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## **Abstract**

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In large cities in Vietnam such as Hanoi and Ho Chi Minh City are faced with major challenges due to the urbanization. The urban population is continuous increasing in these cities that consequently leads to increase in the travel demand and also increase in demand for transport infrastructure, whereas, the supply of transport infrastructure has often been insufficient capacity to keep up with the growth of mobility. As a result, traffic congestion, traffic accidents and environmental impacts have become serious problems that related to this issue. Especially, the traffic congestion is become worse in Hanoi and Ho Chi Minh City that usually occurs on most of the major routes in the cities.

An effective signal coordination strategy at signalized intersections is an effective way to reduce the traffic congestions that contributes to improve the continuity of the vehicular traffic flow movement and reduce the traffic delay; consequently the quality of traffic low will be improved.

In order to implement effective signal coordination strategies for large cities in Vietnam, it is necessary to understand the process of platoon dispersion under the specific traffic condition of Vietnam. Since, understanding the platoon dispersion can helps to get an insight about the offset of signals between concessive intersections and the time splits at each traffic signal as well. In addition, platoon dispersion study is also a vital factor in the traffic modeling field by increased accuracy in traffic arrival distribution. Thus, this thesis focuses to investigate the platoon dispersion of vehicles in road corridors in Vietnam.

Chapter 1 contains the introduction and overview about the research. In chapter 2, the literature review of platoon dispersion and coordinated signal program were described. In this chapter, the all methods for modeling, calibrating platoon dispersion as well as the approaches to increase traffic efficiency by coordinated signal program have investigated. In chapter 3, the factors influencing platoon dispersion under the traffic condition in Vietnam are described. In this chapter, the methodology that is applied for this study also presented. This chapter explains in detail the various steps in methodology to calibrate Robertson's model which is applied in this thesis. Chapter 4 focuses on analyzing Calibration Robertson's model with the field data based on the listed methods in chapter 3 and the most appropriate method to calibrate Robertson's model under traffic condition in Vietnam is defined. In chapter 5, a coordination signal program is developed for a chosen road corridors in Vietnam which based on the results of platoon dispersion calibration in chapter 4. Finally, chapter 6 a summary of the key findings and the conclusions of the research effort are described.