

# Research on the Dilemma and Optimization Path of Traffic Safety Management on College Campus

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**Abstract:** *With the rapid economic and social development and the enrollment expansion of colleges and universities year after year, the campus traffic safety problems are increasing, and the contradiction between people, cars and roads on campus is becoming more and more prominent. Campus traffic safety problems need to be solved urgently, and it is very important to optimize the campus traffic management in colleges and universities. On the basis of summarizing the characteristics and significance of campus traffic management, this paper further explores the practical predicament of campus traffic safety management, and puts forward a systematic optimization path of campus traffic management.*

**Keywords:** Colleges and universities, Campus traffic, Safety management.

## 1. Introduction

In recent years, traffic accidents happen from time to time on campus of colleges and universities, causing widespread public concern. On the one hand, with the rapid development of social economy, the number of motor vehicles, shared bicycles, and electric bicycles has increased year by year rapidly, and the problems of disorderly campus traffic, disorderly parking and illegal speeding have become increasingly prominent. On the other hand, due to the needs of academic research, cooperation and exchange, a large number of social vehicles have flooded into universities, and the road traffic management measures in universities and colleges can not keep up with the management needs. As a result, the contradiction between people, vehicles and roads has been further highlighted. In the 14th Five-Year Plan for the Development of National Education, it is mentioned that campus safety will be fully maintained as a strong guarantee for the implementation of the plan. Therefore, optimizing campus traffic management has become the common expectation of teachers and students, the common concern of all sectors of society, and the objective requirement of improving the governance ability of colleges and universities, building a harmonious campus and building a safe campus.

## 2. Characteristics of Campus Traffic

### 2.1 Particularity of Campus Traffic

Campus is a place for teachers and students to work, study and live. Since the road is relatively closed, the campus was built earlier without underground parking garage, some abandoned cars occupy the parking space, the parking problem has become increasingly prominent. At the same time, campus roads also have the identity of public roads, so some social vehicles often drive at the connection between the teaching area and the living area. What's worse, especially during the class rush, some electromobility driven by take-away deliverymen run the red light, causing campus security risks to a certain extent. Therefore, campus traffic management in has its particularity.

### 2.2 Travel Tidality of Teachers and Students

Congestion on college campuses is mainly centered on the school hours and meal times. Motor vehicles, shared bicycles, electric bicycles, teachers and students flow of people are chaotic. For example, one day, during the three peak hours of 7:50-8:30 in the morning, 11:50-12:30 in the noon, 16:50-17:30 in the afternoon, there are about 1,400 electric vehicles, 300 motor vehicles, and more than 3,000 pedestrians entering and leaving the south gate and the east gate of HDU (Hangzhou Dianzi University). During these three peak hours, there are a large number of people and vehicles at the campus entrance and on the road. There is heavy passenger congestion and traffic congestion at the traffic lights leading to the student apartments, and the safe distance between cars cannot be guaranteed. Despite the traffic control, the congestion is still serious. On the contrary, the number of people and vehicles decreased significantly during non-class and non-meal times. Therefore, college campus traffic safety management has significant tidal characteristics.

## 3. Influence Factors of Campus Traffic Safety

### 3.1 Legal Management is Difficult to Implement

On the one hand, Article 119 of the Annex to the Law of the People's Republic of China on Road Traffic Safety clearly stipulates that roads refer to highways, urban roads and places that are under the jurisdiction of units but allow social motor vehicles to pass. In the face of the chaos of traffic violations in colleges and universities, traffic management departments rarely take the initiative to enter colleges and universities for law enforcement, and lack the support of corresponding traffic laws and regulations when implementing road management. On the other hand, the security departments of colleges and universities do not have the power of law enforcement and punishment, and the campus traffic management of colleges and universities is often based on persuasion and education. For people who drive electric vehicles without wearing helmets and motor vehicles that speed, etc., only supervision and education reminders can be taken. Traffic management measures lack of binding force,

and the control effect is not high. As a result, there are large security risks during the peak hours.

### 3.2 Diversity of Human Factor

People are the main factors affecting campus traffic safety. Colleges and universities has a high degree of freedom, and there are many uncontrollable factors during the peak period, mainly in the following three aspects: (1) Whether the students walk on the sidewalk according to the regulations, whether they walk with their heads down, look at their mobile phones, wear headphones, play with each other and do not give way, whether they follow the traffic lights, and so on. (2) Whether the non-motor vehicle is driving strictly in accordance with the non-motorized road, whether there are dangerous driving behaviors including driving without a helmet, carrying people, failing to maintain a safe distance from passers-by, and so on. (3) Whether the motor vehicle driver illegally parks the vehicle, whether the motor vehicle speeds in colleges and universities (over 30 miles per hour), whether it follows the campus traffic regulations such as stopping for 10 minutes and letting people go.

### 3.3 Scientific Supervision is a Long Way to Go

With the development of society, the students' means of travel on college campuses have also changed, from the initial "walk-based" to "bicycling based", and then to the "electric vehicle based". But due to the particularity of college campuses, there are exceeded electric vehicles and phenomena like parking disorderly, carrying people illegally, driving without a helmet. Campus traffic safety management also involves whether students install campus permission cards in strict accordance with school requirements to prevent some off-campus electric vehicles from mixing into the school, causing certain security risks. Especially before class, after class and during meals, it is very difficult for pedestrians and vehicles to travel at the connecting points of the living areas and the teaching area. Students wear headphones and cross the roads freely, playing and laughing with their friends or looking down at the phones. In addition, insufficient parking places lead to blocking fire safety access. These all seriously affect campus safety.

## 4. The Optimal Path of Campus Traffic Management in Universities

Based on the reality of campus and focusing on the real predicament, the optimization of campus traffic management in colleges and universities needs systematic planning and active action. Colleges and universities should effectively be their own campus traffic management organizers and implementer and to explore the optimization path from the following three aspects.

### 4.1 Manage According to Law and Regulations and Persevere in the Combination of Centralized Remediation and Long-term Governance

Management in accordance with laws and regulations is the basic principle of road traffic management, and it is also the focus of campus traffic safety in colleges and universities and the breakthrough of campus traffic safety. With the safety of

teachers and students as the first priority, the campus traffic monitoring system should be connected to the network to the urban traffic monitoring system and implement unified supervision and management and targeted traffic penalties in accordance with the principles of system integration, interest differentiation, responsibility subdivided into people, and school intervention, while the traffic management department should implement the responsibility for campus traffic management to specific individuals, providing specialized agencies to assist the traffic police to command campus traffic and strengthen the responsibility of traffic management.

Colleges and universities can improve the safety of road traffic by planning the road network, entrusting a professional evaluation design company, and set different optimization measures according to the travel peak of different groups in different time periods. To deal with large traffic flow and passenger flow and relieve traffic pressure, methods like adding tidal lanes, traffic lights, different color markers, and separating people and vehicles can be used. Since campus traffic is related to the safety of students' lives and property, it should be considered as a long-term management without any slack.

### 4.2 All Staff Work Together to Manage the Traffic and Persevere in the Combination of the Whole Staff and Multi-leverage

For the optimization of campus traffic management in colleges and universities, leaders' attention and funds are indispensable. The first step is to develop a comprehensive long-term traffic safety plan, including goal setting and strategic layout. For each specific goal, colleges and universities need to develop a detailed task list, including the responsible leader, the leading department, and the responsible department. At the same time, integration of departments and organizations should be emphasized based on the holistic governance theory, combining joint participation of multiple entities. University management departments should put the improvement of road traffic safety education for teachers and students in an important position to safeguard safety. They should also consider the party office, school office, security, logistics, teachers, volunteers and other department heads as members and form a traffic safety work leading group, and regularly conduct traffic safety knowledge training. What's more, they ought to collect opinions and suggestions of teachers and students on traffic safety management, and constantly improve and optimize management measures through questionnaires, seminars and many other ways.

At the same time, in order to strengthen the responsibility implementation and supervision mechanism, it is necessary to establish a complete assessment system. On the one hand, based on this system, colleges and universities can take campus traffic behavior as an evaluation index for evaluation of students and promotion of professional titles and positions of teachers and staff. On the other hand, colleges and universities can incorporate campus traffic management into the important content of the annual assessment of "Safe Campus", and link it with the assessment of college development, management and service quality evaluation of service institutions. Through such clarity of rights and

responsibilities, multiple subjects cooperate to ensure that each subject can deeply understand the compaction and constraints of responsibility, and achieve the goal of working "with one heart and one direction" and fighting "with the same frequency and the same resonance".

#### **4.3 Innovate Digital Technology and Promote the Integration of Conventional Construction and Intelligent Transformation**

In terms of conventional construction, the backward basic conditions and management means are the key problems that restrict the scientific management of campus traffic management. Colleges and universities should solve this problem by actively seeking financial support from the government, increasing the investment of their own funds, and effectively integrating social resources, especially outstanding alumni resources, to promote the optimization and upgrading of campus traffic management. Taking into account the tidal characteristics of teachers and students' activities, colleges and universities should increase the transformation of traffic facilities on campus, widen the roads of teaching buildings and cafeterias according to the national traffic setting standards, add speed limit and no stopping signs for specific time periods, set reflectors at turns, and improve the installation of speed bumps, traffic signs and crosswalks on special sections.

In terms of intelligent construction, the intelligent traffic management system will be introduced into campus traffic. Colleges and universities should make full use of intelligent science and technology means, upgrade the access control system, and implement intelligent card real-name management for all pedestrians and vehicles entering the campus. Secondly, increase the penalties for illegal driving behaviors such as exceeding the speed limit of 30km/h, disorderly parking of vehicles, and excessive honking of horns, and reduce campus traffic violations. Colleges and universities ought to continuously improve the professional level of campus traffic management, establish a rapid emergency response mechanism for traffic accidents, achieve timely detection and stop of traffic violations, and improve the efficiency of campus traffic.

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