



TCICA

Torres Cape Indigenous
Council Alliance Inc.

Far North Queensland *Freight Equalisation Study*

Prepared for the Torres Cape Indigenous Council Alliance

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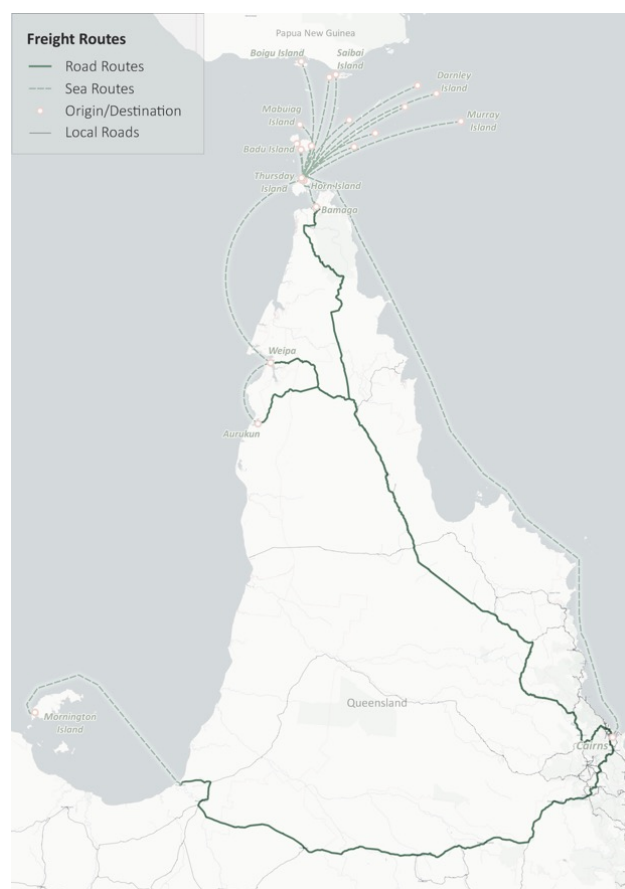
Executive Summary



- The high transportation costs in Cape York Peninsula and Torres Strait Island communities have led to high prices for goods and services and a high cost of living for these remote Queenslanders. Even more pressing, the availability of quality and affordable fresh produce has arguably led to poorer health outcomes amongst remote communities in these regions.
- While these concerns have been historically recognised, little is understood to the total quantitative freight cost burden borne by these remote communities and their contribution to these cost-of-living issues. The aim of this study is to investigate the total freight costs associated with shipping goods to isolated communities from Cairns, the main hub for importing household items in the region.
- Using a case study of six remote locations in Far North Queensland, this report quantifies the potential savings that could be achieved by equalising these costs, by way of the implementation of Freight Equalisation (FE) Scheme.
- Specifically, this study examines the costs associated with road and sea freight routes Weipa, Bamaga, Mornington Island, Aurukun, Thursday Island and Horn Island and the remaining Outer Torres Strait Islands (or OTSIs) collectively. Together, these communities represent over 15,000 people in the region. The routes assessed are depicted in figure below.

The Cost of Living Burden in Far North Queensland

- At present, the region faces high transport costs due to a combination of several factors:
 - The poor condition of the region's road infrastructure, which largely remains unsealed, making it difficult for road freight services to operate
 - Flooding during wet seasons that makes roads impassable, limiting road freight opportunities
 - Poor condition of infrastructure for sea freight and last-mile road infrastructure on many islands, making it more costly for sea transport providers.



- Additionally, the market characteristics of the region exacerbates these cost effects: sparse population levels and high operational costs act as high barriers to entry in local retail and transport markets, leading to the formation of local monopolies for most communities. As a result, consumers are likely to be shouldering the full transportation cost burden, which would otherwise be lowered in more accessible and competitive markets. These monopoly effects itself warrant some form of intervention (whether by government or market design), to improve the market efficiency.
- Historically, government programs have recognised and sought to address the high costs faced by remote communities. However, most have focused on reducing the costs of essentials goods and services, like travel, medicine and education. Where general tax concessions do exist, these are fall short of alleviating the full cost burdens of very remote communities and have not kept pace with rising costs.
- Subsidising freight costs of household goods to remote regions could help lower costs. This study evaluates two household-targeted transport subsidy programs: the historical WA State Shipping Program and the current TMR Regional Rail and Road Freight Subsidies. Together, these programs provide strong policy precedent for a household-targeted freight subsidy scheme in Far North Queensland.

Key Findings of Quantitative Assessment

- This study finds that the total freight cost for shipping household goods to the six case study communities in Far North Queensland is estimated to be between \$28 million to \$43 million in 2021.
- Weipa is found to incur the highest freight cost, between \$11 million and \$17 million, because it is the main population center and attracts the largest quantity of freight by tonnages.
- Shipping to the OTSIs (depicted in map to the right) is the next highest cost, between \$7 million and \$9.2 million. Despite its smaller population levels and freight quantities, its dispersed locations, longer travel distances and limitations in achieving economies of scale, have led to high shipping costs in aggregate.
- In comparison, shipping to Horn Island and Thursday Island (although still high) is slightly lower in aggregate costs, between \$6 million and \$8.2 million.
- Lastly, despite some of the lowest shipping volumes, the freight costs to Bamaga, Aurukun, and Mornington Island also remains relatively high, between \$1.2 million and \$3.6 million a year. Like many of the OTSIs, longer travel distances or limitations in getting better prices because of their smaller population have led to high shipping costs to the region.



Table 1 Total Estimated Freight Cost, 2021 Calendar Year

Case Study Destination	Total Est. Freight Costs (\$)
Weipa	11m to 16.9m
Horn Island/Thursday Island	6.2m to 8.2m
Bamaga	2.7m to 3.6m
Aurukun	1.2m to 1.6m
Mornington Island	2.7m to 3m
OTSI	7m to 9.2m
Total Est.	28.1m to 42.5m

Fiscal and Design Considerations in an FE Scheme

- The study finds that there exists an opportunity to implement a FE scheme valued between \$28 million and \$43 million annually, to the equivalent of existing freight costs between Cairns and 6 case study communities in Far North Queensland.
- An effective FE scheme would ideally reduce the cost of retail household goods, stimulating greater levels of demand and consumption, particularly for under-supplied fresh and quality produce. Further, these would also have important positive flow-on effects to trading regional economies (like Carpentaria Shire and the Cairns Regional Council) where many of the origin freight activities occur.
- Nevertheless, this report is also aware of the challenging macro-economic environment and potential fiscal constraints in government expenditure. Further, previous studies have argued that, while transport subsidy programs can have positive impacts on the local regions, they can come at the expense of net welfare loss to the broader economy.
- To both these concerns, this report raises three significant characteristics of Far North Queensland that should be considered in any future assessment of a proposed FE scheme: namely existing labor mobility preferences, addressing the region's pre-existing monopoly markets, and potential health and welfare improvements from a proposed FE scheme.
- With specific regards to health expenses, the Queensland government currently spends nearly \$1.3 billion in Hospital and Health Services in Far North Queensland. Comparatively, an FE scheme (at the higher end of \$43 million) represents only 4% of this budget. An ideal assessment of an FE scheme should consider the value of potential government health expenditure savings and quality of life improvements, that could result from lower food security issues facilitated by a freight subsidy.
- When considering all these factors together, an FE scheme could improve overall welfare outcomes while potentially remaining fiscally neutral from the perspective of government expenditure.
- Lastly, this report emphasises the need to design a subsidy program that tangibly benefits household end-consumers with lower prices of goods and services. Notwithstanding the potentially important economic benefits an FE scheme, the market design principles of the subsidy are equally important to ensure that the program will meet its intended objectives. To this end, this study provides a high-level outline of important design guiding principles of a proposed FE scheme. These are expanded upon in the body of this report.

① Background

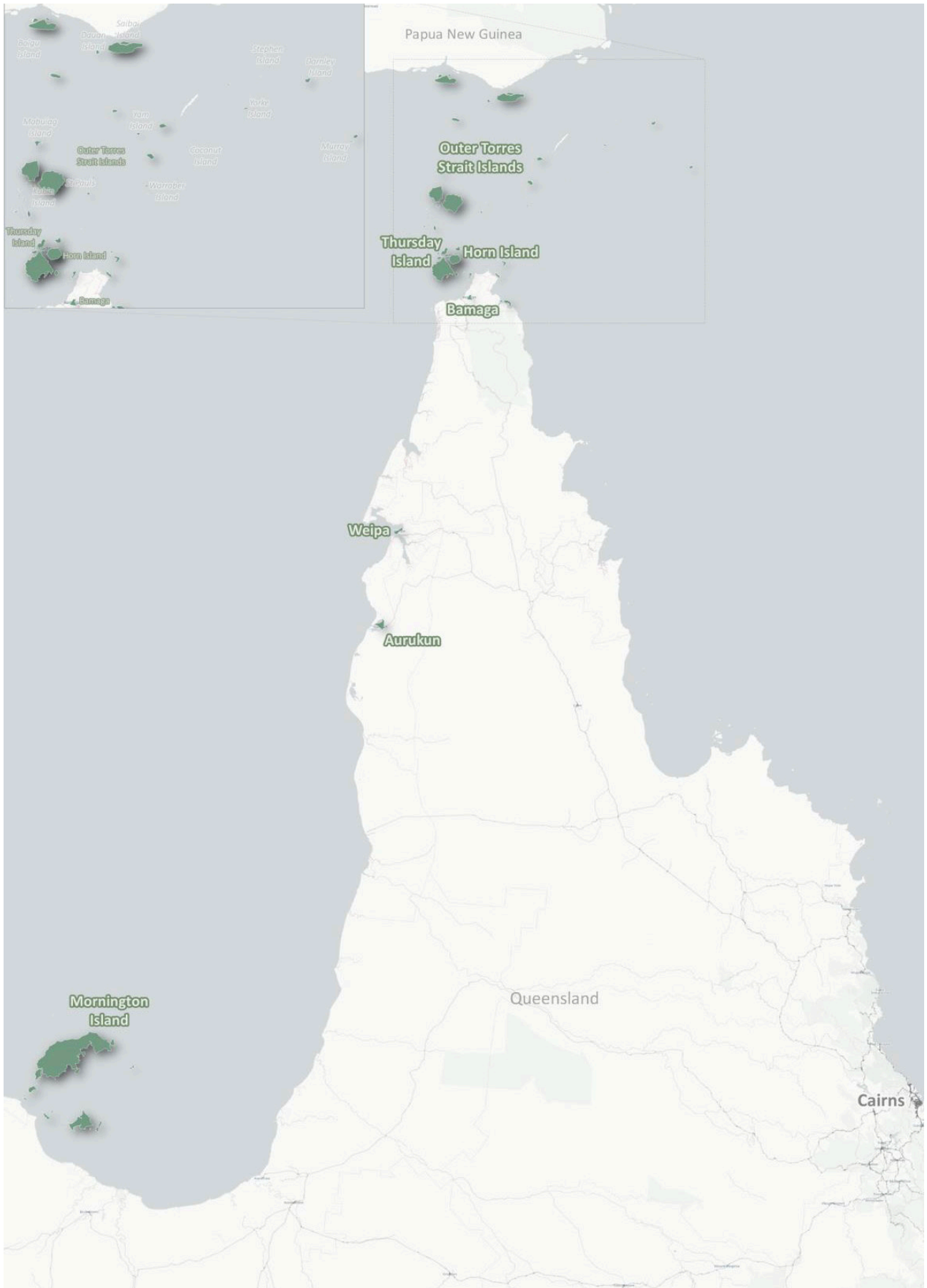


- Geographic remoteness and poor infrastructure have caused high transportation costs in the Cape York Peninsula and Torres Strait Island communities. This has arguably been a key contributor to higher prices for goods and services, and a higher overall cost of living for remote Queenslanders, who are some of the most socially and economically disadvantaged in Australia.
- Communities in the region have a median total family income that is third less than that of families in Queensland as a whole.¹ Additionally, many of these remote and Indigenous communities face significant food security issues, largely due to higher household expenses and difficulty accessing regular, quality produce.
- The recent surge in inflation, fuel prices, and shortages in material inputs have only exacerbated these concerns. Addressing this issue by implementing measures to reduce the cost of living would benefit these remote communities and their regional trade partners.
- This study considers the existing freight cost burden to six case study communities in Torres and Cape region of Far North Queensland:
 - Weipa, with 4,097 residents (ABS 2021 Census)
 - Bamaga (including Seisia), with 1,473 residents
 - Mornington Island (1,025 residents)
 - Aurukun (1,101 residents)
 - Thursday Island and Horn Island (3,338 residents) and
 - The remaining Outer Torres Strait Islands (OTSI), with over 4,000 residents dispersed across 15 islands.²
- The combined population of these case study locations is 15,034 residents. However, broadly speaking these locations act as important regional population centres, and service nearly 35,000 persons when including surrounding areas.
- The purpose of this study is to examine the costs of transporting freight to very remote communities from Cairns, the primary location for regionally importing household goods. Consequently, this study seeks to determine the potential savings of equalising these costs. By analysing a sample of these communities, the study aims to quantify the hypothetical financial impact of reducing the transportation costs for these 6 case study locations.

¹ The median total family income in the TCICA Region is \$69,471 in 2021. In comparison, the median total family income in Queensland was \$105,248 in the same year (Queensland Regional Profiles, Queensland Government Statistician's Office, 2023).

² Resident statistics are derived from the ABS 2021 Census.

Figure 1 Case Study Locations in Far North Queensland



1.1 Drivers of Cost-of-Living Pressure

- Several factors contribute to the high cost of transport and act as barriers to regular provision of freight services in the region:
 - Nearly 200km (or around 40%) of the Peninsula Development Road (PDR), the region's major land-based arterial route, remains unsealed (see Figure 2). This turn raises the operating costs of road freight services to connecting communities, through longer travel times (higher salary costs for operators) and greater maintenance costs (due to greater levels of impairment from poorer road conditions). While there exist plans to seal parts of the PDR, there exists no commitment for its full sealing, which is estimated to cost more than \$500 million and take up to 15 years to complete.³ The absence of a fully sealed land-based route limits opportunities for the development of a competitive road freight industry to service the region.

Figure 2 Peninsula Development Road, Queensland



Source: Compiled by Shashi Karunanethy (2023), using GIS data retrieved from the Cape York Region Package (TMR, 2022).

¹ As informed by TCICA (2023).

- During wet seasons, flooding on existing roads, including the PDR and local roads to coastal communities, makes them impassable. These further limit road freight opportunities, where the region becomes entirely dependent on sea freight.⁴
- Where regions are reliant on sea freight, these are subject to considerably high costs of transport. Many of the Outer Torres Strait Islands and remote coastal communities have ageing ramps and barges, a prevalence of corals that can damage ships, and for some, shallow access channels that are only accessible during high tides. These factors contribute to longer travel times, higher labour and crewing costs, and greater maintenance costs for sea freight operators.
- For almost all case study communities, poor conditions of last-mile road infrastructure significantly impact transport opportunities. Local roads are largely unsealed and in poor condition, particularly between barges and retail stores. As a result, transport operators rely on makeshift operations using less efficient equipment, such as forklifts, to deliver shipments. This is altogether more costly and prone to damaging shipments, and limits opportunities for new, potentially more efficient transport providers to service last-mile delivery options.
- These factors also raise the barriers to entry in the transport market, where only a few operators can realistically service these communities. In some locations (and certainly for some seasons), only one operator services them - resulting in a natural monopoly in the transport market.
- Retail market characteristics have also arguably contributed to higher costs of household goods and items:
 - Low population levels and high operating costs that limit the number of viable retail food operators, leading to local monopoly markets in some communities where only one provider services a single community.
 - High barriers to entry make many of these communities commercially unviable for commercial operators, resulting in non-profit providers such as Salvation Army and IBIS stores filling the gap to provide retail services.
- Overall, the lack of competition in these markets may be resulting in consumers bearing the full transport costs of freight, that would otherwise be lower in more competitive markets. This in turn raises the cost of household items in many of these remote communities.

1.2 A case for government intervention in transport markets

- An array of government programs have historically recognised, and sought to address, the cost burdens faced by remote communities. To date however, most of these programs have focused lowering the cost to *essential* goods and services: for example, subsidising remote air freight for medicine, educational and urgent supplies (RASS scheme);⁵ healthcare through patient travel subsidy schemes; rebates for essential airfare travel for residents, etc.

⁴ It's also important to note that sea freight itself is also significantly affected by seasonal weather and travel time, resulting in longer travel times and higher costs for labour and crewing.

⁵ Remote Air Services Subsidy Scheme.

- Currently, there are no government programs that distinctly target the reduction of cost of general household items - which arguably constitutes the largest expenditure component for these remote communities. Where remote tax concessions exist to offset these costs (such as zone tax offset and the remote area allowance), they frequently fall short in mitigating the full cost burden. Further, these have often not kept up with rising inflationary cost pressures in recent periods.⁶
- Given transport and distance are the key determinants of higher cost burden of these communities, there exists an opportunity to reduce this by subsidising freight costs of household goods to these remote regions. In this regard, policy precedent in transport subsidy programs have largely focused on reducing producers' costs, rather than households'. Some examples of these include the prominent Tasmanian Freight Equalisation Scheme (TFES) and the Queensland Mount Isa Line Incentive Scheme.
- Nevertheless, two notable household-targeting programs are worth highlighting as appropriate precedents for using transport subsidies to address cost of living burdens:

1.2.1 QLD Regional Rail and Road Freight Subsidies

- The Queensland Department of Transport and Main Roads (TMR) currently provides subsidies for rail and road freight services in regional areas through its Regional Freight Transport Services Contract with Linfox, a commercial operator.⁷ According to TMR, this contract aims to ensure that regional communities have access to freight services at reduced rates and that a minimum standard of service is provided.⁸
- The contract covers a range of goods including food, retail products, industrial products, agricultural inputs, and liquor; and accordingly supports over 2,000 of road freight and 200 rail freight services each to interior Queensland, to remote locations such as Longreach, Barcaldine, Emerald and Alpha.
- In the context of this study, the population of these locations and surrounding local government areas serviced by these subsidised contracts is over 34,000 persons - roughly similar in size to that of the Torres Strait, Cape York and the Lower Gulf region.⁹ Further, the median total family income of these subsidised region's is over 50% higher than that of the Torres Strait, Cape York and Lower Gulf region.¹⁰
- The value of the contract (and subsidy) is commercial-in-confidence between TMR and the operator, and the complete value of the subsidy is currently unknown. Nevertheless, the Queensland Parliament Transport, Housing and Local Government Committee estimated that the value of these contracts (which includes the subsidy) was approximately \$140 million in 2012–13 (or \$161 million in today's inflation-adjusted dollar values).

⁶ Remote Area Tax Concessions and Payments Productivity Commission Study Report (2020).

⁷ Previously Aurizon, before these operations were transferred to Linfox).

⁸ Queensland Competition Authority, Part B: Queensland Rail declaration review March 2020.

⁹ Specifically, the combined population of Central Highlands, Longreach and Barcaldine Shire Councils is 34,332; in comparison the total population of Far North Queensland (SA3) and Mornington Island is 33,232 (ABS 2021 Census).

¹⁰ The weighted population average of median weekly household income for Central Highlands, Longreach and Barcaldine Shire Councils is \$1,942; approximately 52% higher than comparison population-weighted median weekly household income for Far North Queensland (SA3) and Mornington (at \$1,306) (ABS 2021 Census).

1.2.2 WA State Shipping Service Program

- The now-defunct program by the Western Australian state government aimed to reduce the costs of sea freight services to remote communities in the state's northwest regions. While the program initially began as a state-run shipping company, it was later reformed in the 1990s to provide a lump-sum subsidy to a single commercial provider.
- Supported by the subsidy, the commercial sea freight provider was responsible for providing coastal shipping services to four remote communities located between Darwin and Fremantle, namely Dampier, Port Hedland, Broome, and Wyndham. The program aimed to overcome the high costs and inefficiency of road freight transportation options, but commercial shipping alone was not considered commercially viable by itself due to the remote location and small population of these communities.
- The subsidy, valued at \$9.5 million per year, was discontinued in 2014, as private operators and the government failed to reach an agreement on renewing the coastal shipping contracts. The operators argued that the subsidy was insufficient to cover the operational losses of servicing these communities. Following the failure to renew contracts, the scheme was discontinued in 2015.
- To date, no publicly available study has evaluated the effectiveness of these two household-targeted transport subsidies. Nevertheless, data from the Queensland Regional Price Index suggests that TMR contracts may have cost-mitigating effects in targeted communities:
 - In 2015, the index identified that prices household goods and services¹² in Emerald were 1.2% lower compared to the State average. Similarly, in Longreach, prices of goods and services were only 2.1% higher compared to the State average.
 - In contrast, other regional and remote locations saw comparatively higher levels of prices: for example, Weipa alone saw 11.5% higher prices compared to the State average in the same year.
 - Although not entirely conclusively, the price index data suggests that there may be some cost-mitigating effects in the targeted communities of the TMR contracts.
- These subsidies highlight the potential to establish household-targeted freight subsidy scheme in Far North Queensland.
- In the case of TMR's rail and road subsidies to interior Queensland, this subsidy aims to explicitly *"reduce 'cost of living' pressures in regional Queensland by providing access to freight at a subsidised rate to meet demand."*¹³
- Based on this objective alone, there exists strong State government policy precedent to extend a household-targeted freight subsidy to other remote regions of Queensland, particularly the very remote regions of the Cape York Peninsula and Torres Strait Islands.
- Further, given the unique market characteristics of Far North Queensland, several other principles should be considered for a proposed freight subsidy scheme. This is to ensure that benefits are fully captured by household consumers. These principles are outlined in the final section of this report.

¹¹ Inquiry into coastal sea freight. Report No. 59 Transport, Housing and Local Government Committee, December 2014.

¹² Excluding the cost of housing.

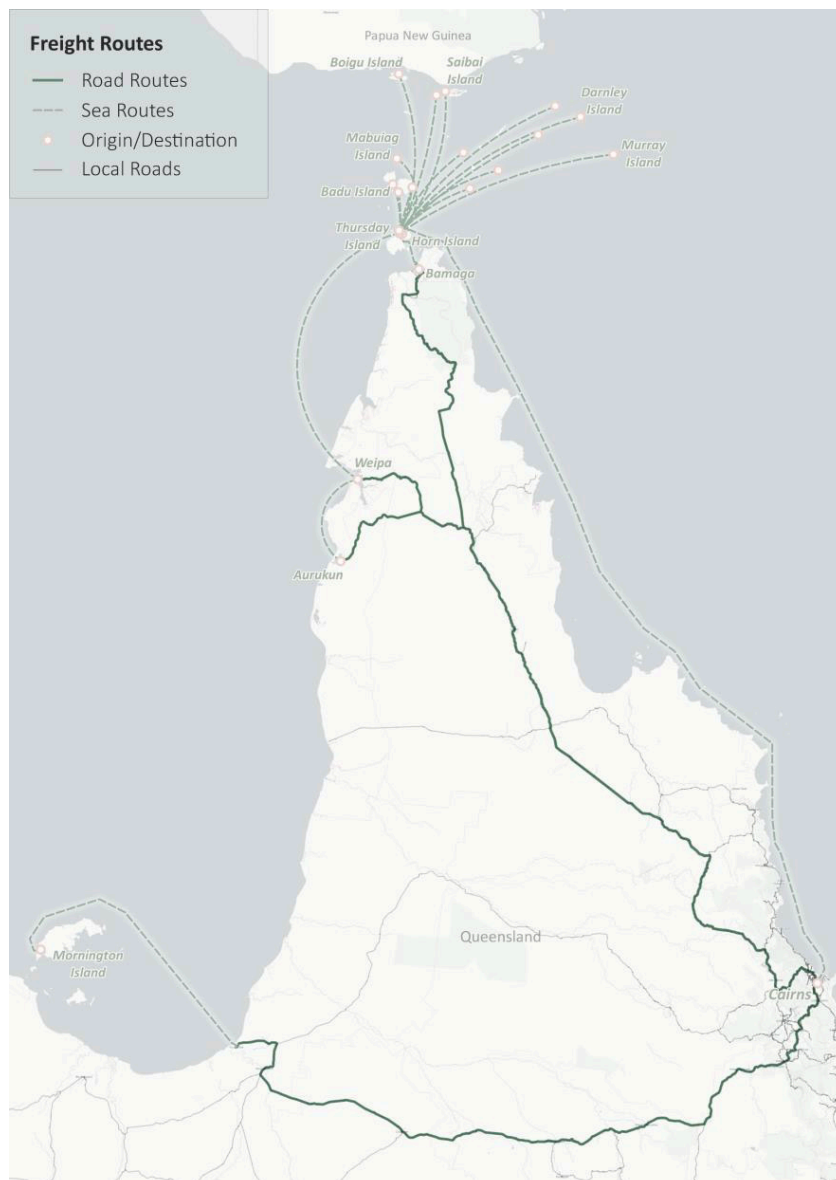
¹³ DTMR, June 2022 (Extracted on 21 Dec 2022 from <https://www.tmr.qld.gov.au/business-industry/Transport-sectors/Rail-services-and-infrastructure/Rail-Transport-Contracts-and-Agreements>).

② The Value of Freight Equalisation to the Region



- The following section outlines the methodology and valuation of contemporary freight costs to the 6 case study communities in Far North Queensland and the OTSIs. The figure below outlines the existing road and sea freight routes used to ship household goods to the remote communities (Figure 3 and 4).
- This study evaluates the total freight costs of road and sea freight routes, for the 2021 calendar year, of shipping retail household goods and items from Cairns, the closest major city centre and regional entrepot for household goods.

Figure 4 Road and Sea Freight Routes to All Case Study Location



Source: Compiled by Shashi Karunanethy (2023), using GIS data from Arup (2022) and in consultation with local freight providers.

2.1 Methodology and Assumptions

- This study qualifies the value of total freight costs and freight equalisation (FE) as synonymous - that is, the total target value of an FE scheme is equal to the current aggregate freight costs to the region.¹⁴
- 2021 freight tonnage estimates are derived in consultation with Sea Swift (the region's main sea freight provider), CSIRO, and other local retail and road transport providers (such as Tuxworth and CEQ):
 - Where possible, real freight tonnage data is used to derive estimates for freight flows to the case study locations. These are informed by consultations with freight providers and primary datasets, as available in the public domain in submission to public enquiries.
 - Where these do not exist, benchmark per capita freight consumption in Far North Queensland is applied to existing population levels of case study locations. This is informed by CSIRO's Transport Network Strategic Investment Tool (or TraNSIT) small-area road freight modelling output¹⁵ and the ABS 2021 Census Place of Usual Residence statistics.
 - These estimates are then triangulated with benchmark freight tonnage data and known traffic flows data by roads and vehicle types to case study locations.¹⁶ Total tonnage supplied is then further verified with actual tonnage demand consumed, in consultation with existing retailers to the region.
- Total freight costs are estimated by applying the freight tonnage estimates to the estimated scheduled freight rates, by freight mode, location, distance, and route quality. Rates are informed in consultation to existing freight providers, with adjustments to exclude cross-geographical subsidies and pro-bono services. Specifically:
 - For 2021 sea freight scheduled rates, these are derived from Sea Swift's Submission to the Parliamentary Enquiry Submission Parliamentary Inquiry into Food pricing and Food security in remote Indigenous Communities. These are escalated to 2021 in consultation with Sea Swift with consideration to changes in the CPI index.
 - For other road and sea freight providers, costs are derived in consultation with freight providers and a sample of anonymised freight quote estimates on hypothetical shipments, from www.freightseek.com.au.
 - These are then triangulated and verified with benchmark regional freight cost rates (from CSIRO's TraNSIT model output) and actual freight costs, in consultation with freight client retailers in the region.

¹⁴ There are, of course, administrative and compliance costs typically associated with government subsidy programs. These are excluded from the analysis, where figures estimated represent an effective lower bound of a hypothetical FE scheme.

¹⁵ For more details on the model and its methodology, refer to <https://benchmark.transit.csiro.au/>

¹⁶ From the Queensland traffic data Averaged by hour of day and day of week datasets (TMR, 2016-2021).

- Further, the following outlines additional assumptions in freight modelling estimates:
 - Presented freight statistics are aggregated to ensure financial confidentiality of retailers/ transport providers in the region.
 - Air freight (although important) is excluded from this study and cost estimates. Consultation finds that there are smaller in quantities, compared to road and sea freight activities. Nevertheless, air freight plays an important role to service regions that are otherwise unreachable during adverse weather conditions and emergencies.
 - Fuel surcharges are excluded from these estimates. These surcharges are applied by operators as a mechanism to reflect variable changes in fuel input costs. While an important determinant of overall freight costs, this study seeks to exclude any significant yet temporary increases in fuel input prices, that may be impacted by current negative global economic conditions.
 - Freight tonnage estimates are focused to household items, including food & grocery, bulky goods and retail products. As such, the estimates exclude freight of fuel, vehicles (for retail or commercial uses) and construction material. In the context of this region, this study effectively excludes consumption directly by local government, the construction sector and the fishing sector (the primary freight consumers in the region).
 - For some locations (such as Weipa, Thursday Island and Horn Island), household item freight estimates may include demand from non-residents, given the prominence of non-resident mining workers and tourists to these regions. For the purposes of this study, we retain their demand in the freight estimates but apply range estimates (where possible) to estimate household consumption.



2.2 Key Findings

- Table 2 illustrates the estimated tonnage of household items freighted to six case study communities in 2021. A total of 83,635 tonnes of household items were transported to the case study locations from Cairns, with nearly 80% of this transported by sea and 20% by road.
- Weipa had the highest demand for household items, with an estimated 39,000 of freight in 2021. Horn Island and Thursday Island, the main population centers in the Torres Strait Islands, followed with nearly 19,000 tonnes of freight in same calendar year.
- Additionally, the Outer Torres Strait Islands (OTSI) collectively received 14,103 tonnes in 2021, which were transhipped to over 15 distinct islands, at an average of 900 tonnes per island community.
- Bamaga was estimated to attract over 7,000 tonnes of freight, while Aurukun and Mornington Island supported over 2,000 tonnes of freight tonnes in the 2021 calendar year.

Table 2 Total Road and Sea Freight Consumed, 2021 Calendar Year

Destination	Total Est. Tonnes
Weipa	39,310
Horn Island/Thursday Island	18,998
Bamaga	7,112
Aurukun	2,060
Mornington Island	2,050
OTSI	14,103
Total Est.	83,635

- Table 3 presents the estimated total freight costs for shipping household items to six case study communities in the 2021 calendar year. The total freight cost for these 6 locations ranges in total from \$28 million to \$42.5 million.
- Weipa incurred the largest freight costs in aggregate terms, between \$11 million and \$16.9 million, due to its size as the primary population and employment center in Far North Queensland.
- The next highest were freight transport to OTSIs, which supported \$7 million and \$9.2 million in aggregate freight costs in 2021. In comparison, freight shipments to Horn Island and Thursday Island had slightly lower costs, between \$6 million and \$8.2 million in the same year. Although the dispersed communities of the OTSIs consumed less freight by aggregate tonnages, the higher costs of shipping, and constraints on achieving economies to scale due to dispersed populations, contributed to the higher freight costs in aggregate terms. Figure 3 depicts the existing freight routes to the OTSIs.
- Lastly, despite lower freight volumes, freight costs to Bamaga, Aurukun, and Mornington Island remained comparatively high, ranging from \$1.2 million to \$3.6 million annually for each location. Like OTSI, these communities face higher costs of shipping and/or constraints in achieving greater economies of scale due to smaller population levels.

Table 3 Total Estimated Road and Sea Freight Costs, 2021 Calendar Year

Destination	Total Est. Freight Costs (\$)
Weipa	11m to 16.9m
Horn Island/Thursday Island	6.2m to 8.2m
Bamaga	2.7m to 3.6m
Aurukun	1.2m to 1.6m
Mornington Island	2.7m to 3m
OTSI's	7m to 9.2m
Total Est.	28.1m to 42.5m

Figure 3 Sea Freight Connections to Case Study Locations in the OTSIs



Source: Compiled by Shashi Karunanethy (2023), using GIS data from Arup (2022) and in consultation with local freight providers.

③ Economic Considerations for an FE Scheme



- The study finds that there exists an opportunity to implement a FE scheme valued between **\$28.1 million and \$42.5 million annually**, to the equivalent of existing costs between Cairns and 6 case study communities in Far North Queensland.¹⁷
- An effective FE scheme would ideally reduce the cost of retail household goods, stimulating greater levels of demand and consumption, particularly for under-supplied fresh and quality produce.
- Notwithstanding the local benefits, the greater levels of stimulated demand would also have important positive flow-on effects to trading regional economies. In this specific case, it could generate greater demand for goods and services from Carpentaria Shire and the Cairns Regional Council, where many of the origin freight shipments and trans-shipment activities occur.

3.1 Fiscal impact considerations of a Freight Equalisation scheme

- Given the challenging macro-economic environment and government spending constraints, there may be concerns to the fiscal impact of such an FE scheme and its net welfare impact to the broader state and national economy.
- When producer-targeted transport subsidy schemes, like the TFES, were assessed, they were previously found to have:
 - Significant and positive welfare benefits to the targeted local region.
 - However, these come at the expense of greater welfare gains, that could have occurred, if labour and capital were re-allocated to comparatively more productive geographies.
 - Consequently, these programs were found to have incurred a net welfare loss to the Australian economy.¹⁸
- These are important factors to consider in the assessment of a proposed FE scheme in Far North Queensland. In respect to these concerns, this study raises 3 distinct characteristics of the region that, on balance, should be considered in any fiscal and net welfare assessment of a scheme. They are:
 1. Labour mobility preferences in the region;
 2. Pre-existing monopoly markets; and
 3. Potential health and welfare improvements to the region.

¹⁷ There are, of course, administrative and compliance costs typically associated with government subsidy programs. These are excluded from the analysis, where figures estimated represent an effective lower bound of a hypothetical FE scheme.

¹⁸ The Tasmanian Freight Subsidy Arrangements, Productivity Commission Inquiry Report, No. 39, 14 December 2006.

3.1.1 Labour mobility in Far North Queensland

- Mobility is significantly constrained in regions like Far North Queensland and the case study communities. Where Aboriginal and Torres Strait Islands make up most of these populations, there exist strong and legitimate land ties, with unique cultural and familial attachments to the country.
- Consequently, residents are less likely to relocate to more affordable or higher wage locations, limiting (in economic parlance) the opportunities for labour to be reallocated to more productive geographies.
- By way of example, in the evaluation of the TFES scheme, the Productivity Commission found that a withdrawal of the subsidy could result in a net welfare gain, as capital and labour could be hypothetically reallocated to more productive locations and businesses (e.g. in Victoria and Melbourne).¹⁹
- While this may be a legitimate claim in Victoria and Tasmania, there exist limited opportunities like these in Far North Queensland, where labour (and to an extent capital) is constrained by strong and recognisable mobility preferences of many of its residents and business owners.
- In the context of this economic consideration, these preferences limit the possibility for a more beneficial counterfactual scenario, where labour and capital could hypothetically be reallocated to more productive locations.
- These preferences (and their effects on any counterfactual welfare improving scenario) must be considered in any future assessment of an FE Scheme.

3.1.2 Monopoly markets and encouraging competition

- As outlined earlier, there exist important monopolies in transport and local retail markets for many of these remote communities. Overall, the lack of competition can result in consumers bearing the full transport costs of freight, that would otherwise be lower in more competitive markets.
- Such monopoly markets typically lead to higher prices and lower consumption levels, where goods are inefficiently being supplied at higher prices and below welfare improving quantities. In this sense, there exists an imperative for some form of intervention (whether by government or market design), to improve the market efficiency.
- A proposed FE scheme could result in stimulate higher levels of consumption, such that new entrants are incentivised to enter the freight transport and local retail market. In this sense, an FE scheme could potentially improve competition levels, while reducing prices in the market, through encouraging the entry (or the threat of entry) of new operators to the region.²⁰
- An assessment of an FE scheme should consider the pre-existing welfare losses from monopoly markets, and the potential competition benefits that could be facilitated from a freight subsidy program.

¹⁹ Tasmanian Shipping and Freight Productivity Commission Inquiry Report No. 69 7 March 2014.

²⁰ For example, empirical studies like Dai & Li (2020) have documented that a subsidy can have an effect of weakening market power of firms subsidised, through encouraging more entrants into the market.

3.1.3 Potential health impacts to the region's communities

- Lastly, the region faces significant food security issues, driven in large part by the higher costs of food items and difficulties to accessing a regular supply of fresh, quality produce. This has potentially resulted in greater level of nutritional issues, poorer health outcomes, and a greater level of government expenditure on healthcare and preventative disease programs.
- The recent draft Gather + Grow Remote Food Security Strategy 2023-2032 (by Health and Wellbeing Queensland) recognised that distance, high fuel costs and reduced buying power from remote retailers are key factors affecting the availability and supply of healthy food options to remote communities. In 2021, Health and Wellbeing Queensland, in partnership with TCICA and LGAQ, delivered a series of Remote Food Security Roundtable discussions in which community and other stakeholders raised freight subsidies and equalisation as a potential pathway towards food security. The Strategy will consider a variety of actions and priorities to holistically strengthen food systems in remote Queensland.
- Unlike other freight subsidy schemes elsewhere in Queensland and Australia, a proposed FE scheme in Far North Queensland could have unique benefits to these food security concerns, by lowering the costs of fresh produce and improving accessibility of such nutritional goods. Research in Australia has demonstrated that improving access through subsidised fruit and vegetables can have positive effects on health outcomes amongst Indigenous people.²¹ An FE scheme that supports accessible and affordable of fresh produce could have similar effects to residents in Far North Queensland.
- On balance, a freight subsidy could also result in an improvement in health and nutritional outcomes, thereby lowering pre-existing government fiscal costs through existing healthcare and preventative disease programs.
- At present, the Queensland Government has allocated \$1.3 billion in expenditure to hospital and health outcomes in Far North Queensland.²² In comparison, the upper bound of these FE scheme estimates (at \$43 million) represents up to 4% of this budget.
- An assessment of an FE scheme should consider the value the potential savings to existing government health and quality of life improvements, that could result from lower food security issues facilitated by a freight subsidy.
- When examining the impact of pre-existing welfare losses, a freight equalisation (FE) scheme could improve overall welfare outcomes while potentially remaining fiscally neutral from the perspective of government expenditure.

3.2 Guiding principles in the design of a Freight Equalisation scheme

- Lastly, this report emphasises the need to design a subsidy program that tangibly benefits household end-consumers with lower prices of goods and services.
- Notwithstanding the potentially important economic benefits an FE scheme, the market design principles of the subsidy are equally important to ensure that the program will meet its intended objectives. Additionally, in the implementation of a freight subsidy scheme for Far North Queensland, it is important to consider the unique market characteristics of the region to ensure that benefits are maximised for household consumers.
- To this end, this study provides a high-level outline of important design guiding principles of a proposed FE scheme:

²¹ Health outcomes of a subsidised fruit and vegetable program for Aboriginal children in northern NSW (Black et al, 2013).

²² Queensland Budget 2021-22.

3.2.1 Complementing infrastructure improvements programs in the region

- There are significant infrastructure needs in the region that contribute to the freight cost burden borne by communities. Poor and unsealed road conditions, coral reef damages, insufficient channel depths, and ageing coastal infrastructure are some important determinants of higher operational costs of freight to the region.
- An FE scheme should complement (and not disincentivise) infrastructure improvement programs that target these issues. In stakeholder consultations, several complementary infrastructure programs were raised. These include:
 - The full sealing of the PDR and local roads, where such improvements could support lower operational costs and the entry of more freight providers – thereby improving the level of competition overall in the market.
 - The expansion of local cold storage and distribution centres, which can support the storage of larger freight volumes, achieving cost-savings from greater economies of scale.
 - Improvement to island and coastal community local road infrastructures (e.g. roads between barge and retail stores in island and coastal communities), to facilitate more local last-mile providers into the market. In remote locations that already have existing sealed local roads between barge and retailers (such as Lockhart River), arrangements between Sea Swift and a local provider (Lockhart Shire Council), ensures that additional time costs and delays are not incurred to the local community. Improvements to local roads in other locations could facilitate similar arrangements.
- This study also raises the possibility that technological gains could also support lower freight costs in the future, for example in drone-piloted airplanes and self-driving vehicles. Even so, these opportunities are predicated on reasonable quality infrastructure (e.g., sealed weather-protected roads for self-driving truck). Quality infrastructure improvements will be necessary to facilitate the adoption of future cost-saving technologies.

3.2.2 A subsidy that is temporary and agnostic to the freight mode

- An FE scheme should ideally be agnostic to the freight mode of the region. Although the region largely relies on sea freight at this point, future opportunities in road improvements and technologies (raised earlier) could support more efficient freight opportunities in road and air. A subsidy should ideally not detract private sector investment into long-term efficiency gains from technological opportunities.
- In the near term, there may be some necessity for a lump-sum subsidy to providers, with added attention for a particular section of the freight journey where realistically only one operator exists. However, these should only be considered as a short-term and temporary solution, to ensure that these do not detract from any long-term opportunities. In the long term, an FE scheme should ideally incentivise businesses to seek out the lowest freight prices in the market (where options are available in the market).
- Further, with consideration to potential future improvements, a subsidy should not disincentivise investment into future technologies or alternative freight mode options into the future. This was raised in consultation with stakeholders, with reference to drone-piloted, fuel-efficient air freight opportunities.
- While the viability of these opportunities is uncertain at this point in time, a subsidy should be phased out as cost-lowering technologies are introduced into the market.

3.2.3 Ensuring household consumers benefit from subsidy

- The design of the FE scheme should ensure that household end-consumers ultimately benefit from tangibly lower prices of goods and services. With regards to the region's health issues, a scheme should result in both lower prices and more regular supply of fresh fruits and vegetables.
- To the extent that a transport subsidy scheme can deliver this, this should be complemented by programs that monitor retail prices in remote communities.
- In addressing these concerns, the Productivity Commissions recommended the implementation of real-time price monitoring and disclosure mechanisms, including unannounced retail price audits, in remote regions of Australia. Such programs should be enacted in complement to transport subsidy schemes to ensure costs-savings are effectively passed on to consumers.

3.3 Conclusion

- This study investigates the high transportation costs faced by remote communities in Cape York and Torres Strait Islands and its impact on the cost of living and health outcomes. The study finds that the total freight costs for shipping household goods to the six case study communities in Far North Queensland is estimated to be between \$28 million to \$43 million in 2021, with Weipa incurring the highest cost, followed by the OTSIs.
- The study also evaluated two household-targeted transport subsidy programs and finds an opportunity to implement a Freight Equalisation (FE) scheme to reduce retail household goods cost for remote regions in Far North Queensland.





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