

Application of CLIOS Process to the Emirate of Abu Dhabi's Transportation System

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Introduction

The Emirate of Abu Dhabi, in the UAE is constructing a green-field public transportation infrastructure to connect Abu Dhabi Metropolitan region with the neighboring regions of Al Ain and Al Gharbia. The economy was projected to grow four-fold by 2030 along with trebling of population which would exponentially increase transportation demand.

Abu Dhabi's existing transportation system is completely road-based with private cars and contract buses occupying the highest share among transportation modes. The concept of public transportation is ill-developed with buses being the only public transportation mode, and railway transportation is inexistent.

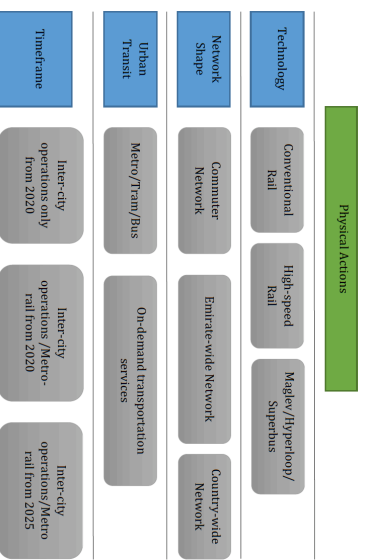
The expected increase in business activity because of transition from oil-based economy to service-based economy increases the value of time and demands more efficient transportation. The current road network is incapable of serving the estimated transportation demand in 2030. While sporadic distribution of population presents unique challenges to high-speed inter-regional transportation, the monarchist nature of the government simplifies institutional challenges. The desert environment creates technical challenges and sandstorms cause service disruptions.

Goals and Plans



Element	Description
Regional Passenger Rail	590km system of inter-regional rail forming part of a future UAE and GCC-wide passenger rail system
Freight Rail (Umm Al-Raiyah)	1300km system of inter-regional rail forming part of a future UAE and GCC-wide freight rail system
Metro	130km of segregated railway in Abu Dhabi Metropolitan area
Tram	340km of street running tram in Abu Dhabi Metropolitan area
Personal Rapid Transit	Demand-responsive system planned for Masdar, and potentially Lulu
Bus	A fine grained bus network will be provided in all urban areas not served by tram or metro
Water Transport	A system of scheduled ferry services along both sides of Abu Dhabi Island
Highways	1500km of new or upgraded highways
Parking charges	Change of AED 10 per hour in the CBD and Capital City District
Global fuel tax	Tax equivalent to AED 1 per km on all vehicles
Congestion charge on inner cordon (bridges to Abu Dhabi Island)	Change of AED20 per cordon crossing
Congestion charge on outer cordon (Sharjah Freeway and Abu Dhabi Freeway)	Change of AED 10 per cordon crossing

Bundles of Strategic Alternatives



Scenario Planning

Driving Force	2008 - 2015	2015 - 2023	2023 - 2030	2030 +
Economic Growth	+	+	+	/
Political support	++	+	+	+
Funding sources	+	+	+	/
Public perception	+	+	+	+
Environmental change	/	-	-	-
Energy usage	+	+	+	/
Land use	/	+	+	/
Congestion	+	-	-	/