



National Transport Commission

**EXPENDITURE
CATEGORIES FOR A
FORWARD
LOOKING COST
BASE**



Expenditure Categories for a Forward Looking Cost Base

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A1 Recommended Expenditure Categories for a Forward Looking Cost Base

A1.1. The task

The primary task for this component of the project is to recommend a series of expenditure categories that will be suitable for implementing a Forward Looking Cost Base (FLCB). This core output is detailed in section A1.4.3 and supported by the spreadsheet entitled *Cost Allocation Analysis Matrix_Final*.

The secondary task for this component of the project is to provide clear definitions of the proposed FLCB expenditure categories, as detailed in Annexure A2.

It is also important that the approach adopted demonstrates alignment between the proposed FLCB expenditure categories and existing expenditure categories currently in use. In particular, demonstrating alignment of the proposed FLCB expenditure categories with the current PAYGO expenditure categories will provide the NTC with a tool that enables a low impact transition from PAYGO to a FLCB. This alignment of expenditure categories is detailed in Annexure A3.

The final task for this component of the project is to assign the PAYGO cost allocations to the proposed FLCB expenditure categories. This will provide a basis for the NTC to incorporate the proposed FLCB expenditure categories into a FLCB prototype model. The alignment of the PAYGO cost allocations to the proposed FLCB expenditure categories is provided in Annexure A4.

A1.2. The context for this assessment

The NTC report entitled *National heavy vehicle charges: Adopting a life cycle approach using forward looking costs*, states the following:

“The National Transport Commission (NTC) has been working with road agencies from all jurisdictions to explore the viability of adopting a life-cycle approach using forward looking costs. This change in methodology has the potential to fix a number of problems identified with the current PAYGO system, namely:

- volatility in the cost base and charges
- no direct link between revenue and expenditure causing a lack of budget certainty
- limited incentives to meet the needs of road users
- no external cost pressure to promote efficiencies”

It is fundamental that the approach adopted in determining the proposed expenditure categories, to enable the effective implementation of a FLCB, remained cognisant of the core principles set by the Australian Transport Council (a predecessor of the Transport and Infrastructure Council) and the Council of Australian Governments (COAG), as follows:

“National heavy vehicle road use prices should promote optimal use of infrastructure, vehicles and transport modes.

This is subject to the following:

- full recovery of allocated infrastructure costs while minimising both the over and under recovery from any class of vehicle
- cost effectiveness of pricing instruments
- transparency

- the need to balance administrative simplicity, efficiency and equity (e.g. impact on regional and remote communities/access)
- the need to have regard to other pricing applications such as light vehicle charges, tolling and congestion.”

The definitions of PAYGO expenditure categories A to F, including associated sub-categories, incorporate two primary considerations as follows:

- Work Categories (e.g. routine maintenance, periodic maintenance, rehabilitation, etc.)
- Asset Groups (e.g. Pavements, Bridges and Culverts, Road Furniture, etc.)

PAYGO expenditure categories G and H, including associated sub-categories, are not defined according to Work Categories and Asset Groups. Rather, they cover general corporate services, services to road users and other road related payments.

Importantly, this component of the project is not seeking to review or alter the PAYGO expenditure categories. Rather, this component of the project is assessing suitable expenditure categories for the future implementation of a FLCB. The assessment of suitable expenditure categories for a FLCB necessarily included a review of the PAYGO expenditure categories. The current PAYGO expenditure categories are as detailed in Table A1 below:

Table A1: PAYGO Expenditure Categories

PAYGO Expenditure Categories	
A	Servicing and operating expenses
B	Road Pavement and shoulder maintenance
B1	Routine maintenance
B2	Periodic maintenance
C	Bridge maintenance and rehabilitation
D	Road rehabilitation
E	Low cost safety/traffic improvements
F	Asset extension/improvements
F1	Pavement improvements
F2	Bridges
F3	Land acquisition, earthworks, other extension improvement expenditure
G	Other miscellaneous activities
G1	Corporate services
G2	Enforcement of heavy vehicle regulations
G3	Vehicle registration
G4	Driver licensing
G5	Loan servicing
H	Other Road Related Payments
H1	Financial assistance to councils for work on council managed arterials

PAYGO Expenditure Categories	
H2	Payments to councils for contract work on state managed roads
H3	Spending on local access roads in unincorporated areas
H4	Direct spending on council managed local access roads
H5	Any other direct state spending on local access roads

A1.3. Methodology adopted

The methodology adopted is fundamentally based on an in principle assessment, via comparative analysis with industry best practice guides. The best practice guides adopted for analysis purposes in this project are as follows:

- Data Standard for Road Management and Investment in Australia and New Zealand (Austroads 2016), used as the basis for identifying Asset Groups.
- Australian Infrastructure Financial Management Manual (IPWEA 2015), used as the basis for identifying Work Categories.

As noted in section A1.2 above, categories A to F of the PAYGO expenditure categories incorporate consideration of both Work Categories and Asset Groups. As such, the methodology adopted for this component of the project is seeking to follow the same principles embedded within the PAYGO expenditure categories, while ensuring that the proposed FLCB expenditure categories are aligned with the recommended building block model.

PAYGO expenditure categories G and H are a mixture of road related payments and other miscellaneous activities, some directly relevant to the building block model and some required as checks and balances to ensure expenditure reporting is as accurate as possible. The methodology will include consideration of these PAYGO expenditure categories in the context of relevance to the recommended building block model.

The *Austroads Data Standard for Road Management and Investment in Australia and New Zealand* covers many different types of data categories, covering significant detail not directly relevant to this project. For the purposes of this project, the comparative analysis was conducted via reference to the Inventory data category, incorporating the 32 Asset Groups listed in section 8.3 Inventory. Further detail regarding Asset Group definitions, as they relate to proposed FLCB expenditure classifications, is provided in Annexure A2.

The *Australian Infrastructure Financial Management Manual* covers significant content focussed on integrating the disciplines of financial management and asset management. For the purposes of this project, the comparative analysis was conducted via reference to key Work Categories as follows:

- Operating
- Maintenance
- Renewal
- Upgrade
- Expansion

Further detail regarding Work Category definitions, as they relate to proposed FLCB expenditure classifications, is provided in Annexure A2.

The comparative analysis conducted was documented within the supporting spreadsheet entitled *Cost Allocation Analysis Matrix_Final*. This spreadsheet comprises the following worksheets:

- Current Schedule – a replication of the PAYGO cost allocation matrix
- Analysis Matrix – the primary tool used for the comparative analysis
- New Expenditure Categories – a summary of proposed FLCB expenditure categories, which are a result of the methodology summarised below. This list includes FLCB expenditure categories that are proposed for reporting by Road Agencies as well as FLCB expenditure categories where reporting is not expected from Road Agencies but are proposed to allow forecasting of different Asset Groups with different Useful Lives.
- New Categories Agency Reporting – a summary of proposed FLCB expenditure categories, which are a result of the methodology summarised below. This list includes only FLCB expenditure categories that are proposed for reporting by Road Agencies.
- Five worksheets to demonstrate the mapping between the proposed FLCB expenditure categories and PAYGO expenditure categories (as per section A3.1), categorised in accordance with Work Categories as follows:
 - Mapping – Operating
 - Mapping – Maintenance
 - Mapping – Renewal
 - Mapping – Development Upgrade
 - Mapping – Development Expansion

The Analysis Matrix worksheet contains colour coded information, summarised as follows:

- Columns A to C (Orange) – Asset Groups as detailed in the Austroads data standard.
- Columns D to J (Purple) – Asset Group Service Categories
- Column K (Grey) – An in principle assessment of Asset Group relevance to Heavy Vehicles.
- Columns L to AE (Green) – A mapping of the PAYGO expenditure categories to best practice Asset Groups (i.e. Austroads Data Standard) and Work Categories (IPWEA AIFMM).
- Columns AF to AW (Brown) – A representation of indicative ranges for Useful Lives and Approximate Portfolio Ratio, to assist with analysis of potential Asset Group consolidation.
- Columns AX to BG (Blue) – Proposed FLCB expenditure categories, cross referencing Asset Groups and Work Categories and linked to the New Expenditure Categories worksheet.

The following sequential steps provide a succinct overview of the analysis methodology adopted in determining the proposed expenditure categories and associated cost allocations for a FLCB:

1. Hold an internal workshop and subsequent client briefing to discuss and finalise approach.
2. Create a matrix with Asset Groups and Work Categories being on alternate axes.
3. (Column K of Analysis Matrix) Conduct a relevance test via an in principle assessment of each Asset Group, to ensure that the recommended expenditure

categories do not unnecessarily complicate any future consideration of the applicable cost drivers.

4. (Columns L to AE of Analysis Matrix) Map PAYGO expenditure categories to the matrix combination of Asset Groups and Work Categories. This step was informed via reference to the *2016 NTC Expenditure Template Reporting Guidelines* - section 3. This step also included recording any issues identified with the PAYGO expenditure classifications, which require further consideration during the development of proposed FLCB expenditure categories.
5. In order to assist with analysis of potential consolidation of Asset Groups, research was conducted and judgement used to identify indicative ranges for the following:
 - (Columns AF to AN of Analysis Matrix) Useful Life Range
 - informs consolidation of Asset Groups
 - (Column AO to AW of Analysis Matrix) Approximate Portfolio Ratio
 - informs materiality of Asset Groups

Please note that this information is not considered comprehensive and is intended for reasonable comparative analysis purposes only. If this type of information is required to inform a FLCB prototype model, further research will be required in order to increase levels of confidence.

6. (Columns D to J of Analysis Matrix) A summary of proposed Asset Group consolidation recommendations, based on an assessment of service function.
7. Additional cross references with pertinent information to inform potential consolidation of Asset Groups, as follows:
 - Table 2 within the NTC report entitled *National heavy vehicle charges: Adopting a life cycle approach using forward looking costs*, defining asset categories.
 - Further Code List detail from the Austroads *Data Standard for Road Management and Investment in Australia and New Zealand*.
8. A qualitative component with engineering judgement, based on knowledge and understanding of how road authorities typically manage programs, work activities and associated cost capture.
9. Informed by all of the above steps, develop and refine a set of proposed FLCB expenditure categories. The final output evolved from a single tier structure to a two tier structure to enable effective implementation of a FLCB.
10. (Columns AX to BG of Analysis Matrix) Cross reference proposed FLCB expenditure categories against Asset Groups and Work Categories.
11. Clearly document definitions of the proposed FLCB expenditure categories.
12. Document report outputs, findings and recommendations.
13. Circulate draft for peer review and comment.
14. Update draft project deliverables and issue to client for review.
15. Receipt of client comments and associated follow up communications.
16. Assign PAYGO cost allocations to proposed FLCB expenditure categories.
17. Update and finalise draft project deliverables and issue to client for review.
18. On receipt of comments related to updated draft, update final project deliverables and issue to client.

A1.4. Outputs, Findings and Recommendations

The key outputs provided for this component of the project are as follows:

- Challenges with current PAYGO Expenditure Categories – refer section A1.4.1
- Proposed FLCB Expenditure Categories – refer section A1.4.3
- Definitions for proposed FLCB Expenditure Categories – refer Annexure A2
- Mapping of Expenditure Categories – refer Annexure A3
- Assigning PAYGO Cost Allocations to proposed FLCB Expenditure Categories – refer Annexure A4

The above outputs are supported by the spreadsheet entitled *Cost Allocation Analysis Matrix_Final*.

A1.4.1. Challenges with current PAYGO Expenditure Categories

In the context of developing proposed expenditure categories for a FLCB, we considered the following question “Are there any deficiencies with the current PAYGO expenditure categories and their associated definitions?” The key themes identified when considering this question were as follows:

- **Lack of Asset Group granularity**

It is recognised that a greater level of reporting granularity will be required, by Asset Groups, in order to implement a FLCB. This is acknowledged in the NTC report entitled *National heavy vehicle charges: Adopting a life cycle approach using forward looking costs*, as follows:

“For the first phase of implementation (introducing a FLCB for the purposes of setting heavy vehicle charges) the following deliverables would be required...”

- Breakdown of capex estimates by asset class.”

“Most jurisdictions reported future capital works by project, or contract package of works. For example, Town A to Town B Highway upgrade. However, to calculate a jurisdiction’s revenue requirement we require an understanding of the asset categories that make up those projects. This allows us to calculate an appropriate depreciation rate for each asset category.

A number of jurisdictions indicated that the true breakdown may not be known until the completion of a project. However, for the purposes of setting charges using forward looking costs, an estimate of the breakdown is required.”

- **Lack of alignment with road industry direction, in regard to Asset Groups**

With the publication of the Austroads *Data Standard for Road Management and Investment in Australia and New Zealand* in 2016, and the intent for the road industry to progressively implement this data standard over the coming years, it is recognised that the current PAYGO expenditure categories do not directly align. This has been acknowledged via specific reference to the Austroads data standard within the NTC Request for Tenders, as follows:

“The review should consider... Existing efforts to achieve national consistency in the classification of roads (e.g. classification systems developed by Austroads [used for the HVRR asset registers project] and Australian Roads Research Board) and road assets (e.g. Austroads Road Metadata Standard Project).”

- **Over and under reporting of allocated infrastructure costs**

Although the 2016 NTC Expenditure Template Reporting Guidelines explicitly state that:

“The Total Actual Expenditure Template (Section 2, Table 1) is designed to capture all state and territory road construction and maintenance expenditure.”

There has been some historic under and over reporting from road agencies as evidenced by the 2012 Deloitte report entitled *National Transport Commission Review of Reported Jurisdictional Road Expenditure Data*.

The adopted approach utilised the existing PAYGO expenditure categories to inform the comparative analysis and assessment of proposed FLCB expenditure categories. We analysed the existing PAYGO expenditure categories via reference to the details within the 2016 NTC Expenditure Template Reporting Guidelines, with a focus on section 3 Description of Reporting Categories.

In addition to the key themes identified above, we identified a number of potential challenges that road authorities may face when completing expenditure reporting templates. We present below a brief summary of matters that we considered in the development of the proposed FLCB expenditure categories, including identification of recommendations to mitigate FLCB implementation challenges.

1. There are inconsistencies in the definition of PAYGO expenditure categories, as follows:
 - Inconsistent application of work activity categories (i.e. Operating, Maintenance, Renewal, Upgrade, Expansion) for different Asset Groups.

For example, category C groups maintenance and renewal expenditures together for bridges and culverts; whereas pavement expenditures are separated into category B1 for maintenance expenditures separate from category D for pavement renewal and a combination of category B2 and D for renewal of pavement surfacing.

- Exclusion of and ambiguous reference to certain Asset Groups.

For example, there is reference to roadside furniture in category A and reference to road furniture in categories E and F1; however, there is no further explanation to describe which Asset Groups are included within the definition of road furniture or roadside furniture.

Recommendation: Adopt FLCB expenditure categories that provide prescriptive and transparent definitions in the context of Work Categories and Asset Groups.

2. For projects which incur expenditure across multiple Asset Groups, there is a lack of prescriptive guidance regarding how this expenditure split should be conducted by Road Agencies. Examples from the current PAYGO expenditure categories include:

- Splitting out pavement expenditure (for category F1) from major development projects (category F3) and minor development projects (category E)
- Splitting out bridge and major culvert expenditure (for category F2) from major development projects (category F3) and minor development projects (category E)

In the context of Development (Upgrade and Expansion) projects, this issue is acknowledged in the NTC report entitled *National heavy vehicle charges: Adopting a life cycle approach using forward looking costs*, as follows:

“Queensland provided a breakdown of asset categories for each project. It attributed capital expenditure to asset categories using fixed percentages. Queensland’s method was developed as part of its asset management practices.”

This issue is unavoidable for a FLCB, as it is necessary to identify expenditure for different Asset Groups with different Useful Lives. It may be necessary to conduct further investigation into adoption of some common assumptions that can be applied by the NTC.

Recommendation: In consideration of existing data sets available from road agencies, conduct further research into typical mean percentage split of expenditure by Asset Group, for Development (Upgrade and Expansion) projects.

3. For a large number of Asset Groups, there are no PAYGO expenditure categories that explicitly capture renewal expenditure, separate from operating and maintenance expenditure.

There is an opportunity to refine the *2016 NTC Expenditure Template Reporting Guidelines*, to address some of the inconsistencies identified above; however, this may not provide sustained benefits given the intent to move towards the implementation of a FLCB. Rather, greater benefits are likely to be realised via the preparation of NTC Expenditure Template Reporting Guidelines for implementation of a FLCB.

Recommendation: Develop new NTC Expenditure Template Reporting Guidelines, with a focus on expenditure categories that will facilitate the implementation of a FLCB.

A1.4.2. Commentary regarding Work Activity Terminology

This report is recommending using Work Activity definitions as core to describing FLCB expenditure categories. As summarised in section A1.2, reference to the *Australian Infrastructure Financial Management Manual* is made to capture contemporary best practice. Work Activity definitions proposed for adoption in proposed FLCB expenditure categories are as follows:

- Operating
- Maintenance
- Renewal
- Development (Upgrade and Expansion)

Definitions for the recommended Work Categories above are provided in section B2.1 of this report. Following is some commentary to explain the logic and reasoning for recommending

the above Work Categories, as opposed to alternatives associated with historical roads industry terminology or financial management terminology.

The roads industry has historically used Work Activity terminology such as routine maintenance, periodic maintenance, rehabilitation, minor improvements and major projects. Following is a summary of reasons for adopting contemporary terminology defined in IPWEA best practice guides:

- Based on economic and engineering principles, a FLCB should adopt a different cost allocation approach for Operating and Maintenance expenditures. Because Routine Maintenance includes both Operating service provision activities and Maintenance work activities, it is not considered appropriate to use Routine Maintenance as a core Work Activity used to describe FLCB expenditure categories.
- Periodic Maintenance and Rehabilitation activities are both adequately described by the definition of Renewal. For simplicity, the use of the term Renewal is considered appropriate as a core Work Activity used to describe FLCB expenditure categories.
- Based on economic and engineering principles, a FLCB should adopt a common cost allocation approach for Upgrade (or Minor Improvement) and Expansion (or Major Project) expenditure. Therefore, it is not considered necessary to differentiate between Upgrade and Expansion. For simplicity, the use of the term Development is considered appropriate as a core Work Activity used to describe FLCB expenditure categories.

In the context of FLCB expenditure categories, there is a perspective that suggests all capital expenditure should be treated the same. That is, based on economic principles a FLCB may adopt a common cost allocation approach for Renewal and Development expenditure. However, an alternative perspective suggests the use of financial management terminology, such as Opex and Capex (or Capital and non-Capital), is not considered appropriate to describe FLCB expenditure categories. Following are a number of reasons why the use of financial management terminology has not been recommended for FLCB expenditure categories in this report:

- From a forward planning and service provision perspective, Renewal works and Development works have different planning drivers and different service outcomes. Renewal is driven by the need to preserve the existing asset portfolio and results in maintaining existing service levels to road users. Development is driven by the need to enhance capacity via upgrade and expansion of the asset portfolio and results in improving service levels to road users. As such, the grouping of Renewal and Development expenses into a broad financial category of Capital or Capex does not allow the forward planning and service provision distinction to be adequately described.
- In consideration of the anticipated approach to implementing a FLCB, the NTC has identified a staged approach consisting of:
 - Stage 1 – Heavy Vehicle Charges (with FLCB)
 - Stage 2 – Regulatory Reform
 - Stage 3 – Funding Reform

The implementation of Stage 3 is likely to require that revenue is linked to hypothecated allocations. Allocation of funds to Road Authorities will need to be based on robust consideration of service needs to ensure equity. As identified

above, Renewal works and Development works have different service drivers and by extension will have different drivers for funding. In an environment where there is limited funds available to service both Renewal needs (i.e. for existing portfolio preservation) and Development needs (i.e. for upgrade and expansion of the asset portfolio), there will need to be a decision making mechanism to distribute funds to Renewal and Development separately. Therefore, the realisation of benefits in Stage 3 of FLCB implementation will necessitate the separate identification of Renewal and Development expenditures. As such, the use of a broad financial category of Capital or Capex is not considered appropriate.

- Because Road Authorities have different capitalisation policies and processes, a work activity in one Road Authority will be expensed as Opex (or Maintenance) whereas the same work activity in another Road Authority will be capitalised as Capex (or Renewal). Notwithstanding the test of materiality, contemporary asset management and financial management practices require capitalisation of Renewal activities. However, not all Road Authorities have adopted such contemporary practices. A typical example is resurfacing works such as a reseal or thin asphalt overlay. As a result of these differing practices, use of financial terminology such as Capex and Opex (or Capital and non-Capital) is not considered appropriate for defining FLCB expenditure categories, as it will not produce a consistent approach across Road Agencies.

A1.4.3. Proposed FLCB Expenditure Categories

Table A2 below provides a summary of the proposed Expenditure Categories for implementation of a FLCB, as detailed in the supporting spreadsheet worksheet entitled *New Expenditure Categories*. The proposed Expenditure Categories seek to strike a balance between the following considerations:

- Ensuring transparency regarding Asset Groups and Work Categories, to enable reporting that leads to full recovery of allocated infrastructure costs.
- Inclusive of consideration of FLCB requirements, consideration of the broader reform agenda including the potential for linking revenue to hypothecated funding in the future.
- Clarity regarding Work Categories, to ensure alignment with high level service provision principles, as follows:
 - Operating– recurrent expenditure, that does not physically modify an asset, associated with maintaining existing service levels to road users
 - Maintenance – recurrent expenditure, that will physically modify an asset, associated with maintaining existing service levels to road users
 - Renewal – periodic expenditure associated with maintaining existing service levels to road users
 - Development (Upgrade and Expansion) – discretionary expenditure associated with improving service levels to road users.
- Alignment with developing industry data standards, in the context of Asset Group definitions.
- Separate identification of Asset Groups with materially different Useful Lives, to enable effective forecasting of forward works programs.

- Ease of Road Authority reporting, in the context of typical program structures used to capture costs by Asset Groups and work activities.
- Flexibility of model to account for different levels of reporting maturity between road agencies.
- Alignment to the existing PAYGO Expenditure Categories and associated research, in the context of enabling efficient transition to a FLCB.

Table A2: Proposed FLCB Expenditure Categories – Complete List

Proposed FLCB Expenditure Categories – Complete List			
Level 1		Level 2	
A	Operating		
A1	Asset Servicing and Operating Expenses		
A2	Corporate Services		
A3	Corporate Services - separately recovered	A3-1	Heavy Vehicle Regulatory Costs
		A3-2	Vehicle Registration
		A3-3	Driver Licencing
B	Maintenance		
B1	Maintenance - significantly impacted by heavy vehicle dynamic loads	B1-1	Maintenance - Pavement and Pavement Surfacing (incl. Parking)
		B1-2	Maintenance - Bridges and Major Culverts
B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	B2-1	Maintenance - Delineation, Roadside and Drainage
		B2-2	Maintenance - Structures (excl. Bridges and Major Culverts)
		B2-3	Maintenance - M&E, ITS and Lighting
		B2-4	Maintenance - Non Infrastructure Assets
C	Renewal		
C1	Renewal - Pavement (incl. Parking)	C1-1	Renewal – Concrete
		C1-2	Renewal – Flexible
		C1-3	Renewal – Unsealed
C2	Renewal - Pavement Surfacing (incl. Parking)	C2-1	Renewal – Asphalt
		C2-2	Renewal - Sprayed Seal
C3	Renewal - Delineation	C3-1	Renewal - Linemarking
		C3-2	Renewal – Signs
		C3-3	Renewal - Traffic Management Devices
C4	Renewal - Roadside	C4-1	Renewal - Amenities
		C4-2	Renewal – Bins
		C4-3	Renewal – Fences
		C4-4	Renewal - Public Toilets
		C4-5	Renewal - Road Barriers

Proposed FLCB Expenditure Categories – Complete List			
Level 1		Level 2	
		C4-6	Renewal – Shelters
		C4-7	Renewal – Slopes
		C4-8	Renewal - Landscaping and Trees
C5	Renewal - Drainage	C5-1	Renewal - Kerb and Channel (incl. Vehicle Crossings)
		C5-2	Renewal – Pits
		C5-3	Renewal - Table Drains
		C5-4	Renewal - Culverts Minor (Pipes)
C6	Renewal - Structures	C6-1	Renewal – Bridges
		C6-2	Renewal - Major Culverts
		C6-3	Renewal - Retaining Walls and (Other) Structures
		C6-4	Renewal – Tunnels
C7	Renewal - M&E, ITS and Lighting	C7-1	Renewal - Mechanical and Electrical
		C7-2	Renewal - ITS Assets
		C7-3	Renewal - Traffic Signals
		C7-4	Renewal – Lighting
		C7-5	Renewal – Poles
C8	Renewal - Non Infrastructure Assets	C8-1	Renewal - Plant and Equipment
		C8-2	Renewal - Land and Buildings
D	Development (Upgrade and Expansion)		
D1	Development - Land Under Roads and Enabling Works	D1-1	Development - Land Under Roads
		D1-2	Development - Enabling Works
D2	Development - Pavement (incl. Parking)	D2-1	Development - Concrete
		D2-2	Development - Flexible
		D2-3	Development - Unsealed
D3	Development - Pavement Surfacing (incl. Parking)	D3-1	Development - Asphalt
		D3-2	Development - Sprayed Seal
D4	Development - Delineation	D4-1	Development - Linemarking
		D4-2	Development - Signs
		D4-3	Development - Traffic Management Devices
D5	Development - Roadside	D5-1	Development - Amenities

Proposed FLCB Expenditure Categories – Complete List			
Level 1		Level 2	
		D5-2	Development - Bins
		D5-3	Development - Fences
		D5-4	Development - Public Toilets
		D5-5	Development - Road Barriers
		D5-6	Development - Shelters
		D5-7	Development - Slopes
		D5-8	Development - Landscaping and Trees
D6	Development - Drainage	D6-1	Development - Kerb and Channel (incl. Vehicle Crossings)
		D6-2	Development - Pits
		D6-3	Development - Table Drains
		D6-4	Development - Culverts Minor (Pipes)
D7	Development - Structures	D7-1	Development - Bridges
		D7-2	Development - Major Culverts
		D7-3	Development - Retaining Walls and (Other) Structures
		D7-4	Development - Tunnels
D8	Development - M&E, ITS and Lighting	D8-1	Development - Mechanical and Electrical
		D8-2	Development - ITS Assets
		D8-3	Development - Traffic Signals
		D8-4	Development - Lighting
		D8-5	Development - Poles
D9	Development - Non Infrastructure Assets	D9-1	Development - Plant and Equipment
		D9-2	Development - Land and Buildings
E	Other road related payments		
E1	Loan Servicing		
E2	Financial Assistance to councils for work on council managed arterials		
E3	Payments to councils for contract work on state managed roads		
E4	Spending on local access roads in unincorporated areas		

Proposed FLCB Expenditure Categories – Complete List			
Level 1		Level 2	
E5	Direct spending on council managed local access roads		
E6	Any other direct state spending on local access roads		

Table A2 above provides a two tier structure for the proposed FLCB expenditure categories. The primary benefits of adopting a two tier structure are summarised as follows:

Provides greater transparency in regard to the various Asset Groups managed by road agencies, increasing the likelihood of comprehensive expenditure reporting that will enable full recovery of all road costs.

Acknowledging different levels of maturity in program structure across road agencies, a two tier structure provides the option for Road Authority reporting at a rolled up Level 1 or a more granular Level 2. This allows a balance to be struck between administrative simplicity and equity arising from increased transparency.

A two tier structure enables the NTC to adopt a staged approach to FLCB implementation, with a transition from forward programming at Level 1 to a more granular Level 2 forward programming approach.

A two tier structure provides the option to gradually introduce separable components of Level 2 detail into the FLCB model:

- as road agencies improve and align their reporting capabilities over time and/or
- based on a series of assumptions adopted for Level 2 expenditure categories, particularly related to Useful Lives and percentage expenditure split.

Provides guidance as to where further analytic research is required to increase confidence regarding expenditure reporting, particularly at Level 2.

If required, enables the NTC to adopt a ‘soft transition’ from the current PAYGO expenditure categories to the proposed Level 1 FLCB expenditure categories, without having to make a step change to the Level 2 FLCB expenditure categories.

Importantly, not all of the proposed FLCB expenditure categories summarised in Table A2 above are recommended for Road Authority expenditure reporting when the FLCB model is initially rolled out. Rather, some of the level 2 expenditure categories are proposed to allow the NTC to conduct more granular forward looking program forecasts where Asset Groups have differing Useful Lives. Such an approach will necessitate a range of program variables to be developed or assumed, in order for this level of program forecast granularity to be incorporated into a FLCB prototype model.

Table A3 below summarises those FLCB expenditure categories where it is recommended Road Agencies should be providing forecast expenditures, as detailed in the supporting spreadsheet worksheet entitled *New Categories Agency Reporting*.

Table A3: Proposed FLCB Expenditure Categories – Road Agency Reporting Categories

Proposed FLCB Expenditure Categories – Road Agency Reporting Categories		
Category Code	Category Description	Road Agency Reporting Recommended
A	Operating	
A1	Asset Servicing and Operating Expenses	Yes
A2	Corporate Services	Yes
A3	Corporate Services - separately recovered	
A3-1	Heavy Vehicle Regulatory Costs	Yes
A3-2	Vehicle Registration	Yes
A3-3	Driver Licencing	Yes
B	Maintenance	
B1	Maintenance - significantly impacted by heavy vehicle dynamic loads	
B1 -1	Maintenance - Pavement and Pavement Surfacing (incl. Parking)	Yes
B1 -2	Maintenance - Bridges and Major Culverts	Yes
B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	Yes
C	Renewal	
C1	Renewal - Pavement (incl. Parking)	
C1-1	Renewal – Concrete	Yes
C1-2	Renewal – Flexible	Yes
C1-3	Renewal – Unsealed	Yes

Proposed FLCB Expenditure Categories – Road Agency Reporting Categories		
Category Code	Category Description	Road Agency Reporting Recommended
C2	Renewal - Pavement Surfacing (incl. Parking)	
C2-1	Renewal – Asphalt	Yes
C2-2	Renewal - Sprayed Seal	Yes
C3	Renewal – Delineation	Yes
C4	Renewal – Roadside	Yes
C5	Renewal – Drainage	Yes
C6	Renewal – Structures	
C6-1	Renewal – Bridges	Yes
C6-2	Renewal - Major Culverts	Yes
C6-3	Renewal - Retaining Walls and (Other) Structures	Yes
C6-4	Renewal – Tunnels	Yes
C7	Renewal - M&E, ITS and Lighting	Yes
C8	Renewal - Non Infrastructure Assets	
C8-1	Renewal - Plant and Equipment	Yes
C8-2	Renewal - Land and Buildings	Yes
D	Development (Upgrade and Expansion)	
D1	Development - Land Under Roads and Enabling Works	
D1-1	Development - Land Under Roads	Yes
D1-2	Development - Enabling Works	Yes
D2	Development - Pavement (incl. Parking)	
D2-1	Development – Concrete	Yes

Proposed FLCB Expenditure Categories – Road Agency Reporting Categories		
Category Code	Category Description	Road Agency Reporting Recommended
D2-2	Development – Flexible	Yes
D2-3	Development – Unsealed	Yes
D3	Development - Pavement Surfacing (incl. Parking)	
D3-1	Development – Asphalt	Yes
D3-2	Development - Sprayed Seal	Yes
D4	Development – Delineation	Yes
D5	Development – Roadside	Yes
D6	Development – Drainage	Yes
D7	Development – Structures	
D7-1	Development – Bridges	Yes
D7-2	Development - Major Culverts	Yes
D7-3	Development - Retaining Walls and (Other) Structures	Yes
D7-4	Development – Tunnels	Yes
D8	Development - M&E, ITS and Lighting	Yes
D9	Development - Non Infrastructure Assets	
D9-1	Development - Plant and Equipment	Yes
D9-2	Development - Land and Buildings	Yes
E	Other road related payments	
E1	Loan Servicing	Yes
E2	Financial Assistance to councils for work on council managed arterials	Yes
E3	Payments to councils for contract work on state managed roads	Yes

Proposed FLCB Expenditure Categories – Road Agency Reporting Categories		
Category Code	Category Description	Road Agency Reporting Recommended
E4	Spending on local access roads in unincorporated areas	Yes
E5	Direct spending on council managed local access roads	Yes
E6	Any other direct state spending on local access roads	Yes

A2. Definitions for proposed FLCB Expenditure Categories

This section provides recommended definitions for the proposed FLCB expenditure categories. This definition information seeks to provide increased transparency for stakeholder understanding, to drive consistent reporting from road agencies and ultimately lead to more equitable cost allocation to the road users in the short term and more equitable funding decisions in the longer term. These definitions could be used as a core input into a future review of the *NTC Expenditure Template Reporting Guidelines*.

Supporting Commentary: At the time of publishing this report, there is an active Austroads project entitled *AAM2102 Guidelines for Minimum Levels of Asset Componentisation*. The purpose of this project is to develop prescriptive guidance material that will facilitate improved integration of Asset Management and Financial Management disciplines. The project will deliver prescriptive guidance regarding minimum levels of componentisation for complex assets, applicable to State / Territory Road Agencies and Local Government Authorities. There is potential for the Guidelines produced from this project to have a material impact on the definitions for Maintenance and Renewal as captured in this report. The *Austroads Guidelines for Minimum Levels of Asset Componentisation* is due to be published in Q4 of 2017/18.

Recommendation: Upon completion of Austroads project AAM2102 Guidelines for Minimum Levels of Asset Componentisation, the NTC should revisit the definitions provided within the report to ensure alignment with future industry direction.

A2.1. Work Category Definitions

Adopting well defined Work Categories, in conjunction with Asset Groups, is fundamental to the implementation of a consistent approach to forward planning, as required for a FLCB.

A2.1.1. Operating

Operating expenditure is recurrent in nature and is required continuously to provide a service.

Operating transactions are typically relatively small (immaterial) and have benefits which are expected to last less than 12 months. Operating expenditure excludes Maintenance.

Operating expenditure does not physically modify an asset. Operating expenditure includes service provision activities such as cleaning, grass cutting, utility service charges, hazard assessments, condition assessments, fault monitoring and associated administrative and supervision costs.

In relation to commonly used terminology in the road industry, Routine Maintenance includes Operating service provision activities (as well as Maintenance work activities).

A2.1.2. Maintenance

Maintenance expenditure is recurrent in nature and is required continuously to provide a service.

Maintenance transactions are typically relatively small (immaterial) and have benefits which are expected to last less than 12 months. Maintenance expenditure excludes Operating expenses.

Maintenance expenditure will physically modify an asset. Maintenance expenditure includes work activities such as pothole patching, minor patching (<500 m²), edge break repair, shoulder grading, tree trimming, tightening / tensioning of asset elements and minor concrete patching. Maintenance expenditure also includes replacement of asset components where the expenditure is not considered material, such as guidepost replacement or light globe replacement.

In relation to commonly used terminology in the road industry, Routine Maintenance includes Maintenance work activities (as well as Operating service provision activities).

A2.1.3. Renewal

Renewal expenditure is periodic in nature. Renewal includes expenditure on an existing asset or on replacing an existing asset to return the degraded service capability, of the asset, to its original designed capability. Renewal transactions are typically relatively large (material) in value compared with the value of the components of the asset being renewed and have benefits which are expected to last in excess of 12 months.

In relation to commonly used terminology in the road industry, Renewal works include periodic maintenance, rehabilitation and asset replacement works considered material. Material Renewal expenditure is not to be captured as Maintenance, as Renewal benefits are expected to last in excess of 12 months.

Many Renewal projects will include an element of Upgrade within the scope. Where Renewal works include a component of Upgrade, the Upgrade expenditure is to be split out and reported separately as Development.

A2.1.4. Development – Upgrade and Expansion

Upgrade expenditure is discretionary in nature and is associated with improving service levels. Upgrade includes expenditure on an existing asset, which enhances the service capability or function (where an option existed for renewal without the enhanced capability or functionality).

In relation to commonly used terminology in the road industry, Upgrade works are often referred to as minor improvement works.

Expansion expenditure is discretionary in nature and is associated with improving service levels. Expansion includes expenditure that extends the capacity of an existing asset or which creates new assets, to provide benefits to a new group of users.

In relation to commonly used terminology in the road industry, Expansion works are often referred to as major projects.

For the purposes of cost allocation, Upgrade and Expansion expenditure will be reported together and referred to as Development expenditure. Development expenditure will increase operating, maintenance and renewal expenditure because of the increase in asset portfolio.

Many Development projects will include an element of Renewal within the scope. Where Development works include a component of Renewal, the Renewal expenditure is to be split out and reported separately as Renewal.

A2.2. Definitions for Proposed FLCB Expenditure Categories

A2.2.1. (A) Operating

(A1) Asset Servicing and Operating Expenses

Operating expenditure on assets, which does not physically modify an asset (i.e. excluding Maintenance), such as costs related to cleaning, grass cutting, utility service charges, hazard assessments, condition assessments, fault monitoring and associated administrative and supervision costs related to the following Asset groups:

- Pavement and Pavement Surfacing (incl. Parking)
 - *Land Under Road*
 - *Pavement*
 - *Pavement Surfacing*
 - *Parking*
- Delineation
 - Linemarking
 - Signs
 - Traffic Management Devices
- Roadside
 - Amenities
 - Bins
 - Fences
 - Public Toilets
 - Road Barriers
 - Shelters
 - Slopes *
 - Landscaping and Trees
- Drainage
 - Kerb and Channel (including Vehicle Crossings)
 - Pits
 - Table Drains
 - Culverts Minor (Pipes) **
- Structures
 - Bridges ***
 - Major Culverts
 - Retaining Walls and (Other) Structures ****
 - Tunnels ***

- M&E, ITS and Lighting
 - Mechanical and Electrical *****
 - ITS Assets
 - Traffic Signals
 - Lighting
 - Poles *****
- Non Infrastructure Assets
 - Plant and Equipment *****
 - Land and Buildings *****

Expenditure related to event management and emergency services shall be included in expenditure category A1.

Operating expenditure on the following Roadside Asset Groups shall be excluded from expenditure category A1:

- Pathways
- Tactile Paving (on Pathway approaches to pedestrian crossings)
- Public Art

** Slopes Asset Group relates to slope treatments, as opposed to the natural surface. Some examples include chain wire mesh, shotcrete, geofabric and rock bolting.*

*** Minor Culverts are defined as culverts with a cross sectional opening < 6m². Culverts with a cross sectional opening ≥ 6m² are defined as Major Culverts and are considered a structure.*

**** Assets within the following Asset Groups, which are co-located at the site of a Tunnel or Bridge, are considered separate assets (i.e. not part of the Bridge or Tunnel)*

- Pavement
- Pavement Surfacing
- Linemarking
- Signs
- Kerb and Channel
- Pits
- Culverts Minor (Pipes)
- Mechanical and Electrical
- ITS Assets
- Traffic Signals
- Lighting
- Poles

***** (Other) Structures shall include gantries, cantilever structures, noise walls and miscellaneous structures which are not covered by other Asset Groups.*

****** Mechanical and Electrical assets are associated with other infrastructure equipment, such as a Tunnel or Bridge. All stand-alone mechanical and electrical equipment, not associated with other infrastructure assets, is considered Plant and Equipment.*

****** Poles may be associated with any of the other Asset Groups categorised as M&E, ITS and Lighting, with multiple different types of assets potentially being attached to a single pole.*

****** Land and Buildings excludes land under road.*

(A2) Corporate Services

Operating expenditure which is non infrastructure related, associated with the provision of corporate services, for example:

- Corporate public/community services programs
- Corporate support/corporate direction/corporate services programs
- Corporate information and computer services
- Corporate human resource management
- Corporate financial management
- Strategic road planning at a state or regional level
- Accident / safety research
- Insurance premiums relating to road and bridge infrastructure
- Corporate administrative and overhead costs not covered by other expenditure categories under A Operating, B Maintenance, C Renewal or D Development (Upgrade and Expansion), including PPP negotiations.

(A3) Corporate Services - separately recovered

Operating expenditure related to corporate services which already have a separate expenditure recovery mechanism in place, segregated into the following sub-categories:

- A3-1 Heavy Vehicle Regulatory Costs

Includes all heavy vehicle regulatory costs incurred by jurisdictions. For example, this may include on-road vehicle inspections and heavy vehicle monitoring, surveillance and enforcement. Heavy vehicle regulatory costs include all on-going heavy vehicle regulatory costs incurred by jurisdictions, regardless of whether these costs are partially or wholly offset by any income received by jurisdictions from the National Heavy Vehicle Regulator (NHVR) under service level agreements.

- A3-2 Vehicle Registration

Includes costs associated with administering vehicle registration systems, for example:

- Front line functions
- IT costs
- Policy work
- Management.

- A3-3 Driver Licencing

Includes costs associated with administering driver licensing systems, for example:

- Front line functions
- IT costs
- Policy work
- Management.

A2.2.2. (B) Maintenance

(B1) Maintenance - significantly impacted by heavy vehicle dynamic loads

Maintenance expenditure which physically modifies an asset (i.e. excluding Operating), on assets significantly impacted by heavy vehicle dynamic loads, segregated into the following Asset Group sub-categories:

- B1-1 Maintenance - Pavement and Pavement Surfacing (incl. Parking) *

Covers a range of work activities, including but not limited to:

- Pot hole repairs / minor patching
- Crack sealing
- Edge repairs
- Shoulder grading

- B1-2 Maintenance - Bridges ** and Major Culverts ***

Covers a range of work activities, including but not limited to:

- Bridge painting
- Minor concrete patching
- Tightening and tensioning of asset elements
- Replacement of immaterial asset elements (e.g. decking boards)

* The NAASRA (Austroads) criteria for minor patching < 500 m² and major patching > 500 m² shall be used to distinguish between Maintenance and Renewal. Minor patching is categorised as Maintenance and included under expenditure category B1-1, while major patching is categorised as (partial) Renewal and included under expenditure category C1.

** Bridges include core elements such as the superstructure, substructure and foundations. Maintenance expenditure for assets and asset components captured under other Asset Groups, which are associated with a Bridge, shall not be captured under expenditure category B1-2; but will be captured under the appropriate expenditure category as follows:

- B1-1 Maintenance - Pavement and Pavement Surfacing (incl. Parking)
 - Pavement
 - Pavement Surfacing
- B2 Maintenance - minimal or nil impact by heavy vehicle dynamic loads
 - Linemarking
 - Signs
 - Kerb and Channel
 - Pits
 - Culverts Minor (Pipes)
 - Mechanical and Electrical
 - ITS Assets
 - Traffic Signals
 - Lighting
 - Poles

*** Major Culverts are defined as culverts with a cross sectional opening $\geq 6\text{m}^2$. Culverts with a cross sectional opening < 6m² are defined as Minor Culverts and are not considered a structure. Maintenance expenses for Minor Culverts shall be captured under expenditure category B2.

(B2) Maintenance - minimal or nil impact by heavy vehicle dynamic loads

Maintenance expenditure which physically modifies an asset (i.e. excluding Operating), on assets with minimal or nil impact by heavy vehicle dynamic loads' Includes all Asset Groups with the exception of Pavement, Pavement Surfacing, Parking, Bridges and Major Culverts, as follows:

- Delineation, Roadside and Drainage
 - Linemarking
 - Signs
 - Traffic Management Devices
 - Amenities
 - Bins
 - Fences
 - Public Toilets
 - Road Barriers
 - Shelters
 - Slopes
 - Landscaping and Trees
 - Kerb and Channel (including Vehicle Crossings)
 - Pits
 - Table Drains
 - Culverts Minor (Pipes) *
- Structures (excl. Bridges and Major Culverts)
 - Retaining Walls and (Other) Structures
 - Tunnels **
- M&E, ITS and Lighting
 - Mechanical and Electrical
 - ITS Assets
 - Traffic Signals
 - Lighting
 - Poles
- Non Infrastructure Assets
 - Plant and Equipment
 - Land and Buildings

Maintenance expenditure does not need to be segregated into Asset Groups or the associated sub-categories above. However, breakdown into the following sub-categories should be provided if available:

- B2-1 Maintenance - Delineation, Roadside and Drainage
- B2-2 Maintenance - Structures (excl. Bridges and Major Culverts)
- B2-3 Maintenance - M&E, ITS and Lighting
- B2-4 Maintenance - Non Infrastructure Assets

Maintenance expenditure on the following Roadside Asset Groups shall be excluded from expenditure category B2:

- Pathways
- Tactile Paving (on Pathway approaches to pedestrian crossings)
- Public Art

** Minor Culverts are defined as culverts with a cross sectional opening < 6m². Culverts with a cross sectional opening ≥ 6m² are defined as Major Culverts and are considered a structure. Maintenance expenses for Major Culverts shall be captured under expenditure category B1-2.*

*** Tunnels include the core elements of the structure such as portal, buttress, capping beam and barrel. Maintenance expenditure for Pavement and Pavement Surfacing assets, which are associated with a Tunnel, shall be captured under expenditure category B1-1.*

A2.2.3. (C) Renewal

(C1) Renewal - Pavement (including Parking)

All Renewal expenditure related to rehabilitation and replacement of assets within the Pavement Asset Group, or their material components, shall be captured under expenditure category C1. Pavement Renewal expenditure shall be segregated into the following sub-categories:

- C1-1 Renewal - Concrete
- C1-2 Renewal – Flexible *
- C1-3 Renewal – Unsealed **

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

The NAASRA (Austroads) criteria for minor patching < 500 m² and major patching > 500 m² shall be used to distinguish between Maintenance and Renewal. Major patching is categorised as (partial) Renewal and included under expenditure category C1, while minor patching is categorised as Maintenance and included under expenditure category B1-1.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to Pavement Renewal expenditure, the Pavement Renewal expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category C1.

** Flexible pavements include granular unbound, granular bound (modified) and structural asphalt pavement types.*

*** Granular overlays (also referred to as resheets) for Unsealed roadways shall be captured under expenditure category C1-3, as opposed to category C2.*

(C2) Renewal - Pavement Surfacing (including Parking)

All Renewal expenditure related to periodic maintenance and replacement of assets within the Pavement Surfacing Asset Group, or their material components, shall be captured under expenditure category C2. Pavement Surfacing Renewal expenditure shall be segregated into the following sub-categories:

- C2-1 Renewal - Asphalt
- C2-2 Renewal - Sprayed Seal

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

Granular overlays (also referred to as resheets) for Unsealed roadways shall be captured under expenditure category C1-3, as opposed to category C2.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to Pavement Surfacing Renewal expenditure, the Pavement Surfacing Renewal expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category C2.

(C3) Renewal – Delineation

All Renewal expenditure related to periodic maintenance, rehabilitation and replacement of assets within the Delineation Asset Groups, or their material components, shall be captured under expenditure category C3. Delineation Asset Groups include the following:

- C3-1 Renewal - Linemarking
- C3-2 Renewal - Signs
- C3-3 Renewal - Traffic Management Devices

Renewal expenditure for Delineation Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to Delineation Renewal expenditure, the Delineation Renewal expenditure will be determined (calculated or estimated) and reported separately under expenditure category C3.

(C4) Renewal - Roadside

All Renewal expenditure related to periodic maintenance, rehabilitation and replacement of assets within the Roadside Asset Groups, or their material components, shall be captured under expenditure category C4. Roadside Asset Groups include the following:

- C4-1 Renewal - Amenities
- C4-2 Renewal - Bins
- C4-3 Renewal - Fences
- C4-4 Renewal - Public Toilets
- C4-5 Renewal - Road Barriers
- C4-6 Renewal - Shelters *
- C4-7 Renewal - Slopes
- C4-8 Renewal - Landscaping and Trees

Renewal expenditure for Roadside Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to Roadside Renewal expenditure, the Roadside Renewal expenditure will be determined (calculated or estimated) and reported separately under expenditure category C4.

Renewal expenditure on the following Roadside Asset Groups shall be excluded from expenditure category C4:

- Pathways
- Tactile Paving (on Pathway approaches to pedestrian crossings)
- Public Art

** Slopes Asset Group relates to slope treatments, as opposed to the natural surface. Some examples include chain wire mesh, shotcrete, geofabric and rock bolting. Renewal expenses for the Slope Asset Group excludes Retaining Walls, which is captured under expenditure category C6.*

(C5) Renewal - Drainage

All Renewal expenditure related to periodic maintenance, rehabilitation and replacement of assets within the Drainage Asset Groups, or their material components, shall be captured under expenditure category C5. Drainage Asset Groups include the following:

- C5-1 Renewal - Kerb and Channel (incl. Vehicle Crossings)
- C5-2 Renewal - Pits
- C5-3 Renewal - Table Drains
- C5-4 Renewal - Culverts Minor (Pipes) *

Renewal expenditure for Drainage Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to Drainage Renewal expenditure, the Drainage Renewal expenditure will be determined (calculated or estimated) and reported separately under expenditure category C5.

** Minor Culverts are defined as culverts with a cross sectional opening < 6m². Culverts with a cross sectional opening ≥ 6m² are defined as Major Culverts and are considered a structure. Renewal expenses for Major Culverts shall be captured under expenditure category C6 Renewal - Structures.*

(C6) Renewal - Structures

All Renewal expenditure related to periodic maintenance, rehabilitation and replacement of assets within the Structures Asset Groups, or their material components, shall be captured under expenditure category C6. Structures Asset Groups expenditure shall be segregated into the following sub-categories:

- C6-1 Renewal – Bridges ***
- C6-2 Renewal - Major Culverts *
- C6-3 Renewal - Retaining Walls and (Other) Structures **
- C6-4 Renewal – Tunnels ***

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to Structures Renewal expenditure, the Structures Renewal expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category C6.

** Major Culverts are defined as culverts with a cross sectional opening $\geq 6m^2$. Culverts with a cross sectional opening $< 6m^2$ are defined as Minor Culverts and are not considered a structure. Renewal expenses for Minor Culverts shall be captured under expenditure category C5 Renewal - Drainage.*

*** (Other) Structures shall include gantries, cantilever structures, noise walls and miscellaneous structures which are not covered by other Asset Groups.*

**** Tunnels include the core elements of the structure such as portal, buttress, capping beam and barrel. Similarly, Bridges include core elements such as the superstructure, substructure and foundations. Renewal expenditure for assets and asset components captured under other Asset Groups, associated with a Tunnel or Bridge, shall not be captured under expenditure category C6.*

(C7) Renewal - M&E, ITS and Lighting

All Renewal expenditure related to periodic maintenance, rehabilitation and replacement of assets within the M&E, ITS and Lighting Asset Groups, or their material components, shall be captured under expenditure category C7. M&E, ITS and Lighting Asset Groups include the following:

- C7-1 Renewal - Mechanical and Electrical *
- C7-2 Renewal - ITS Assets
- C7-3 Renewal - Traffic Signals
- C7-4 Renewal - Lighting
- C7-5 Renewal – Poles **

Renewal expenditure for M&E, ITS and Lighting Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to M&E, ITS and Lighting Renewal expenditure, the M&E, ITS and Lighting Renewal expenditure will be determined (calculated or estimated) and reported separately under expenditure category C7.

Renewal expenditure for Asset Groups listed above, that are associated with a Bridge or Tunnel, shall be captured under expenditure category C7.

** Renewal expenditure for Mechanical and Electrical assets, associated with other infrastructure assets, shall be captured under expenditure category C7. Renewal expenditure for stand-alone mechanical and electrical equipment, not associated with other infrastructure assets, shall be captured under expenditure category C8-1 Plant and Equipment.*

*** Poles may be associated with any of the other Asset Groups listed under expenditure category C7, with multiple different types of assets potentially being attached to a single pole.*

(C8) Renewal - Non Infrastructure Assets

All Renewal expenditure related to periodic maintenance, rehabilitation and replacement of Non Infrastructure Assets, or their material components, shall be captured under expenditure category C8. Expenditure on Non Infrastructure Assets shall be segregated into the following sub-categories:

- C8-1 Renewal - Plant and Equipment *
- C8-2 Renewal - Land and Buildings **

Expenditure reported should include costs associated with the production, provision and placement of materials, program planning, project planning and associated preparatory works.

Where a Renewal or Development project incorporates expenditure on other Asset Groups in addition to Non Infrastructure Assets Renewal expenditure, the Non Infrastructure Assets Renewal expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category C8.

** Plant and Equipment shall include construction plant, trucks, light vehicles, laboratory and field testing equipment, technical equipment, tools, appliances, scientific apparatus and computer equipment and ICT hardware. Renewal expenditure on Mechanical and Electrical assets, associated with other infrastructure assets, shall be excluded from Plant and Equipment as it is captured under expenditure category C7.*

*** Renewal expenditure is not relevant to land as it is a non-depreciable asset.*

A2.2.4. (D) Development – Upgrade and Expansion

(D1) Development - Land Under Roads and Enabling Works

All Development expenditure related to upgrade, expansion and new Land Under Roads and Enabling Works shall be captured under expenditure category D1. Land Under Roads and Enabling Works Development expenditure shall be segregated into the following sub-categories:

- D1-1 Development - Land Under Roads *
- D1-2 Development - Enabling Works **

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Land Under Roads and Enabling Works Development expenditure, the Land Under Roads and Enabling Works Development expenditure will be determined (calculated or estimated) and reported separately under expenditure category D1.

** Expenditure on Land Under Roads, also known as formation, includes:*

- The cost of land acquisition for future road improvement projects, maintenance costs associated with acquired land and associated administrative and supervision costs.
- Preparatory works directly associated with earthworks such as geological and materials testing, site clearing and pre-consolidation of land.
- Earthworks costs associated with preparation of road formation and roadside.

*** Enabling Works includes works required to deliver the project, which are not directly associated with Land Under Roads or other Development expenditure categories, such as:*

- Project planning, design costs, survey costs, public consultation, administrative and supervision costs and other miscellaneous overheads.
- Preparatory works not directly associated with earthworks such as site establishment and construction of temporary access tracks.
- Expenditure on assets not under the direct control of the Road Authority, such as service relocations. Excludes costs associated with expenditure categories under (E) Other Road Related Payments, such as spending on local access roads managed by local Councils.

(D2) Development - Pavement (including Parking)

All Development expenditure related to upgrade, expansion and new works, on assets within the Pavement Asset Group, shall be captured under expenditure category D2. Pavement Development expenditure shall be segregated into the following sub-categories:

- D2-1 Development - Concrete
- D2-2 Development – Flexible *
- D2-3 Development - Unsealed

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Pavement Development expenditure, the Pavement Development expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category D2.

** Flexible pavements include granular unbound, granular bound (modified) and structural asphalt pavement types.*

(D3) Development - Pavement Surfacing (including Parking)

All Development expenditure related to upgrade, expansion and new works, on assets within the Pavement Surfacing Asset Group, shall be captured under expenditure category D3. Pavement Surfacing Development expenditure shall be segregated into the following sub-categories:

- D3-1 Development - Asphalt
- D3-2 Development - Sprayed Seal

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Pavement Surfacing Development expenditure, the Pavement Surfacing Development expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category D3.

(D4) Development - Delineation

All Development expenditure related to upgrade, expansion and new works, on assets with the Delineation Asset Groups, shall be captured under expenditure category D4. Delineation Asset Groups include the following:

- D4-1 Development - Linemarking
- D4-2 Development - Signs
- D4-3 Development - Traffic Management Devices

Development expenditure for Delineation Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Delineation Development expenditure, the Delineation Development expenditure will be determined (calculated or estimated) and reported separately under expenditure category D4.

(D5) Development - Roadside

All Development expenditure related to upgrade, expansion and new works, on assets within the Roadside Asset Groups, shall be captured under expenditure category D5. Roadside Asset Groups include the following:

- D5-1 Development - Amenities
- D5-2 Development - Bins
- D5-3 Development - Fences
- D5-4 Development - Public Toilets
- D5-5 Development - Road Barriers
- D5-6 Development - Shelters
- D5-7 Development – Slopes *
- D5-8 Development - Landscaping and Trees

Development expenditure for Roadside Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Roadside Development expenditure, the Roadside Development expenditure will be determined (calculated or estimated) and reported separately under expenditure category D5.

Development expenditure on the following Roadside Asset Groups shall be excluded from expenditure category D5:

- Pathways
- Tactile Paving (on Pathway approaches to pedestrian crossings)
- Public Art

** Slopes Asset Group relates to slope treatments, as opposed to the natural surface. Some examples include chain wire mesh, shotcrete, geofabric and rock bolting. Development expenses for the Slope Asset Group excludes Retaining Walls, which is captured under expenditure category D7.*

(D6) Development - Drainage

All Development expenditure related to upgrade, expansion and new works, on assets within the Drainage Asset Groups, shall be captured under expenditure category D6. Drainage Asset Groups include the following:

- D6-1 Development - Kerb and Channel (incl. Vehicle Crossings)
- D6-2 Development - Pits
- D6-3 Development - Table Drains
- D6-4 Development - Culverts Minor (Pipes) *

Development expenditure for Drainage Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Drainage Development expenditure, the Drainage Development expenditure will be determined (calculated or estimated) and reported separately under expenditure category D6.

** Minor Culverts are defined as culverts with a cross sectional opening < 6m2. Culverts with a cross sectional opening ≥ 6m2 are defined as Major Culverts and are considered a structure. Development expenses for Major Culverts shall be captured under expenditure category D7 Development - Structures.*

(D7) Development - Structures

All Development expenditure related to upgrade, expansion and new works, on assets within the Structures Asset Groups, shall be captured under expenditure category D7. Structures Asset Groups expenditure shall be segregated into the following sub-categories:

- D7-1 Development – Bridges ***
- D7-2 Development - Major Culverts *
- D7-3 Development - Retaining Walls and (Other) Structures **
- D7-4 Development – Tunnels ***

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Structures Development expenditure, the Structures Development expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category D7.

** Major Culverts are defined as culverts with a cross sectional opening ≥ 6m2. Culverts with a cross sectional opening < 6m2 are defined as Minor Culverts and are not considered a structure. Development expenses for Minor Culverts shall be captured under expenditure category D6 Development - Structures.*

*** (Other) Structures shall include gantries, cantilever structures, noise walls and miscellaneous structures which are not covered by other Asset Groups.*

**** Tunnels include the core elements of the structure such as portal, buttress, capping beam and barrel. Similarly, Bridges include core elements such as the superstructure, substructure and foundations. Development expenditure for assets and asset components captured under other Asset Groups, associated with a Tunnel or Bridge, shall not be captured under expenditure category D7.*

(D8) Development - M&E, ITS and Lighting

All Development expenditure related to upgrade, expansion and new works, on assets within the M&E, ITS and Lighting Asset Groups, shall be captured under expenditure category D8. M&E, ITS and Lighting Asset Groups include the following:

- D8-1 Development - Mechanical and Electrical *
- D8-2 Development - ITS Assets
- D8-3 Development - Traffic Signals
- D8-4 Development - Lighting
- D8-5 Development – Poles **

Development expenditure for M&E, ITS and Lighting Asset Groups does not need to be segregated into the above sub-categories, although this breakdown should be provided if available.

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to M&E, ITS and Lighting Development expenditure, the M&E, ITS and Lighting Development expenditure will be determined (calculated or estimated) and reported separately under expenditure category D8.

Development expenditure for Asset Groups listed above, that are associated with a Bridge or Tunnel, shall be captured under expenditure category D8.

** Development expenditure for Mechanical and Electrical assets, associated with other infrastructure assets, shall be captured under expenditure category D8. Development expenditure for stand-alone mechanical and electrical equipment, not associated with other infrastructure assets, shall be captured under expenditure category D9-1 Plant and Equipment.*

*** Poles may be associated with any of the other Asset Groups listed under expenditure category D8, with multiple different types of assets potentially being attached to a single pole.*

(D9) Development - Non Infrastructure Assets

All Development expenditure related to upgrade, expansion and building of new Non Infrastructure Assets, shall be captured under expenditure category D9. Expenditure on Non Infrastructure Assets shall be segregated into the following sub-categories:

- D9-1 Development - Plant and Equipment *
- D9-2 Development - Land and Buildings **

Where a Development or Renewal project incorporates expenditure on other Asset Groups in addition to Non Infrastructure Assets Development expenditure, the Non Infrastructure Assets Development expenditure will be determined (calculated or estimated) and reported separately under the sub-categories within expenditure category D9.

** Plant and Equipment shall include construction plant, trucks, light vehicles, laboratory and field testing equipment, technical equipment, tools, appliances, scientific apparatus and computer equipment and ICT hardware. Development expenditure on Mechanical and Electrical assets, associated with other infrastructure assets, shall be excluded from Plant and Equipment as it is captured under expenditure category D8.*

*** Development expenditure for Land and Buildings excludes land under road, as expenditure related to land under road is captured under expenditure category D1-1.*

A2.2.5. (E) Other Road Related Payments

(E1) Loan Servicing

Interest associated with loan servicing, including interest associated with eligible PPP project availability payments.

(E2) Financial Assistance to councils for work on council managed arterials

The total value of grants and assistance paid by your state/territory government to councils to fund work on any council managed roads that are classified as arterial roads. In practice, these normally comprise only payments for regional roads in NSW and for main roads in WA.

The total value of spending on National Network and other arterial roads should be listed by the total of the sub-categories in A Operating. The value of item E2 should show what part of the total involved payments of grants or financial assistance to councils for work on arterials that are managed by road construction and maintenance expenditure data.

(E3) Payments to councils for contract work on state managed roads

The total value of payments made by your state/territory government to councils for contract work carried out on state managed roads of all classifications. That is, payments to councils for contract work carried out on state managed local access roads, state managed arterial roads, or National Network roads.

The value of item E3 should show what part of total state/territory spending on all roads was contracted out to councils. That is, item E3 is a sub-set of other expenditure categories. It is also possible that some part of state/territory spending on local access roads (items E4, E5 and E6) was contracted out to councils.

(E4) Spending on local access roads in unincorporated areas

This is the total value of spending on local access roads in unincorporated areas by your state/territory government.

(E5) Direct spending on council managed local access roads

The total value of direct spending on council managed local access roads by your state/territory government.

(E6) Any other direct state spending on local access roads

This figure should show the value of any other direct state or territory spending on local access roads that are not council managed and not in unincorporated areas, which is direct spending on local access roads (spending not counted in E4 or E5). For example, in Queensland, it should include state spending on those district roads that are classified as local access roads. The figure should not include any grants or assistance paid to councils to fund work on local access roads for which councils are the managing authority.

A3. Mapping of Expenditure Categories

This section demonstrates the alignment between the proposed FLCB expenditure categories and:

- PAYGO expenditure categories – refer section A3.1
- Queensland Asset Groups, as per NTC FLCB analysis – refer section A3.2

A3.1. Alignment to PAYGO expenditure categories

By demonstrating alignment between current PAYGO expenditure categories and the proposed FLCB expenditure categories, it provides the NTC with a tool to enable a low impact transition from PAYGO to FLCB. As such, this project has been conducted based on the understanding that there is a requirement for alignment, where practicable, between the current PAYGO expenditure categories and the proposed FLCB expenditure categories. The following five tables show the mapping between the proposed FLCB expenditure categories and the current PAYGO expenditure categories, by Asset Group, for each Work Category.

Table A4: Alignment of Proposed FLCB and PAYGO Expenditure Categories for Operating

* Excludes Operating expenditure separately recovered, including A3-1 Heavy Vehicle Regulatory Costs, A3-2 Vehicle Registration and A3-3 Driver Licencing.

Operating Work Category						
Austroads Asset Group	Proposed FLCB Expenditure Categories*		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Amenities	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Bins	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Fences	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
ITS Assets	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services

Operating Work Category						
Austroads Asset Group	Proposed FLCB Expenditure Categories*		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Kerb and Channel	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Landscaping	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Lighting	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Linemarking	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Mechanical and Electrical Assets	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Pits	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Poles	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services

Operating Work Category						
Austroads Asset Group	Proposed FLCB Expenditure Categories*		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Public Toilets	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Retaining Walls	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Road Barriers	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Shelters	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Signs	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Slopes	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Structures	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services

Operating Work Category						
Austroads Asset Group	Proposed FLCB Expenditure Categories*		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Table Drains	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Traffic Management Devices	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Traffic Signals	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Trees	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Tunnels	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Vehicle Crossings	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	A	Servicing and operating expenses	G1	Corporate services
Parking	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	B1	Routine maintenance	G1	Corporate services

Operating Work Category						
Austroads Asset Group	Proposed FLCB Expenditure Categories*		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Pavement	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	B1	Routine maintenance	G1	Corporate services
Pavement Surfacing	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	B1	Routine maintenance	G1	Corporate services
Bridge Major Culvert	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	C	Bridge maintenance and rehabilitation	G1	Corporate services
Culverts Minor (Pipes)	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	C	Bridge maintenance and rehabilitation	G1	Corporate services
Pathways	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Public Art	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Tactile Paving	A1 & A2	Asset Servicing and Operating Expenses and Corporate Services	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation

Table A5: Alignment of Proposed FLCB and PAYGO Expenditure Categories for Maintenance

Maintenance Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Parking	B1-1	Maintenance - Pavement and Pavement Surfacing (incl. Parking)	B1	Routine maintenance
Pavement	B1-1	Maintenance - Pavement and Pavement Surfacing (incl. Parking)	B1	Routine maintenance
Pavement Surfacing	B1-1	Maintenance - Pavement and Pavement Surfacing (incl. Parking)	B1	Routine maintenance
Bridge Major Culvert	B1-2	Maintenance - Bridges and Major Culverts	C	Bridge maintenance and rehabilitation
Amenities	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Bins	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Fences	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
ITS Assets	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Kerb and Channel	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Landscaping	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Lighting	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Linemarking	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Pits	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses

Maintenance Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Poles	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Public Toilets	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Road Barriers	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Shelters	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Signs	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Table Drains	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Traffic Management Devices	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Traffic Signals	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Trees	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Vehicle Crossings	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses
Culverts Minor (Pipes)	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	C	Bridge maintenance and rehabilitation
Mechanical and Electrical Assets	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	GAP	-
Retaining Walls	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	GAP	-

Maintenance Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Slopes	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	GAP	-
Structures	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	GAP	-
Tunnels	B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	GAP	-
Pathways	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Public Art	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Tactile Paving	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation

Table A6: Alignment of Proposed FLCB and PAYGO Expenditure Categories for Renewal

Renewal Work Category				
Austroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Pavement	C1-1 & C1-2 & C1-3	Renewal – Concrete and Renewal – Flexible and Renewal - Unsealed	D	Road rehabilitation
Parking	C1 & C2	Renewal - Pavement (incl. Parking) and Renewal - Pavement Surfacing (incl. Parking)	D & B2	Road rehabilitation and Periodic maintenance
Pavement Surfacing	C2-1 & C2-2	Renewal – Asphalt and Renewal - Sprayed Seal	B2	Periodic maintenance
Linemarking	C3	Renewal - Delineation	A	Servicing and operating expenses
Signs	C3	Renewal - Delineation	GAP	-
Traffic Management Devices	C3	Renewal - Delineation	GAP	-
Amenities	C4	Renewal - Roadside	GAP	-
Bins	C4	Renewal - Roadside	GAP	-
Fences	C4	Renewal - Roadside	GAP	-

Renewal Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Landscaping	C4	Renewal - Roadside	GAP	-
Public Toilets	C4	Renewal - Roadside	GAP	-
Road Barriers	C4	Renewal - Roadside	GAP	-
Shelters	C4	Renewal - Roadside	GAP	-
Slopes	C4	Renewal - Roadside	GAP	-
Trees	C4	Renewal - Roadside	GAP	-
Culverts Minor (Pipes)	C5	Renewal - Drainage	C	Bridge maintenance and rehabilitation
Kerb and Channel	C5	Renewal - Drainage	GAP	-
Pits	C5	Renewal - Drainage	GAP	-
Table Drains	C5	Renewal - Drainage	GAP	-
Vehicle Crossings	C5	Renewal - Drainage	GAP	-
Bridge Major Culvert	C6-1 & C6-2	Renewal – Bridges and Renewal - Major Culverts	C	Bridge maintenance and rehabilitation
Retaining Walls	C6-3	Renewal - Retaining Walls and (Other) Structures	GAP	-

Renewal Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Structures	C6-3	Renewal - Retaining Walls and (Other) Structures	GAP	-
Tunnels	C6-4	Renewal - Tunnels	GAP	-
ITS Assets	C7	Renewal - M&E, ITS and Lighting	GAP	-
Lighting	C7	Renewal - M&E, ITS and Lighting	GAP	-
Mechanical and Electrical Assets	C7	Renewal - M&E, ITS and Lighting	GAP	-
Poles	C7	Renewal - M&E, ITS and Lighting	GAP	-
Traffic Signals	C7	Renewal - M&E, ITS and Lighting	GAP	-
N/A	C8-1	Renewal - Plant and Equipment	GAP	-
N/A	C8-2	Renewal - Land and Buildings	GAP	-
Pathways	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Public Art	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Tactile Paving	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation

Table A7: Alignment of Proposed FLCB and PAYGO Expenditure Categories for Development Upgrade

Development Upgrade Work Category						
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
N/A	D1-1	Development - Land Under Roads	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
N/A	D1-2	Development - Enabling Works	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Pavement	D2-1 & D2-2 & D2-3	Development – Concrete and Development – Flexible and Development - Unsealed	F1	Pavement improvements		
Parking	D2 & D3	Development - Pavement (incl. Parking) and Development - Pavement Surfacing (incl. Parking)	F1	Pavement improvements		
Pavement Surfacing	D3-1 & D3-2	Development – Asphalt and Development - Sprayed Seal	F1	Pavement improvements		
Linemarking	D4	Development - Delineation	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements

Development Upgrade Work Category						
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Signs	D4	Development - Delineation	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Traffic Management Devices	D4	Development - Delineation	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Amenities	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Bins	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Fences	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Public Toilets	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Road Barriers	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Shelters	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Slopes	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements

Development Upgrade Work Category						
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Landscaping	D5	Development - Roadside	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Trees	D5	Development - Roadside	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Culverts Minor (Pipes)	D6	Development - Drainage	F2	Bridges		
Kerb and Channel	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Pits	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Table Drains	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Vehicle Crossings	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Bridge Major Culvert	D7-1 & D7-2	Development – Bridges and Development -Major Culverts	F2	Bridges		
Retaining Walls	D7-3	Development - Retaining Walls and (Other) Structures	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements

Development Upgrade Work Category						
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Structures	D7-3	Development - Retaining Walls and (Other) Structures	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Tunnels	D7-4	Development - Tunnels	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
ITS Assets	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Lighting	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Mechanical and Electrical Assets	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Poles	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
Traffic Signals	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure	E	Low cost safety/traffic improvements
N/A	D9-1	Development - Plant and Equipment	F3	Land acquisition, earthworks, other extension improvement expenditure		
N/A	D9-2	Development - Land and Buildings	GAP	-		

Development Upgrade Work Category						
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories			
	Code	Description	Code	Description	Code	Description
Pathways	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Public Art	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Tactile Paving	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation

Table A8: Alignment of Proposed FLCB and PAYGO Expenditure Categories for Development Expansion

Development Expansion Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
N/A	D1-1	Development - Land Under Roads	F3	Land acquisition, earthworks, other extension improvement expenditure
N/A	D1-2	Development - Enabling Works	F3	Land acquisition, earthworks, other extension improvement expenditure
Pavement	D2-1 & D2-2 & D2-3	Development – Concrete and Development – Flexible and Development - Unsealed	F1	Pavement improvements
Parking	D2 & D3	Development - Pavement (incl. Parking) and Development - Pavement Surfacing (incl. Parking)	F1	Pavement improvements
Pavement Surfacing	D3-1 & D3-2	Development – Asphalt and Development - Sprayed Seal	F1	Pavement improvements
Linemarking	D4	Development - Delineation	F3	Land acquisition, earthworks, other extension improvement expenditure
Signs	D4	Development - Delineation	F3	Land acquisition, earthworks, other extension improvement expenditure
Traffic Management Devices	D4	Development - Delineation	F3	Land acquisition, earthworks, other extension improvement expenditure
Amenities	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure

Development Expansion Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Bins	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Fences	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Landscaping	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Public Toilets	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Road Barriers	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Shelters	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Slopes	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Trees	D5	Development - Roadside	F3	Land acquisition, earthworks, other extension improvement expenditure
Culverts Minor (Pipes)	D6	Development - Drainage	F2	Bridges
Kerb and Channel	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure
Pits	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure
Table Drains	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure
Vehicle Crossings	D6	Development - Drainage	F3	Land acquisition, earthworks, other extension improvement expenditure

Development Expansion Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Bridge Major Culvert	D7-1 & D7-2	Development – Bridges and Development - Major Culverts	F2	Bridges
Retaining Walls	D7-3	Development - Retaining Walls and (Other) Structures	F3	Land acquisition, earthworks, other extension improvement expenditure
Structures	D7-3	Development - Retaining Walls and (Other) Structures	F3	Land acquisition, earthworks, other extension improvement expenditure
Tunnels	D7-4	Development - Tunnels	F3	Land acquisition, earthworks, other extension improvement expenditure
ITS Assets	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure
Lighting	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure
Mechanical and Electrical Assets	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure
Poles	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure
Traffic Signals	D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure
N/A	D9-1	Development - Plant and Equipment	F3	Land acquisition, earthworks, other extension improvement expenditure
N/A	D9-2	Development - Land and Buildings	GAP	-
Pathways	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation

Development Expansion Work Category				
Austrroads Asset Group	Proposed FLCB Expenditure Categories		PAYGO Expenditure Categories	
	Code	Description	Code	Description
Public Art	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation
Tactile Paving	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation	N/A	Not Applicable - Nil Heavy Vehicle Cost Allocation

A.3.2. Alignment to Queensland Asset Groups, as per NTC FLCB analysis

As detailed in the NTC report entitled *National heavy vehicle charges: Adopting a life cycle approach using forward looking costs*, adoption of ‘national categories’ (for Asset Groups) is critical to the successful implementation of a FLCB. It is acknowledged that as part of the FLCB analysis already conducted by the NTC, a set of national categories was adopted based on the Queensland approach.

The analysis completed as part of this project was based on the Asset Groups detailed within the Austroads *Data Standard for Road Management and Investment in Australia and New Zealand*. Looking forward, it is anticipated that all road authorities will adopt the data standards detailed within this Austroads document. Similar to the tables in section A3.1 above, Table A9 below shows the mapping between the proposed FLCB expenditure categories and the Queensland asset categories adopted as interim national categories in the NTC’s 2016 FLCB analysis.

Table A9: Alignment of Proposed Expenditure Categories for future FLCB with Queensland Categories used in NTC FLCB Report (2016)

Proposed Expenditure Categories for future FLCB LEVEL 1		Queensland Categories NTC FLCB Report (2016)	Proposed Expenditure Categories for future FLCB LEVEL 2		Queensland Categories NTC FLCB Report (2016)
A	Operating				
A1	Asset Servicing and Operating Expenses	Mixed			
A2	Corporate Services	Mixed			
A3	Corporate Services - separately recovered	Mixed	A3-1	Heavy Vehicle Regulatory Costs	Mixed
			A3-2	Vehicle Registration	Mixed
			A3-3	Driver Licencing	Mixed
B	Maintenance				
B1	Maintenance - significantly impacted by heavy vehicle dynamic loads	Mixed	B1-1	Maintenance - Pavement and Pavement Surfacing (incl. Parking)	Mixed
			B1-2	Maintenance - Bridges and Major Culverts	Mixed

Proposed Expenditure Categories for future FLCB LEVEL 1		Queensland Categories NTC FLCB Report (2016)	Proposed Expenditure Categories for future FLCB LEVEL 2		Queensland Categories NTC FLCB Report (2016)
B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	Mixed	B2-1	Maintenance - Delineation, Roadside and Drainage	Type 17
			B2-2	Maintenance - Structures (excl. Bridges and Major Culverts)	Mixed
			B2-3	Maintenance - M&E, ITS and Lighting	Type 17
			B2-4	Maintenance - Non Infrastructure Assets	Gap
C	Renewal				
C1	Renewal - Pavement (incl. Parking)	Type 2	C1-1	Renewal - Concrete	Type 4
			C1-2	Renewal - Flexible	Mixed
			C1-3	Renewal - Unsealed	Type 8
C2	Renewal - Pavement Surfacing (incl. Parking)	Type 9	C2-1	Renewal - Asphalt	Type 10
			C2-2	Renewal - Sprayed Seal	Type 12
C3	Renewal – Delineation	Type 17	C3-1	Renewal - Linemarking	Type 17
			C3-2	Renewal - Signs	Type 17
			C3-3	Renewal - Traffic Management Devices	Type 17
C4	Renewal – Roadside	Type 17	C4-1	Renewal - Amenities	Type 17
			C4-2	Renewal - Bins	Type 17
			C4-3	Renewal - Fences	Type 17
			C4-4	Renewal - Public Toilets	Type 17
			C4-5	Renewal - Road Barriers	Type 17
			C4-6	Renewal - Shelters	Type 17
			C4-7	Renewal - Slopes	Type 17
			C4-8	Renewal - Landscaping and Trees	Type 17

Proposed Expenditure Categories for future FLCB LEVEL 1		Queensland Categories NTC FLCB Report (2016)	Proposed Expenditure Categories for future FLCB LEVEL 2		Queensland Categories NTC FLCB Report (2016)
C5	Renewal – Drainage	Type 17	C5-1	Renewal - Kerb and Channel (incl. Vehicle Crossings)	Type 17
			C5-2	Renewal - Pits	Type 17
			C5-3	Renewal - Table Drains	Type 17
			C5-4	Renewal - Culverts Minor (Pipes)	Type 17
C6	Renewal – Structures	Mixed	C6-1	Renewal - Bridges	Type 14
			C6-2	Renewal - Major Culverts	Type 15
			C6-3	Renewal - Retaining Walls and (Other) Structures	Type 17
			C6-4	Renewal - Tunnels	Type 16
C7	Renewal - M&E, ITS and Lighting	Type 17	C7-1	Renewal - Mechanical and Electrical	Type 17
			C7-2	Renewal - ITS Assets	Type 17
			C7-3	Renewal - Traffic Signals	Type 17
			C7-4	Renewal - Lighting	Type 17
			C7-5	Renewal - Poles	Type 17
C8	Renewal - Non Infrastructure Assets		C8-1	Renewal - Plant and Equipment	Gap
			C8-2	Renewal - Land and Buildings	Gap
D	Development (Upgrade and Expansion)				
D1	Development - Land Under Roads and Enabling Works	Type 1	D1-1	Development - Land Under Roads	Type 1
			D1-2	Development - Enabling Works	Type 1
D2	Development - Pavement (incl. Parking)	Type 2	D2-1	Development - Concrete	Type 4
			D2-2	Development - Flexible	Mixed
			D2-3	Development - Unsealed	Type 8

Proposed Expenditure Categories for future FLCB LEVEL 1		Queensland Categories NTC FLCB Report (2016)	Proposed Expenditure Categories for future FLCB LEVEL 2		Queensland Categories NTC FLCB Report (2016)
D3	Development - Pavement Surfacing (incl. Parking)	Type 9	D3-1	Development - Asphalt	Type 10
			D3-2	Development - Sprayed Seal	Type 12
D4	Development – Delineation	Type 17	D4-1	Development - Linemarking	Type 17
			D4-2	Development - Signs	Type 17
			D4-3	Development - Traffic Management Devices	Type 17
D5	Development – Roadside	Type 17	D5-1	Development - Amenities	Type 17
			D5-2	Development - Bins	Type 17
			D5-3	Development - Fences	Type 17
			D5-4	Development - Public Toilets	Type 17
			D5-5	Development - Road Barriers	Type 17
			D5-6	Development - Shelters	Type 17
			D5-7	Development - Slopes	Type 17
			D5-8	Development - Landscaping and Trees	Type 17
D6	Development – Drainage	Type 17	D6-1	Development - Kerb and Channel (incl. Vehicle Crossings)	Type 17
			D6-2	Development - Pits	Type 17
			D6-3	Development - Table Drains	Type 17
			D6-4	Development - Culverts Minor (Pipes)	Type 17
D7	Development – Structures	Mixed	D7-1	Development - Bridges	Type 14
			D7-2	Development - Major Culverts	Type 15
			D7-3	Development - Retaining Walls and (Other) Structures	Type 17
			D7-4	Development - Tunnels	Type 16

Proposed Expenditure Categories for future FLCB LEVEL 1		Queensland Categories NTC FLCB Report (2016)	Proposed Expenditure Categories for future FLCB LEVEL 2		Queensland Categories NTC FLCB Report (2016)
D8	Development - M&E, ITS and Lighting	Type 17	D8-1	Development - Mechanical and Electrical	Type 17
			D8-2	Development - ITS Assets	Type 17
			D8-3	Development - Traffic Signals	Type 17
			D8-4	Development - Lighting	Type 17
			D8-5	Development - Poles	Type 17
D9	Development - Non Infrastructure Assets		D9-1	Development - Plant and Equipment	Gap
			D9-2	Development - Land and Buildings	Gap
E	Other road related payments				
E1	Loan Servicing	Mixed			
E2	Financial Assistance to councils for work on council managed arterials	Mixed			
E3	Payments to councils for contract work on state managed roads	Mixed			
E4	Spending on local access roads in unincorporated areas	Mixed			
E5	Direct spending on council managed local access roads	Mixed			
E6	Any other direct state spending on local access roads	Mixed			

A4. Assigning PAYGO Cost Allocations to Proposed FLCB Expenditure Categories

This section assigns a proposed percentage cost allocation, by cost driver, to each of the proposed FLCB expenditure categories. The proposed percentage cost allocations have been assigned based on cross referencing the existing PAYGO cost allocations. It is important to note that there is not always a direct one to one relationship between PAYGO expenditure categories and the proposed FLCB expenditure categories, as shown in Annexure 3. Where there is not a direct one to one relationship, or where gaps were identified in the PAYGO expenditure categories, a pragmatic approach has been adopted. Section A4.1 provides an overview of the criteria used to pragmatically assign proposed percentage cost allocations to the proposed FLCB expenditure categories.

Table 10: Proposed Percentage Cost Allocations, by Cost Driver, for Proposed FLCB Expenditure Categories

* The PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations do not necessarily represent a direct mapping to the proposed FLCB Expenditure Categories. Rather, the PAYGO Expenditure Categories adopted have been pragmatically selected as described in section A4.1. Mapping of PAYGO Expenditure Categories to proposed FLCB Expenditure Categories is detailed in Annexure A3 of this report.

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
				Attributable Costs				Common Costs (VKT)
Code	Description	Code	Description	VKT	PCU-km	ESA-km	AGM-km	
A	Operating							
A1	Asset Servicing and Operating Expenses	A	Servicing and operating expenses	100	0	0	0	0
A2	Corporate Services	G1	Corporate services	0	0	0	0	100
A3	Corporate Services - separately recovered			-	-	-	-	-
A3-1	Heavy Vehicle Regulatory Costs	G2	Heavy Vehicle Regulatory Costs	Not Applicable – costs to be recovered separately				
A3-2	Vehicle Registration	G3	Vehicle Registration	Not Applicable – costs to be recovered separately				
A3-3	Driver Licencing	G4	Driver Licencing	Not Applicable – costs to be recovered separately				

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
Code	Description	Code	Description	Attributable Costs				Common Costs (VKT)
				VKT	PCU-km	ESA-km	AGM-km	
B	Maintenance							
B1	Maintenance - significantly impacted by heavy vehicle dynamic loads			-	-	-	-	-
B1 -1	Maintenance - Pavement and Pavement Surfacing (incl. Parking)	B1	Routine maintenance	0	38	0	38	24
B1 -2	Maintenance - Bridges and Major Culverts	C	Bridge maintenance and rehabilitation	0	0	0	33	67
B2	Maintenance - minimal or nil impact by heavy vehicle dynamic loads	A	Servicing and operating expenses	100	0	0	0	0
B2-1	Maintenance - Delineation, Roadside and Drainage			Refer B2 above				
B2-2	Maintenance - Structures (excl. Bridges and Major Culverts)			Refer B2 above				
B2-3	Maintenance - M&E, ITS and Lighting			Refer B2 above				
B2-4	Maintenance - Non Infrastructure Assets			Refer B2 above				

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
Code	Description	Code	Description	Attributable Costs				Common Costs (VKT)
				VKT	PCU-km	ESA-km	AGM-km	
C	Renewal							
C1	Renewal - Pavement (incl. Parking)			-	-	-	-	-
C1-1	Renewal – Concrete	D	Road rehabilitation	0	0	45	0	55
C1-2	Renewal – Flexible	D	Road rehabilitation	0	0	45	0	55
C1-3	Renewal – Unsealed	D	Road rehabilitation	0	0	45	0	55
C2	Renewal - Pavement Surfacing (incl. Parking)			-	-	-	-	-
C2-1	Renewal – Asphalt	B2	Periodic maintenance	0	10	0	60	30
C2-2	Renewal - Sprayed Seal	B2	Periodic maintenance	0	10	0	60	30
C3	Renewal – Delineation	E	Low cost safety/traffic improvements	80	20	0	0	0
C3-1	Renewal - Linemarking			Refer C3 above				
C3-2	Renewal - Signs			Refer C3 above				
C3-3	Renewal - Traffic Management Devices			Refer C3 above				
C4	Renewal – Roadside	E	Low cost safety/traffic improvements	80	20	0	0	0
C4-1	Renewal - Amenities			Refer C4 above				
C4-2	Renewal - Bins			Refer C4 above				
C4-3	Renewal - Fences			Refer C4 above				

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
				Attributable Costs				Common Costs (VKT)
Code	Description	Code	Description	VKT	PCU-km	ESA-km	AGM-km	
C4-4	Renewal - Public Toilets			Refer C4 above				
C4-5	Renewal - Road Barriers			Refer C4 above				
C4-6	Renewal - Shelters			Refer C4 above				
C4-7	Renewal - Slopes			Refer C4 above				
C4-8	Renewal - Landscaping and Trees			Refer C4 above				
C5	Renewal – Drainage	E	Low cost safety/traffic improvements	80	20	0	0	0
C5-1	Renewal - Kerb and Channel (incl. Vehicle Crossings)			Refer C5 above				
C5-2	Renewal - Pits			Refer C5 above				
C5-3	Renewal - Table Drains			Refer C5 above				
C5-4	Renewal - Culverts Minor (Pipes)			Refer C5 above				
C6	Renewal – Structures			-	-	-	-	-
C6-1	Renewal – Bridges	C	Bridge maintenance and rehabilitation	0	0	0	33	67
C6-2	Renewal - Major Culverts	C	Bridge maintenance and rehabilitation	0	0	0	33	67
C6-3	Renewal - Retaining Walls and (Other) Structures	E	Low cost safety/traffic improvements	80	20	0	0	0

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
Code	Description	Code	Description	Attributable Costs				Common Costs (VKT)
				VKT	PCU-km	ESA-km	AGM-km	
C6-4	Renewal – Tunnels	E	Low cost safety/traffic improvements	80	20	0	0	0
C7	Renewal - M&E, ITS and Lighting	E	Low cost safety/traffic improvements	80	20	0	0	0
C7-1	Renewal - Mechanical and Electrical			Refer C7 above				
C7-2	Renewal - ITS Assets			Refer C7 above				
C7-3	Renewal - Traffic Signals			Refer C7 above				
C7-4	Renewal - Lighting			Refer C7 above				
C7-5	Renewal - Poles			Refer C7 above				
C8	Renewal - Non Infrastructure Assets			-	-	-	-	-
C8-1	Renewal - Plant and Equipment	F3	Land acquisition, earthworks, other extension improvement expenditure	0	10	0	0	90
C8-2	Renewal - Land and Buildings	F3	Land acquisition, earthworks, other extension improvement expenditure	0	10	0	0	90

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
Code	Description	Code	Description	Attributable Costs				Common Costs (VKT)
				VKT	PCU-km	ESA-km	AGM-km	
D	Development (Upgrade and Expansion)							
D1	Development - Land Under Roads and Enabling Works			-	-	-	-	-
D1-1	Development - Land Under Roads	F3	Land acquisition, earthworks, other extension improvement expenditure	0	10	0	0	90
D1-2	Development - Enabling Works	F3	Land acquisition, earthworks, other extension improvement expenditure	0	10	0	0	90
D2	Development - Pavement (incl. Parking)			-	-	-	-	-
D2-1	Development – Concrete	F1	Pavement extension/ improvement	0	0	45	0	55
D2-2	Development – Flexible	F1	Pavement extension/ improvement	0	0	45	0	55
D2-3	Development – Unsealed	F1	Pavement extension/ improvement	0	0	45	0	55
D3	Development - Pavement Surfacing (incl. Parking)			-	-	-	-	-
D3-1	Development – Asphalt	F1	Pavement extension/ improvement	0	0	45	0	55
D3-2	Development - Sprayed Seal	F1	Pavement extension/ improvement	0	0	45	0	55

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
Code	Description	Code	Description	Attributable Costs				Common Costs (VKT)
				VKT	PCU-km	ESA-km	AGM-km	
D4	Development – Delineation	E & F3	Low cost safety/traffic improvements and Land acquisition, earthworks, other extension improvement expenditure	0	15	0	0	85
D4-1	Development - Linemarking			Refer D4 above				
D4-2	Development - Signs			Refer D4 above				
D4-3	Development - Traffic Management Devices			Refer D4 above				
D5	Development – Roadside	E & F3	Low cost safety/traffic improvements and Land acquisition, earthworks, other extension improvement expenditure	0	15	0	0	85
D5-1	Development - Amenities			Refer D5 above				
D5-2	Development - Bins			Refer D5 above				
D5-3	Development - Fences			Refer D5 above				
D5-4	Development - Public Toilets			Refer D5 above				
D5-5	Development - Road Barriers			Refer D5 above				
D5-6	Development - Shelters			Refer D5 above				

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
Code	Description	Code	Description	Attributable Costs				Common Costs (VKT)
				VKT	PCU-km	ESA-km	AGM-km	
D5-7	Development - Slopes			Refer D5 above				
D5-8	Development - Landscaping and Trees			Refer D5 above				
D6	Development – Drainage	E & F3	Low cost safety/traffic improvements and Land acquisition, earthworks, other extension improvement expenditure	0	15	0	0	85
D6-1	Development - Kerb and Channel (incl. Vehicle Crossings)			Refer D6 above				
D6-2	Development - Pits			Refer D6 above				
D6-3	Development - Table Drains			Refer D6 above				
D6-4	Development - Culverts Minor (Pipes)			Refer D6 above				
D7	Development – Structures			-	-	-	-	-
D7-1	Development – Bridges	F2	Bridge extension/improvements	0	15	0	0	85
D7-2	Development - Major Culverts	F2	Bridge extension/improvements	0	15	0	0	85

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
Code	Description	Code	Description	Attributable Costs				Common Costs (VKT)
				VKT	PCU-km	ESA-km	AGM-km	
D7-3	Development - Retaining Walls and (Other) Structures	E & F3	Low cost safety/traffic improvements and Land acquisition, earthworks, other extension improvement expenditure	0	15	0	0	85
D7-4	Development – Tunnels	E & F3	Low cost safety/traffic improvements and Land acquisition, earthworks, other extension improvement expenditure	0	15	0	0	85
D8	Development - M&E, ITS and Lighting	F3	Land acquisition, earthworks, other extension improvement expenditure	0	10	0	0	90
D8-1	Development - Mechanical and Electrical			Refer D8 above				
D8-2	Development - ITS Assets			Refer D8 above				
D8-3	Development - Traffic Signals			Refer D8 above				
D8-4	Development - Lighting			Refer D8 above				
D8-5	Development - Poles			Refer D8 above				
D9	Development - Non Infrastructure Assets			-	-	-	-	-

Proposed FLCB Expenditure Category		PAYGO Expenditure Category adopted for assigning proposed FLCB Cost Allocations*		Proposed Percentage Cost Allocations by Cost Driver				
				Attributable Costs				Common Costs (VKT)
Code	Description	Code	Description	VKT	PCU-km	ESA-km	AGM-km	
D9-1	Development - Plant and Equipment	F3	Land acquisition, earthworks, other extension improvement expenditure	0	10	0	0	90
D9-2	Development - Land and Buildings	F3	Land acquisition, earthworks, other extension improvement expenditure	0	10	0	0	90
E	Other road related payments							
E1	Loan Servicing	G5	Loan Servicing	Not Applicable – costs to be recovered separately				
E2	Financial Assistance to councils for work on council managed arterials	H1	Financial Assistance to councils for work on council managed arterials	Not Applicable – costs to be recovered separately				
E3	Payments to councils for contract work on state managed roads	H2	Payments to councils for contract work on state managed roads	Not Applicable – costs to be recovered separately				
E4	Spending on local access roads in unincorporated areas	H3	Spending on local access roads in unincorporated areas	Not Applicable – costs to be recovered separately				
E5	Direct spending on council managed local access roads	H4	Direct spending on council managed local access roads	Not Applicable – costs to be recovered separately				
E6	Any other direct state spending on local access roads	H5	Any other direct state spending on local access roads	Not Applicable – costs to be recovered separately				

A4.1. Criteria for Assigning PAYGO Cost Allocations

The existing PAYGO Cost Allocation table was used as the basis for identifying cost allocations for the proposed FLCB expenditure categories.

This process considered the alignment between PAYGO expenditure categories and proposed FLCB expenditure categories, as detailed in section A3.1 of the report. In some instances, there is a direct alignment; however, there are a number of examples where this direct alignment does not exist, such as:

- A PAYGO expenditure category aligns to multiple proposed FLCB expenditure categories.
- A FLCB expenditure category aligns to multiple PAYGO expenditure categories.
- There are apparent gaps in the PAYGO expenditure categories. That is, the definitions of PAYGO expenditure categories, as detailed within the *2016 NTC Expenditure Template Reporting Guidelines - section 3*, do not explicitly cover the proposed FLCB expenditure category as defined in section A2 of this report.

Where direct alignment does not exist, between PAYGO expenditure categories and proposed FLCB expenditure categories, a pragmatic approach was adopted to assigning percentage cost allocations. This pragmatic approach adopted a set of four key decision criteria as outlined below.

- A. Where there are multiple PAYGO expenditure categories that align with a single proposed FLCB expenditure category, the ‘primary’ PAYGO expenditure category was generally adopted in lieu of the ‘secondary’ PAYGO expenditure category.

However, distinction between the ‘primary’ and ‘secondary’ PAYGO expenditure category was not always clear cut, as is the case for the following proposed FLCB expenditure categories:

- D4 Development – Delineation
- D5 Development – Roadside
- D6 Development – Drainage
- D7-3 Development – Retaining Walls and (Other) Structures
- D7-4 Development – Tunnels

Each of the above proposed FLCB expenditure categories can have a ‘primary’ mapping to PAYGO Categories:

- E - Low cost safety/traffic improvements and
- F3 - Land acquisition, earthworks, other extension improvement expenditure.

Because the cost allocators are similar for both PAYGO Category F3 (10% PCU-km and 90% VKT) and PAYGO Category E (20% PCU-km and 80% VKT), it was decided to assign the median for the above mentioned proposed FLCB expenditure categories. As such, a cost allocation of 15% PCU-km and 85% VKT was assigned to the above mentioned proposed FLCB expenditure categories.

- B. For a range of proposed FLCB expenditure categories categorised as Renewal, where there is a gap identified in the PAYGO expenditure category definitions, there were three options considered as follows:

1. Adopt PAYGO Expenditure Category A – Servicing and operating expenses

- From a Work Category perspective, this option is not ideal as PAYGO Category A does not align with the definition of renewal expenditure.
 - This option was rejected because assigning renewal 100% to VKT is expected to result in an under recovery of costs from heavy vehicle usage.
2. Adopt a hybrid of PAYGO Expenditure Category B1 – Periodic maintenance and PAYGO Expenditure Category D – Road rehabilitation
- From a Work Category perspective alignment does exist, because PAYGO Category B1 and D both align with the definition of renewal expenditure.
 - PAYGO Category B1 and D relate to pavement surfacing and pavement asset groups, which are exposed to significant dynamic loading. Renewal expenditure categories identified as gaps, in the proposed FLCB expenditure categories, cover asset groups that are not subject to these same dynamic loads.
 - This option was rejected because assigning a high proportion of ESA-km or AGM-km to asset groups not subjected to significant dynamic loading is expected to result in an over recovery of costs from heavy vehicle usage.
3. Adopt PAYGO Expenditure Category E – Low cost safety/traffic improvements
- Renewal expenditure categories identified as gaps, in the proposed FLCB expenditure categories, cover similar asset groups defined in PAYGO Category E.
 - From a Work Category perspective, this option is not ideal as PAYGO Category E does not align with the definition of renewal expenditure.
 - Despite the limitation in definitional alignment (i.e. renewal vs improvement), this option was adopted because it was considered a pragmatic middle ground of the options considered. That is, in consideration of the available PAYGO expenditure categories this option is considered the most likely to recover appropriate heavy vehicle costs.

As such, a cost allocation of 20% PCU-km and 80% VKT, associated with PAYGO Category E, was assigned to the following FLCB expenditure categories:

- C3 Renewal – Delineation
- C4 Renewal – Roadside
- C5 Renewal – Drainage
- C6-3 Renewal – Retaining Walls and (Other) Structures
- C6-4 Renewal – Tunnels

C. Proposed FLCB expenditure categories categorised as Non Infrastructure Assets were largely identified as a gap in the PAYGO expenditure category definitions. This included the following:

- C8-1 Renewal – Plant and Equipment
- C8-2 Renewal – Land and Buildings
- D9-2 Development – Land and Buildings

However, D9-1 Development – Plant and Equipment is largely covered by PAYGO Category F3 Land acquisition, earthworks, other extension improvement expenditure. As such, a cost allocation of 10% PCU-km and 90% VKT, associated with PAYGO Category F3, was assigned to all Non Infrastructure Asset FLCB expenditure categories.



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