




# A Study of Carpool in The Context of Low-carbon City

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The carpool dubbed the “fourth mode of transport” by some areas has been largely embodied the currently promoted low carbon idea and also greatly concerned.

Because of its long management complexity, the social product “carpool” is still in the exploratory stage in our country.

# 1. The Causes of City Carpool

- First, nowadays, global warming has become the grim tests for survival and development of human beings. The consumption of natural resources formed by the carbon elements, such as oil, coal, timber, etc, leads to the global warming caused by emissions of carbon dioxide. Therefore, building low-carbon cities has become the common goal of the mankind. To promote development in the context of low-carbon city, more and more people are concerned about low carbon living.



- Second, the private cars are more and more popular, and many cities have lower utilization of the limited road resources. Take taxis for example, the road space occupied by two cars is approximately equal to one bus resources, but its carrying capacity is less than the bus one-fifths. And the traffic jam in city has become more and more serious, difficult to taxi and taxi rejection have become common traffic problems.



- Third, the cost of car owners tend to rise, which increase the need for searching a co-passenger to share the fare. As a matter of fact, the carpool phenomenon is very popular in foreign countries. Just like The United States, they specially built for the special carpool traveling more than fast drive, and people taking a taxi are encouraged and supported.



## 2. The Two Categories of Carpool

according to the passengers' appointment



### ■ 2.1 The Fixed “Carpool”

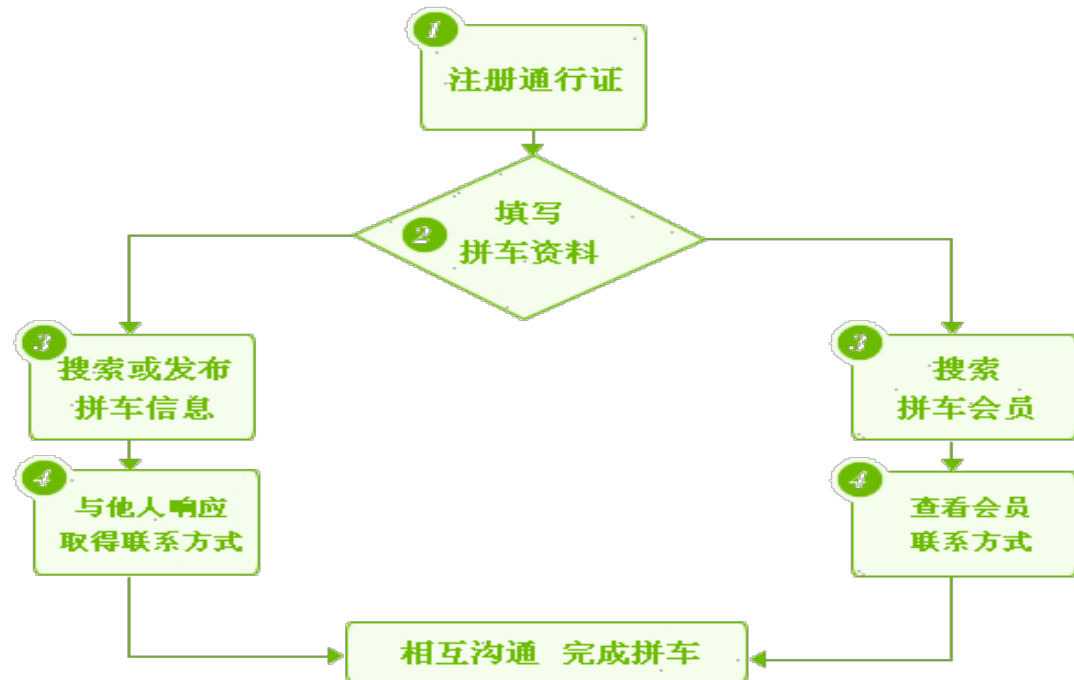
The fixed carpool is the most extensive and active mode. The owner and the passengers must make appointment in advance. The advantage is that, we can through a platform to capture the information of carpool we need and make an appointment. This method fits for the people such as office workers, students from and to school, return home crowd and long or short distance travelers and etc.

The ways of fixed carpool can be summarized as follows:



## A. To Establish Information Exchange Platform through Network .

The Information platform can be set up by individual, groups and government. And the general processes are as follows:



### Limitation

- The information about carpool is extremely decentralized and insufficient.

## B. Special City Carpool Intermediary Institution

- In the past, carpool intermediary institution is mostly provide service for taxi owners and passengers, usually not including private cars. But now in some big cities more and more private cars joined in the institution. Through the intermediary institution a contract is signed between the institution and passengers in carpool and the intermediary institution will check the members' qualifications so as to ensure safety and members' responsibility.

### Limitation

- The intermediary institution can guarantee integrity in carpool but without high information effectiveness, which only benefits those who need long term carpool.





## C. The Small Carpool Groups

- The groups consist of people who have known each other and have the same travel routes, for example, carpool trip for colleagues, children to and from school in neighborhood and so on. The benefits of such formed groups usually have a relatively high reliability. Furthermore, the fare share is consulted on the situation and wishes of both sides.

### Limitation

- But the small carpool groups have very limited service, it belongs to affection behavior of both sides and lack of organization.

## ■ 2.2. The Non-fixed “Carpool”

On the contrary, the non-fixed carpool includes passengers or owners who temporarily decide to ride, such carpool has obviously no way to make appointment, also has difficult in organization and has a random stop on the way. Non-fixed carpool mainly aims at the taxi, the advantage of which is legally operating and secure in law.

**the taxi**  **the advantage of which is legally operating and secure in law.**

The ways of non-fixed carpool can be summarized as follows:

## A. The Guidance Involved in Relevant Units under Special Situation

Since the private cars have some complexity in guidance and management, non-fixed carpool mainly focused on taxies. When particular traffic situation such as rush hour, holiday travel peak traffic appears, the government orders the traffic administrative departments to organize cooperation by taxies according to law.



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## B. The Carpool through Driver's Random Discovery and Consultation with the Passenger.

- This kind of carpool has great mobility.
- During the peak traffic hour it is very hard to carpool. As for driver's random discovery and consultation with the passenger, there are too many uncertainties and difficult organizations. And this mode matches what we usually refer to as "black car".





## **3. The Discussion About the Implementation of Two Types of Carpool**

### **■ 3.1 The Guarantee of Carpool Implement**

The support and standard management of carpool markets from the government agencies are guarantee of carpool implement. Playing the role of guarantee the government agencies should consider the following three aspects.

- A. Distinguish the Carpool (known as ride with wind) and “Black Car” Engaged in Illegal Trading.

Since black car has no operation qualification and aims at profit, such illegal operation has many hidden dangers, and all these seriously damage the traffic and transportation orders. So the survival of taxis has been put into a dilemma.

In Shanghai law enforcement officers strictly distinguish the co-ride behavior between “Black Car” Engaged in Illegal Trading and ride with wind, and also raise five differences between carpools together and “professional black car”. And it will bring some reference to our research and discussion



- **B. To Ensure Integrity Link without Any Loopholes, the Government Should Supervise and Manage in Technology and Policy**

The integrity link includes intermediary institution, which can provide carpool demanding information for both owners and passengers.

“The integrity link” may be achieved through technical means like Alipay, which initially serves as a network to solve Taobao trading company and set up a security feature for the first use of “third- party secured transactions model. However, the integrity link provides security modes for confidential information.

- **C. The Definition for Carpool Accident**

The owner and passenger should sign a carpool contract and clearly take responsibility for their own risk to protect car owners’ rights and interests,

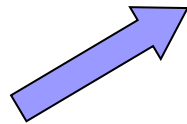


## ■ 3.2 Some Suggestions for Non-fixed Carpool Operation (Hohhot )

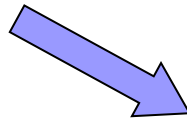
The Hohhot urban streets networks have a lot of irrational designs and the number of private cars grows fast. As a result it is still difficult to take taxi on some major urban roads in rush hours or on the special weather conditions, and this phenomenon is very common. On some special occasions most taxi drivers and passengers agree on carpool.

These are **two difficulties** for the Non-fixed carpool at present:

The two  
difficulties

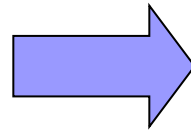


the accurate exchange of **carpool demand information** between the drivers and passengers



the **interest balance** among the carpool passengers

the carpool demand information



On-Board Display

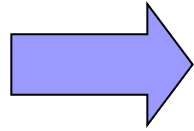


The orientation of the LED screen is opposite to the traveling direction.



If this screen in the car driving direction can show that a taxi towards the front of his people and can be seen through it, then the carpool information transmission can be realized.

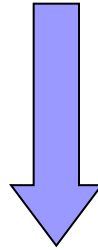
interest  
balance



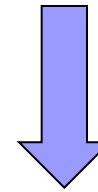
a more equal  
charging method



actual situation,  
coordinated in the  
carpool among  
passengers



to achieve a rationale



to achieve "common sense"

## 4. Conclusion

- Only under the support and recognition of the government can carpool be got rid of the “reasonable but illegal” situation so as to serve the public at its maximum and benefit the country and people greatly.
- Some ideas in this paper may not complete enough ,and a further research needs more professional knowledge such as the issues on law definition in accident and the charging method of carpool, so all the relevant problems should be further improved .



# Thank you !

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