Overview
Like most of China’s cities, Wuhan has enjoyed rapid economic growth and urbanization over the past two decades. Yet those changes have been accompanied by equally rapid motorization and the rise of associated problems with congestion, air pollution, and road safety. The municipal government has been working to address these problems through a variety of initiatives, including better traffic management. This case study reviews Wuhan’s experience in traffic management and its impact on improving traffic flows and safety, with a focus on two critical components: area traffic control systems and intersection channelization, which were implemented between 2000 and 2013. Those interventions provide lessons on the implementation of complex technical systems and the importance of institutional arrangements and capacity building in tackling traffic problems. The case study also shows how Wuhan effectively used foreign assistance to benefit from international experience.

Lessons Learned
■ For best results, traffic management planning should occur in conjunction with construction planning.
■ Development of local technical capacity is important for creating customized solutions to local conditions.
■ Foreign assistance can be useful in capturing the benefits of international experience.
■ A modern area traffic control system can improve traffic flows at major intersections by synchronizing the traffic lights at the intersections, based on their real-time traffic flows, to minimize the overall waiting time.
■ Intersection channelization can facilitate the safe and orderly movements of both vehicles and pedestrians by separating conflicting traffic movements into definite paths of travel, using pavement markings or traffic islands.

Development Challenges
■ Addressing the consequences of dramatically increasing motorization—such as traffic congestion, air pollution, and pedestrian safety—at a time of rapid urbanization.
■ Building the technical and institutional capacity of local authorities involved in traffic management.

Delivery Challenges
■ Dealing with outdated and inadequate legacy systems for urban road design and traffic management.
■ Coordinating the actions of municipal agencies with oversight over specific aspects of traffic planning, road construction, and pedestrian safety, among others.
Increasing the understanding of key design features such as intersection channelization among traffic planners and other decision makers.
Meeting the need for customizable area traffic control systems.
Making the best of budget constraints by installing area traffic control systems piecemeal and learning from each iteration.

Research Questions

Q1: How should the analytic capacity needed to design and implement complex technical services be organized?
Q2: How should interagency responsibilities and relationships be changed to implement complex technical systems?

Key contextual conditions: In Wuhan, the total number of passenger cars grew from about 470,000 in 2002 to 740,000 in 2006 and then to 1.3 million in 2010. However, household car ownership, at 0.22 per household, is still one-third that in Beijing and thus has the potential to grow further. In the early 2000s, urban infrastructure in general and transportation in particular had lagged far behind the city’s development. Traffic congestion had become a pressing issue. The local government in Wuhan urgently needed to tackle both the challenge of traffic congestion and the associated problems of air pollution and road safety. It was in this context that the Wuhan's Traffic Management Bureau undertook to improve traffic flow and pedestrian safety in the city, particularly at busy and dangerous intersections.

Key stakeholders: China Management Science Research Institute, Construction Commission, Ministry of Public Safety, Ministry of Public Security, Transport Planning Institute, Urban Administration Bureau, World Bank, Wuhan Development and Reform Commission, Wuhan Economic and Technological Development Zone, Wuhan Engineering Design and Research Institute, Wuhan Land Resource Department, Wuhan Park Department, Wuhan Planning Department, Wuhan Police Department, Wuhan Sanitation Department, Wuhan Traffic Management Bureau, Wuhan Traffic Management Commission, Wuhan Transportation Commission, and Wuhan Treasury Department; coordinated communication among these agencies is key to an effective traffic management system and to efficient delivery of results.