Disease Emergency Hospitals (Trial):

The guidelines cover contents, such as site selection and general layout planning, construction, structure, water supply and drainage, ventilation system and air conditioning, electricity and intelligentization, medical gas, outdoor supporting engineering, and fabricated steel structure construction techniques. This document aims to strengthen the isolation treatment measures for epidemic response and expand medical resources for respiratory infectious disease in highly infected areas.

Guidelines for the Construction of Prefabricated Infectious Disease Emergency Hospitals (Trial):

This document summarizes and draws on the practical experience of Beijing Xiaotangshan Hospital, Wuhan Huoshenshan Hospital, and Wuhan Leishenshan Hospital. It guides the construction of prefabricated infectious disease hospitals from aspects of emergency organization management, emergency process management, design requirements, construction management, cost management, construction unit management, etc. This document also hopes to accelerate constructions and guarantee quality projects through standardized and modular prefabricated construction technology.

Technical Guidelines for Mobile Cabin Hospitals:

The guidelines cover contents related to the construction and management of Mobile Cabin Hospitals, such as site selection and general layout, architectural design, structural design, electrical and intelligent, water supply and drainage, heating, ventilation and air conditioning, fire protection requirements, construction requirements, health and safety, and the reference plane of Mobile Cabin Hospital, etc. This document is to ensure the source of infection is effectively controlled and patients with mild symptoms will receive treatments to the greatest extent by transforming existing buildings to centralized temporary hospitals in the shortest possible time.

- **Heilongjiang Province**

Design Guidelines on transforming Large Space Buildings into Emergency Medical Isolation Facilities (Respiratory) in Heilongjiang Province: In order to respond to the outbreak of respiratory infectious diseases in extreme cold areas, these guidelines specify the basic design principles and technical requirements of relevant facilities for emergency transformation of existing large spaces to meet the purpose of infectious disease prevention and isolation. These guidelines can ensure the quick design and construction and safe operation of these buildings.

1.3 Public transport infrastructure

1.3.1 National level

The Joint Prevention and Control Mechanism for COVID-19 Epidemic of the State Council issued the Notice on Issuing Technical Guidelines for Disinfection of Public Transport. This document provides guidance for disinfection of public transport to prevent the spread of the COVID-19 through transit.

The Ministry of Transport issued the Guidelines on Prevention and Control of COVID-19 Epidemic for Passenger Stations and Transportation Vehicles at Different Zones and Grades (3rd Edition) (2020.5), the Guidelines on Prevention and Control of COVID-19 Epidemic for Passenger Stations and Transportation Vehicles at Different Zones and Grades (2nd Edition) (2020.4) and the Guidelines for the Prevention and Control of COVID-19 Epidemic in Passenger Stations and Transportation Vehicles at Different Zones and Grades (2020.3). It aims to achieve a proper transition from emergency response to normal epidemic prevention and control in public transportations in two ways. First, differentiated prevention and control strategies for high-, medium-, and low-risk areas should be implemented; second, requirements for disease prevention and control work should be updated requirements of disinfection, ventilation, transportation organization, personnel protection, and publicity for ground passenger transportations, urban public buses and trams, urban rail transports, taxis and waterway passenger transport stations and transportation vehicles according to different epidemic phases.

1.3.2 Local level

- **Guangdong Province**

Guidelines for Prevention and Control of COVID-19 on Urban Rail Transit in Guangdong Province: This document provides guidelines for the operation of urban subway and rail transit under the epidemic situation from four aspects: health protection for employees, necessary prevention and control measures for passengers, sanitation, cleaning, and disinfection inside stations, and increase ventilation.

Guidelines for Prevention and Control of COVID-19 Epidemic on Public Transport in Guangdong Province: This document provides guidelines for the operation of urban public transport under the epidemic situation from the aspects of ventilation requirements in vehicles, hygienic requirements in station carriages, and health requirements for staff.

- **Hubei Province**

Hubei Provincial Health Commission issued the Guidance Manual on Prevention and Control of COCID-19 in Community (Trial). This documents includes targeted prevention and control guidelines for 14 sites, such as crowded places, communities, families, public places, public transports, railway stations, high-speed railway stations, subway stations, bus terminals, airports, and ports.

II. Phase two: normal prevention and control after the epidemic

2.1 Urban planning and management

2.1.1 National level

On April 3, 2020, the National Development and Reform Commission (NDRC) issued the Key Tasks for New Urbanization Construction and Urban-Rural Integration Development in 2020. The key objectives include:

- To enhance the comprehensive carrying capacity of central cities and urban agglomerations as well as the optimal allocation of resources,
- To improve the performance of urban governance, especially in the weak areas of public health after the outbreak of the COVID-19 epidemic,
- To reform and improve the disease prevention and control system by promoting the upgrade and expansion of environmental sanitation facilities, the upgrade of municipal public facilities, the upgrade and expansion of public service facilities, and the upgrade and efficiency enhancement of industrial supporting facilities,
- To improve the coordination mechanism for research, assessment, decision-making, and prevention and control of major public health risks,
- To improve the mechanisms for early warning, treatment, and emergency response of major epidemics,
- To strengthen the reserve of important provisions and
- To promote the establishment of joint prevention and control mechanisms in urban agglomerations and cities in metropolitan areas.

The Basic Health Care and Health Promotion Law will come into force on June 1, 2020. As China's first basic law in the field of health, the Law contributes to strengthening top-level design, establishing a basic framework for building a comprehensive public health emergency response system. The pursposes of the new law are:

- To formulate and improve emergency response plans,
- To establish national infectious disease prevention and control system,
- To organize its implementation,
- To strengthen the monitoring and early warning of infectious diseases,
- To promote the revision of laws and regulations, such as the Infectious Disease Prevention Law and the Emergency Regulations for Public Health Emergencies,
- To make and revise regulations for public health management related departments in cooperation with bio-safety legislation,
- To improve the mechanisms of epidemic prevention and control system, and
- To perfect the national public health emergency management system.

The Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste will come into force on September 1, 2020. This law will focus on strengthening the overall management of medical waste, especially in response to major infectious disease outbreaks, so as to improve the emergency support mechanism.

In April 2020, the National Health Commission issued several technical guidelines for the normal prevention and control of epidemic according to different sites:

- Technical Guidelines on Epidemic Prevention and Control for Medical Institutions,
- Technical Guidelines on Epidemic

Prevention and Control for Medical Waste Disposal Centers,

- Technical Guidelines on Epidemic Prevention and Control for Communities,
- Technical Guidelines on Epidemic Prevention and Control at Home,
- Technical guidelines on epidemic prevention and control for enterprises,
- Technical Guidelines on Epidemic Prevention and Control for Workplaces,
- Technical Guidelines on Epidemic Prevention and Control for Shopping Malls,
- Technical Guidelines on Epidemic Prevention and Control for Property Management Centers,
- Technical Guidelines on Epidemic Prevention and Control for Parks and so on.

2.1.2 Local level

Beijing Municipality

In the meeting in March 2020, the Urban Working Committee of Beijing Municipal Committee proposed that the COVID-19 epidemic shall be regarded as a warning and great efforts shall be made to make up for the shortcomings in urban planning and construction as well as governance; in addition, it is important to improve the urban disaster prevention and mitigation system, especially the public health emergency management system. They should explore and understand the operating pattern of Beijing as the capital and a megacity. Moreover, health issues should be taken into consideration when conducting urban planning and construction. Relevant departments should also carry out health impact assessment, improve the operation service guarantee level, and aim to build a resilient and healthy city. The planning and design standards shall be improved to enhance the city's ability to resist natural disasters. Emergency shelters shall be planned and reserved. The transformation of urban space shall be considered from the perspective of public health to optimize the layout of medical and health facilities as well as strengthening the allocation of community medical and health services.

In April 2020, the Beijing Municipal People's Government officially issued the Management Method of Strategic Reserved Land in Beijing. This document proposed to reserve space for urban medium and large infrastructure and public service facilities, as well as reserving response time for major public safety issues and long-term development. The objectives of this document is to enhance the city's resilience, to improve the scientific and efficient planning and management system in accordance with the law, and to promote the urban governance system.

- **Shenzhen Municipality**

Shenzhen released the Shenzhen Municipal People's Government's Legislative Work Plan for 2020 in April 2020. This document involves 30 to-be-submitted for deliberation items and 54 preparatory items. Among these items, there is a series of laws and regulations including the regulations on public health emergencies response, are planned to be formulated in consideration of the problems and shortcomings exposed by the COVID-19 epidemic.

In March 2020, Shenzhen Standards Promotion Association approved and issued the group standard, Reference Framework and Technical Standards for Epidemic Prevention Access Codes. This group standard plan to effectively support epidemic prevention and control at the grass-roots level, social governance, and resumption of production and work.

- **Shanghai Municipality**

In April, the Shanghai Municipal Government issued Several Opinions on Improving the Prevention and Control System and Mechanism of Major Epidemics and Improving the Public Health Emergency Management System. This document contains opinions on prevention and control mechanisms and safeguard measures, such as improving the construction of the urban public health safety prevention and control network system, improving the operational efficiency of the public health emergency system, improving the public health emergency prevention and control capability. It is to push Shanghai's public health emergency preparedness and response capabilities to achieve the highest international standard and become the world safest city for public health.

2.2 Public transport infrastructure

2.2.1 National level

In April 2020, the National Health Commission issued a series of epidemic prevention and control guidelines according to different places to promote the normal development of epidemic prevention and control: Technical Guidelines for Epidemic Prevention and Control on Railway Passenger Transport, Technical Guidelines for Epidemic Prevention and Control on Urban Rail Transit, Technical Guidelines for Epidemic Prevention and Control on Urban Bus and Tram, Technical Guidelines for Epidemic Prevention and Control on Taxi and Technical Guidelines for Epidemic Prevention and Control on Civil Aviation.

2.2.2 Local level

- **Wuhan Municipality**

In April 2020, Wuhan revised the Regulations of Wuhan Municipality on the Administration of Rail Transit (Revised Draft II). This document strengthens the emergency response mechanism for public health incidents. It requires the formulation of a response plan for rail transit public health incidents, and specifies relevant requirements for emergency rescue facilities and systems; provisions for Rail Transit Construction and Operation Units are required to establish emergency rescue teams, build emergency rescue sites, and corresponding facilities; rail transit stations should be equipped with necessary emergency rescue equipment, facilities, and materials; The document also stipulate that rail transit stations should establish and improve the emergency duty and reporting system, regularly organize emergency response training and emergency drills, and build an connection with ground transportation for emergency response.

Shanghai Municipality

The first local hygiene standard for rail transit system in China, the Urban Rail Transit Health Code, led by Shanghai Municipal Center for Disease Control and Prevention, was officially implemented on January 1, 2020. Before the implementation of this Code, there was no planning document specifically for hygiene in urban rail transit system, and there was no health standard for rail transit population in China for a long time. The Code is applicable to hygiene management of train compartments and public areas of stations in subway and light rail systems. This document adheres the principles of problem orientation, strictly control of source, and keeping the population healthy. It sets the standards for temperature, humidity, wind speed, the level of carbon dioxide, the amount of inhalable particle matter, noise level, lighting and central air conditioning system, and surface hygiene inside the train compartments and public areas in the stations.

Theme: TOD & Healthy City

TOD & Healthy City

Cases: Zhejiang Province, China; Minnesota, U.S.

The COVID-19 pandemic has pushed all sectors to review the fine-turning of city governance through the angle of public health. Thus, we noticed the scenario index matrix of the Future Community in Zhejiang Province has the Health dimension.

Scenario Index Matrix of Future Community: Health

Walking- and cycling-friendly also follow the TOD principles. According to this indicator system, there are four future health scenarios: Vigorous Sports & Fitness, Smart Health Management, High-quality Medical Services, and Caring for the Elderly and Helping the Disabled in Community. Based on the concept of "5/10/15-minute Community-life Circle" the Future Community project plans meet the health needs of people of all ages and conditions by providing systematic guidance and properly distributing smart fitness within the community.

First-tier	Second tier	Third tier	Index Description
Future Health Indicator	Vigorous Sports & Fitness	Mandatory	Fitness facilities or venues for ball games is within the 15-minute walk circle; indoor or outdoor fitness apparatuses within 5-minute walk circle
		Guiding	Networks of green jogging tracks; intelligent facilities, such as smart fitness green tracks and holograms; sports communities and sport points collecting mechanism
	Smart Health Management	Mandatory	Upgraded community health service centers or health station within 15-minute walk; digital health records for all residents; improvements on family doctor services
		Guiding	The implementation of O2O model in community health management - data connectivity between individual/family terminals and district-level intelligent health platform; customized healthy diet.
	High-Quality Medical Services	Mandatory	Medical treatment alliance co-founded and jointly run by community health service centers and third-tier hospitals, which provide remote diagnosis, dual referral, and other services; introduce traditional Chinese medical services
		Guiding	Encourage the development of private general clinics, smart clinics, medical malls; Implement AI application
	Caring for the Elderly and Helping the Disabled in Community	Mandatory	Age ready housing should be subjected to the needs of re-located residents; district-level or community-level home-based care facilities within 15-minute walk; support policies, such as rent reduction for private nursing homes.
		Guiding	5-star nursing homes; medical care beds; smart terminal applications for the elders; organizations founded by seniors; implement new models, such as cross-generation rent share and Time Bank

Visit Index Matrix for Zhejiang Provincial Future Community Pilot Project (Trial) for More Information.

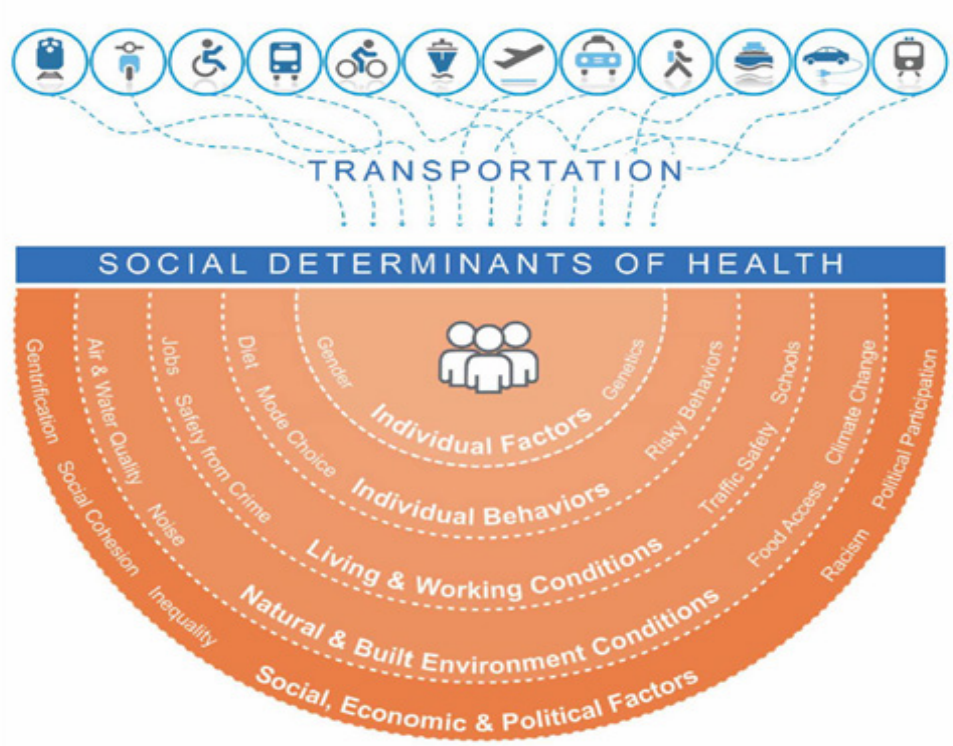
In the perspective of public policies, Health Impact Assessment (HIA) could become a useful assistant tool for policy making and project implementation during the post-pandemic era. The following part of the paper will provide some reference and insights by presenting some parts of the assessment report, Livable Communities Demonstration Account Transit-Oriented Development HIA. This HIA was conducted by the Metropolitan Council, coordinating with the Minnesota Department of Health (MDH). The report presented how TOD positively impacts the health condition of all members in the community.

Health Impact Assessment (HIA) on TOD Project

Relationship among TOD, health, and health equity

While TOD is rooted in urban planning, its connection to health is readily apparent. Although health is not listed as a goal of TOD, health is significantly influenced by housing conditions, access to green space, and transportation connections to jobs, goods, and services. These influences are often referred to as social determinants of health (Figure 1, below). In this framework, health is not merely the absence of disease or illness, it is the ability and opportunity for people to do the things that make them healthy, productive, successful, and happy members of their communities. The ability to be healthy is not solely driven by individual choices, rather largely influenced by the social and physical environments in which we live our day-to-day lives. This includes the quality of our schools, the air we breathe, the water we drink, the safety of the communities we live in, the opportunities for education and jobs, and the laws and policies that govern our lives.

Health disparities result when individual characteristics, such as race, gender, income, or religion influence the distribution or access



Social Determinants of Health

Source: Livable Communities Demonstration Account Transit-Oriented Development HIA

to education, jobs, housing, transportation systems, clean air and water, or other health-promoting factors. Conversely, health equity is when all people have the opportunity to reach their optimum health potential without limits imposed by structural inequities.

Background

Where we live has a profound and long-lasting impact on our health. The design and assets of our neighborhoods influence our ability to access quality jobs, affordable housing, recreational opportunities, and the goods and services we require to be healthy. Transit-oriented development (TOD) is one approach to create connected, livable, and active neighborhoods where most trips can be completed by walking, biking, or public transit. The Metropolitan Council, in partnership with the Minnesota Department of Health (hereinafter "MDH"), conducted a Health Impact Assessment (hereinafter, "HIA") to evaluate the livable community demonstration account- TOD grant program (hereinafter "LCDA-TOD grant program") for its influence on health.

Project Goals

1. Assess the 2015 LCDA-TOD grant applications for potential health impacts

2. Provide feedback to applicants in order to promote healthy communities

3. Identify potential metrics that can articulate health benefits and be used for evaluation

4. Use the results of the application assessments to inform the LCDA-TOD grant process itself

5. Build the capacity of the Met Council staff to consider health implications of programs and projects

Health Impact Assessment

HIA is a tool to help decision-makers better understand how a proposed policy, plan, or program may impact health. This systematic, data-driven process considers the mechanism, the magnitude and severity of impacts, and the populations most likely to be affected. It is especially helpful for policies, plans, or projects outside of the traditional public health sector. Common topics addressed by HIAs include small area plans, transportation policies, city zoning ordinances, agricultural policies, and school programs and policies.

STEPS OF AN HIA

- *Screening: Identify plans, projects, or policies for which an HIA would be useful*
- *Scoping: Identify which health effects to consider*
- *Assessment: Identify which people may be affected and how they may be affected*
- *Recommendations: Suggest changes to promote positive health effects or minimize health risks*
- *Reporting: Present the results to decision-makers*
- *Monitoring and evaluating: Determine the effect of the HIA on the decision*

These steps ensure the HIA adds value to the decision-making process.

Value added by HIA

In the perspective of the HIA project and the LCDA-TOD grant program:

1. HIA presented an opportunity for two agencies to work collaboratively to determine if there were any missed opportunities to address health. This collaboration helped erode the silos that typically separate government agencies, advancing the principles of health in all policies (hereinafter, "HiAP").

2.The HIA offered feedback to the grant applicants themselves to understand how the health-promoting principles of TOD were translated into design decisions at the project level. This project helped identify tools and metrics that Met Council staff can use to evaluate their programs from a health lens in order to demonstrate its benefits to stakeholders.

Priority Health Determinants

- Economic Opportunities
- Positive Lives
- Access to goods and services

Result

1) Vision Identification: The seven proposed projects varied widely in their goals and vision for development.

2) Influence on Health: While a few benefited from simple proximity to transit, most had extensive design and place-making features that explicitly promoted healthy behaviors.

3)The Necessity and Challenges of Health Evaluation: Even if health was not a clear objective, by following the best practice standards of TOD, it is clear that TOD aligns closely with principles of health. A health lens may be helpful for improving and evaluating TOD and other programs at the Metropolitan Council.

4) Influence over Public Sector: Just as health can add value to the organization's work focused on TOD, the Metropolitan Council is well-positioned to have significant influence on the health of all Twin Cities metropolitan area residents. The Metropolitan Council is a critical ally in Minnesota's pursuit of public health and health equity.

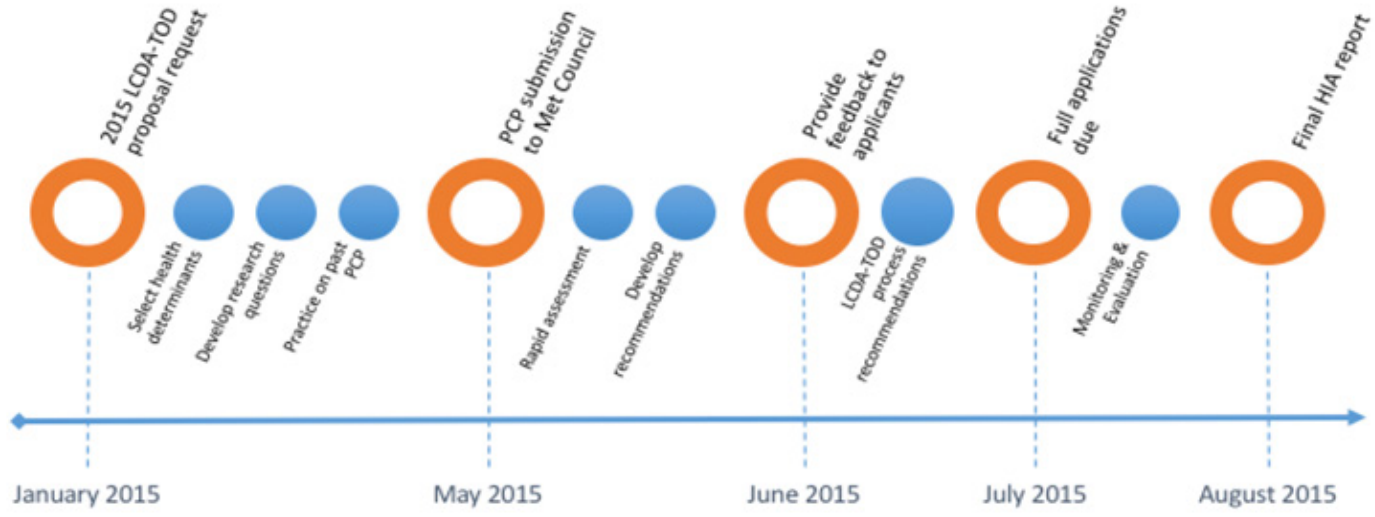
2 HIA is a tool to help decision makers better understand how a proposed policy, plan, or program may impact health.

3 The LCDA-TOD grant program aims to meet the housing, transportation, and economic development needs of a growing population, including underserved communities and people of all ages in Minnesota; it not only create or enhance connections between people, housing, and jobs, but encourage innovative solutions that can be applied throughout the metro area.

4 Sources: https://www.cdc.gov/healthyplaces/hia.htm

Timeline

Timeline of the **HIA (blue)** and the **LCDA-TOD grant process (orange)**



Source: Livable Communities Demonstration Account Transit-Oriented Development HIA

Report Sharing

WSP Transit-Oriented Development: Framework for Success (link)

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Upcoming Related TOD Events

TOD Online Seminars under GEF-SCIAP Project

References:

Minnesota Department of Health, MN Climate & Health Program. (2017). Livable Communities Demonstration Account Transit-Oriented Development HIA (Rep.). St. Paul, MN.

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