Public Transport





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Introduction

In order for a city to provide the most efficient, reliable, cost effective, comfortable, and safe transportation options for the public, it must be controlled by a governing body that understands the unique needs of the region. This is the reason that local public transportation authorities (PTAs), which work directly with the residents and visitors in their cities, are better equipped to make decisions regarding public transportation. Currently, Israel's transportation is managed under a centralized Ministry of Transport and Road Safety, although there have been several attempts to establish metropolitan authorities in Israel. As of today (July 2021), the issue has been proposed again by the Ministry of Finance and is awaiting a government vote.

In this report, research was conducted on four older, well-established PTAs (London, England; Paris, France; Madrid, Spain; Montreal, Canada) and four newer PTAs (Greater Manchester, England; Edinburgh, Scotland; Valencia, Spain; and Auckland, New Zealand). The purpose was to understand the components necessary to form a successful PTA and compare the advantages and disadvantages of different operational methods. In choosing these cities, the quality and success of the public transportation systems was considered, as well as the availability of data and usefulness in relating them to Tel Aviv. The data was then separated into 15 categories covering the organization, finances, responsibilities, and objectives of each PTA.



Photo by Gene Hunt from Flickr

Transport for London (TfL) manages public transportation planning, funding, and operations in the London metropolitan area, under the guidance of the Mayor of London and the publicly elected Greater London Assembly (GLA). Situated in a region with over 100 years of public transportation history and approximately 14.5 million residents, TfL runs a large, well-established transportation network including eight separate transport services such as bus, metro, and railways and works with the regional and national governments to manage road maintenance and planning. Currently, TfL services almost four billion yearly journeys, and aims to increase the share of rides on public transport, improve safety, and reduce emissions.

Highlights

As a city with well-established public transportation, TfL earns almost half of all its income (47%) from fares revenue, a higher proportion than most other cities, although fare prices are considered some of the highest in the world. This money goes directly towards supporting the daily operations of TfL's public transit services, while a smaller amount goes towards investments to improve the transit system. In addition to this source of funding, London has innovated a congestion charge within the busiest zones and times on London's roads, as well as an ultra-low emissions zone in Central London. This zone penalizes cars and other motor vehicles driving within the area that do not meet predetermined emissions standards, while encouraging walking, biking, and the use of public transport.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision- Making	Financing & Budget	Services
London	2000	14,500,000	Set service frequency, plan routes, run stations, manage quality, set fares and procure revenues, and plan improvements/new infrastructure for the Metro, DLR, Overground, TfL Rail, and Trams; Run day-to-day operations of bus services and set contracts for private operators; Manage piers and conduct maintenance; Plan walking & cycling infrastructure	8-17 Board Members; 6- 15 members from London (>50%); appointed by Mayor; Deputy Chair position held by London's Deputy Mayor of Transport	Equal vote weight; Simple majority with tie broken by Chair	Revenue (2019/20): £10.4 billion; Fares Income (47%), Grants from Government Budget (33%), Borrowing and Cash Reserves (8%), Other (12%). Expenditures (2019/20): £7.739 billion; Everyday Operations (79%), Future Improvements (21%)	Bus, Metro, Docklands Light Railway, Overground Trains, TfL Rail System, Trams, Pier management, Ferry service & private boat licensing; Shared road & traffic management
Micro-Mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
Bike Share Partnership, Cycleways, Partnership with boroughs to encourage walking	Transport for London (TfL) controls the "red route" network, which makes up 5% of London's busiest roads; Highways England manages the national motorways network; London boroughs are responsible for all other road maintenance & planning, although they collaborate with TfL for the highway network	Increasing number of trips on public transport, reducing carbon emissions, and preventing road deaths	People choose public transport and consider it clean, accessible, and safe	Taxicard: subsidized taxis and minicabs for Londoners with mobility or sight impairments, and Dial-a-Ride: free door-to-door service for people who can't use public transport. Free or discounted fares on all public transport for the disabled	Wifi and 4G connectivity being added to subway lines and stops. Partnerships with tech companies, such as Bosch and HERE Technologies	Percentage of Londoners using each mode of transport (2018): Car = 35%; Walking = 25%; Bus (including tram) = 14%; Rail = 11%; Underground/DLR = 11%; Cycle = 3%; Taxi = 1%; Motorcycle = 1%	Fares vary greatly based on Zones of the city, but overall are ranked the most expensive in the world. 4.74 pounds for a single metro ticket, 2.06 pounds if using contactless payment. Travelcards can be purchased for unlimited travel on any public transport, and these cost 10.95 pounds for a day or 30.28 pounds for a week



Photo by Sam Valadi from Flickr

Île-de-France Mobilités (IDF Mobilités) is the transport authority for over 11 million people around Paris, France. It is responsible for bus, metro, railway, tram, sea shuttle, cable car, carpooling, and car sharing services. Over twelve million trips are made per day on public transport, over half of which are on the metro. The authority finances these services, plans improvements, oversees operational contracts, and sets fare prices. IDF Mobilités aims to integrate eco-mobility, reduce emissions, conduct urban renewal projects, increase access to culture, and provide better information for tourists and residents.

Highlights

Sustainability is important to every city as a means of reducing waste, encouraging thoughtful engagement with the local environment, and lowering carbon emissions. Paris has taken an innovative approach to these challenges in regards to their public transport. For example, the city is using the heat generated from Metro line 11 to warm twenty local housing units. This out-of-the-box idea produces 35% of the heating needs for the building, with no additional energetic cost. Some buses in the city were also outfitted with green rooftops, which reduces heat, lowers carbon emissions, and promotes awareness of sustainable practices.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision-Making	Financing & Budget	Services
Paris (Île-de- France)	2000	11,130,000	Oversee operational contracts; Create tickets and set prices; Oversee modemization programs: Renewal of trains, Accessibility, Environmental improvements; Decide on extensions and creation of new lines; Promote use of bicycles and carpooling; Financing the public transport service and fare system; Appointing the transport operators; Owner of the rolling stock (after purchase by SGP); Signs contracts with transport companies such as RATP, SNCF, Transdev, Kéolis, RATP Dev, Savac-Lacroix and many others, which are responsible for the proper functioning of the lines entrusted to them and for achieving the quality of service levels set for them (punctuality, accessibility, information, safety, cleanliness) In charge of organizing and developing the public transport service and coordinating all policies related to mobility at the regional level	31 Board Members; 5 members from Paris (16%); Chaired by President of the II-de- France Regional Council	Equal vote weight; Simple majority	Revenue (2018): 10.5 billion euros; Fares Income (37.9%), Public Grants (17.6%), Transport Payment (42.4%), TICPE Tax (0.89%), Other (2.5%); Expenditures (2018): 10.464 billion euros; RAPT Contract (50%), SNCF Contract (31%), School & Inner suburbs bus operations (14%), Operating Costs & Investment Spending (5%)	Bus, Metro, Railway, Trams, Sea Shuttle, Cable Car, Demand- Responsive Transport, Carpooling & Carsharing
Micro- Mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
3 electric scooter partnerships	The French Ministry for Public Works, Housing, Country Planning and Transport is responsible for road maintenance and planning of roads	Integrating eco-mobility, reducing emissions, urban renewal projects, increasing access to culture, have good information for tourists and residents	Time between trains during peak, comparing the number of passengers who experienced more than a 5 minute delay against those who didn't, 50% carbon emissions reduction by 2025	90% of RER stations are equipped with motorised, wide-access ticket gates, 50% fare reduction for disabled people, and citizen mobility travel service for disabled people. Les Compagnons du Voyage: door-to-door service for children, the elderly and persons with disabilities	Restructuring industrial sites to fight urban sprawl and promote social diversity. 4 hectares of green rooftops on RATP assets. Heating buildings with excess heat from metro lines	Percentage of Parisians using each mode of public transport (2017): Metro = 62.4%; RER = 20%; Bus = 13.5%; Tramway = 4%	A single t+ ticket costs 1.92 euros, can be used for the metro, buses, tramway, and the RER. Navigo weekly and monthly passes grant unlimited access to the metro for a week for 22.99 euros or a month for 75.83 euros. Half off Navigo monthly pass for university students, more for younger students. Lower prices for people with disabilities, seniors, children aged 4-10



Photo by Ingolf from Flickr

The Consorcio Regional de Transportes de Madrid (CRTM) covers a metropolitan area of over six and a half million people. It operates the bus, metro, railway, and interchange stations of Madrid. The authority aims for integrating modes of transport and the fare system, and for developing a positive global view of CRTM. It is responsible for coordinating operations between Madrid's 40 public & private service operators, which work together to provide transportation services in and around the city.

Highlights

Improving ease of payment for public transit ensures that more fare revenue makes it into the city's hands. With this in mind, Madrid has launched a new payment card that allows the user to purchase Metro, Light Rail, EMT city bus, urban bus, and suburban bus tickets all from one card: the Multi Card. The card costs 2.50€ to start, can be used for a duration of 10 years, and purchased from all automatic ticket machines in the city, as well as licensed selling points and certain tobacco shops. It can be recharged at those locations, and also at ATMs and information hubs in the city center. The Multi Card makes paying for transit convenient and efficient, though there is currently no way to check the balance or reload money online.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision-Making	Financing & Budget	Services
Madrid	1985	6,799,888	Design of maps, schedules, notices, deviations, etc. and signalling in stations/stops for the metro, light rail, & bus services; Coordinate operations between Madrid's 40 public & private service operators; Marketing of transport tickets; Provide public information through customer service channels; Set fare system for all public transit; Monitor quality of all public transit services	20 Board Members; 3 Members from Madrid (15%); Ministry of Public Works controls the Renfe-Cercanias railway	Equal vote weight; Simple majority with tie broken by Chair	Total Revenue (2017): €2.638 billion; Fares Income (36.1%), Madrid Regional government (51.7%), State government (4.8%), Madrid City Council (5.66%), Local authorities & other regions (1.27%), Commercial income (0.48%) Expenditures (2017): €2.245 billion; Metro de Madrid (37.8%), EMT urban bus services (21.2%), Road transport concessions (21.1%), Rail transport concessions (5.8%), Renfe- Cercanías railway (7.9%), Operational expenses (2.4%), Other (3.7%)	Bus, Metro, Railway, Interchange stations
Micro- mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
Electric scooter services are banned from public space	The national government manages 68% of the road network; the Comunidad de Madrid (regional government) manages the other 32%, repairs bridges, and implements road safety programs	Integrating modes of transport, establish integrated fare system, positive global view of CRTM	Number of tickets sold, distribution of ticket type of those sold, service inspections of external contractors	73% of metro stations have full autonomy for people with disabilities, SIENA project providing visual and audio information urban buses	Implementing a new validation and loading software for the multicar. Introducing new technology to charge metrocards through smartphones. New version of the Security Action Module (SAM) that manages passcodes and signatures. Launch of the Multicard	Modal share by transport method (2018): Private vehicle = 39%; Walking = 34%; Public transport = 24%; Motorcycle = 1%; Taxi = 0.5%; Other = 1%	Single ticket for metro or light rail: 1.51 euros to 2.02 euros. Single ticket for buses: 1.31 euros for 1 zone, up to 5.14 euros for all 6 zones. Discounts for large families, disabled individuals, seniors over the age of 65, the unemployed, children



Photo by Sandra Cohen-Rose and Colin Rose from Flickr

The Société de Transport de Montréal (STM) manages public transportation in the Montreal region for around four and a half million people, under the authority of Autorité Régionale de Transport Métropolitain (ARTM). STM oversees a network of over 1500 buses, along with the city's metro system and cycling infrastructure. Ticket prices for public transport are comparatively high, and transportation options are limited for fully immobilized people. STM is working to address the needs of its residents, with an innovative strategy for the future, and a 70% approval rating from passengers.

Highlights

An effective public transit system is always evolving, and Montreal exemplifies this in their metro system, which is acquiring new AZUR trains. The new trains are bigger, with wider doors and more seats available. They are more resistant to graffiti and scratches, equipped with a high-quality information system, indirect lighting, and improved soundproofing and ventilation. An enjoyable ride is an important component in encouraging use of public transportation, and these new metro cars are a big step in the right direction.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision- Making	Financing & Budget	Services
Montreal	2002	4,427,000	Strategic planning, coordination, financing and pricing of public transit, including paratransit; Set fare rates for bus, metro, & paratransit services; Provide public information on services & customer service; reform of transportation tariff policy; plan and carry out metro extensions	10 Board Members; 2 members from Montreal (20%)	Equal vote weight; Simple majority with tie broken by Chair	Revenue (2011): \$1.251 billion; Fares Income (38%), Quebec Government (13.6%), City of Montreal (28.9%), Montreal Metropolitan Community (6.7%), National Government (5.4%); Expenditures (2011-2020): \$11.484 billion; Metro maintenance & development (49.9%), Metro extensions (14%), Bus maintenance & development (26.3%), Tramway development (9.8%)	Bus, Metro, Shared taxibus (public taxi on regular routes/schedule in areas where regular bus service is not viable; must be booked in advance)
Micro- Mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
Bus & bike shared lanes	Québec's Ministère des Transports is in charge of highway maintenance; Montreal's City Council maintains, repairs, & cleans the roads and sidewalks and carries out new infrastructure projects	Reliable service, upkeep of assets, integrated mobility, and financial solvency	Overall satisfaction, Metro customers on time, Bus punctuality, rate of unavailability of services	Low cost paratransit available, 15 elevator- accessible metro stations with plans to get to 41 by 2025, lower metro prices for 65+	Withdrawal diesel buses in favor of hybrid buses, connecting all metro stations with 3G, 4G, and 4G LTE technologies	Transport by Mode (2016): -Public transport = 55% -Other = 45%	3.58 dollars per single-trip metro ride. OPUS Card: smart card used to pay for fares with discounted versions for students and people 65+ costs 6.12 dollars to purchase the card plus added fares



Photo by Richard Kelly from Flickr

Transport for Greater Manchester (TfGM) is the transport authority responsible for the almost three million people in Greater Manchester, England. It was established in 2011 as part of the Greater Manchester Combined Authority (GMCA) to better organize public transport in the growing region. TfGM services include bus, tram, and railway operations, as well as micro mobility schemes like bike sharing and bike lanes, and shared road management. TfGM aims to move towards carbon neutrality, support sustainable economic growth, reduce congestion, and increase travel by means other than personal cars. Currently, the vast majority of the five and a half million daily journeys in Greater Manchester are made by car.

Highlights

TfGM manages 650km of Manchester's busiest roads, known as the "Key Route Network," which during peak hours contains as much as two thirds of all traffic. This provides an example of one approach to shared road management between a transport authority and their regional and national governments, as the 10 local Manchester Councils are responsible for road maintenance, while TfGM manages improvements and directs the flow of traffic on these roads. TfGM also monitors traffic signals and road safety, and works with the Councils and Highways England for highway management and planning.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision- Making	Financing & Budget	Services
Greater Manchester	2011	2,835,686	Oversee contracts for bus & rail operators; Plan and fund investments in new bus & metrolink infrastructure and expansions; work with the Department of Transportation and Network Rail to plan rail line improvements; Operate bus services for essential journeys in areas with no commercial service; Fund reduced fare programs; Plan & invest in cycling/walking infrastructure; Manage operations and improvements of "Key Route Network" of roads; Monitor traffic flows	33 Committee Members; 5 members from Manchester (15%)	Equal vote weight; Simple majority with ties considered lost	Revenue (2018/19): 159.42 million pounds; Transport Levy (76%), Mayoral Budget (2.5%), Grants (10.7%), Surplus funds (10.9%); Expenditures (2018/19): 159.42 million pounds; Free & Reduced fares (42.4%), Supported Bus Services (17%), Accessible transport (2.9%), Operating costs (32.1%), Financing costs (5.9%)	Bus, Metrolink tram, Rail, "Key Route Network" road management, Car-Sharing
Micro- Mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
Public bike share scheme, "Be e Network" cycling & walking infrastructure	TfGM controls the "Key Route Network" (7% of highways, ½ peak traffic); partners with Highways England and the Manchester Councils to plan highway investments & manage traffic signals and monitor traffic on key roads, coordinates roadwork, promotes safety; Local councils are responsible for maintaining and repairing roads and streetlights	Carbon neutrality, supporting sustainable economic growth, increase non- car travel, improve quality of life	Reduced congestion, better access to jobs and services, more people travelling actively	Concessionary passes for older and disabled people, Ring & Ride and Local Link are low- cost transport services for the mobility impaired	Tram-trains: allows new light rail vehicles to run on the same rail lines as trains. Get Me There Smartcard: enables buying multiple routes through one transaction in an app. Metrolink accessibility is available on Google Maps	Transport by Mode (2018): -Private vehicle = 90% (in city-region); - Other = 10%	One zone tram ticket is 1.21 pounds, two zones costs 2.43 pounds. A Wayfair ticket allows for anywhere travel in GM for a day for 12.68 pounds. Half priced tickets for people under 16 or with a TfGM-issued disabled concessionary pass



Photo by Chris Yunker from Flickr

Transportation for Edinburgh (TfE) is the public transportation authority in Edinburgh, Scotland established in 2013, serving a population of 543,000. The authority owns the bus and tram services of the city, and directly operates bike rental services. TfE focuses on green energy, healthy travel, accessibility, efficiency, safety, and inclusivity. Fares are comparatively cheap, and the majority of trips in the city are made by either public transport, walking, or cycling.

Highlights

As a new and growing public transport authority, Transport for Edinburgh places a heavy emphasis on planning for the future and continued innovation. To this end, the authority creates a five-year plan on the state of the company, its goals, and what it aims to deliver in each of the coming years, with the most recent plan covering 2017-2021. These goals include better integrating the transport and ticketing services, developing more active infrastructure for biking and walking, and reducing emissions 80% by 2050. The report also includes the reasoning behind these changes, making information on what is occurring in public transport and why easily accessible to the public.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision- Making	Financing & Budget	Services
Edinburgh	2013	543,000	A parent company for The City of Edinburgh Council's public transport companies. Lothian Buses: operates approximately 900 buses in Edinburgh and The Lothians. Edinburgh Trams: operates 27 Trams between Edinburgh Airport and The City Centre. Delivers an integrated transport network and transport projects for The City of Edinburgh and The Lothians; Edinburgh Cycle Hire Scheme; Fill and empty the bike stations; Repair bicycles; Help users by providing information; Continue to update and develop the scheme; Edinburgh Wayfinding Project; Creates a user-friendly information system promoting sustainable and active modes of travel and wider exploration of The City	9 Board Members; 4 members from Edinburgh (44%)	Equal vote weight; Simple majority with tie broken by Chair	Revenue (2019): 185.6 million pounds; Fares Income (majority); Expenditures (2019): 193.7 million pounds; Administrative expenses	Bus, Tram, Park & Ride
Micro- Mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
Bike sharing partnership	City of Edinburgh Council (CEC), which owns TfE, is responsible for all road maintenance and planning	Focus on using green energy, healthy travel, accessibility, efficiency, safety, and inclusivity	Carbon emissions, customer satisfaction, journey time variability, injuries, safety, and accessibility	All buses have high accessibility, pin badges available to indicate impairment, free tram access to blind and deaf people with accommodating staff	Mass rapid transit plan involving new bus and tram stops, and arterial routes for public transport. Net-zero carbon emissions by 2030. Smartphone apps to plan public transport trips	Transport by Mode (2019): - Public transport, walking, cycling = 54% -Other = 46%	Tram and bus rates are 1.55 pounds, with cheaper rates for students, children, and disabled people



Photo by Ethan Gruber from Flickr

The Autoridad de Transporte Metropolitano de Valencia (AMTV), founded in 2016, services the 835,000 residents in the Valencia autonomous region of Spain. It is responsible for the planning and management of public transportation, including bus, metro, and rail services, as well as a motorcycle-sharing program and biking/walking infrastructure. 662,000 journeys are made on public transport in Valencia yearly, while over 40% of residents travel by walking, surpassed only by private vehicle trips. The AMTV aims to continue growing in its integration of public transport networks, reduce pollution, and increase equity in its public transport services.

Highlights

Infrastructure supporting micro-mobility, which includes biking, walking, and electric scooters, is an important way to reduce congestion and emissions in cities and promote healthy lifestyles. The AMTV has embraced micro-mobility in Valencia, starting with 137km of bike lane infrastructure. Additionally, the city manages 43.5km of "cycle streets," which are roads designated to favor cyclists with slower speed limits and signage, giving bicyclists right-of-way. "Cycle streets" may be a viable option in areas where building separate bike lanes would pose a challenge. The AMTV also partners with two bike sharing services, "Valenbici" and "Mibisi," to serve the city of Valencia and 10 outlying municipalities. Currently, only 2.43% of yearly transportation trips are by bike, but the AMTV hopes to encourage more cycling and develop regulations for personal mobility vehicles in the future.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision- Making	Financing & Budget	Services
Valencia	2016	835,000	Planning of infrastructure for public transport; Planning & monitoring of all public transport networks and services; Design, approval and management of the tariff regime of the transport services; Management of public service contracts with interurban transport companies and program contracts with transit operators; Work with other public administrations to approve responsibilities and financing of contracts; Collaboration with public administrations for infrastructure investment, spatial planning, and traffic management; Provide information to users and advertising of services; Carry out tasks delegated by the Minister of Mobility	14 Board Members; 5 members from Valencia (36%); Chaired by Valencian Minister of Territorial Policy, Public Works, & Mobility	Equal vote weight; 10 votes needed to pass decisions on planning of networks & services, tariff regime, creation of financing structure, mechanisms of coordination & management; Simple majority for other decisions	Revenue (2019): 115.2 million euros; Transfers from the Generalitat Valencia Autonomous Government (54.2%), Transfers from the Spanish Government (33%), Other (12.8%); Expenditures (2019): 115.2 million euros; Personnel expenses (1.37%), Purchase of goods and services (10.8%), Current transfers (87.7%), Real investments (0.11%)	Bus, Metro, Suburban Rail, Tram, Car-Sharing, Park & Ride
Micro- Mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
3 moto- sharing services, Bike lanes & cycle streets, Personal mobility vehicles	Provincial Council of Valencia (Diputacio de Valencia) handles the construction and maintenance of roads & bridges, installs traffic signs, builds bike lanes	Coordinate service plans, offer services adapted for needs of consumers, lower pollution, increase equity	Reduction in ticket prices, increases in public transport use, improved intermodality, more accessible	Telephone messaging service for people with hearing impairment instead of metro intercom, stations under review for ways to become fully accessible	Collaborating with Spanish universities and research centers to promote innovation. Week of sustainable mobility to examine public transport from the lens of carbon reduction and sustainable living	Transport by Mode (2018): Private vehicles = 41.28% Public transport = 13.57% Walking = 40.91% Bicycle = 2.43% Discretionary bus = 1.2% Taxi, Railway, & Other = <1%	Metro rates range from 0.72 euros to 2.00 euros. Trams and buses have a standard fare of 1.50 euros. Discounted fares for large families, single-parent families, foster care families, pensioners, and retirees



Auckland Transport (AT) offers bus, train, ferry, and park & ride services to the Auckland metropolitan area, serving over one and a half million people. Recently established in 2010, the authority covers over a hundred million yearly public transport trips and encourages walking and cycling as more environmentally-friendly modes of transport. The city places a priority on ensuring that indigenous peoples are represented in transportation planning and building up a rapid transport program. AT is making its rail and bus network entirely run by electricity within the next decade.

Highlights

Public transit has an important role in combating the climate crisis, as a major source of carbon combustion globally. Auckland Transport has placed an emphasis on electrifying its assets in order to lower their carbon emissions. The city is committed to completing electrification of the rail network by 2024/25, as well as turning over the traditional, fuel-consuming buses to newer electric buses. The new buses will not only lower the city's carbon footprint, but will also be more accessible for people with disabilities.

City	Year Founded	Metropolitan Population	Responsibilities	Organizational Structure	Decision-Making	Financing & Budget	Services
Auckland	2010	1,630,000	Identify and contract public transport services on buses, trains and ferries; Monitor and review existing public transport service; Manage and maintain wharves; Manage contracts and services for school buses. Ensure consideration of the environment, information, and public service. Maintain and monitor the local roading network	9 Board Members, including 1 non- voting member from the NZ Transport Agency; 2 members from Auckland (25%)	Equal vote weight; Simple majority	Revenue (2019): \$1.869 billion NZD; Fares Income (11%), Auckland Council (37%), NZ Transport Agency (29%), Other Revenue (18%), Parking & Enforcement Revenue (5%); Capital Expenditures (2019): \$667.5 million NZD; Public Transport (70%), Roads (27%), Other (3%); Expenditures (2019): \$1.232 billion NZD; Public Transport (61%), Roads (35%), Parking & Enforcement (4%)	Bus, Train, Ferry, Park & Ride
Micro- Mobility	Road Maintenance	Objectives	Indicators	Accessibility	Innovation	Transit in Use	Fares
Biking	Auckland Transport carries out local road & footpath maintenance, cleaning,planning, & operating; AT distributes parking permits & maintains street signs; NZ Transport Agency is responsible for maintaining the region's motorways and state highways	Plan rapid transit, increase services and private partnerships, ensure translation to indigenous language	Use of services, proximity of people to public transit options, customer satisfaction, app usage	Ramp-accessible metro stations and trains with automatic ramps. Travel information is displayed electronically with PA announcements at each stop	New electric bus and train fleet with unaided accessible boarding. Completing electrification of the rail network by 2024/25. Developing a common language and data structure for the transport and local government sectors to use, creating a consistent way of defining and describing land transport assets to enable better investment decision-making	Public transport by mode (2019): -Bus = 72.5% -Train = 21.2% -Ferry = 6.25%	Cash rate for 1 zone for bus or train is 4.01 dollars, HOP (reusable card) rate is 2.21 dollars. Lower fares for students and disabled people with an accessible concession card. Free fares for senior citizens

Conclusion

A functioning PTA is adapted to the needs of its metropolitan area. The population size which the PTA serves dictates the scope of its authority, and it is common for newer PTAs to have smaller budgets and provide fewer transportation services. Most PTAs award contracts to private companies to provide and operate transit services, such as buses and trams, although some companies are publicly-owned by the city, such as Lothian Buses and Edinburgh Trams in Edinburgh.

The governance of PTAs is independent from that of state governments, and is composed of boards of varying sizes, based mainly on population with representatives from the city center and metropolitan region. Many of the PTAs receive oversight from the general city government, such as in London, Montreal, Manchester, Edinburgh, and Auckland, but Auckland is the only city to have a leadership position for the national transportation agency. In general, road management is typically delegated to the appropriate national or local authorities.

Most PTAs receive funding from fare revenues and grants from the local city or regional government, with some additional national subsidies. They are all responsible for infrastructure planning and funding, and looking towards the future are working to incorporate more micro-mobility services which promote healthy lifestyles and sustainability. Sustainable practices have become an important emphasis in the last few years, with several electrification projects underway and targets set to reduce fossil fuel emissions.

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