



# SAFE ROUTE TO SCHOOL

Project Definition

GROUP 1

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## PART 01 BACKGROUND

## BACKGROUND

SAFE ROUTE  
TO SCHOOL FOR PRIMARY  
AND MIDDLE SCHOOL STUDENTS

Road traffic accidents have become the second cause of death among children in China

The number of students with compulsory education in China is over 140 million

About 33% of primary and secondary school students in Beijing walk to school

About 10 thousand children die in road traffic accidents every year in China

About 20% of Beijing's students ride bicycles or take electric bicycles

The risk of walking is the highest

## BACKGROUND

### MINISTRY OF PUBLIC SECURITY ISSUED THE TRAFFIC FACILITIES SETTING STANDARDS

- 安全的校园出入口不应设置在交叉口范围内，宜设置距交叉口范围100m以外
- 不宜设置在城市主干路或国省道上
- 城市校园周边道路应设置永久或临时性人行道，宽度不小于2m；新、改建校园周边道路应设置永久性人行道，宽度不得小于3m
- 进入校园周边道路和离开校园周边道路处，应设置限制速度标志及解除限制速度标志（限速值为30km/h）
- 校园出入口50m范围内无立体过街设施应施划人行横道线，宽度不应小于6m

——《GAT1215-2014中小学与幼儿园校园周边道路交通设施设置规范》

- China Sustainable Transportation Center analyzed 221 primary schools and 170 secondary schools within the Fifth Ring Road in Beijing
- Many problems have been excavated

## BACKGROUND

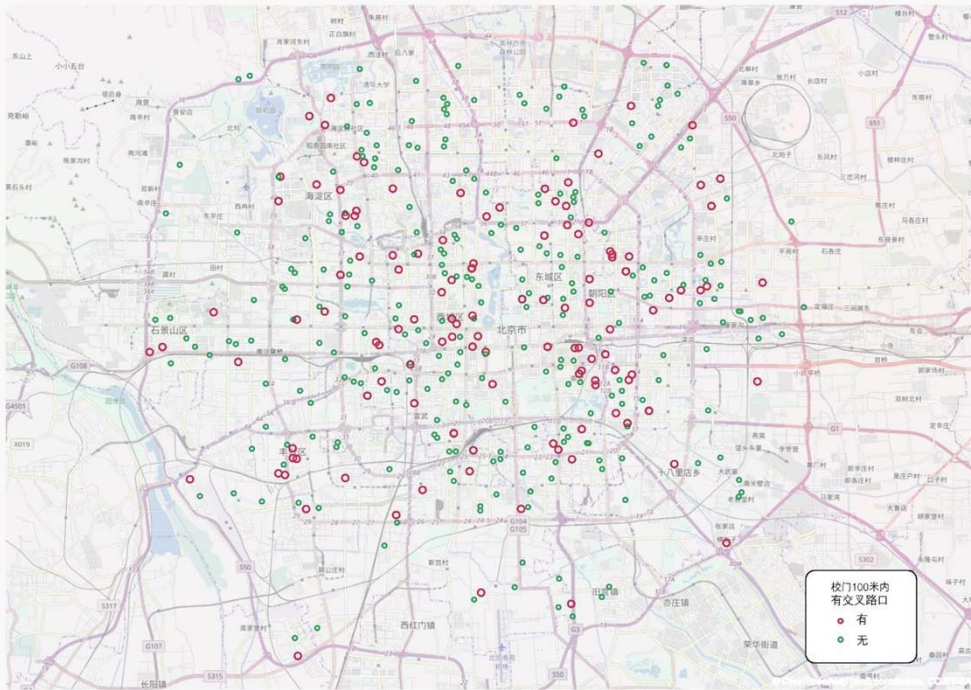
### A. There are many security risks in 1/4 of the primary and middle schools within the Fifth Ring Road

- 1) intersection: is there any intersection within 100 meters of the school gate?
- 2) express road: is there any express road within 200 meters of the school gate?
- 3) crossing facilities: the number of crossing facilities within 400 meters of the school gate.
- 4) sidewalk: the proportion of pavements on the sidewalk within 400 meters of the school gate.
- 5) bicycle lanes: the proportion of road sections delineating bicycle lanes within 400 meters of the school gate.
- 6) congestion: is there any congestion in the morning and evening peak of the school gate?

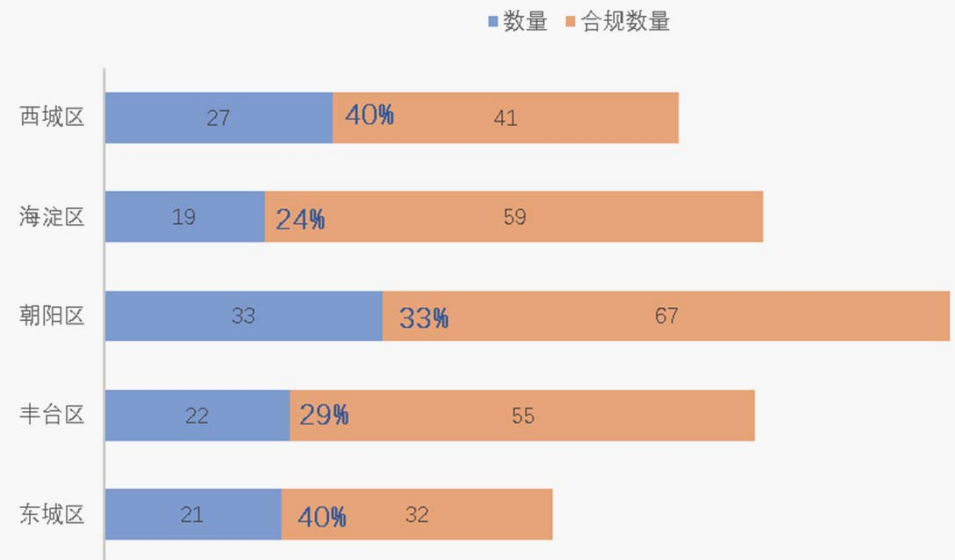
- Number: **42** middle schools and **66** primary schools which have many security risks
- Accounting for **27.6%**

# BACKGROUND

**B.** 71 primary schools and 56 middle schools have road intersections within 100m of their entrances and exits



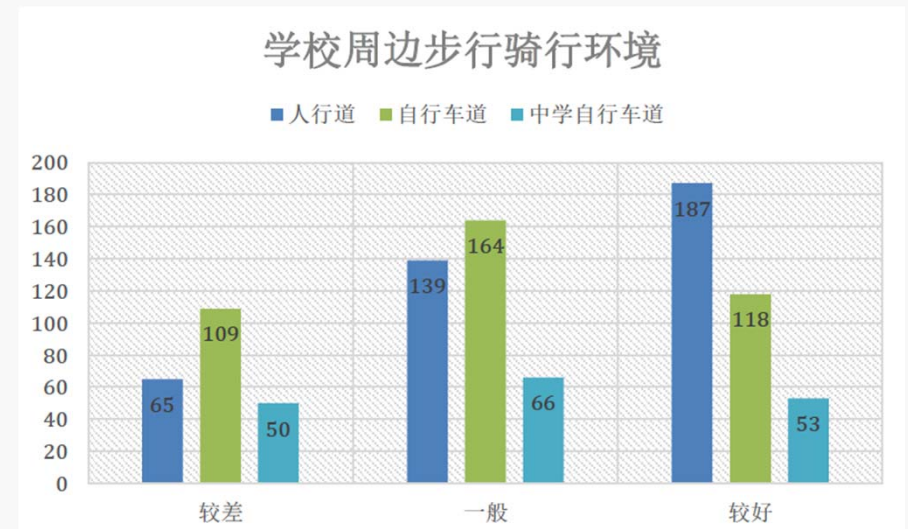
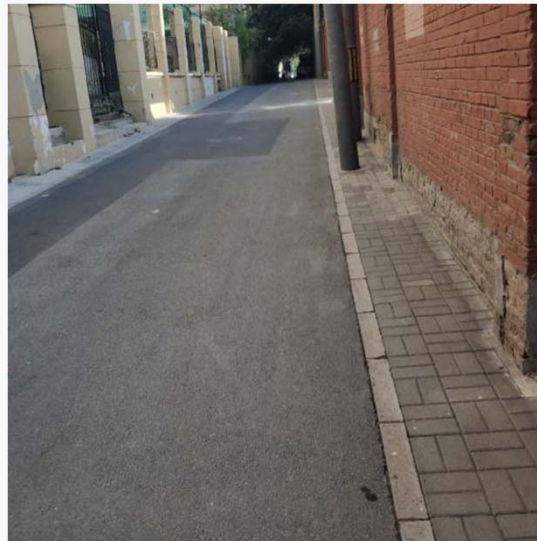
### 校门100M内有交叉口的学校



- Largest number: **33** in Chaoyang District
- Largest proportion: **40%** in Dongcheng District and Xicheng District

## BACKGROUND

- C. 46 primary schools and 26 middle schools have expressways within 200m of their entrances and exits
- D. inadequate facilities in 79% schools.
- E. 55 schools don't have the basic environment for walking and bicycles.





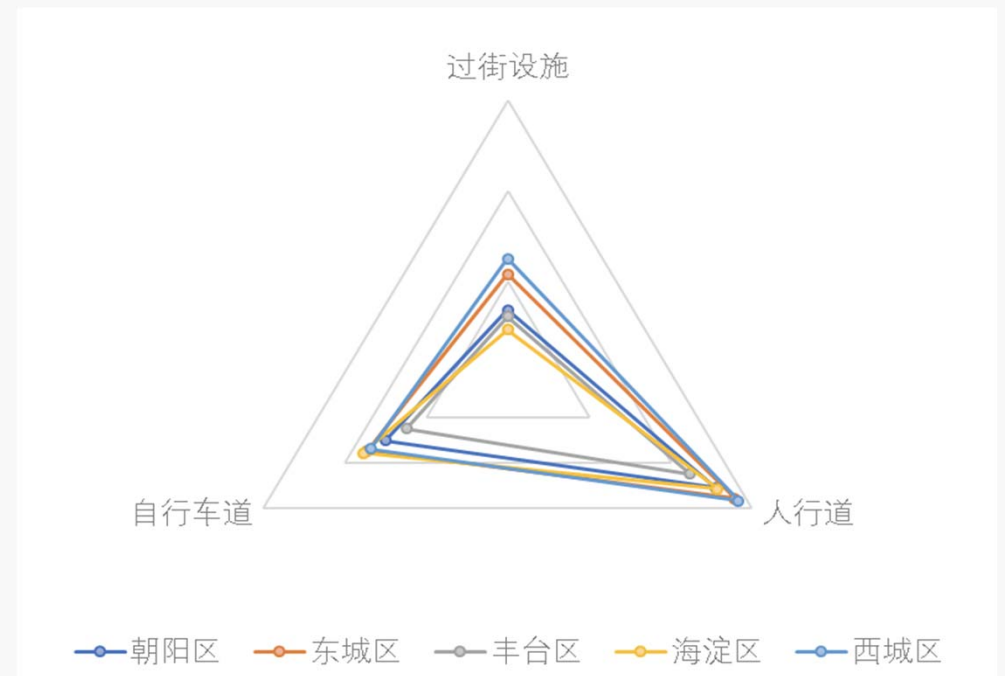
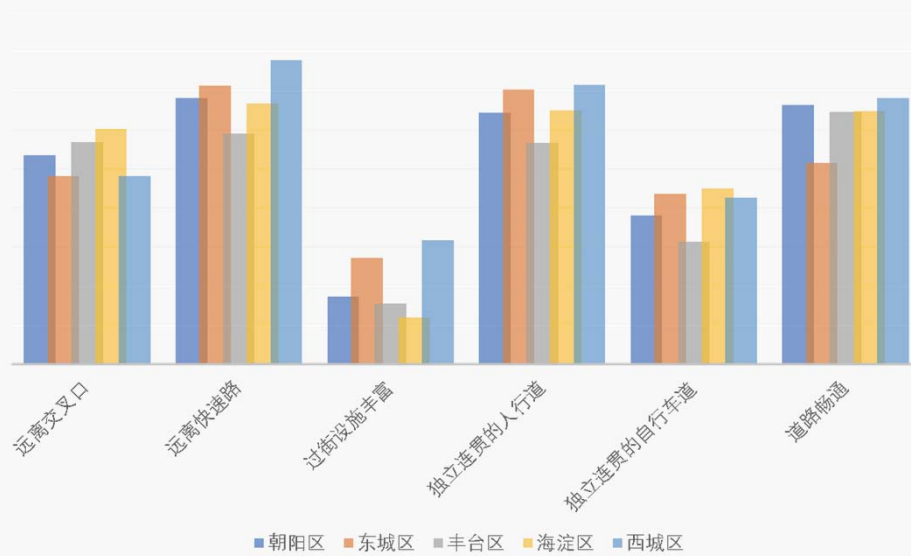
# BACKGROUND

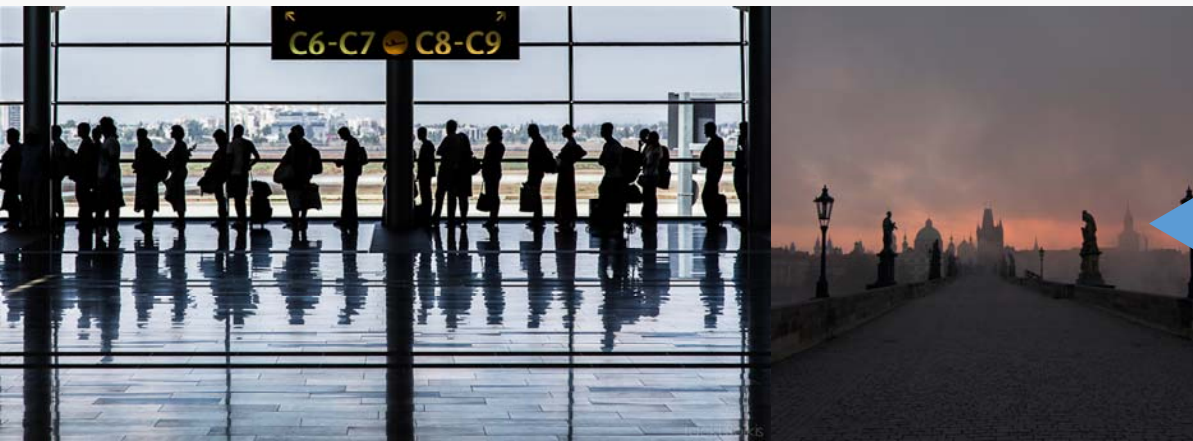
## Ranking

1st Xicheng District

2nd Dongcheng District 3rd Haidian District 4th Chaoyang District 5th Fengtai District

北京五环内中小学上学安全指数





## **PART 02 PROJECT DEFINITION & SCHEDULE**

## PROJECT DEFINITION & SCHEDULE



### ■ Pinstreet: Safer Way to School

- According to data analysis from Pinstreet, choose several places with typical problems in Beijing, do surveys on site.
- Select one place, do further investigations and design schemes to improve it.

## PROJECT DEFINITION & SCHEDULE

### ■ PROJECT SCHEDULE

- ◆ **Week 2 :** Meet Ms. Fei from CSTC, get basic idea on our project;
- ◆ **Week 3 :** Detailed study on data analysis from Pinstreet and a conference with Ms. Fei (Sept. 30), identify several typical problems in Beijing.
- ◆ **Week 4 :** Go to several places for investigation, identify specific problems on site.
- ◆ **Week 4 or 5 :** Conference with CSTC members for feedbacks of our investigation and final definition of our project.
- ◆ **Week 5-9 :** Work on several schemes to solve the chosen problem with the help of CSTC.
- ◆ **Week 9-11 :** Vote for the final scheme, work on design drawings and presentation.

# PROJECT DEFINITION & SCHEDULE

## INVESTIGATION PLAN



We will focus on :

- Road complexity
- Traffic security and congestion
- Condition of pavements and street lamps
- Street crossing
- Bicycle parking



## **PART 03 FINAL DELIVERABLES**

OUR GROUP ARE TRYING TO PROMOTE FEASIBLE SOLUTIONS TO CERTAIN TRAFFIC ISSUES IN BEIJING CITY AND THUS BRINGS ABOUT SUFFICIENT URBAN SUSTAINABILITY IMPACTS TO SOCIETY

# FINAL DELIVERABLES

EXPLOIT FEASIBLE SOLUTIONS FOR REAL-WORLD URBAN SUSTAINABILITY ISSUES

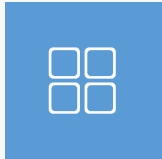
## CASE REVIEW



### ISSUE

PINGSHAN HIGH SCHOOL CASE

NATURAL BARRIER CAUSED INCONVENIENCE IN SCHOOL DISTRICT



### DESIGN

OVERPASS PROJECT FROM CSTC GROUP

CSTC TEAMS ACCOMPLISHED TWO FEASIBLE DESIGNING WORKS



### PUBLIC

INTELLECTUAL CONTRIBUTION

FINAL SCHEME WAS DETERMINED THROUGH VOTING FROM PUBLIC



### SIGNAL

URBAN DESIGN FROM PUBLIC

PUBLIC AND ENTERPRISES ENHANCING URBAN SUSTAINABILITY ALTOGETHER



CASE STUDY OF OVERPASS PROJECT IN PINGSHAN HIGH SCHOOL, SHENZHEN

## FINAL DELIVERABLES

EXPLOIT FEASIBLE SOLUTIONS FOR REAL-WORLD URBAN SUSTAINABILITY ISSUES

SOME INDICATORS IN THE LUJIANPIN STREET MODEL STILL REQUIRE IMPROVEMENT

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// AS IS SHOWN IN THE DATA ANALYSIS REPORT, DETECTING POINTS LIKE ILLEGAL PARKING, LIGHTING AND CONGESTION ARE NOT EFFECTIVELY INCLUDED IN TEMPORARY MAPS OF OSS ( OPEN SOURCE SYSTEM)



ILLEGAL PARKING

LIGHTING

CONGESTION

WHILE IN BEIJING CITY, SUCH ISSUES MAY SEEM CRUCIAL IN LEADING TRAFFIC ACCIDENTS



## FINAL DELIVERABLES

EXPLOIT FEASIBLE SOLUTIONS FOR REAL-WORLD URBAN SUSTAINABILITY ISSUES



### ■ MODELLING

BASED ON DATA COLLECTION IN  
FIELD SURVEYS  
VISIBLE MODELS & SIMULATION

### ■ INFO FEEDBACK

PUBLIC DEMANDS COLLECTION  
IN FIELD SURVEYS  
PROPOSALS RELEVANT WITH  
DETECTING INDICATORS OR  
RESEARCH METHODOLOGY

- DISTINCT SUBJECT
- FIELD INVESTIGATION
- INNOVATION & REDESIGNING
- FURTHER OPTIMIZATION

WE CAN DEVIDE THE FINAL DELIVERABLES INTO TWO CORRESPONDING PARTS

## FINAL DELIVERABLES

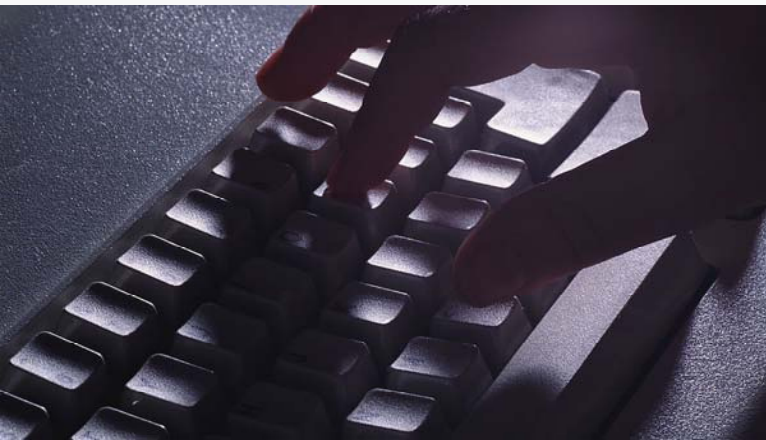
EXPLOIT FEASIBLE SOLUTIONS FOR REAL-WORLD URBAN SUSTAINABILITY ISSUES

- Modelling with SU or CAD to show the redesign of the layout or decorations of the traffic facilities in school district, including sidewalks, bikeway, street light or even overpass. We will try to minimize the level of congestion and guarantee the security of children
- Simulation with the denoted model and evaluate potential benefits from the redesign.



- Effective policies and regulations for the reference of other follow-up works. With the assistance of CSTC China Sustainable Transportation Center and third parties, we may offer detailed insights as well as experiences in illuminating public demand for school district traffic infrastructure in Haidian District, Beijing City.
- Real-world advices about combing pre-existing parameters in LujianPinstreet APP with expertise in Smart City for Kids.

To achieve the goals of the project, as mentioned before, we should recognize the prime factors of target facilities, as shown in the previous report, thus initiate the redesigning process.

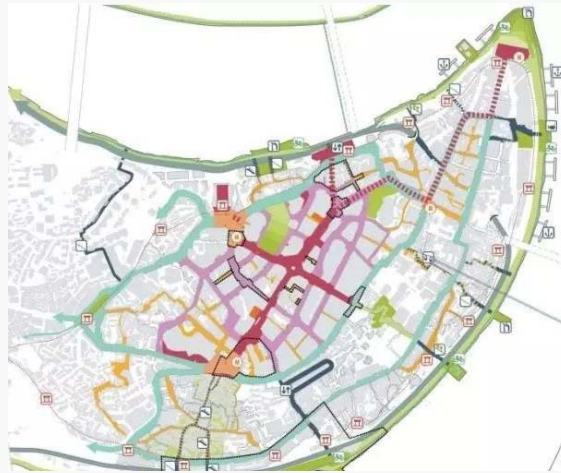


## PART 04 COLLABORATION

COLLABRATION

## PARTNERSHIP

- CSTC engages in sustainable city planning, sustainable transportation design, and research on relevant policies.
- CSTC is committed to promoting the intensive land use and the transit-oriented urban development.



## China Sustainable Transportation Center (CSTC)



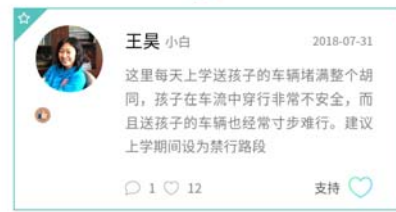
宇恒可持续交通研究中心  
CHINA SUSTAINABLE TRANSPORTATION CENTER

## COLLABRATION

# PLATFORM

- PinStreet connects governments, experts and citizens to help the city's fine management and promote people-oriented development.

- Through data-based analysis, PinStreet can find out and solve problem accurately.



## PinStreet



## COLLABRATION — REQUIRED ASSITANCE

01

### **DATA BASE**

Based on PinStreet, CSTC can provide us with the big data on transportation around the schools in Beijing.

03

### **ENGINEERING EXPERIENCE**

As a professional organization, CSTC can give us some advice while solving the problems according to their rich engineering experiences.

02

### **CASE STUDY**

CSTC has been deal with a lot of the transportation problems around China, we can make use of the affluent cases to do some study and get inspiration.

04

### **DESIGN SKETCH**

Admiring the fantastic design sketch of the PINSHAN HIGH SCHOOL BRIDGE and other projects done by CSTC, we hope CSTC can help us with design sketch when we preparing for the final delivery.

## COLLABRATION — INTENDED CONTRIBUTIONS

### MAJOR ADVANTAGE

After 3 years of study, we can combine engineering with management. We have the experiences of investigation, project management as well as knowledge of transportation design.

### CREATIVE THINKING

As students, we have less burden but more creativeness, thus offering more innovations as to the problem solving and space design.

### RESPONSIBILITY

Compared to those at work, we are engaging with the project because of social responsibility. We have flexible hours and more passion as for the process, and we are determined to do a good job.



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