



PATREC

Planning and Transport Research Centre (PATREC)

ANNUAL BUSINESS PLAN

2019

Prepared by	Sharon Biermann and Alan Colegate
Date	4 April 2019
Version	FINAL

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1 INTRODUCTION

1.1 About this Plan

1.1.1 Contractual requirement

According to the new Collaborative Agreement executed on 8 December 2016, annual business plans will be presented to the Board at the last meeting of each calendar year for approval and will direct business for the following year. They should include a description of the program of research to be undertaken by PATREC during that year, a budget for that year, planned targets for agreed financial and non-financial key performance indicators, and any update of the Strategic Plan for that year.

Annual business plans are prepared in the context of the prevailing strategic plan which is revised every three years. The current strategic plan is valid for the three year period 2017-2019 and was approved by the Board on 20 April 2017. Any interim strategic updates are included as part of the annually prepared business plans.

1.1.2 Purpose

The purpose of this Business Plan 2019 is to:

- update the strategic drivers impacting on PATREC's research plan for 2019;
- outline the process followed in arriving at the research plan for 2019;
- present the research focus in the form of project concepts under consideration within the ambit of agreed research focus areas;
- provide a working budget for 2019; and
- set key performance indicator targets.

1.2 About PATREC

1.2.1 Agreement

PATREC has been formed based on a Collaborative Research Agreement signed in 2016 by six core partners:

- University of Western Australia
- Curtin University
- Edith Cowan University
- Department of Transport
- Main Roads Western Australia
- Western Australian Planning Commission.

The 2016 agreement includes a three-year rolling funding to provide a greater level of continuity.

1.2.2 Purpose

To conduct collaborative, applied research and teaching in support of policy in the connected spaces of transport and land use planning

1.2.3 Governance

PATREC is governed by a Board representing its sponsoring universities and the Government of Western Australia. The role of the Board is to provide leadership and strategic direction to the Centre and to promote cooperation and collaboration between all parties involved. It has an independent chairman and meets three times per year. The following are the current Board members

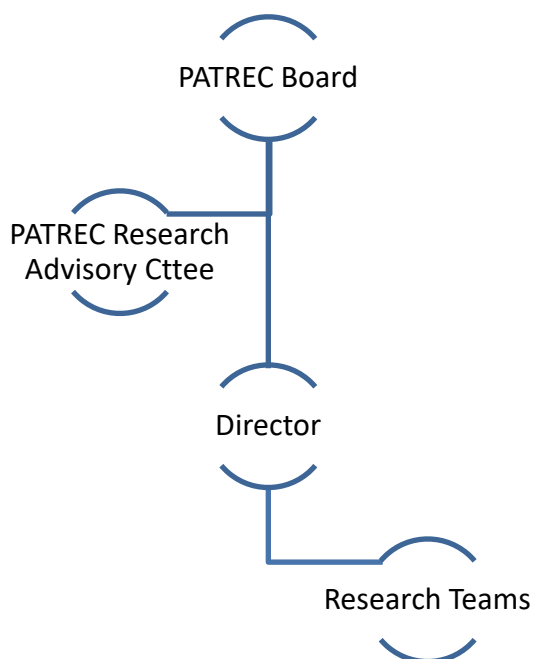
- Reece Waldock Chairman
- Prof. Keith Hampson Curtin University
- Prof. Margaret Jones Edith Cowan University
- Prof Matthew Tonts University of Western Australia

- Steve Beyer Department of Transport
- Peter Woronzow Main Roads Western Australia
- David Caddy Western Australian Planning Commission
- Ian Duncan WA Local Government Association

PATREC is led by its Director Professor Sharon Biermann and supported by two Research Fellows and an administrator.

The PATREC Research Advisory Committee (PRAC) was established in 2016 and comprises senior representatives from each partner organisation, chaired by a nominated representative elected by the Board. The objectives of PRAC are to introduce an element of formality and rigour to the research project identification, selection, support, monitoring and dissemination process; enhance communication amongst partners; and advise the Board on project level matters, allowing the Board to focus on strategic matters.

The following diagram represents the hierarchal governance structure underpinning PATREC



1.2.4 Relationships and Stakeholders

Beyond the six core partners the work of the Centre could not be completed without forging strong relationships within our academic, research and policy community but also amongst private industry with consulting and independent research agencies.

2 STRATEGIC DIRECTION

The Strategic Plan was reviewed in April 2017 and sets out the direction of the Centre until 2019, it is reviewed every three years and updates included in annual business plans.

2.1 Value Proposition

Capitalising on its extended [international] network of academic expertise and policy partners, PATRECs value proposition is to broker and conduct applied research and teaching in support of policy in the connected spaces of transport and land use planning through the following four key strategic activities:

1. multi-disciplinary, multi-institutional applied research in response to identified agency research requirements and knowledge gaps

2. knowledge transfer through academic and less formal publications, connection events and a website as a reliable and accessible resource for researchers and policy-makers
3. training, predominantly in the form of professional development through short courses, executive programs and “expert” courses on key topics, conducted in collaboration with other professional and industry bodies where possible
4. attracting additional research funds through business development.

in order to advance the knowledge base and forge new and innovative evidence-based solutions for effectively planning and managing Western Australia’s future.

2.2 Research Focus Areas

PATREC has established four research programs to undertake research and deliver high-impact outcomes, although collaboration between programs is expected and required. These programs were developed in response to the research needs and questions arising from the stakeholder-informed strategic planning process, the research competence base across the three collaborating universities and emerging external funding opportunities.

Integrated land use and transport futures

- Improving land use and transport integration now and into the future, using a systems-based, scenario-oriented approach to longer term strategic forecasting and evaluation, depending on and informing, integrated LU-T modelling.

Smarter travel decisions

- Focus on the potential for deployment and integration of technology to enable more intelligent and connected transport choices and help Australian cities use resources more efficiently and defer the need for new infrastructure

Integrated freight system optimisation

- Improve freight transport efficiency and effectiveness and support the planning for economic clusters by providing a comprehensive overview of the freight patterns generated by industrial activities of varying types in metropolitan Perth.

Emerging technology and network optimisation and intelligence

- Developing a data-driven decision support system for optimising road network operations

2.3 Strategic Drivers Update

Westport and Metronet remain the key government priorities affecting planning and transport in Western Australia. Participation of PATREC in the iMOVE CRC is until 2027 and the Smart Cities RailSmart Wanneroo project continues until mid-2019. The strategic update on these drivers provided in the Business Plan 2018 thus remains applicable for 2019.

3 LAST YEAR'S PERFORMANCE

The following are some of the key achievements delivered in 2018. More complete information can be found in the 2018 Annual Report on the website.

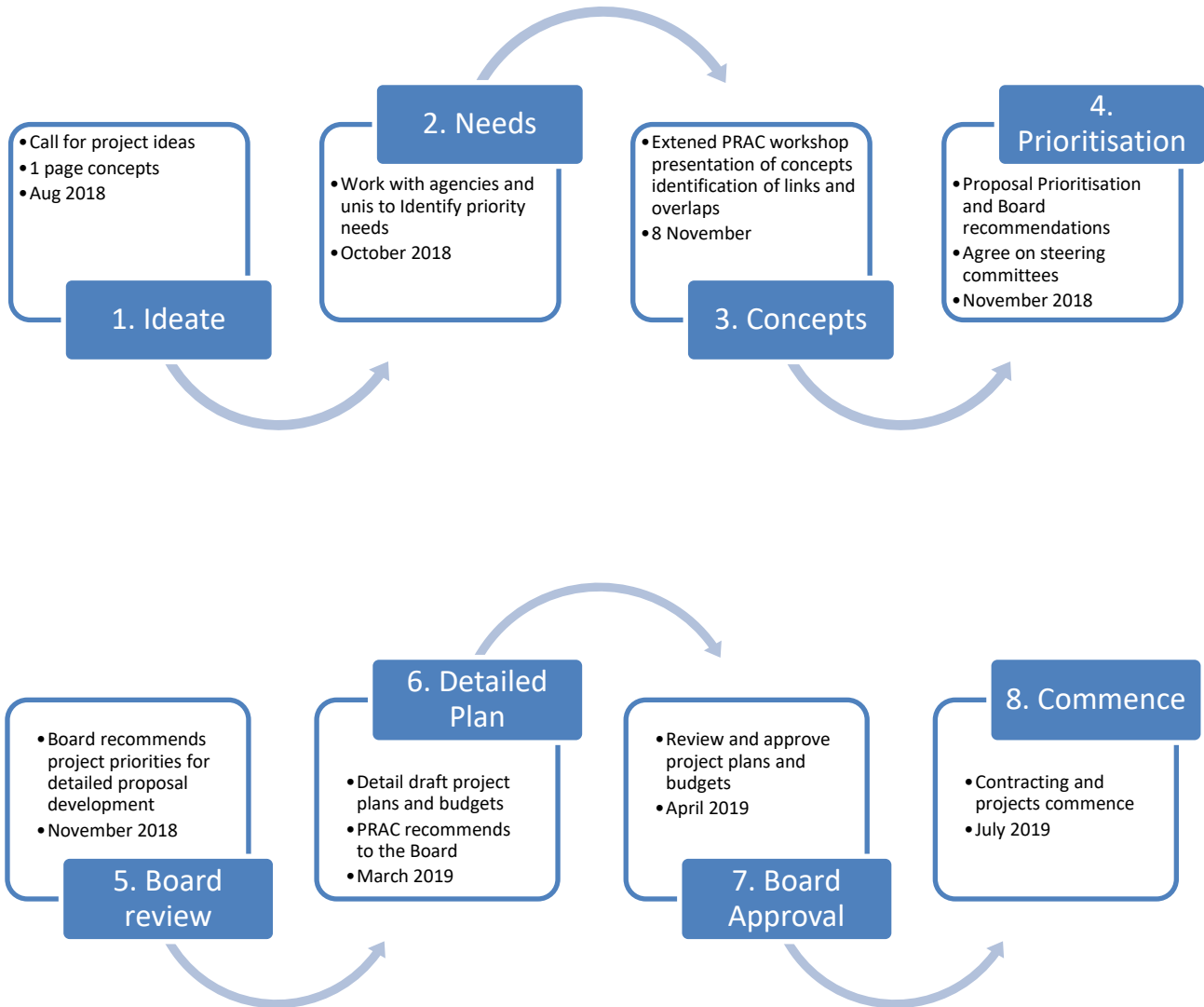
- The following iMOVE CRC WA Projects launched in February 2018:
 - Enhanced short and longer term network performance prediction capabilities through data-driven analytics and simulation
 - Planning intermodal and general logistics infrastructure for the future needs of Perth
 - Milestone progress well on track for completion in September 2019 and additional funding contributions made to supplement core iMOVE projects.
- Smart Cities and Suburbs grant agreement signed on 7 February 2018 with additional funding by City of Wanneroo, DOT, UWA and ECU: RailSmart Wanneroo Planning Support System - \$1 million project over 18 months, launched as part of City of Wanneroo Jobs Summit in June 2018. Milestone progress on track for a May 2019 completion.

4 2019-2021 CORE PROJECT PROPOSALS

4.1 Core Research Project Identification Process

The core research project identification process is detailed in Appendix A.

The Board agreed to the following process for the call and management of research proposals for the next period:



4.2 Core Research Project identification Outcome

Table 1: Project prioritised for inclusion in the PATREC core-funded research project package 2019-2021

Project 2019-2021 (2 years)*	Proposer	Research Partner/s	Budget \$	Research Focus Area
1. Optimising travel behaviour: short term	DOT	UWA, Curtin	144,000	Smarter Travel Decisions
2a. Public confidence in the use and roll-out of SAEV - older population - trial	DOT	Curtin	143,000	Smarter Travel Decisions
3a. Investment risk of emerging technology: Enhanced Strategic Asset Management	MRWA	ECU	93,000	Emerging technology and network optimisation and intelligence
3b. Investment risk of emerging technology: Enhanced Appraisal	DOT	UWA	60,720	Emerging technology and network optimisation and intelligence
4. Enhanced vehicle detection	MRWA	UWA	95,400	Emerging technology and network optimisation and intelligence
5. AV Simulation (iMOVE ITS continued)	DOT/ MRWA	UWA	100,000	Emerging technology and network optimisation and intelligence/ Integrated land use and transport futures
6. LU -T integration - Cubeland support	DPLH	UWA	72,000	Integrated land use and transport futures
7. Freight generation – transport demand – industrial land	DOT	UWA, Consultant	72,000	Integrated Freight System Optimisation
10. Journey Planning and mode choice	DOT/ PTA	Curtin	30,000	Smarter Travel Decisions
TOTAL			810,120	

5 EXTERNAL RESEARCH PROJECTS

External projects are those where no core funds are used.

5.1 Smart Cities and Suburbs: RailSmart Wanneroo

On 17 November 2017, official confirmation was received that this \$1 million over two years funding application, was successful. This project will continue until May 2019.

5.2 RAC Project

There are still funds remaining in the PATREC-RAC research program funds (about 40K). PATREC will work with the RAC to identify and develop a suitable research project to undertake, possibly in relation to the RAC's iMOVE participation.

5.3 Other opportunities

- ARC Linkage application and rejoinder **submitted** (outcome expected end November 2018) – 148 page proposal submitted to Australian Research Council for 3 year project “Rethinking integrated land-use and transport (LUTI) systems”. Partners: UWA (Administering Organisation), UniSA, DPLH, DOT, Landcorp, Renewal SA, Infraplan. Total cash: \$543,411 over 3 years (ARC - \$314,411; WA government \$120k; SA Renewal \$7.5k, UWA PhD stipend (\$101.5k) plus significant in-kind contributions.

The research will: 1) establish how superior LU and mode choice model parameters (and associated data development) will improve plans and policies; and 2) demonstrate that the performance of the LUTI model can remove barriers to adoption. The collaboration with POs will provide government agencies, planners and consultants with tools for realistic analysis of potential economic, social, energy and environmental effects of alternative urban development scenarios; testing spatial distribution of people and employment, and the impacts and wider benefits of investments in infrastructure and services. Developments here could be replicated elsewhere, as the project delivers the methodology.

- Cycling Access to Stations – testing a pilot Planning Support System (Courtney Babb, Parisa Izadpanahi, Xin Liu and Giles Thomson - Curtin) – allocated 30k from RailSmart Planning Wanneroo as a starter but need a further 50k. Owen Thomas suggested the work has some apparent synergies with PTA’s Route Utilisation Strategy in particular work on Station Access Strategies. In discussions with new Rail Planning Manager (Annabelle Fisher) to modify the proposal to more directly align with PTA requirements. Teaching commitments delayed further progress in 2018 but will be pursued again in 2019 if teaching commitments allow.
- Multi-modal travel tracking app “Freewheeler” – the developer approached UWA to discuss collaboration opportunities. The University of Plymouth, DOT (Your Move team) and some local governments are participating in further discussion about approach and funding for a pilot. The second round of Smart Cities funding was pursued but it was not possible to get commitments from local government (who had to be the lead) in time and a CRC project is under consideration while the app undergoes further refinement before it is ready for trialling. Next step is to involve PTA as their bus GPS data would be ideal to test the mode identification component.

6 HUMAN RESOURCING

It is critical to PATREC’s operation to have dedicated human resources. While university-paid academics participate in PATREC on a largely in-kind basis, benefiting from access to policy research need information, people and data, funds for research assistants, industry-partner support for grant applications, they often have teaching and other commitments in addition to research. PATREC’s role is to offer management, administrative, operational and engagement support to enable researchers to contribute knowledge and evidence to inform planning and transport policy. To this end, PATREC core resourcing is as follows:

Research Project Manager

- Dr Linda Robson has been appointed in the role of PATREC Project Manager in place of an administrative assistant
- Appointed on a two year fixed term contract for 0.8 FTE with the other 0.2FTE to cover her teaching responsibilities being paid by the School (UWA), starting 1 April 2018 to 31 March 2020
- 0.8FTE salary (level B1) is funded from the approved PA budget of \$76K and from the Smart Cities project management and research budget
- Linda has lectured in urban planning at UWA over the past 4 years and brings strong project management, website development and management and urban planning research skills to PATREC.

PATREC Research Fellow

- Chao Sun’s fixed term contract has been extended to June 2020
- His involvement in iMOVE projects is critical
- His salary is paid 100% by research project funding (iMOVE, Smart Cities, RAC Pulse of Perth)
- In 2019, he will be responsible for the Transport Engineering unit at UWA (0.2FTE commitment, paid by UWA)
- The strategy for him to continue to fulfil his critical PATREC research role is to appoint additional research assistant support, in process.

Director

- Ongoing contingent appointment awarded
- Director's salary is 60% funded by project funding eg. Smart Cities grant funding

Computer Science Project support

- Tristan Reed (Curtin) is working in the PATREC office directly with PATREC researchers
- RAC, iMOVE and Smart Cities project responsibilities
- 0.8 FTE for 18 months
- Finalising his PhD

Casual and contract research assistance

The iMOVE CRC and Smart Cities projects, together with supplementary funding contributions, have enabled human resourcing stability to be ensured for the core PATREC team at least until 2020. The following researchers have been appointed to work on PATREC projects:

- Yan Ji (Computer Scientist) – RAC Pulse of Perth,
- Dr Rui Wang (Computer Scientist) - iMOVE Network Operations
- Tristan Reed (Computer Scientist) – RAC, RailSmart, iMOVE freight (truck tracking)
- Dr Sae Chi (Transport Engineer/Economist, commencing 24 September, from Brisbane) – iMOVE Freight, RailSmart – 18 month appointment
- Adriana Maria Nunez Picado (PhD urban planning/geography student) – RailSmart (employment)

7 BUDGET 2019

7.1 Budget 2019

In April 2017 the Board determined that PATREC should continue to explore funding on a project-by-project basis with partners and other external grants, rather than increasing partner subscriptions. This was on the basis that as long as PATREC proposed research projects to address identified government issues, focussed on the provision of evidence for benefits realisation, there would not be a problem in attracting additional project-level funding from government agencies.

Since that meeting it is positive to see that that Government partners and others have contributed additional project-specific funds during 2018. The funding approach for 2019 is based on the following assumptions:

- No core funding increase until 2020
- Smart Cities (or similar) funding end in mid- 2019
- Priority research projects identified for support by the PRAC, with initial budget estimates being more than double (\$1.9 million) that of available research funds (740K)
- PATREC's participation in the iMOVE CRC (10 years) which is flexible across years ie. more participation funds can be contributed in any period, attracting commensurately higher levels of iMOVE funds for those years, but on condition that total commitment across the entire 10 year period remains constant.

The following outlines the Centres forecast income and expenditure for 2019.

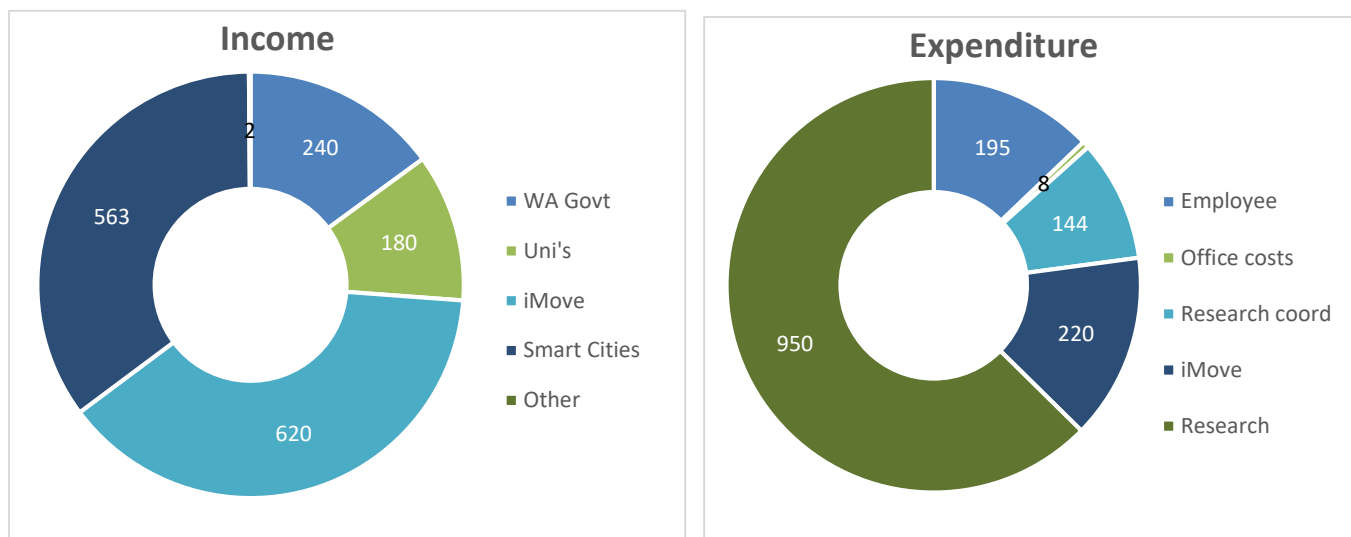


Table 2: Anticipated income and expenditure figures for 2019

PATREC Income and Expenditure	Budget 2019	Notes
INCOME		
WA Government Grants	240,000	To increase in 2020
Universities Sponsorship	180,000	To increase in 2020
iMOVE Commonwealth	341,000	PATREC participation funds "returned" to (150K) plus 75k iMOVE Commonwealth funds plus UWA's 70K contribution "returned"
iMOVE UWA	70,000	
iMOVE ECU		Direct to ECU, not reflected in PATREC's accounts
iMOVE additional gov/industry	135,000	See Table 5
Smart Cities and Suburbs	563,000	Balance of 2018 income to 1 million project total
Other Research Grants & Contracts	231,000	Not sufficiently advanced for 2019 income
Accrued Interest	1,500	
Total Income	1,761,500	
EXPENDITURE		
PATREC OFFICE	203,320	
Director (0.4)	96,000	1.25% increase, 2018 budget underestimated salary cost
Administrative support	76,000	Toward L Robson's salary
General Office Costs	8,000	
Board Chair Stipend	23,320	Should increase in 2020 when subscriptions increase
RESEARCH PROJECTS	1,506,928	
Research Co-ordination (Dir. 0.6)	144,000	1.25% increase, 2018 budget underestimated salary cost
iMOVE participation - UWA and PATREC	220,000	55K per quarter
Project Researchers, Consultants, Expenses	1,142,928	See Table 3 for core funding projects included
Total Expenditure	1,710,248	
YTD BALANCE	51,252	
Balance Brought Forward from 2017	107,205	
CLOSING BALANCE (incl Balance B/F)	158,457	

The committed and assumed additional funding from existing PATREC partners is summarised below.

Table 3: Distribution of budget across projects and partner universities (over two years)

Project 2019-2021 (2 years)	Proposer	UWA	Curtin	ECU	PATREC Mng+consulting	Budget
	DOT					
1. Optimising travel behaviour: short term	DOT	74,000	56,000		14,000	144,000
2a. Public confidence in the use and roll-out of SAEV - older population - trial	DOT		129,000		14,000	143,000
2b. Public confidence - governance	DOT					0
3a. Strategic Asset Management	MRWA		15,000	69,000	9,000	93,000
3b. Appraisal		54,720			6,000	60,720
4. Enhanced vehicle detection	MRWA	85,400			10,000	95,400
5. AV Simulation (input to 1 and 3 and iMOVE ITS continued)	DOT/ MRWA	90,000			10,000	100,000
6. LU -T integration - Cubeland support	DPLH	65,000			7,000	72,000
7. Freight generation – transport demand – industrial land	DOT	45,000			27,000	72,000
8. Survey costs - direct/consult	DOT					0
10. Journey Planner tool assessment	DOT/ PTA		27,000		3,000	30,000
TOTAL		414,120	227,000	69,000	100,000	810,120
Required distribution in accordance with contribution		<i>413,792</i>	<i>226,918</i>	<i>69,410</i>		
Additional funding required over and above core 740k						70,120

The calculation for the required distribution in accordance with contribution rates is set out in Table 4.

Table 4: Required distribution in accordance with contribution rates

Partner	Contribution 2019-20 (K)			%	Budget \$
	Core	iMOVE	TOT		
UWA	170	140	310	0.58	413,792
Curtin	170	0	170	0.32	226,918
ECU	42	10	52	0.10	69,410
Total Unis			532		710,120
PATREC 10%					80,000
Consultants					20,000
New project budget					810,120

8 KEY PERFORMANCE INDICATOR TARGETS 2019

In accordance with the PATREC Review, performance indicators have been considerably reduced to essential academic and policy impact indicators with focus on outputs and outcomes rather than inputs.

Table 6: Key Performance Indicator Targets 2019

Performance Indicator	Target 2018	Achieved -15 Nov 18	Target 2019
Academic Performance Indicators			
Number of journal papers published	7	7	5
Number of peer-reviewed book chapters published		1	
Number of peer-reviewed conference papers published in proceedings	8	6	10
Number of peer-reviewed books published			
Number of top-up sponsored PhD graduated			

Performance Indicator	Target 2018	Achieved -15 Nov 18	Target 2019
Value (\$) of [direct] external research funding secured (through PATREC account)	\$1,070K	\$905K	\$1,183K
Value (\$) of [indirect] external research funding secured (through individual partner university account)		18K (ECU/iMOVE): 23K (UWA/Video Analytics)	
Policy Impact Performance Indicators			
Number of high impact, policy-informing projects/sub-projects completed (2 year projects)	3	0	3
Number of substantive Technical Reports/Working Papers published	3	0	3
Number of PATREC Perspectives published on PATREC website	2	0	3
Number of presentations at PATREC and other connection events*	10	7	10
Number of connection events arranged and held	4	4	6
Number of short courses, unit contributions presented	1	1	4
Stakeholder satisfaction indicator**	80%	72%	80%

- **Including conference presentations with no published paper*
- ***To be undertaken post Annual Report release as suggested by ECU*



PATREC

Planning and Transport Research Centre (PATREC)

ANNUAL BUSINESS PLAN 2019

APPENDIX A

2019-2021 Core Project Proposal Development

Prepared by	Sharon Biermann and Alan Colegate
Date	4 April 2019
Version	FINAL

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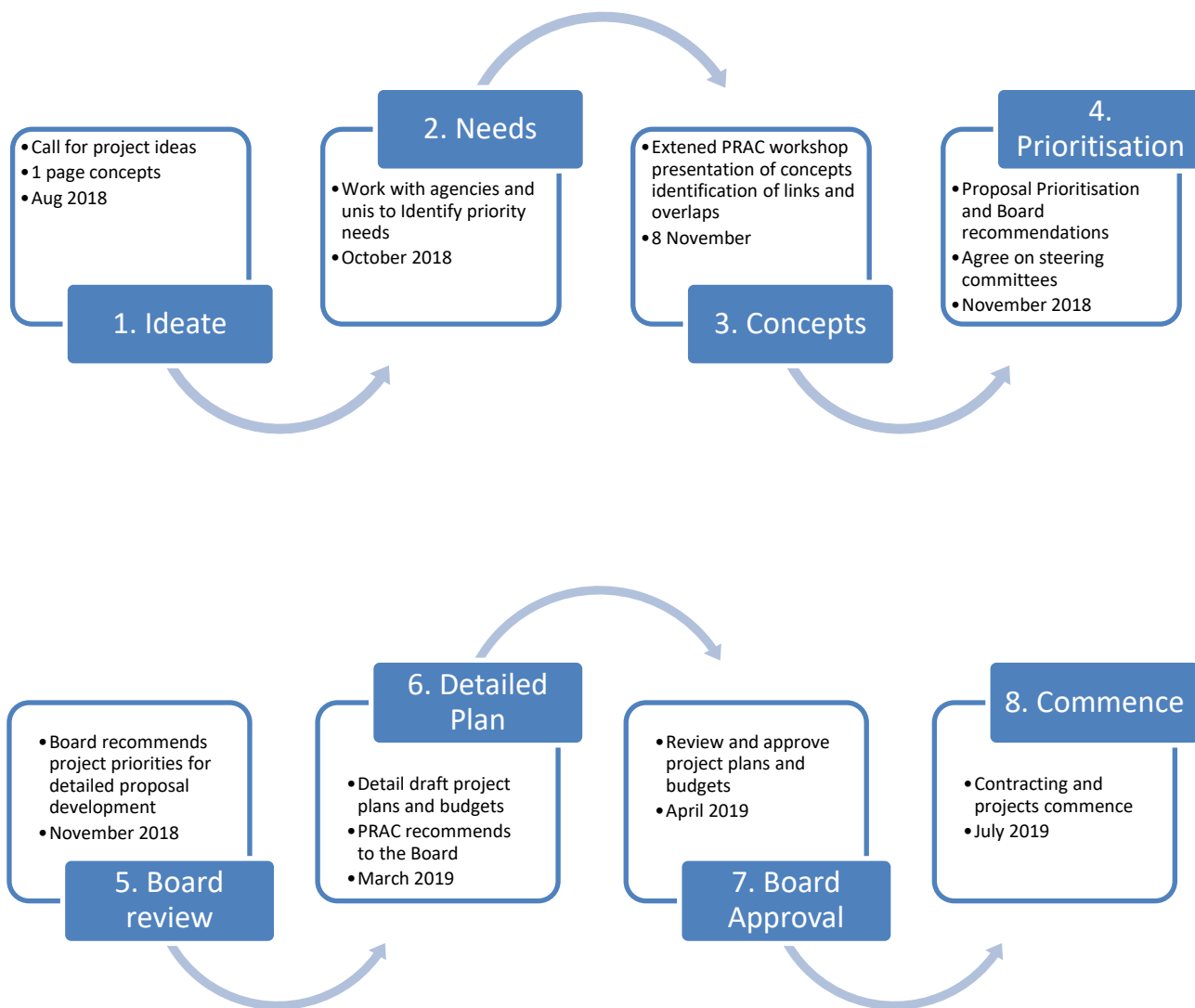
1 CORE PROJECT PLANNING PROCESS

In accordance with the annual project selection process formalised in the Strategic Plan 2017-2019 (Table 8), the specific process for the selection of 2019-2021 projects was agreed by the Board on 16 August 2018 (Table 1). This process is only scheduled to be completed by June 2019 and therefore this business plan is based on progress made to Task 6: Proposal prioritisation, according to selection criteria, and Board recommendation.

Table 1: PATREC Selection Process for 2019-2021 Projects

	Tasks	Decision/action	Indicative Date
	Recommend selection process for 2019-21 projects	PRAC	26 July 2018
	Agree to selection process for 2019-21 projects	Board	16 August 2018
1	Call for project ideas – 1 pager concepts – including template and scope	Director, PRAC reps	31 August 2018
2	Work with agencies/unis reps to identify priority needs/ideas. ² Submit 1 pager concepts.	Director, PRAC reps	31 October 2018
3	PRAC Workshop (with extended participation) - presentation of concepts, identification of links and overlaps.	PRAC - extended	8 November 2018 (immediately prior to PRAC meeting)
4	Proposal prioritisation, according to selection criteria, and make Board recommendation as to priority projects requiring detailed proposal development. Agree on steering committees.	PRAC	8 November 2018
5	Approve recommended project priorities for detailed proposal development.	Board	29 November 2018
6	Researchers with SCs submit detailed draft Project Plans and budgets to PRAC for recommendation of projects to be approved by Board.	PRAC	March 2019
7	Approve project plans and budgets.	Board	April 2019
8	Contracting and project start-up	Director	1 July 2019

A summary of this process has been included in the Business Plan drawing from the outputs of this process:



2 CALL FOR PROPOSALS

2.1 Process

A call for proposals relating to Task 3 of the PATREC projects selection process (Table 1) was made to firstly elicit government partner written proposals for research project needs. The following information was provided.

Background

It was clarified that the call related only to PATREC Projects which are those which use, in whole or in part, core funds. Core funds are those provided on an annual subscription basis by the collaborating partners. PATREC Projects require oversight by PRAC and approval by the Board in accordance with the process outlined in Annexure A. It was further clarified that PATREC also conducts “external” projects which involve one or more of the PATREC collaborating parties, including with third parties, but that DO NOT receive any core funds.

Almost 70% of PATREC core research funds have been committed to iMOVE CRC projects until 2027 and as such, the bi-annual PATREC Project selection process, of which this call is part, is primarily to do with the

selection of iMOVE projects, currently aimed at projects with a duration of two years. The iMOVE program of research is well aligned with PATREC Strategic priorities, also include opportunity for integrated land use and transport projects as well as more transport-oriented projects. Land use-oriented projects will be favoured for selection using the remaining 30% of PATREC core research funds.

Purpose

The aim of this call is to initiate the process of eliciting research project ideas from both a policy needs and academic policy-responsiveness perspective from our government agency- and research partners, respectively. This process will culminate in the approval of a number of projects to be undertaken by PATREC during the period mid-2019 to mid-2021 which will be supported partly or in full by PATREC core funds.

Strategic priorities

- Project concepts must align with PATREC strategic priorities which remain the four theme areas (with underpinning supportive information and modelling platform), with particular application to Metronet and Westport:
- Integrated land use and transport futures;
- Smarter travel decisions;
- Integrated freight system optimisation; and
- Emerging technology and network optimisation and intelligence

Next steps

Within the broader process outlined in Table 1, this call (Task 3) will be followed by:

- Task 4: Work with agencies/unis reps to identify priority needs/ideas. Submit 1 pager concepts
- Co-ordination within individual partner government agencies to each produce 2-3 project concepts (using attached template (Annexure B), by 3 October 2018). Responsible: Agency leads with PATREC support

Theme area	Agency Co-ordinator	PATREC
Integrated land use and transport futures	Carmel Quin (DPLH)	Linda Robson
Emerging technology and network optimisation and intelligence	Steve Atkinson (MRWA)	Chao Sun
Smarter travel decisions	Brett Hughes (DOT)	Chao Sun
Integrated freight system optimisation		Tim Hoffman

- Circulation of project concepts to researchers to register interest in involvement, expertise on offer, overall responses, suggestions of approach and any other ideas, by 5 October 2018). Responsible: PATREC (Linda Robson)
- Researchers respond, engaging proactively with Agency co-ordinator and/or PATREC support if required (by completing researcher section of relevant project template, by 31 October 2018). Responsibility: Individual researchers/research groups
- Project concepts circulated with workshop agenda (by 2 November 2018). Responsible: PATREC (Sharon Biermann)
- Task 5: Workshop 8 November 2018 - presentation of concepts and researcher responses, identification of synergies, recommendations to PRAC
- This will be followed by a PRAC decision (on the basis of selection criteria) and recommendation to the Board of priority projects for approval to proceed to detailed project proposal generation. The Board will decide on 29 November 2018 followed by detailed joint project proposal development for approval at the first Board meeting of 2019 (in April) for anticipated project commencement on 1 July 2019.

Selection criteria

The PRAC will assess project concepts against the following criteria:

- Alignment with the PATREC Strategic Plan 2017-19 as updated in the Business Plan 2018

- Policy relevance
- Fit with the current portfolio of PATREC activities
- Contribution to PATREC KPIs
- Level of co-contribution from non-core funding sources
- End-user pull
- Steering Committee endorsement (where proposed projects are extensions of current projects)
- Balance of researcher and of end-user engagements, commensurate with their respective inputs
- Cross agency and university collaboration potential
- No duplication of research or what has already been done within agencies

Funding available/number of projects

Core funding available for PATREC projects (over 2 years from July 2019):

- \$370k/year for two years (ie. \$740k over two years)
- Aiming for projects with a two year duration but with quarterly milestones
- 3-4 projects/sub-projects envisaged, conducted over 18-24 months, with annual project budget around \$80-100k

Template

Government agency proposers were asked to provide the following (PART A) information in the template provided:

- **Proposed Title**
- **Name/s of Proposer/s**
- Who will be the main users of the research outputs ie. main stakeholders and what is their affiliation?
- **Aims and Objectives**
- **Policy need** - Why is this research needed? Policy context, problem the research needs to address
- **Significance** - Envisaged outcomes and policy impacts/benefits
- **Scope** - What is the envisaged extent of the research (within a 18-24 month project duration) and what are key stages and outputs? What will be done and what will not be done.

2.2 Outcomes

Eleven, 2-pager project concepts were received from government agency proposers as listed in Table 2.

Table 2: Project concepts submitted by Government partners in response to the call for proposals

Project Title	Proposed By
Optimal journey planning and mode choice	Liam Heitson Transport Strategy and Reform (TSR)
Optimising travel behaviour: the short-term perspective	Claire Thompson Transport Strategy and Reform (TSR)
Optimising travel behaviour: the long-term perspective	Claire Thompson Transport Strategy and Reform (TSR)
Public confidence in the use and roll-out of shared, automated and electric vehicles	Alizanne Cheetham Department of Transport, on behalf of the Connected and Automated Vehicle Advisory Committee (CAVAC)
Transport infrastructure, planning and policy – understanding our context	Graeme O’Neil Transport Strategy and Reform. (TSR)
Industrial Land Analysis (Demand forecasting and typology)	Anne-Marie Brits Department of Transport

Externality metrics for Perth (focus on key road and rail corridors leading to Fremantle Inner Harbour)	Anne-Marie Brits Department of Transport
Connected Systems – Works, Event Planning and Incident Coordination	Alex Hendrick Real Time Traffic Operations Manager MRWA
Enhanced Vehicle Detection at Traffic Signals	Cory Ross – ITS Engineering Manager Cas Tesnear – SCATS & SVD Technical Authority
ITS Future System	Cory Ross – ITS Engineering Manager
Assessing transport impacts of residential Land Use proposals for redeveloping precincts	David Iggleston, Department of Transport

3 RESEARCH RESPONSES

3.1 Process

Project concepts were circulated to PATREC research associates, with invitations for wider circulation to interested academics. Responses were requested in the form of short project proposals (PART B) in relation to project concepts provided by government agency proposers (PART A). Researchers were asked to provide the following information:

- **Name/s of Researcher/s** - Who is expressing an interest in being involved in this research project? Affiliation?
- **Response to Agency Proposition** - What is your high level, general response to the above project concept proposition and why is it of interest to you? Is there anything you would propose differently or anything you would add from your knowledge of what research has been done in relation to the topic?
- **Approach** - How would you approach the research and what kinds of methods would you use eg. literature review, applied to Perth, case study, big data analytics, surveys etc
- **Deliverables** - What will be produced during and at the end of the project
- **Team** - What skills would be required to conduct the research and what expertise and experience would you and your team bring to the successful completion of the project? What are the possibilities of working collaboratively with other universities to undertake this research?
- **Indicative timeframe and budget** - How long will this take and how much will it cost (provide a ballpark budget range if possible)?

3.2 Outcome

Twenty-six PART B responses were submitted and are listed in Table 3.

Table 3: Summary of responses received by researchers – only lead researcher’s name mentioned

No.	Project Title	Responses
1	Optimal journey planning and mode choice	1.1 Chao Sun 1.2 Tristan Reed
2	Optimising travel behaviour: the short-term perspective	2.1 Brett Smith 2.2 Mohammed Quaddus 2.3 Mariana Atkinson (including long term) 2.4 Chao Sun, Mark Reynolds 2.5 Ferry Jie
3	Optimising travel behaviour: the long-term perspective	3.1 Brett Smith 3.2 Chao Sun, Mark Reynolds 3.3 Trudi Cooper

No.	Project Title	Responses
4	Public confidence in the use and roll-out of shared, automated and electric vehicles	4.1 Carey Curtis 4.2 Mohammed Quaddus 4.3 Chao Sun 4.4 Trudi Cooper 4.5 Simone Pettigrew
5	Transport infrastructure, planning and policy – understanding our context	5.1 Sae Chi 5.2 Kerry Brown 5.3 Chao Sun 5.4 Trudi Cooper
6	Industrial Land Analysis (Demand forecasting and typology)	6.1 Tim Hoffman
7	Externality metrics for Perth (focus on key road and rail corridors leading to Fremantle Inner Harbour)	7.1 Tim Hoffman
8	Enhanced Vehicle Detection at Traffic Signals	8.1 Mohammed Bennamoun 8.2 Mark Reynolds
9	Connected Systems – Works, Event Planning and Incident Coordination	No response received.
10	ITS Future System	10.1 Chao Sun
11	Assessing the transport impacts of residential Land Use proposals for redeveloping precincts; including public transport trip generation near transit stations.	11.1 Tristan Reed
12	Reducing public transport barriers to workers from low SES suburbs in Perth	12.1 Trudi Cooper

4 PROJECT PROPOSAL PRIORITISATION

4.1 Process

At its meeting 8 November 2018, the PRAC considered the short form proposals using the following approach:

Considered each of the proposals very briefly, **to determine if each of the Part B responses is:**

- Supported - agreed in principle and should proceed to the original project proposers for further discussion and development with researchers
- Needs Further Work - is uncertain and needs further clarity or questions answered but may be supported. e.g basic approach is ok, but lacks detail
- Not supported. e.g. due to insufficient detail, not value for money. Doesn't meet requirements well.

Broad assessment criteria used:

- Does it meet the brief?
- Does it produce useful outputs that can be use?
- Does it have other benefits, e.g. knowledge or skills transfer, relationship building, collaborations (especially cross portfolio and with DPLH)
- Is it good value for money?

4.2 Outcomes

The outcome of the discussion and recommendations to the Board for ratification are summarised in Table 4.

Table 4: Summary of PRAC recommendations regarding 2019 project priorities

Project Title	Proposer	Researcher Responses (Lead)	PRAC Recommendations (R)
1. Optimal journey planning and mode choice	Liam Heitson (DOT)	1.1 Chao Sun (PATREC)	Not supported.
		1.2 Tristan Reed (Curtin)	Supported (Recommendation (R) 1.2).
2. Optimising travel behaviour: the short-term perspective	Claire Thompson (DOT)	2.1 Brett Smith (UWA)	Supported. Very good proposal. Combine with 2.3, 3.1 and potentially 12 to respond to combined project 2/3. SB and CT (proposer) to convene discussion – involve PTA (R2.1)
		2.2 Mohammed Quaddus (Curtin)	Not supported.
		2.3 Mariana Atkins (UWA) – combined response to 2 & 3	Supported. Preferred approach. See R2.1.
		2.4 Chao Sun (PATREC)	Not supported
		2.5 Ferry Jie (ECU)	Not supported
Optimising travel behaviour: the long-term perspective	Claire Thompson (DOT)	3.1 Brett Smith (UWA)	Has potential but needs more work. Develop further and integrate with 2.1 and 2.3 to respond to combined project 2/3 (see R2.1)
		3.2 Chao Sun (PATREC)	Not supported.
		3.3 Trudi Cooper (ECU)	Not supported.
Public confidence in the use and roll-out of shared, automated and electric vehicles	Alizanne Cheetham (DOT)	4.1 Carey Curtis (Curtin)	Supported. Collaborative project consolidating 4.1, 4.4 and 4.5 to be discussed. SB and AC (Proposer) to convene discussion. Involve PTA, David Igglesden & KW. Consider having “adjudicator” present. Liaise with RAC. (R4.1)
		4.2 Mohammed Quaddus (Curtin)	Not supported.
		4.3 Chao Sun (PATREC)	Not supported.
		4.4 Trudi Cooper (ECU)	Supported. See R4.1.
		4.5 Simone Pettigrew (Curtin)	Supported. Preferred. See R4.1.
Transport infrastructure, planning and policy –	Graeme O’Neil (DOT)	5.1 Sae Chi (PATREC)	Narrowly focussed on evaluation. See R5.2

Project Title	Proposer	Researcher Responses (Lead)	PRAC Recommendations (R)
understanding our context		5.2 Kerry Brown (ECU)	Supported. Preferred , but narrowly focussed on asset management. BH to check with Proposer before proceeding. If asset management focus required, proceed with 5.2. If wider approach preferred, SM with BO'N (Proposer) to convene a meeting to discuss collaborative project including 5.1, 5.2 and 5.3 (R5.2)
		5.3 Chao Sun (PATREC)	Focussed on modelling. Needs more work. See R5.2.
		5.4 Trudi Cooper (ECU)	Not supported
Industrial Land Analysis (Demand forecasting and typology)	Anne-Marie Brits DOT	6.1 Tim Hoffman (PATREC)	Has potential but needs further development. Requires discussion with DPLH. Confirmation that no overlaps with Westport work. Involve Landcorp. SB and AMB (Proposer) to convene discussion (R6.1).
Externality metrics for Perth (focus on key road and rail corridors leading to Fremantle Inner Harbour)	Anne-Marie Brits (DOT)	7.1 Tim Hoffman (PATREC)	Has potential but needs further development. SB with AMB to convene meeting with TH and others to further develop (R7.1).
Connected Systems – Works, Event Planning and Incident Coordination	Alex Hendrick (MRWA)		Project not supported. No response received. Is better suited to consulting.
Enhanced Vehicle Detection at Traffic Signals	Cory Ross (MRWA)	9.1 Bennamoun (UWA)	Supported but needs tighter scoping and more reasonable costing and/or wider iMOVE project involving other agencies to which PATREC could contribute part. SM to convene meeting to discuss with team.
		9.2 Mark Reynolds (UWA)	Not supported.
ITS Future System	Cory Ross (MRWA)	10.1 Chao Sun (PATREC)	Project not supported for PATREC. Consulting project, better undertaken across whole of Australia for consistency, e.g. Austroads or ARRB.
<i>Transport impacts of residential Land Use proposals for redeveloping precincts</i>	David Igglesden (DOT)	11.1 Tristan Reed (Curtin)	Supported but conditional on support from DPLH. SM with DI (Proposer) to convene discussion with DPLH to agree on scope.

Project Title	Proposer	Researcher Responses (Lead)	PRAC Recommendations (R)
<i>Reducing public transport barriers to workers from low SES suburbs in Perth</i>	University proposer Trudi Cooper	12.1 Trudi Cooper (ECU)	Could be of value. Could potentially combine with 2 and 3. See R2.1.

At its meeting on 29 November 2018, the Board approved:

- PRAC's recommendations of project priorities for more detailed project proposal development
- indicative budget allocation (total of \$1.245K) as guide for detailed project development
- in principle, that additional funds could be sought to augment the PATREC core funds and that the scope of the projects be refined to bring the costs down from \$2 million to around \$1,245K requiring around \$505K in additional funding (indication from DOT as main proposers that additional funding was being investigated).

5 DETAILED PROJECT PLANNING AND FINAL PROJECT PACKAGE

5.1 Process

- Detailed project plans were prepared by researchers in consultation with project champions and project steering committees, with revised scopes in relation to indicative funding guidance of \$1,245K
- Director received advice that DOT is not able to contribute additional funding in 2019/20 (but that there could be some scope for the base funding to be increased in 2020-21) and that we should proceed on the basis of core funding only (\$740K over 2 years), by further prioritisation and reducing of scopes (27 February 2019)
- Board Chair and Director met with DG Transport to update him on the situation (11 March 2019)
- At the PRAC meeting 22 March 2019, the PRAC (government members only) agreed to actions and /or recommendations in relation to the following key agenda items:
 - Confirm the PATREC core research program 2019-2021 within the core funding envelope of \$740K over 2 years
 - Confirm excluded projects
 - Confirm included projects
 - Confirm research budget allocation to projects
- At the Board meeting on 4 April 2019, PRAC recommendations were ratified.

5.2 Outcome

Nine projects were prioritised for inclusion in the PATREC research program 2019-2021 and the budget allocated on the basis of revised detailed project proposals and a comparison of value across all projects (Table 5).

Table 5: Project prioritised for inclusion in the PATREC core-funded research project package 2019-2021

Project 2019-2021 (2 years)*	Proposer	Research Partner/s	Budget \$	Research Focus Area
1. Optimising travel behaviour: short term	DOT	UWA, Curtin	144,000	Smarter Travel Decisions
2a. Public confidence in the use and roll-out of SAEV - older population - trial	DOT	Curtin	143,000	Smarter Travel Decisions
3a. Investment risk of emerging technology: Enhanced Strategic Asset Management	MRWA	ECU	93,000	Emerging technology and network optimisation and intelligence
3b. Investment risk of emerging technology: Enhanced Appraisal	DOT	UWA	60,720	Emerging technology and network optimisation and intelligence
4. Enhanced vehicle detection	MRWA	UWA	95,400	Emerging technology and network optimisation and intelligence
5. AV Simulation (iMOVE ITS continued)	DOT/ MRWA	UWA	100,000	Emerging technology and network optimisation and intelligence/ Integrated land use and transport futures
6. LU -T integration - Cubeland support	DPLH	UWA	72,000	Integrated land use and transport futures
7. Freight generation – transport demand – industrial land	DOT	UWA, Consultant	72,000	Integrated Freight System Optimisation
10. Journey Planning and mode choice	DOT/ PTA	Curtin	30,000	Smarter Travel Decisions
TOTAL			810,120	



PATREC

Planning and Transport Research Centre (PATREC)

ANNUAL BUSINESS PLAN 2019

APPENDIX A

2019-2021 Core Project Proposal Development

Prepared by	Sharon Biermann and Alan Colegate
Date	4 April 2019
Version	FINAL

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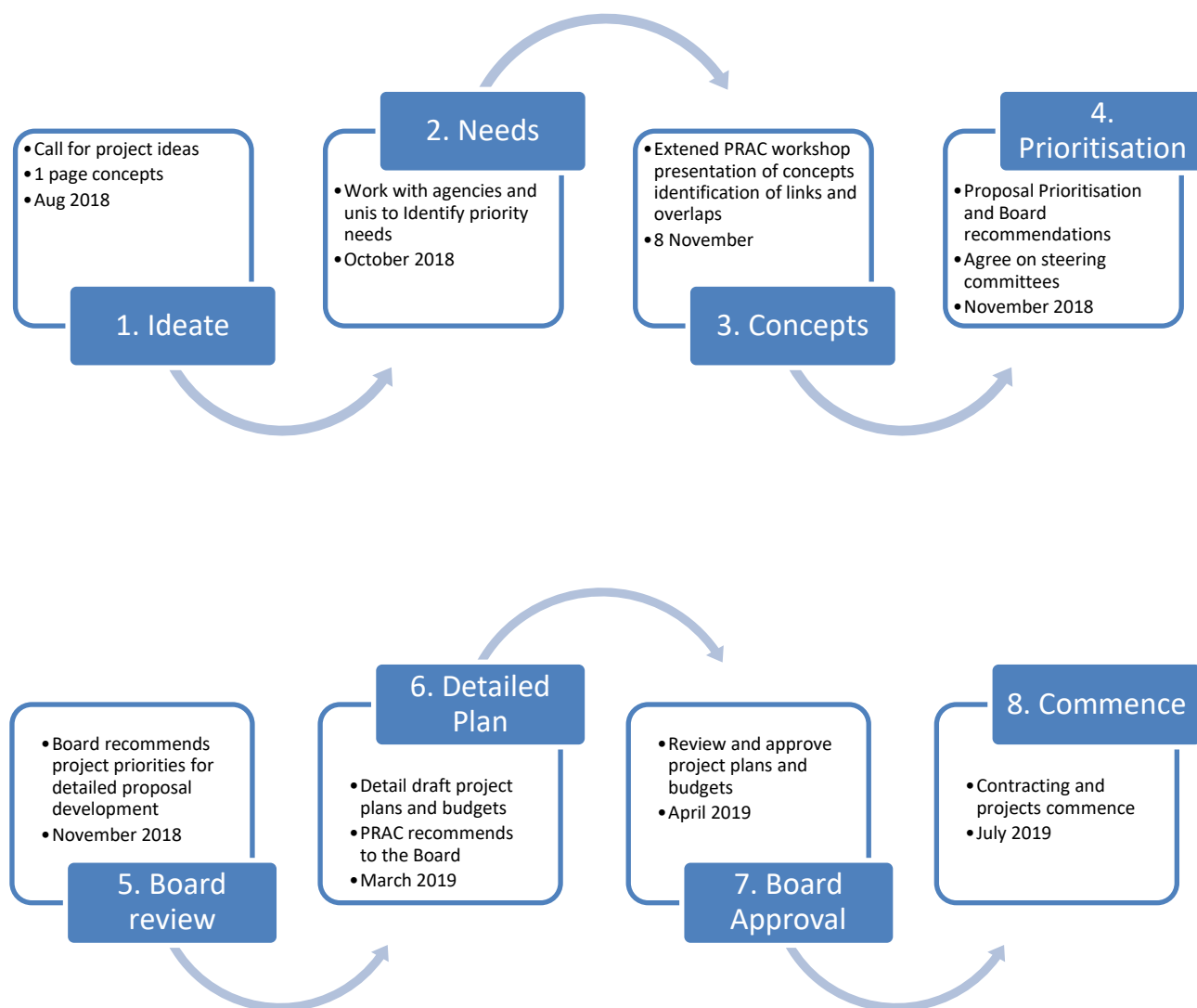
1 CORE PROJECT PLANNING PROCESS

In accordance with the annual project selection process formalised in the Strategic Plan 2017-2019 (Table 8), the specific process for the selection of 2019-2021 projects was agreed by the Board on 16 August 2018 (Table 1). This process is only scheduled to be completed by June 2019 and therefore this business plan is based on progress made to Task 6: Proposal prioritisation, according to selection criteria, and Board recommendation.

Table 1: PATREC Selection Process for 2019-2021 Projects

	Tasks	Decision/action	Indicative Date
	Recommend selection process for 2019-21 projects	PRAC	26 July 2018
	Agree to selection process for 2019-21 projects	Board	16 August 2018
1	Call for project ideas – 1 pager concepts – including template and scope	Director, PRAC reps	31 August 2018
2	Work with agencies/unis reps to identify priority needs/ideas. ² Submit 1 pager concepts.	Director, PRAC reps	31 October 2018
3	PRAC Workshop (with extended participation) - presentation of concepts, identification of links and overlaps.	PRAC - extended	8 November 2018 (immediately prior to PRAC meeting)
4	Proposal prioritisation, according to selection criteria, and make Board recommendation as to priority projects requiring detailed proposal development. Agree on steering committees.	PRAC	8 November 2018
5	Approve recommended project priorities for detailed proposal development.	Board	29 November 2018
6	Researchers with SCs submit detailed draft Project Plans and budgets to PRAC for recommendation of projects to be approved by Board.	PRAC	March 2019
7	Approve project plans and budgets.	Board	April 2019
8	Contracting and project start-up	Director	1 July 2019

A summary of this process has been included in the Business Plan drawing from the outputs of this process:



2 CALL FOR PROPOSALS

2.1 Process

A call for proposals relating to Task 3 of the PATREC projects selection process (Table 1) was made to firstly elicit government partner written proposals for research project needs. The following information was provided.

Background

It was clarified that the call related only to PATREC Projects which are those which use, in whole or in part, core funds. Core funds are those provided on an annual subscription basis by the collaborating partners. PATREC Projects require oversight by PRAC and approval by the Board in accordance with the process outlined in Annexure A. It was further clarified that PATREC also conducts “external” projects which involve one or more of the PATREC collaborating parties, including with third parties, but that DO NOT receive any core funds.

Almost 70% of PATREC core research funds have been committed to iMOVE CRC projects until 2027 and as such, the bi-annual PATREC Project selection process, of which this call is part, is primarily to do with the

selection of iMOVE projects, currently aimed at projects with a duration of two years. The iMOVE program of research is well aligned with PATREC Strategic priorities, also include opportunity for integrated land use and transport projects as well as more transport-oriented projects. Land use-oriented projects will be favoured for selection using the remaining 30% of PATREC core research funds.

Purpose

The aim of this call is to initiate the process of eliciting research project ideas from both a policy needs and academic policy-responsiveness perspective from our government agency- and research partners, respectively. This process will culminate in the approval of a number of projects to be undertaken by PATREC during the period mid-2019 to mid-2021 which will be supported partly or in full by PATREC core funds.

Strategic priorities

- Project concepts must align with PATREC strategic priorities which remain the four theme areas (with underpinning supportive information and modelling platform), with particular application to Metronet and Westport:
- Integrated land use and transport futures;
- Smarter travel decisions;
- Integrated freight system optimisation; and
- Emerging technology and network optimisation and intelligence

Next steps

Within the broader process outlined in Table 1, this call (Task 3) will be followed by:

- Task 4: Work with agencies/unis reps to identify priority needs/ideas. Submit 1 pager concepts
- Co-ordination within individual partner government agencies to each produce 2-3 project concepts (using attached template (Annexure B), by 3 October 2018). Responsible: Agency leads with PATREC support

Theme area	Agency Co-ordinator	PATREC
Integrated land use and transport futures	Carmel Quin (DPLH)	Linda Robson
Emerging technology and network optimisation and intelligence	Steve Atkinson (MRWA)	Chao Sun
Smarter travel decisions	Brett Hughes (DOT)	Chao Sun
Integrated freight system optimisation		Tim Hoffman

- Circulation of project concepts to researchers to register interest in involvement, expertise on offer, overall responses, suggestions of approach and any other ideas, by 5 October 2018). Responsible: PATREC (Linda Robson)
- Researchers respond, engaging proactively with Agency co-ordinator and/or PATREC support if required (by completing researcher section of relevant project template, by 31 October 2018). Responsibility: Individual researchers/research groups
- Project concepts circulated with workshop agenda (by 2 November 2018). Responsible: PATREC (Sharon Biermann)
- Task 5: Workshop 8 November 2018 - presentation of concepts and researcher responses, identification of synergies, recommendations to PRAC
- This will be followed by a PRAC decision (on the basis of selection criteria) and recommendation to the Board of priority projects for approval to proceed to detailed project proposal generation. The Board will decide on 29 November 2018 followed by detailed joint project proposal development for approval at the first Board meeting of 2019 (in April) for anticipated project commencement on 1 July 2019.

Selection criteria

The PRAC will assess project concepts against the following criteria:

- Alignment with the PATREC Strategic Plan 2017-19 as updated in the Business Plan 2018

- Policy relevance
- Fit with the current portfolio of PATREC activities
- Contribution to PATREC KPIs
- Level of co-contribution from non-core funding sources
- End-user pull
- Steering Committee endorsement (where proposed projects are extensions of current projects)
- Balance of researcher and of end-user engagements, commensurate with their respective inputs
- Cross agency and university collaboration potential
- No duplication of research or what has already been done within agencies

Funding available/number of projects

Core funding available for PATREC projects (over 2 years from July 2019):

- \$370k/year for two years (ie. \$740k over two years)
- Aiming for projects with a two year duration but with quarterly milestones
- 3-4 projects/sub-projects envisaged, conducted over 18-24 months, with annual project budget around \$80-100k

Template

Government agency proposers were asked to provide the following (PART A) information in the template provided:

- **Proposed Title**
- **Name/s of Proposer/s**
- Who will be the main users of the research outputs ie. main stakeholders and what is their affiliation?
- **Aims and Objectives**
- **Policy need** - Why is this research needed? Policy context, problem the research needs to address
- **Significance** - Envisaged outcomes and policy impacts/benefits
- **Scope** - What is the envisaged extent of the research (within a 18-24 month project duration) and what are key stages and outputs? What will be done and what will not be done.

2.2 Outcomes

Eleven, 2-pager project concepts were received from government agency proposers as listed in Table 2.

Table 2: Project concepts submitted by Government partners in response to the call for proposals

Project Title	Proposed By
Optimal journey planning and mode choice	Liam Heitson Transport Strategy and Reform (TSR)
Optimising travel behaviour: the short-term perspective	Claire Thompson Transport Strategy and Reform (TSR)
Optimising travel behaviour: the long-term perspective	Claire Thompson Transport Strategy and Reform (TSR)
Public confidence in the use and roll-out of shared, automated and electric vehicles	Alizanne Cheetham Department of Transport, on behalf of the Connected and Automated Vehicle Advisory Committee (CAVAC)
Transport infrastructure, planning and policy – understanding our context	Graeme O’Neil Transport Strategy and Reform. (TSR)
Industrial Land Analysis (Demand forecasting and typology)	Anne-Marie Brits Department of Transport

Externality metrics for Perth (focus on key road and rail corridors leading to Fremantle Inner Harbour)	Anne-Marie Brits Department of Transport
Connected Systems – Works, Event Planning and Incident Coordination	Alex Hendrick Real Time Traffic Operations Manager MRWA
Enhanced Vehicle Detection at Traffic Signals	Cory Ross – ITS Engineering Manager Cas Tesnear – SCATS & SVD Technical Authority
ITS Future System	Cory Ross – ITS Engineering Manager
Assessing transport impacts of residential Land Use proposals for redeveloping precincts	David Iggleston, Department of Transport

3 RESEARCH RESPONSES

3.1 Process

Project concepts were circulated to PATREC research associates, with invitations for wider circulation to interested academics. Responses were requested in the form of short project proposals (PART B) in relation to project concepts provided by government agency proposers (PART A). Researchers were asked to provide the following information:

- **Name/s of Researcher/s** - Who is expressing an interest in being involved in this research project? Affiliation?
- **Response to Agency Proposition** - What is your high level, general response to the above project concept proposition and why is it of interest to you? Is there anything you would propose differently or anything you would add from your knowledge of what research has been done in relation to the topic?
- **Approach** - How would you approach the research and what kinds of methods would you use eg. literature review, applied to Perth, case study, big data analytics, surveys etc
- **Deliverables** - What will be produced during and at the end of the project
- **Team** - What skills would be required to conduct the research and what expertise and experience would you and your team bring to the successful completion of the project? What are the possibilities of working collaboratively with other universities to undertake this research?
- **Indicative timeframe and budget** - How long will this take and how much will it cost (provide a ballpark budget range if possible)?

3.2 Outcome

Twenty-six PART B responses were submitted and are listed in Table 3.

Table 3: Summary of responses received by researchers – only lead researcher’s name mentioned

No.	Project Title	Responses
1	Optimal journey planning and mode choice	1.1 Chao Sun 1.2 Tristan Reed
2	Optimising travel behaviour: the short-term perspective	2.1 Brett Smith 2.2 Mohammed Quaddus 2.3 Mariana Atkinson (including long term) 2.4 Chao Sun, Mark Reynolds 2.5 Ferry Jie
3	Optimising travel behaviour: the long-term perspective	3.1 Brett Smith 3.2 Chao Sun, Mark Reynolds 3.3 Trudi Cooper

No.	Project Title	Responses
4	Public confidence in the use and roll-out of shared, automated and electric vehicles	4.1 Carey Curtis 4.2 Mohammed Quaddus 4.3 Chao Sun 4.4 Trudi Cooper 4.5 Simone Pettigrew
5	Transport infrastructure, planning and policy – understanding our context	5.1 Sae Chi 5.2 Kerry Brown 5.3 Chao Sun 5.4 Trudi Cooper
6	Industrial Land Analysis (Demand forecasting and typology)	6.1 Tim Hoffman
7	Externality metrics for Perth (focus on key road and rail corridors leading to Fremantle Inner Harbour)	7.1 Tim Hoffman
8	Enhanced Vehicle Detection at Traffic Signals	8.1 Mohammed Bennamoun 8.2 Mark Reynolds
9	Connected Systems – Works, Event Planning and Incident Coordination	No response received.
10	ITS Future System	10.1 Chao Sun
11	Assessing the transport impacts of residential Land Use proposals for redeveloping precincts; including public transport trip generation near transit stations.	11.1 Tristan Reed
12	Reducing public transport barriers to workers from low SES suburbs in Perth	12.1 Trudi Cooper

4 PROJECT PROPOSAL PRIORITISATION

4.1 Process

At its meeting 8 November 2018, the PRAC considered the short form proposals using the following approach:

Considered each of the proposals very briefly, **to determine if each of the Part B responses is:**

- Supported - agreed in principle and should proceed to the original project proposers for further discussion and development with researchers
- Needs Further Work - is uncertain and needs further clarity or questions answered but may be supported. e.g basic approach is ok, but lacks detail
- Not supported. e.g. due to insufficient detail, not value for money. Doesn't meet requirements well.

Broad assessment criteria used:

- Does it meet the brief?
- Does it produce useful outputs that can be use?
- Does it have other benefits, e.g. knowledge or skills transfer, relationship building, collaborations (especially cross portfolio and with DPLH)
- Is it good value for money?

4.2 Outcomes

The outcome of the discussion and recommendations to the Board for ratification are summarised in Table 4.

Table 4: Summary of PRAC recommendations regarding 2019 project priorities

Project Title	Proposer	Researcher Responses (Lead)	PRAC Recommendations (R)
1. Optimal journey planning and mode choice	Liam Heitson (DOT)	1.1 Chao Sun (PATREC)	Not supported.
		1.2 Tristan Reed (Curtin)	Supported (Recommendation (R) 1.2).
2. Optimising travel behaviour: the short-term perspective	Claire Thompson (DOT)	2.1 Brett Smith (UWA)	Supported. Very good proposal. Combine with 2.3, 3.1 and potentially 12 to respond to combined project 2/3. SB and CT (proposer) to convene discussion – involve PTA (R2.1)
		2.2 Mohammed Quaddus (Curtin)	Not supported.
		2.3 Mariana Atkins (UWA) – combined response to 2 & 3	Supported. Preferred approach. See R2.1.
		2.4 Chao Sun (PATREC)	Not supported
		2.5 Ferry Jie (ECU)	Not supported
Optimising travel behaviour: the long-term perspective	Claire Thompson (DOT)	3.1 Brett Smith (UWA)	Has potential but needs more work. Develop further and integrate with 2.1 and 2.3 to respond to combined project 2/3 (see R2.1)
		3.2 Chao Sun (PATREC)	Not supported.
		3.3 Trudi Cooper (ECU)	Not supported.
Public confidence in the use and roll-out of shared, automated and electric vehicles	Alizanne Cheetham (DOT)	4.1 Carey Curtis (Curtin)	Supported. Collaborative project consolidating 4.1, 4.4 and 4.5 to be discussed. SB and AC (Proposer) to convene discussion. Involve PTA, David Igglesden & KW. Consider having “adjudicator” present. Liaise with RAC. (R4.1)
		4.2 Mohammed Quaddus (Curtin)	Not supported.
		4.3 Chao Sun (PATREC)	Not supported.
		4.4 Trudi Cooper (ECU)	Supported. See R4.1.

Project Title	Proposer	Researcher Responses (Lead)	PRAC Recommendations (R)
		4.5 Simone Pettigrew (Curtin)	Supported. Preferred. See R4.1.
Transport infrastructure, planning and policy – understanding our context	Graeme O’Neil (DOT)	5.1 Sae Chi (PATREC)	Narrowly focussed on evaluation. See R5.2
		5.2 Kerry Brown (ECU)	Supported. Preferred , but narrowly focussed on asset management. BH to check with Proposer before proceeding. If asset management focus required, proceed with 5.2. If wider approach preferred, SM with BO’N (Proposer) to convene a meeting to discuss collaborative project including 5.1, 5.2 and 5.3 (R5.2)
		5.3 Chao Sun (PATREC)	Focussed on modelling. Needs more work. See R5.2.
		5.4 Trudi Cooper (ECU)	Not supported
Industrial Land Analysis (Demand forecasting and typology)	Anne-Marie Brits DOT	6.1 Tim Hoffman (PATREC)	Has potential but needs further development. Requires discussion with DPLH. Confirmation that no overlaps with Westport work. Involve Landcorp. SB and AMB (Proposer) to convene discussion (R6.1).
Externality metrics for Perth (focus on key road and rail corridors leading to Fremantle Inner Harbour)	Anne-Marie Brits (DOT)	7.1 Tim Hoffman (PATREC)	Has potential but needs further development. SB with AMB to convene meeting with TH and others to further develop (R7.1).
Connected Systems – Works, Event Planning and Incident Coordination	Alex Hendrick (MRWA)		Project not supported. No response received. Is better suited to consulting.
Enhanced Vehicle Detection at Traffic Signals	Cory Ross (MRWA)	9.1 Bennamoun (UWA)	Supported but needs tighter scoping and more reasonable costing and/or wider iMOVE project involving other agencies to which PATREC could contribute part. SM to convene meeting to discuss with team.
		9.2 Mark Reynolds (UWA)	Not supported.
ITS Future System	Cory Ross (MRWA)	10.1 Chao Sun (PATREC)	Project not supported for PATREC. Consulting project, better undertaken

Project Title	Proposer	Researcher Responses (Lead)	PRAC Recommendations (R)
			across whole of Australia for consistency, e.g. Austroads or ARRB.
<i>Transport impacts of residential Land Use proposals for redeveloping precincts</i>	David Igglesden (DOT)	11.1 Tristan Reed (Curtin)	Supported but conditional on support from DPLH. SM with DI (Proposer) to convene discussion with DPLH to agree on scope.
<i>Reducing public transport barriers to workers from low SES suburbs in Perth</i>	University proposer Trudi Cooper	12.1 Trudi Cooper (ECU)	Could be of value. Could potentially combine with 2 and 3. See R2.1.

At its meeting on 29 November 2018, the Board approved:

- PRAC's recommendations of project priorities for more detailed project proposal development
- indicative budget allocation (total of \$1.245K) as guide for detailed project development
- in principle, that additional funds could be sought to augment the PATREC core funds and that the scope of the projects be refined to bring the costs down from \$2 million to around \$1,245K requiring around \$505K in additional funding (indication from DOT as main proposers that additional funding was being investigated).

5 DETAILED PROJECT PLANNING AND FINAL PROJECT PACKAGE

5.1 Process

- Detailed project plans were prepared by researchers in consultation with project champions and project steering committees, with revised scopes in relation to indicative funding guidance of \$1,245K
- Director received advice that DOT is not able to contribute additional funding in 2019/20 (but that there could be some scope for the base funding to be increased in 2020-21) and that we should proceed on the basis of core funding only (\$740K over 2 years), by further prioritisation and reducing of scopes (27 February 2019)
- Board Chair and Director met with DG Transport to update him on the situation (11 March 2019)
- At the PRAC meeting 22 March 2019, the PRAC (government members only) agreed to actions and /or recommendations in relation to the following key agenda items:
 - Confirm the PATREC core research program 2019-2021 within the core funding envelope of \$740K over 2 years
 - Confirm excluded projects
 - Confirm included projects
 - Confirm research budget allocation to projects
- At the Board meeting on 4 April 2019, PRAC recommendations were ratified.

5.2 Outcome

Nine projects were prioritised for inclusion in the PATREC research program 2019-2021 and the budget allocated on the basis of revised detailed project proposals and a comparison of value across all projects (Table 5).

Table 5: Project prioritised for inclusion in the PATREC core-funded research project package 2019-2021

Project 2019-2021 (2 years)*	Proposer	Research Partner/s	Budget \$	Research Focus Area
1. Optimising travel behaviour: short term	DOT	UWA, Curtin	144,000	Smarter Travel Decisions
2a. Public confidence in the use and roll-out of SAEV - older population - trial	DOT	Curtin	143,000	Smarter Travel Decisions
3a. Investment risk of emerging technology: Enhanced Strategic Asset Management	MRWA	ECU	93,000	Emerging technology and network optimisation and intelligence
3b. Investment risk of emerging technology: Enhanced Appraisal	DOT	UWA	60,720	Emerging technology and network optimisation and intelligence
4. Enhanced vehicle detection	MRWA	UWA	95,400	Emerging technology and network optimisation and intelligence
5. AV Simulation (iMOVE ITS continued)	DOT/ MRWA	UWA	100,000	Emerging technology and network optimisation and intelligence/ Integrated land use and transport futures
6. LU -T integration - Cubeland support	DPLH	UWA	72,000	Integrated land use and transport futures
7. Freight generation – transport demand – industrial land	DOT	UWA, Consultant	72,000	Integrated Freight System Optimisation
10. Journey Planning and mode choice	DOT/ PTA	Curtin	30,000	Smarter Travel Decisions
TOTAL			810,120	