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Land use transport integration: Gold Coast Light Rail Stage 3 and Maroochydore City Centre

Bruce James

Cities Research Institute – Griffith University
Brisbane, Queensland

b.james@griffith.edu.au

Abstract

Low density urban development supported by high private car mode share is the norm in Australia cities. Integration of land use and transport is consistently advocated in numerous Australia metropolitan regional planning strategies as a sustainable urban planning outcome to help address growing traffic congestion resulting from low density urban development.

The paper examines the delivery of land use transport integration through development of a theoretical framework in the form a set of success factors. The fields of public administration, public policy, organisational behaviour and urban development economics are used to inform the framework. The framework is applied using a multiple-case study approach at two locations in South East Queensland. The framework is a useful tool to assist land use planners and transport planners with aspirations to achieve greater land use transport integration.

1. Introduction

Australian major cities having embraced the advantages high mobility provided by the private car are now struggling to manage negative consequences of continuing growth in traffic congestion. Metropolitan regional land use plans espouse land use transport integration (LUTI) as one approach to deal with these negative consequences by creating more liveable cities. LUTI is a broad concept predicated on improved accessibility by people walking, cycling and using public transport to access their daily activities/destinations (e.g. shops, employment, etc). The focus of this paper is on the delivery of LUTI to achieve the benefits LUTI can bring.

2. Land use transport integration policy settings

Delivering LUTI is evident in regional plans for the major Australian growth cities of Sydney, Melbourne, Brisbane and Perth. Objective 14 in the Sydney Region Plan states "integrated land use and transport creates walkable and 30-minute cities" (Greater Sydney Commission, 2018, p4). Plan Melbourne has a variation of the 30-minute city: "Principal 5: Living locally - 20-minute neighbourhoods" (Department of Environment, Land, Water and Planning, 2017, p6). LUTI is espoused as a broad principle of greater consolidation along public transport corridors and more urban infill in general in the Perth and Peel Region (Department of Planning, Lands and Heritage, 2018).

The Queensland Government's approach to LUTI is consistent with Sydney, Melbourne and Perth. The 2005, 2009 and 2017 South-East Queensland Regional Plans (SEQRP) have consistently provided the policy directions to achieve greater LUTI. SEQRP is the key regional planning document for the two case studies used in this paper.

The relevant desired regional outcomes in the three SEQRP's are:

1. Land use – efficient land use through urban consolidation focussed on transport corridors and around centres, and a growth boundary (referred to as an Urban Footprint) with infill dwelling targets within this boundary.
2. Transport –transport infrastructure integrated with land use to support the dwelling growth targets.

The Queensland state government delegates the delivery of these two desired regional outcomes to local government through their local planning schemes and local infrastructure plans. Each local government planning scheme covered by SEQRP is required to achieve infill dwelling (higher density) targets within a defined urban growth boundary.

The vision statement for the Queensland Department of Transport and Main Roads (TMR), consistent with the SEQRP, espouses liveable regions and active cities through integrating "land use and transport to improve liveability and environmental sustainability", with accessibility as an indicator of success (Department of Transport and Main Roads, 2018, p2).

Yang and Pojanie (2017) using GIS techniques questions the achievement of the LUTI objectives in the three SEQRP's and TMR's vision statement between 2005 and 2011.

3. Method/approach

The research question in the paper looks at the processes land use and transport planners need to do to effectively deliver LUTI in line with the SEQRP requirements.

In response to the research question, the article comprises two stages.

1) A literature review on the concept of integration looking into the fields of public administration, public policy, organisational behaviour and urban development economics to help develop a theoretical success factors framework; and
2) Application of a theoretical success factors framework to two case studies, to assess the relevance of the framework and seeing what is required to achieve LUTI.

Each chosen case study has a different driver; one land use and the other public transport (light rail) infrastructure. The author's direct knowledge of each case study was also a key determinant in selecting the case studies.

4. Key terms and literature review

Defining key terms and understanding the extent of government land use and transport policy levers to achieve 'integration' is important for the development of a theoretical success factors framework. The literature review delves into the fields of public administration, public policy, organisation behaviour and urban development economics to assist in developing the success factors framework. For example, public institutional arrangements are likely to play an important role in the delivering LUTI.

4.1. Key terms

Three key terms, cooperation, coordination and integration, each with different implications, are widely used in public policy and planning settings. A common understanding of each term, defined in Table 1, is important for developing the success factors framework.

Table 1: Policy development and delivery processes

Term	Definition
Cooperation/ collaborate	The development of deliberate relations between autonomous organisations to achieve mutual objectives to gain collaborative advantage (Wood and Gray, 1991). Such arrangements are voluntary between two organisations not involving a third party (Curtis and James, 2004).
Coordination	Policy coordination is more likely to involve a third party, such as a central agency, that coordinates across boundaries without removing the boundaries. Coordination typically reduces duplication and lacunae where organisations perform similar tasks or there is a gap in policy/service delivery (Stead and Meijers, 2009, Peters, 1998).
Integration	Policy integration transcends established policy areas and individual agency responsibilities and is designed to tackle issues (e.g. wicked policy issues such as child abuse, natural disasters, etc) that can't be solved effectively in isolation. Consequently, there are joint decisions and joint outcomes, and in some instances, actors giving up of autonomy through specifically created organisations task with specific responsibilities (e.g. statutory authorities).

4.2. Government land use and transport policy levers

Governments have a wide range of policy levers to achieve LUTI. Curtis and James (2004) identified four groupings of policy levers, as shown in Table 2, available to State and local governments to deliver their stated LUTI policy objectives. These policy levers can be applied passively in response to the market and/or applied actively to facilitate the market.

Table 2: Policy lever groupings available to government

Policy levers	Passive Response	Active Application
Regulation (development controls)	Planning controls that are activated when a development application is lodged.	Prescribed development bonuses for specific development types and outcomes in desired locations.
Pricing (infrastructure charges, development application fees)	Infrastructure charges calculated in response to an approved development application.	Discounted infrastructure charges discounts for prescribed development types and outcomes in specific locations.
Strategic assets (infrastructure, land, transport services)	Infrastructure provision responds to demand (predict and provide).	Bring forward public infrastructure and transport services to support desired development types in desired locations.
Capacity Building (public and private sectors)	Capacity building by its nature is an active application.	Programmes to actively build capability for specific sectors and actors.

4.3. Multi-disciplinary implications

Reviewing the literature about integration as a process is more evident in the fields of organisational science, policy analysis, public administration, and political science than land use and transport planning. Policy coordination, joined-up government, cross-cutting, vertical integration, horizontal integration, matrix management, collateral organisational structure, etc are terms often used to describe policy integration (Stead and Meijers, 2009; Curtis and James, 2004). Stead and Meijers (2009) and Newman, et al (2018) argue that integration using a wide suite of available policy levers is often poorly understood by land use and transport planners.

Stanley and Smith (2013) argue that funding transfers between different levels of government increases the importance of integration across the different levels, even when only one level is responsible for delivery. Infrastructure Australia identified integration as an issue in a discussion paper on value capture (Infrastructure Australia, 2016).

Government agencies are typically vertically hierarchical; that is functionally organised with a hierarchy focused on achieving specific whole of organisation goals. Land use and transport are often discrete agencies at the state government level. Moving from cooperation and coordination, that retains decision making within organisations, to delegating decision making and accountability through horizontal integration across different agencies is challenging for vertical hierarchical organisations. Peters (1998) argues failure to do this can lead to:

1. Redundancy – organisations performing the same task leading to duplication.
2. Lacunae – no organisation performs the necessary task.
3. Incoherence – organisations with the same clients have different goals and requirements.

Integration of the policy levers across different government agencies is therefore more complex in comparison to coordination and cooperation. Wood and Gray (1991) describe this as changing from organisational level dynamics to domain level dynamics. The two case studies explore the challenges of integration in the urban planning and transport planning contexts across both vertical and horizontal hierarchies.

5. Success factors integration framework

Integration complexities are categorised into six perspectives to help develop the success factors framework. The six perspectives are:

1. Political perspectives
2. Institutional and organisational perspectives
3. Economic and financial perspectives
4. Process and management perspectives
5. Behavioural, cultural and incentives
6. Timeframes and scope limits

Behaviours, policies and processes that either facilitate or inhibit integration are presented in turn for each of the six perspectives in Table 3.

5.1. LUTI contextual aspects

LUTI also has contextual aspects that can assist and/or hinder integration. Peters (1998) argues that LUTI within a defined spatial location compared to broader policy implementation has the following advantages for participating actors:

1. Clarity of scope within a defined spatial boundary where specific issues can be defined, understood and resolved, such as which issue is relevant to each actor.
2. Easier identification of relevant policy levers that can be used by the participating actors.
3. Easier enunciation of a vision and definition of problems.
4. Potential identification and quantification of mutual and specific benefits and costs for each actor.

LUTI does however have additional complexity with the private sector being a key actor. The land development industry carry both capital and financial risk, and typically longer timeframes, compared to delivery timeframes for approved transport infrastructure (Stanley and Smith, 2013). Consequently, successful land use development around public transport stations must meet residential and commercial market expectations with sufficient returns on private capital investment (Levine and Inam, 2004). Further, Curtis (2012) adds that successful LUTI requires on the ground action and incentives. Private sector considerations therefore also need to be considered when reading the success factors framework.

Table 3: Integration Framework

Factors	Facilitators	Inhibitors
Political/ perspectives	Convergent ideologies and interests. Actors have equal status and understand each other's needs. Commitment of political leadership. Ability to convey bigger picture and identify cross cutting issues.	Divergent ideologies, views or goals. Perceived loss of power, prestige and strategic position. Lack of political leadership, commitment and backing. Short-term political aspirations / lack of time for integration.
Institutional/ organisational	Standardise procedures and similarity in structures. Central overview, policy clarity and integrated capacity.	Complex decision making implies risks and management difficulties. Fragmentation leads to contradictory mandates and regulations.
Economic/ financial	Corresponding needs/benefits and scarce resources. Perceived gain in resources and willingly share costs and risks. Budget allocation to cross cutting issues/policies.	Costs outweigh benefits. One actor provides resources, another actor receives the benefits. Fear of losing resources – time, money, information, status, legitimacy. Budgets - different cycles, allocated sectorial, resource uncertainty.
Process/ management	Group-centred approaches, geographical proximity. Complementary organisational/ personnel roles. Central overview and coordination capacity utilised. Processes to detect and resolve policy conflicts early. Strategic policy framework to ensure sectoral consistency. Decision-making process to reconcile policy priorities and budgetary imperatives. Ability to deal with diversity of networks and actors.	Inadequate/no systematic inter-sector communication. Feared delays in solution due to coordination/integration. Loss of accountability for policy and service delivery. Lack of management mechanisms to reconcile differences. Policy makers fail to look at overall organisation goals or end-users. Actors over prescriptive in specifying means of delivery. Reluctance to promote inter-sectoral working due to lack of skills.
Behavioural/ cultural/ incentives	Positive attitude and organisation culture to joint working. Good historical relations/trust and positive evaluation of actors. Shared understanding and willingness to cooperate. Incentives reward integration.	Poor historical/personal relations leading to perceived sanctions. Vested interests and different styles of working (e.g. professions). Organisational goals take priority over integration goals. Little or /no reward for helping others achieve their objectives.
Timeframes/ scope limits	Convergent problem definition and clarity of vision. Convergent timeframes.	Lack of understanding of problem and unclear vision. Divergent timeframes.

(Sourced from: Curtis, 2012; Curtis and Mellor, 2011; Geerlings and Stead, 2003; Local Government Association of NSW and Shires Association of NSW, 2012; Mawson and Hall, 2000; Mu and Jong, 2016; Newman, et al (2018); Peters, 1998; Searle, et al, 2014; Stanley and Smith, 2013; Stead and Meijers, 2009; Tan, et al, 2014; Thomas and Bertolini, 2014; van Geet, et al, 2019); Wood and Gray, 1991.

5. Case studies

Two case studies in South-East Queensland (SEQ) were chosen to test the theoretical success factors framework. As stated, one case study is land use driven; that is land use planning leads with public transport infrastructure and private sector urban development in a supporting role. The second case study is a public transport infrastructure project with a private public partnership playing a leading role and land use development potentially in a supporting role.

5.1. South East Queensland regional context

The SEQ region comprises three major urban sub-regions:

1. Brisbane – five local authorities with the Brisbane Central Business District (CBD) as the centre and an overall population of 2.2 million.
2. Gold Coast – one local authority with Southport as the Gold Coast Principal Activity Centre (PAC) and a population of 538,000. The area with the most economic activity is Surfers Paradise to Broadbeach along the coast.
3. Sunshine Coast - two local authorities with Maroochydore as the Sunshine Coast PAC, and an overall population of 331,000.

The remaining western area of the SEQ consists of three semi-rural local authorities with an overall population of 100,000.

The main centres on the Gold Coast are linked to the Brisbane CBD by suburban rail with a light rail network (Stages 1 and 2) within the Gold Coast. Maroochydore has a protected corridor to suburban railway standard connecting to the main Northern Railway just north of Beerwah, known as the Caboolture to Maroochydore Corridor Study (CAMCOS). There currently isn't a constructed dedicated public transport link from Maroochydore to Brisbane.

Generally, the Queensland state government is responsible for delivering public transport infrastructure and local government responsible for land use in line with state government desired outcomes and requirements (i.e. SEQR). Brisbane City Council is the exception as it delivers public transport services and infrastructure due to its history and size. The Commonwealth Government funds major public transport projects at its own choosing. The overlapping roles and responsibilities of the Commonwealth, state and local governments requires both vertical integration and horizontal integration at the project concept, design and delivery level. This is clearly evident for the second case study.

5.2. Maroochydore Sub-Regional Centre

5.2.1. Background

Maroochydore PAC previously comprised a big-box shopping centre (Sunshine Plaza), low rise commercial and a 63 hectare golf course (see Figure 2), which meant that Maroochydore was struggling to be a vibrant sub-regional centre. Efforts by the then Department of Transport to realign the terminus railway station closer to Sunshine Plaza and the centre of Maroochydore met with no interest from the owners of Sunshine Plaza[1].

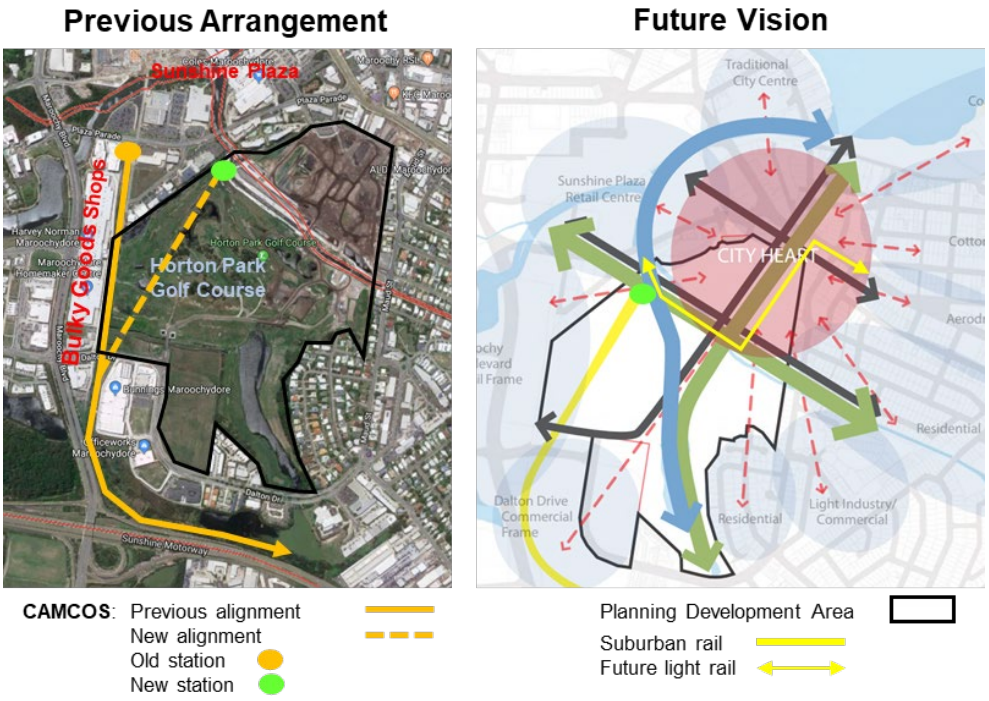
The Sunshine Coast Council (SCC) developed a vision for the Maroochydore PAC to be "the business, community services and employment focus for the Sunshine Coast, with a diverse

[1] The author was responsible for this during his employment with the Department of Transport.

range and choice of housing and an efficient and effective multi-modal public transport system" (Economic Development Queensland, 2018, p10).

To achieve this vision, SCC purchased the low urban use Horton Park Golf Club located in the Maroochydore PAC area, a very challenging political task requiring protracted negotiations with the Golf Club and its members. The golf course purchase allowed the realignment of the CAMCOS corridor to position the terminal station closer to the 'city heart'. The previous station location, as shown in Figure 1, was bounded by the back of bulky goods shops, car parks and the golf course. The delivery timetable of suburban rail to Maroochydore is unknown and relatively expensive. SCC is also striving to develop a light rail link from the future suburban railway station down to Caloundra through Mooloolaba for intra-regional trips.

Figure 1: Previous arrangement and future vision for the Horton Park Golf Club



Relocation of the gold course provided the opportunity to:

1. Develop a large low use site into a higher and better use for an effective sub-regional centre;
2. Realign the suburban railway corridor into a more central position with the station surrounded by high density land uses (see Figure 1); and
3. Align and integrate the proposed future light rail into the 'City Heart'.

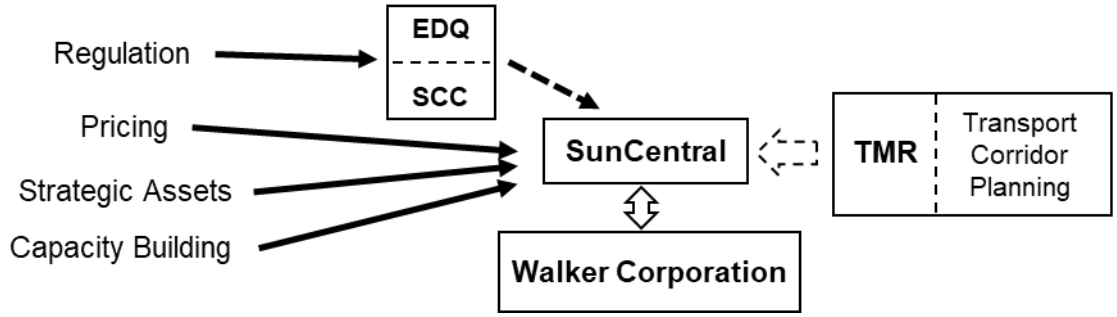
SCC created SunCentral Maroochydore Pty Ltd (SunCentral), wholly owned by SCC with an independent Board of Directors, to deliver SCC's vision for SCC owned land. The objectives of the Board represent a mix of private and public interests, as follows[2]:

1. Facilitate investment in the Maroochydore City Centre Priority Development Area (PDA);
2. Ensure that the new CBD becomes a high density city centre and the identifiable city heart for the wider Sunshine Coast;
3. Achieve an appropriate balance between commercial and non-commercial functions and outcomes; that is public facilities and entertainment that benefits the general community.

[2] Sourced from https://www.Maroochydore-city.com.au on 12 April 2023.

Figure 2 shows the governance arrangements for this case study with the policy levers, as per Table 2, on the left hand side. The state government assisted with the adoption of a Priority Development Area (PDA) planning regulation that sits outside the SCC local planning scheme and is administered by SCC under delegation from Economic Development Queensland (EDQ). SCC and SunCentral entered into a partnership with the private sector (Walker Corporation) in 2020 to deliver commercial development and residential apartments.

Figure 2: Maroochydore Integration



5.2.2. Integration assessment

Table 4 outlines the facilitators and inhibitors for delivering LUTI in the Maroochydore CBD.

Table 4: Success Factors Framework Summary - Maroochydore

Facilitators	
Political and institutional	The creation of SunCentral reflects leadership and a strong political commitment at the local level following the purchase of the Horton Park Golf Course. The role of TMR was passive with SCC taking the lead on realigning the existing suburban railway corridor into the centre of Maroochydore.
Economic and management	SunCentral and SCC share the economic and financial risks in developing infrastructure. It has consistent processes and management structures to proactively support land use development in conjunction with the private sector to deliver agreed 4,000 residential apartments and 160,000 square metres of commercial floor space.
Institutional	The establishment of the PDA includes a much better alignment of a future suburban railway that will support a more vibrant city centre. The PDA also reflects State Government support for the Maroochydore PAC vision.
Inhibitors	
Time frames	The major inhibitor is the divergent timeframe between desires of SCC and State Government on delivery of suburban and light rail public transport infrastructure. The protection of railway corridor removes a major future obstacle to delivery but a lack of funding is the main stalling point. Federal Government funding for the railway and light rail is likely to be a critical in resolving this inhibitor. The uncertainty of the timing of the Brisbane Maroochydore Railway may reduce the appetite of the private sector to develop higher density development adjacent to the railway station.

In summary, the political, institutional, financial, management and behavioural/cultural factors are all positive. The main inhibitor is the divergent time scope for delivery of the suburban railway from Brisbane. Federal Government funding will provide the impetus for the State Government to build the suburban railway from Beerwah.

5.3. Gold Coast light rail stage 3

5.3.1. Background

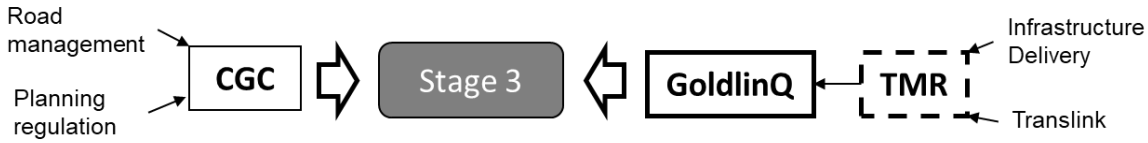
The ultimate plan for the Gold Coast Light Rail is to connect Helensvale with Coolangatta along the Gold Coast Highway through Southport, Surfers Paradise and Burleigh Heads. The Queensland Government contracted GoldLinQ Pty Ltd through a public private partnership (PPP) to design, construct, finance, operate and maintain the Gold Coast light rail system[3]. There are five PPP partners that comprise GoldLinQ; four private investor groups and one public transport operator. There appear to be no urban development investors.

Stage 1 connecting Broadbeach South to Gold Coast University Hospital was completed in July 2014, with the Stage 2 extension from the Gold Coast University Hospital to Helensvale (connecting with the suburban railway to Brisbane) completed in December 2017.The next extensions are Stage 3A (Broadbeach South to Burleigh Heads - now referred to as Stage 3) and Stage 3B (Burleigh Heads to Coolangatta via Coolangatta Airport – now referred to as Stage 4). The amount of high density development along the coast line means the Stage 3 and Stage 4 route essentially follows the "path of least resistance", that is the Gold Coast Highway.

The Queensland Government and City of Gold Coast (CGC) each committed $5 million to progress the Detailed Business Case to analyse options for Stage 3[4] in August 2017. CGC released a preliminary business case in February 2018 that included the station locations (City of Gold Coast, 2018). Funding for Stage 3 from the Queensland Government (A$713.3 million), Australian Government (A$395.6 million) and CGC (A$91.5) was announced in November 2019. The delivery of Stage 3 is focussed on successful operational and project management outcomes with the state government delegating the tendering and delivery to the current light rail operator GoldlinQ, who in turn appointed John Holland through a competitive conventional construction contract tender process to construct Stage 3.

The delivery governance arrangements are shown in Figure 3. CGC plays a supporting role through management of the Gold Coast Highway and land use planning regulation.

Figure 3: Governance arrangements for Stage 3.



The SEQRP identifies the Stage 3 route as an Urban Renewal Corridor with "more compact, mixed-use, connected and active development" (Department of Infrastructure, Planning and Local Government, 2017, p140). CGC retains responsibility for land use planning and regulation along the light rail route and is considering options and mechanisms to achieve integration of land use around the planned Stage 3 light rail stations. Their work is referred to as CURES (Broadbeach South to Coolongatta Urban Renewal and Economic Strategy). Nobby Beach has been identified by CGC as a location for urban revitalisation. Application of the broad suite of policy levers shown in Table 2 appears very limited.

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[3] Sourced from (https://www.goldlinq.com.au/board at 1 April 2022).

[4] Sourced from https://www.tmr.qld.gov.au/Projects/Name/G/Gold-Coast-Light-Rail-Stage-3A on 26 July 2018.

The Burleigh Heads District Centre is the highest ranked activity centre on the Stage 3 route and has many LUTI opportunities, including government ownership of land, if CGC actively choose to use its broad suite of policy levers. CGC's current Local Area Plan aims to balance the existing 'village' theme and provide for sympathetic development of Burleigh Heads.[5]

5.3.2. Integration assessment

Use of conventional construction contracts isn't necessarily conducive to supporting land use transport integration. Hayford (2018) identifies several limitations with conventional contracting, such as:

1. Responsibility and risk allocation that encourages blame games,
2. Fixed prices motivate participants to deliver the minimum requirements,
3. Project design has progressed too far to allow changes; and
4. No incentives to cooperate jointly to make enhancements and solve problems.

The consequence of this delivery method is a focus on on-time and within budget delivery of Stage 3, with the light rail operator GoldlinQ looking to achieve efficient light rail operations along a busy highway. Achievement of LUTI resides with CGC to champion as SEQRP is passive in helping achieve higher development along the light rail route.

A key issue is will CGC apply all of the integration facilitators identified in Table 3 to overcome the potential limitations identified by Hayford (2018) in the delivery of Stage 3. CGC has available four broad governance options to achieve its LUTI objectives along the Stage 3 corridor:

1. Use existing CGC functional structures;
2. Apply matrix management within CGC that cuts across traditional functional boundaries;
3. Create a Council owned company, similar to SunCentral; or
4. Work with the State Government to establish an independent statutory authority will appropriate regulatory powers and assets. Examples include redevelopment authorities in Western Australia and the Queensland Cross River Rail Delivery Authority Act 2016.

There is no public evidence that CGC has chosen option 3 or 4.

5.3.3 Integration Assessment

Table 5 provides a brief assessment of this case study against the integration framework.

Table 5: Success Factors Framework Summary – Gold Coast

Facilitators	
Time frames	The imminent delivery of the light rail is the primary facilitator providing greater certainty to the land development sector.
Inhibitors	
Political, institutional, process and behavioural incentives	There is little evidence of political support, there is currently no visible institutional / organisational arrangement in place to leverage LUTI opportunities, and funding and procurement (that is, public tender process) appears solely focussed on delivery light rail. There is no structural evidence of behaviour and cultural incentives to deliver LUTI and the current short timeframes are focussed on delivering light rail on time and on budget.

[5] https://www.goldcoast.qld.gov.au/gcplanningscheme_0305/Support_files/scheme/06_05_lap_burleigh.pdf# - sourced on 31 August 2023.

6. Discussion

Both state and local governments espouse the mutual benefits of LUTI as a desired outcome in the SEQR and respective local land use plans. The Commonwealth Government espoused similar activities under the guise of value capture (Infrastructure Australia, 2016). The literature and the two case studies show that achieving LUTI is both a complex and challenging task contingent on achievement of several success factors.

The success factors in Table 3 frame the following discussion.

6.1. Political/perspectives

The political perspectives between the two case studies are different. The Maroochydore case study showed strong local leadership to purchase the Horton Park Golf Course. Light rail on the Gold Coast showed active local leadership for the delivery of the light rail, however the same level of leadership is not evident for the land use transport integration opportunities that light rail could potentially leverage. The lack of political leadership in turn will likely hinder the ability of CGC officers to leverage these LUTI opportunities for Stage 3.

6.2. Institutional/organisational

Institutional arrangements at both the state and local government level are a critical success factor to achieve LUTI. Figures 2 and 3 show substantial differences for each case study. The Maroochydore governance arrangement is geared towards land use development with supporting public transport while the Gold Coast is geared to delivery of a light rail project reinforced by the PPP arrangements. SunCentral is the vehicle to achieve the integration facilitators for political/perspectives, institutional/organisational, economic/financial, process/management and behaviour/cultural/incentives as shown in Table 3. Land use integration along Stage 3 is be deemed a supporting activity and not considered critical to successful delivery of the light rail, relying very much on what CGC choose to do.

6.3. Economic/financial

Both case studies require government funding due to the long time frames in the case of Maroochydore and the high capital costs and ongoing subsidies for fare revenue for Gold Coast Stage 3 light rail. SCC were prepared to accept a long term return on investment in the acquisition of the Horton Park Golf Course knowing the high public interest return, especially when the Beerwah Maroochydore Suburban Railway is delivered. The redevelopment of the Golf Course long term could yield a positive financial return dependent the extent of development (yield) and the timeframe to achieve full development.

Stage 3 light rail requires substantial higher upfront infrastructure capital costs, hence the courting of the Commonwealth Government for a substantial funding contribution. Despite the desired land use policy outcomes by both the state and local governments, the funding arrangements provide no encouragement to look beyond funding from general taxation and fare revenue. CGC collects a transport levy that hypothecates funds to transport infrastructure and services, however this is a levy per household across the municipality. Consequently, there is no direct funding relationship to increased property values and higher density development.

6.4. Process/management

SCC created SunCentral as a vehicle to undertake the redevelopment of the Golf Course, including accommodation of the suburban railway and intra-subregional light rail, showing a willingness to promote inter-sectoral activities in both design and delivery. SunCentral and SCC exhibits the process/management facilitators in Table 3. Recently, SCC and SunCentral signed an agreement with the Walker Corporation to leverage private sector investment in redeveloping the old golf course. There is little evidence of similar behaviour to date by CGC in developing a similar institutional arrangement to foster the required facilitators for Stage 3.

A clear issue inhibiting LUTI at the state level is the ongoing use of traditional public transport procurement/PPP methods. Transport agencies typically apply a linear project management approach that strives to manage construction and operational risks and confine responsibilities. The contracting of GoldlinQ to design and construct Stage 3 will hinder therefore inter-sectoral participation. A fundamental rethink is required to include urban land development that, either falls into the realm of public private partnerships or the state undertaking the private land development role within a separate public private partnership. SCC recognises this joint public private role which is evident in the objectives of SunCentral.

6.5. Behavioural/cultural/incentives

The behavioural, cultural and incentive factors are likely the least understood in the integration process; such as the importance of good historical trust, internal support for joint working with external groups and rewards for joint achievement of goals. The emphasis in government is often more on structure and processes to minimise risks, such as budget over-runs, rather than for example the motivation of people to achieve exemplar public benefit outcomes and how they motivate others to work together with them.

Both case studies have highlighted the importance of local government leadership. The Maroochydore example illustrates the proactive role played by the SCC in conveying the vision and the commitment to relocating the golf club, which entailed both political and financial risks. CGC at the political level are highly supportive of Stage 3 although there appears to be limited evidence of actively delivering supporting LUTI initiatives. Additionally, the Queensland State Government with CGC could have taken a much more proactive LUTI role, with a broader range of powers at their disposal, given their high level of capital funding for Stage 3 and ongoing fare revenue subsidies.

6.6. Timeframes/scope limits

The divergent timeframes between the delivery of public transport infrastructure and LUTI is evident in both case studies. More timely delivery of the suburban railway from Brisbane to Maroochydore would provide a real boost to the development of Maroochydore city centre. Conversely, the key strength of the Stage 3 case study is construction is currently underway. Reducing the divergent timeframe issue requires a different planning and procurement approach in the early concept phase for public transport infrastructure before route alignment is determined.

7.1. Implications for transport and land use planners

The success factors framework with the facilitators and inhibitors provides a useful tool for land use and transport planners keen on progressing LUTI. The content of the success factors framework shows the importance of appropriate governance arrangements, with appropriate tools, policies and levers identified in Table 2, to deliver a critical number of the facilitators. The two case studies shows the divergence in the extent of the success factors applied in Maroochydore with good governance arrangements and the missed opportunities for Stage 3 Gold Coast Light Rail with divergent governance arrangements. The success factors framework also highlights the benefits of a proactive leadership approach by either state or local government. The role of the Commonwealth government is limited, albeit very important, to conditions of infrastructure funding.

The challenge for land use and transport planners is to jointly co-design the land use transport integration process at the beginning of the infrastructure planning process. Newman, et al argues the joint agreement by land use planners (i.e. finding out what land use is possible) and transport planners (i.e. estimating public transport patronage) is a good starting point (Newman, et al, 2018). Land use and transport planners also need to jointly apply leadership to obtain political buy in at the starting point.

8. Conclusion

Land use transport integration is a challenging and complex task that requires new approaches to delivering public transport infrastructure. The Commonwealth, state and local governments have the tools available to deliver better land use transport integration. The application of the success factors framework identifies a way forward in delivering the desired outcomes expressed in the regional planning strategies espoused in the various states in Australia. A key challenge for land use planers and transport planners is greater willingness to work together to deliver LUTI.

9. Further Research

Two areas of further research emerge from this paper. Firstly, the inclusion of value capture/sharing and the relevance of the success factors framework in the context of LUTI. A form of value capture is evident in the Maroochydore case study with higher density development of government owned and/or acquired land. Secondly, the inclusion of LUTI and infrastructure delivery through PPP processes highlighted through the Gold Coast case study requires greater exploration to identify how to best incorporate LUTI into major public transport infrastructure projects.

10. Disclosure statement

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