



Chapter

5 Summary of Udonthani Mass Transit Master Plan, Transport Oriented Development (TOD) Plan, Park and Ride Facilities, and Traffic Management Plan

The implementation of Udonthani Mass Transit Master Plan includes a development of a mass transit network, Transport Oriented Development (TOD) in the vicinities of the new mass transit stations, park and ride facilities, and Traffic Management Plan as follows.

5.1 Vision

Vision: Udonthani mass transit will accommodate the future transport demand with greatest efficiency, mobility, and safety.

5.2 Mission

Mission: Udonthani mass transit system will serve all commuters, encourage the use of public transport system, reduce car dependence and traffic congestion, and offer a sustainable development of Udonthani City.

5.3 Targets

There are 3 Targets:

- 1) A new public transport system will cover large coverage area, connecting to other transport modes in Udonthani.
- 2) A new public transport system will offer a reliable, sufficient, and efficient service to all commuters.
- 3) A new public transport system will offer commuters travel safety with the state of art technology, reducing transport costs. It will act as a new environmental friendly mode of transport as a goal to reduce the carbon footprint.



5.4 Strategy

There are 4 strategies:

1) Strategy 1: Develop a Mass Transit Master Plan for Udonthani urban area with intermodal transport facilities.

Strategy 1 will support “Objective 1” as a new transport master plan will provide a sufficient service for the city in association to Udonthani land development in the future.

- To create a new and sufficient public transport service along travel corridors with excellent accessibility.
- To facilitate all intermodal transport activities for the existing 2 bus terminals, Udonthani SRT station, and the Udonthani International Airport with a full integration to other public transport services in the city and any other transport facilities in the future.
- To create economic benefits from the reduction of private transport use, traffic congestion, energy consumption, and greenhouse emission. Hence this will further create a new opportunity for urban development, commerce and investment to all those economic and social activities with greater efficiency.

● Project Implementation Plan

Project Implementation Plan based on “Strategy 1” will associate with a new development of an extensive mass transit network in Udonthani with intermodal facilities to maximize transport efficiency. This includes an investment plan for 6 new mass transit routes with the total distance of 100.55 km as follows:

- | | |
|------------------------------|--------------------------|
| ○ Red Line (Electric Bus) | total distance 10.80 km. |
| ○ Blue Line (Electric Bus) | total distance 34.50 km. |
| ○ Green Line (Electric Bus) | total distance 13.10 km. |
| ○ Orange Line (Electric Bus) | total distance 9.80 km. |
| ○ Pink Line (Electric Bus) | total distance 19.45 km. |
| ○ Yellow Line (Electric Bus) | total distance 12.90 km. |

● Indices/Measures

- An Increase in number of annual ridership in percentage based on recent transport statics.



2) **Strategy 2: Development of a reliable, sufficient and efficient mass transit service to all commuters.**

- **Strategy 2** supports “Objective 2” as it will elevate the quality of public transport service via a new public mode with new transfer facilities such as bus stations and stops/transfer nodes/ new facilities for children, elderly and handicapped people with enhanced safety measures for public transport travel. This will create equity to all commuters and it will be a new transport attraction in the city.

- **Project Implementation Plan**

Project Implementation Plan based on Strategy 2 will associate with a new transport facility development in Udonthani in order to create better accessibility and mobility. This includes an investment plan for 6 new park and ride facilities as follows:

- Development of park and ride facilities in the vicinities of 1st Udonthani Bus Terminal connecting Udonthani SRT station.
 - Development of park and ride facilities in the vicinities of 2nd Udonthani Bus Terminal.
 - Development of park and ride facilities in the vicinities of Blue Line.(North)
 - Development of park and ride facilities in the vicinities of Blue Line. (South)
 - Development of park and ride facilities in the vicinities of Green Line.
 - Development of park and ride facilities in the vicinities of Pink Line.
- **Indices/Measures**
 - An increase in the number of park and ride users.
 - A reduction in accidents.
 - An Increase in number of annual ridership in percentage from specific groups of commuters (children, elderly and handicapped people).



3) **Strategy 3: Development of a state of art public transport system with greater accessibility, offering a good service quality, energy saving, and environmental friendliness.**

- **Strategy 3** supports Objective 3 as it will provide a **new state of art** public transport system and facilities for environmental friendliness for a sustainable urban development. As it emphasizes on a new IT technology to facilitate a new intermodal movement. A new electrical bus service with an integrated ITS (Intelligent Transportation System) will be a new sustainable transport mode of travel, hence reducing our dependence on internal combustion engines and also traffic congestion.
- **Project Implementation Plan**

Project implementation plan will be based on Strategy 3 as it emphasizes on the development of ITS and intermodal transfer facilities. The system will provide route information such as time table (arrival/departure time), locations of bus in service and bus stations. This includes the future use of e ticketing system as it will offer time and money management and it also encourages a new urban development around bus station (TOD), intermodal transfer facilities which results in economic growth.

There are 2 projects associated with the implementation plan.

- Project 1: A feasibility study of the optimum fare system and e ticketing. Including the use of information technology in public transport.
- Project 2: Transport Oriented Development (TOD) in the vicinity of
1) UD Town, Udonthani SRT station, and Central Plaza Udonthani. 2) Area of Udonthani SRT station 3) Udonthani Prison Area
- **Indices/Measures**
 - Reducing number of complaints concerning public transport service with new follow up measures from transport agencies in Udonthani.
 - Increase in efficiency in fuel consumption as stated in passenger km travel with new follow up measures from transport agencies in Udonthani.



4) **Strategy 4:** Traffic Management Plan in Udonthani and surroundings

The new mass transit system will be implemented together with Traffic Management Plan in the urban area as it will increase transport efficiency in the daily commute, enhance travel speed and safety for all transport modes. Reducing of environmental impacts shall followed with a new transport mode will attract more commuters in the future.

- **Project Implementation Plan**

Strategy 4 will emphasize on Traffic Management Plan in order to increase network efficiency in Udonthani as it also increases efficiency, reliability, and travel speed for public transport service. The projects are:

- One way traffic management
- Forbidden Zones for motorcycle parking
- Improvements of quality of footpath

- **Indices/Measures**

- Increase travel speed
- Decrease delay at intersections
- Increase in number of pedestrians

5.5 **Project Plan**

Udonthani master plan, including park and ride plan, facility design, and Traffic Management Plan for an efficient and sustainable traffic solution associated to the aforesaid visions and strategies in this chapter consist of 20 year plan from 2020-2039 as follows:

- The First 7-Year Plan (2020-2026): It has 2 stages; the urgent plan from 2020-2022 (year 1-3) and the 2nd plan from 2023-2026 (year 4-7).
- The Second 13-Year Plan (2027-2039): It also has 2 stages; the 1st plan from 2027-2031 (Year 8-12) and 2nd plan from 2032-2039 (Year 13-20) as shown in **Table 5.5-1**



Table 5.5-1: Summary of the master plan for the development of public transportation in Udonthani Plan 20 years

no	Project	Quantity	Plan (20 years)				Investment cost (million baht)				The responsible agency	
			Phase 1 (7 year plan)		Phase 2 (13 year plan)		Phase 1 (7 year plan)		Phase 2 (13 year plan)			
			Urgent Plan (3 Years)	Year 4-7	Year 8-12	Year 13-20	Urgent Plan (3 Years)	Year 4-7	Year 8-12	Year 13-20		
			(2020-2022)	(2023-2026)	(2027-2031)	(2032-2039)	(2020-2022)	(2023-2026)	(2027-2031)	(2032-2039)		
Target 1: Public transport system will cover large coverage area, connecting to other transport modes in Udonthani.												Department of Land Transport / Local administrative organization in Udonthani province
Strategy 1: Develop a Mass Transit Master Plan for Udonthani City with intermodal transport facilities for all modes of transport.												
1	Udonthani Mass Transit Master Plan 1)											
	1.1 Red Line	10.80 km.					394.03			662.05		
	1.2 Orange Line	9.80 km.					179.82		47.50	355.92		
	1.3 Blue Line	34.50 km.						307.63		766.95		
	1.4 Green Line	13.10 km.						377.10		233.63		
	1.5 Pink Line	19.45 km.						271.56		289.38		
	1.6 Yellow Line	12.90 km.							112.45	41.87		
	Total	100.55 km.					573.85	956.29	159.95	2,349.80		
2	Depot	1 location					562.14					
3	Revision of Feasibility Study of Tram/LRT System	1 project								50.00		
Target 2: A new standardized public transport system with great efficiency and adequate service quality to all commuters.												Department of Land Transport / Local administrative organization in Udonthani province
Strategy 2: Development of a standardized public transport system with great reliability and service quality.												
1	Development of Park and Ride	6 locations					249.35	31.35				
Target 3: A state of art technology, reducing travel costs, energy consumption, and environmental friendliness.												
Strategy 3: Development of a mass transit system with a state of art technology with greater accessibility, reducing travel costs, energy consumption, and environmental.												
1	A feasibility study of the optimum fare system and e ticketing	1 project					50.00					
2	Transport Oriented Development (TOD)	3 locations										
	2.1 UD Town, Udontani SRT Station, Central Plaza Udonthani						2,356.00					
	2.2 Udontani SRT Station							1,053.31				
	2.3 Udonthani Penitentiary ²⁾								1,672.00	1,672.00		
Strategy 4: Traffic Management Plan in Udonthani and surrounding areas											Department of Land Transport /Local administrative organization in Udonthani province	
Strategy 4: In accordance to the Master Plan and providing traffic solution for Udonthani												
1	Traffic Management Plan eg improvements of pavement and footpath, park & ride area	3 projects										
	1.1 Urgent Plan						364.49					
	1.2 Medium Plan							367.87				
	1.3 Long Term Plan								278.17			
Investment Costs 2020-2039 (Million Baht)							4,155.83	2,408.82	2,110.12	4,071.80		
Investment Costs (Phase 1 and 2)							6,564.65		6,181.92			
Investment Costs (20 Years)							12,746.57					

Remark. 1) Investment costs are construction cost, M & E cost, rolling stock procurement costs, Detail design fee and preparation fees before (Initial Investment Cost)

— — — — — Purchase cost of the train and additional system work during service opening to accommodate additional passengers

2) Further detailed study for TOD around Udonthani Penitentiary as it is a state agency

Table 5.5-2: Project plan for the development of public transportation in Udonthani Plan 20 years

no	Project	Plan (20 years)																							
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039			
Target 1 : Public transport system will cover large coverage area, connecting to other transport modes in Udonthani.																									
Strategy 1 : Develop a Mass Transit Master Plan for Udonthani																									
1	Udonthani Mass Transit Master Plan 1)																								
	1.1 Red Line	2	3	4	5	6																			
	1.2 Orange Line																								
	1.3 Blue Line																								
	1.4 Green Line				4	5	6																		
	1.5 Pink Line																								
	1.6 Yellow Line								4	5	6														
2	Depot					4	6																		
3	Revision of Feasibility Study of Tram/LRT System														1										
Target 2 : A new standardized public transport system with great efficiency and adequate service quality to all commuters.																									
Strategy 2 : Development of a standardized public transport system with great reliability and service quality.																									
1	Development of Park and Ride	2	3	6																					
Target 3 : A state of art technology, reducing travel costs, energy consumption, and environmental friendliness.																									
Strategy 3 : Development of a mass transit system with a state of art technology with greater accessibility, reducing travel costs, energy consumption, and environmental.																									
1	A feasibility study of the optimum fare system and e ticketing			1	5	6																			
2	Transport Oriented Development (TOD)																								
	2.1 UD Town, Udontani SRT Station, Central Plaza Udonthani	2	3	4	6																				
	2.2 Udonthani SRT Station	2	3		4	6																			
	2.3 Udonthani Penitentiary2)					2	3	4	6																
Strategy 4 : Traffic Management Plan in Udonthani and																									
Strategy 4 : In accordance to the Master Plan and providing																									
1	Traffic Management Plan eg improvements of pavement Traffic management, One way, etc.																								
1.1	Urgent Plan																								
	Improvements of footpaths conditions along the red line and orange line bus transit corridors	2	3	4	6																				
	Improvements of road conditions along the red line and orange line bus transit corridors																								
	Pedestrian crossings conditions along the red line and orange line bus transit corridors																								
	One way Street and Bus lane																								
	Traffic sign on the road network route along the route around the station 500 - 1000 meters																								
	Traffic signs and A new ITS																								
	CCTV and service center for controlling and solving traffic problems																								
	Bicycle route in Udonthani along the public transportation and One-way route																								
	Solving traffic problems at the intersection by traffic Signal Setting																								
	New street lighting in Udonthani Urban Area																								
	Building cooperation with educational institutions in narrowing traffic discipline of students.	7																							
	Public relations and provides concerning in traffic laws.																								
	Training authorities and staffing involved in traffic using and supervision measures																								



no	Project	Plan (20 years)																				
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
	Providing spaces area for people affected by streets trade and stall shops along the route																					
	Motivation and awarded to people who use public transport.																					
1.2	Medium Plan																					
	Improvements of footpaths conditions along the Green line Blue line Pink line and Yellow line bus transit corridors		2	3	4	6																
	Improvements of road conditions along the Green line Blue line Pink line and Yellow line bus transit corridors																					
	Pedestrian crossings conditions along the Green line Blue line Pink line and Yellow line bus transit corridors																					
	Park and ride around of public transport network areas																					
	Car parking Motorcycle parking And bicycle parking spaces on the roadside																					
	Parking and shopping center at Thung Si Mueang area																					
	Extraordinary Transport Systems for all service areas and Control centre																					
	Providing space for those affected by street trade and stall shops Along the route																					
	Improve in the landscape suitable for development in the areas (Red and orange public transport lines)																					
	Development a bicycle network to access the public transport stations.																					
	Promoting the school buses using and staff cars for schools includes government agencies and private sectors	7																				
1.3	Long Term Plan																					
	Development a pedestrian area, Nam Pu Junction Prachaksinlapakhom and the clock tower					2	3	4	6													
	Development of railroad intersection areas In the case of the pubilc development of transportation with rails as a double track train or high speed train																					
	Improvement the landscape suitable with developepment area (Green Blue Pink and Yellow public transport lines)																					
	Congestion charge system at rush hours																					
	Development a complete pedestrian network for pedestrians.																					
	Development a bicycle network to cover the area.																					
	Routes and traffic systems HOV (High Occupancy Vehicle) lane																					
	Setting up a signaling systems for pedestrians to completely																					

Note.

- Feasibility study
- Detailed design and Prepareing tender documents
- Land acquisition and Property compensation
- Construction
- Testing systems
- Opening
- Implementation of the projects planing