Redesigning Pasadena High School

Business plan 2018



December 2017



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Key findings

The results of the cost-benefit analysis of a range of redesigning options for Pasadena High School over a 10-year time period (2018 to 2027) indicate the most cost effective option is to establish a science technology, engineering, arts and mathematics (STEAM) focus school linked to Australian Science and Mathematics School (ASMS) and run the Ignite program (previously known as SHIP – Students with High Intellectual Potential) after 5 years, starting in year 6 (2023). Five years is required for the school to build adequate education capacity.

By following this option:

- total enrolments have the capacity to grow to 979 students in a decade (by 2027), an extra 869 students compared with the 'do nothing' scenario of 110 enrolments (continuing the current business)
- the school can offer Ignite program to 50 students per annum starting with year 8 students from 2023
- the net present value of the option's cost over a 10-year time period is estimated to be \$11.7 million in 2017 dollars, which is equivalent to \$13,447 per additional enrolment. The estimated annual cost is \$1,827 per extra student

Strategic initiatives in the next 2 years (2018 to 2019) include:

- Initiative 1 School culture
 - o Introduce personalised learning plans for years 8 to 12 students
 - Review the current core school values of 'Respect, Relationships, Excellence, Creativity and Citizenship'
 - Assess whether the workplace is aligned with the values
- Initiative 2 Staffing
 - o Negotiate with teaching and admin staff to meet requirements of the redesigned school for 2018-19
- Initiative 3 Timetable and organisation
 - o Redesign the timetable and day structure
 - o Introduce years 8, 9 and 10 STEAM interdisciplinary learning
 - o Develop senior school courses and options for 2019
- Initiative 4 Learning pedagogy
 - o Set the focus on STEAM, interdisciplinary and inquiry-based learning
 - Collaboratively design and implement a professional learning program with DECD Learning Improvement division, ASMS, Flinders University and selected primary schools
- Initiative 5 Learning facilities and resources upgraded to an appropriate level
- Initiative 6 Sports
 - o Plan and prepare for a basketball academy with Flinders University and Basketball SA
- Initiative 7 Rebadge the school and plan a marketing initiative to attract enrolments
- Initiative 8 Review and evaluation

The budget required to implement these strategies in 2018 is estimated at \$325,643 with \$75,196 to be contributed by Pasadena High School, and the remaining \$250,447 to be funded by the department.

1. Introduction

In October 2016, the local community and parents voted that Pasadena High School should remain open despite its extremely low enrolment numbers. Inadequate education facilities, low level learning outcomes for the students and rumours of the closure of the school were contributing factors to the enrolment decline.

In support of the community vote, the Minister for Education and Child Development, DECD's chief executive and the school principal together with Corporate Office committed to rebuild and assist sustainable growth of Pasadena High School for the future.

Since November 2016 several meetings and workshops were held to engage with the local community, Flinders University and the Australian Science and Mathematics School (ASMS) to set a vision, design detailed strategies and write a business plan for the future. Strategies and action plans were developed to best describe goals and outcomes.

The vision is to create Pasadena High School as a specialist school in science technology, engineering, arts and mathematics (STEAM), contributing to and extending the science technology, engineering and mathematics (STEM) focus of the state government and the Australian Government. This vision will be achieved in partnership with Flinders University and ASMS.

2. Pasadena High School background

The school opened as Daws Road High School in 1965 with the potential capacity of 1700 students. The site was renamed Pasadena High School in 2002.

The school is located in the southern region of the Adelaide metropolitan area. Previously the school catered for year 7 to year 12. In 2014, the year 7 mainstream class had only a single new enrolment so the school decided to close year 7 entry in the best interests of the school and its students. A facilities review was conducted in 2014 to enable both the school and the community to manage amenities more efficiently.

Enrolments over all mainstream classes have been declining in the past 10 years. Public perceptions about the school's future have contributed to the enrolment decline. Satisfactory learning opportunities have not been fully created for students, partly due to limited effective teaching approaches, and partly due to lack of innovative facilities and science laboratories.

The school has a disability unit with excellent reputation in the community. Senior years students access Daws Road Centre and other transition programs.

The school also offers:

 Doorways2Construction¹ and Doorways Plus with Construction Industry Training Board (CITB²) South Australia and Adelaide Training and Employment Centre (ATEC) at the Trade Training Centre facility in Pasadena High School. The Trade Training Centre is an Australian Government-funded facility delivering Certificate I to II in Building and Construction and is accessible by students from across the Inner South

¹ Doorways2Construction is South Australia's premier vocational education and training in schools program for the building and construction industry

² The CITB is an industry-owned and led non-government agency responsible for supporting the South Australian building and construction industry by providing leadership in training and skills development for its workforce

Curriculum Alliance (10 DECD schools) as well as other government and non-government sites in southern Adelaide

- the Business in Schools program to contribute to the advancement of industry's future workforce
- the Special Interest Basketball program connects learning though the Australian Curriculum and the South Australian Certificate of Education (SACE)
- the Ice Factor program for re-engagement and retention enabling students to develop vocational and life skills in a team environment.

Present strategic principles

The core values of Pasadena High School are Respect, Relationships, Excellence, Creativity and Citizenship. An important aspect is a sense of community and family across the mainstream and disability unit learners.

Students in both the mainstream and disability unit perform in music, art and drama (MAD) night events, which showcase plays, radio plays, dances, stories, drum demonstrations and aerial trapeze, held in the school's Tower Arts Centre. The school has partnerships with South Australian Light Opera Society and the professional association of Visual Arts Educators in South Australia. In 2017, the school developed its arts pedagogy across the curriculum as a professional development program with Flinders University. This included research across the school involving staff and students as part of a bigger collaboration with the university.

The school is a sexual health information networking and education (SHine) focus school. All staff are trained to deliver the SHine curriculum and the Keeping Safe (Child Protection) curriculum through Pathways to Success (P2S Pastoral Care program). The P2S Pastoral Care program allows teachers to explicitly teach skills that underpin lifelong learning. It is delivered weekly over a period of a single and a double lesson to build positive relationships, develop a sense of community within and beyond the school, and foster a higher sense of self and motivation to achieve.

3. Current business and performance

In 2017, Pasadena High School had 55 mainstream students enrolled, with combined year 8 and year 9 classes due to the low number of students, 41 students with intellectual disabilities in the disability unit and 40 vocational education training (VET) students (Doorways2Construction) plus 15 flexible learning options (FLO) students.

The site was initially built to cater for 1200 students. Considering the current low enrolments, most buildings are unused and not up to modern standards.

The existing facilities are:

- buildings 1, 1A, 1B, 1C, 1D, 3 and 4, constructed in 1960 but opened in 1965
- buildings 1E: disability unit (ground floor) and library (top floor) built in 1970
- buildings 11: Tower Arts Centre former church plus additional areas constructed in 1980, refurbished and extended in 2000s
- various outbuildings 7, 8, 9, 10, 12, 13 and 14
- building 2 built in 1990, rebuilt as Pasadena Stadium in 2000s
- Trade Training Centre with construction/carpentry trade specialisation, Australian Government- funded and opened in 2013
- 3 buses (one 22-seater coaster for the mainstream use, one 14-seater and a 10-seater van donated by Variety Club for use by the disability unit to enable access to flexible, community-based learning for all student groups.

In 2016, a high percentage of students resided outside the Pasadena School zone – 69% of students lived outside the zone and 31% inside the zone. In 2016, 57% of students met National Assessment Program – Literacy and Numeracy (NAPLAN) national minimum standard (NMS) for literacy and 50% met the NMS for numeracy. All of the eligible

students completed SACE and 1 student was awarded in Scientific Studies. This outcome was achieved through strategies of capacity building, personalised learning and improvement pedagogy, tracking and monitoring, systems improvements and evaluation.

The school offers the following subjects:

- arts (performing arts and visual arts)
- design and digital technology
- English
- health and physical education including home economics
- humanities and social sciences (history, geography, enterprise and citizenship)
- mathematics
- sciences
- vocational pathways through Inner South Curriculum Alliance.

At year 10, the core compulsory subjects are English, mathematics, science, history and physical education. Senior school students have few choices and are usually traditional subject offerings. More flexible and contemporary offerings are announced as they become available including Stage 2 offerings at The Australian Science and Mathematics School. Senior students may consider VET options available via the Inner South Curriculum Alliance VET Programs Guide.

Table 1 – Pasadena High School current business	s summary
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Measure (2017)	Value
Total base funding	\$2,917,042
Total targeted funding for individual students	\$283,727
Total targeted funding for groups of students	\$5,950
Total other discretionary funding	\$48,592
Total Resource Entitlement Statement	\$3,255,310
Number of students	
Mainstream (MS) year 8 and year 9 Combined	20
MS year 10	12
MS year 11	12
MS year 12	11
Vocational education and training	40
Flexible learning options	15
Disability unit	41
Total number of students	151
Number of staff	33
Site generated total income	\$159,782
Site generated total expenditure	\$667,545

Stakeholders

The Pasadena High School principal invited leaders from Flinders Education School and ASMS to formulate strategies to rebuild the school as a specialist 'living laboratory' school in STEAM, contributing to and extending the STEM focus of the Australian Government and state government including the DECD STEM strategy.

Stakeholder	Interest
Wendy House	Pasadena High School principal
Erika Berresford	PHS senior leader
Wendy Lowes	PHS senior leader – daily operations
Karen Jones	PHS coordinator – student wellbeing
Richard Costi	Education director
Prof Lindsey Connor	Flinders Education school dean
Jane Heath	ASMS principal

Pasadena's partnerships with Flinders University and ASMS enable a co-development of an interdisciplinary curriculum and present a unique opportunity to demonstrate the value of DECD in leading edge research-informed schooling approaches for the 21st century.

4. Future business of the new school

The Southern Region of the Adelaide metropolitan area is expected to experience a growth of 10% in high school enrolments over a decade, i.e. 1% per annum on average. The estimated growth rates were provided in the Pasadena and Unley High Schools Demographic Report in May 2016 (see Table 3).

Table 3 shows DECD secondary schools in the southern region had excess capacity of 3,807 in 2016. With the potential enrolment growth, the excess capacity will contract by 1,074 to 2,733 in 2026.

It is worth noting that since 2005 around 30% of students enrolled in Pasadena High School resided in the school zone. The remaining students attended other schools, mainly Unley High School. Pasadena High School has not been a preferred choice by the local community.

Turning the school around will be a challenging mission for the school given its unappealing reputation and regional excess capacity to aim for sufficient enrolments growth to make the school viable. In 2018, the school will have a stand-alone year 8 class with 22 students, which is a substantial increase from last year, but enrolment numbers will be low for other year levels – 12 for year 9, 7 for year 10, 10 for year 11 and 9 for year 12, with a total of 60 mainstream students.

Table 3 – Expected growth in government schools

Southern Adelaide region	2015-2016	2026
DECD student population		
Preschool	5,454	6,349
Primary	22,268	27,153
Secondary	16,052	17,755
Total	43,785	51,267
Number of schools		
Primary	60	60
Primary and secondary	4	4
Secondary	12	12
Total	76	76
School capacity		
Primary	29,990	29,990
Primary and secondary	4,850	4,850
Secondary	14,050	14,050
Total ³	48,890	48,890
Modelled enrolments		
Primary	30,029	31,746
Primary and secondary	5,264	5,713
Secondary	10,243	11,317
Total	45,535	48,776
Shortage/excess capacity		
Primary	-39	-1,756
Primary and secondary	-414	-863
Secondary	3,807	2,733
Total (excess capacity)	3,355	114

In support of the community vote in October 2016, Pasadena High School in partnership with Flinders University and ASMS, supported redesigning the school to create a specialist 'living laboratory' school in STEAM. Together with DECD's Learning Improvement division, it will develop an interdisciplinary curriculum that:

- strengthens research and teaching innovation through closer links with industry
- fosters current and new educational stakeholder partnerships in the community
- involves the Flinders University academic professions in future research and teaching opportunities
- positions the school and the ASMS as key strategic partners within the Flinders University research and teaching learning community
- better prepares young people through engaging learning design with the necessary capabilities to enter a rapidly changing and competitive global workforce post school.

³ It is an unrealistic assumption that schools capacities and numbers of enrolments will remain unchanged between 2015-2016 and 2026.

The partnership presents as a unique opportunity to demonstrate the value of DECD and Flinders University collaboration in forging ahead with leading edge research-informed schooling approaches for the 21st century.

Pasadena High School is uniquely positioned for this new educational trajectory through:

- having a productive history of partnership arrangements with Flinders University
- being located just 5 minutes by car from Flinders University and ASMS
- a favourable location along a major public transport thoroughfare
- a current capacity to cater for over 600 students
- abundant parking space for Flinders University staff, community groups, teaching staff and students.

Learning design model

The redesigned school will emphasise engaging learning approaches for young people through foregrounding:

- interdisciplinary curriculum design, inquiry and collaboration
- research-informed teaching pedagogies driving innovation, applied knowledge and entrepreneurship
- pursuing the development of a STEAM curriculum through action research collaborations
- embedding STEAM in learning approaches to foster necessary 21st century capabilities including critical thinking, creativity, investigation, collaboration and problem-solving.

It is important for the school as it moves into its first redesign phase in 2018, that this 'learning design' logic will apply to the middle years (years 8 and 9 initially), expanding to include years 10 and 11 in the following years.

The learning design principles will also be concurrently pursued by teachers and students in the Pasadena disability unit. The integrated curricular work will be developed in the disability unit in collaboration with the mainstream. This will create a seamless interdisciplinary learning design thread across the whole school.

Senior secondary learning

Once established, the 'new' senior school will offer an inquiry-based senior school curriculum aligned to the ASMS curricular approach expanded into arts, design, sport and recreation, food and hospitality. In the future, it will prepare students for careers through embedding extensive local industries internships, VET and school-based apprenticeships. This will be a core component of the senior school's learning program.

Entry to university arrangements will be negotiated with Flinders University as an alternative university entry pathway for Pasadena High School students.

School culture

In the redesigned school, high expectations and capacity-building will generate improved student performance and independent learning. The emphasis on the school's values of respect, relationships, excellence, creativity and citizenship will continue to support a wellbeing-focused environment and inspire learner engagement. Creative and critical thinking and problem-solving skills developments are fundamental in the learning design.

Student learning and wellbeing are essential in the thinking, planning and development of the new school. This will occur through developing a student voice, where learners play a key role in designing their learning and are empowered to participate in the development of the school. Differentiated practice and planned personalised learning for every student will further support their achievements.

Staffing

The staff of the 'new' school will demonstrate a commitment to the school's vision. They will have an understanding of and expertise in interdisciplinary STEAM pedagogy, inquiry-based learning and sound subject knowledge. They will work collaboratively and will need to be enthusiastic and flexible. They will be energetic, innovative and willingly explore new practices. They will also demonstrate highly developed digital literacies, 21st century skills in teaching and be actively engaged in pursuing their own learnings.

Teachers and support staff will create conditions for safe learning and safe failure. They will value observation of professional practice within the school and across other schools including ASMS.

Teachers will have the latest and ongoing involvements in STEAM industries and businesses to build their understandings of career pathways and opportunities. They will be supported in this process through the Flinders University Bridging the Gap strategy. They will plan, assess and moderate learning against the Australian Curriculum achievement standards and SACE performance standards.

Showcasing teacher successes and work with other schools including partnership primary and secondary schools will ensure the school is recognised as a world-class STEAM learning centre.

Learning environment

Learning spaces in the new school will be flexible, colourful and appealing. They will include open and outdoor spaces to support diverse learning activities.

Learning spaces will be well equipped to support STEAM curriculum and include appropriate digital resources and facilities such as those that embrace cutting edge, aspirational technologies for coding, robotics, laser cutters and 3D printers. This will build on local primary school learning experiences. Learning spaces will have a mix of furniture types. The furniture will easily be reconfigured to meet learners' demands and to offer students education diversity and choice. The refurbished Pasadena library will create a large flexible learning space.

Learning spaces for students and staff will not be restricted to the Pasadena site and will include Flinders University, ASMS, the Tonsley precinct, Repat and Mitcham Plains Partnership secondary and primary schools. An on-campus environment that uses sustainable practice will be established using less paper, effectively accessing digital technologies and offers learning spaces for innovation, creativity and problem solving. Devices, software, digital resources and electronic equipment will support learning across the curriculum.

The structure of the school day and week will support collaboration, flexibility, inquiry and innovation. This will include reassigning the staff planning and learning time from Monday to Tuesday afternoon to align with the ASMS schedule. Students and staff will have access to a variety of facilities such as a café, outdoor seating and shaded areas that are designed and created by students as part of their learning programs.

Sports Academy

The vision for the Sports Academy at Pasadena is that it will be recognised by peak sporting organisations throughout South Australia as offering the highest quality elite student athlete development program. It will offer high performance sports programs and pathways to further studies and career opportunities in the sporting industry. It will provide the highest quality specialist sports programs with the best coaching, facilities and equipment.

The academy will develop strong partnerships with peak sporting bodies, related industries and Flinders University. It will assist students to achieve an appropriate balance between their academic and sporting aspirations within a supportive learning environment and will promote a culture of excellence with the focus on academic, personal and sporting development through individualised programs.

The newly established Sports Academy will initially offer a high performance basketball program that builds on the success of the existing Pasadena Special Interest Basketball program. The academy will be established in partnership with Flinders University Sport Health and Physical Education (SHAPE), DECD and sporting bodies including Basketball SA, the Pasadena-based Sturt Sabres Basketball Club and Sports SA.

It will provide a high quality and innovative program including sports sciences including nutrition and physical testings over an extended period, screening, strength and conditioning, physiotherapy, massage, and recovery and player management. The addition of a high-level sports curriculum positions the school as one of the leading public schools across multiple areas.

The academy will provide extended opportunities for STEAM learning (data input and analysis, evaluation and reporting, developing and using coaching and officiating apps, online resource development, competition management, player management apps). The fit-out of the purpose-designed gym and weights training centre at the school will provide an indoor high-performance personal training facility that supports improved individual performance. This will position the Pasadena Sports Academy to expand its sports offerings to include ice hockey and other sports in the coming years. The school has long been recognised for its successes in ice hockey through the Ice Factor re-engagement program. The Flinders University SHAPE team will collaborate with Pasadena staff, Basketball SA and the Pasadena Sports Centre manager to develop and implement the high-performance partnership, coaching opportunities for the school and Flinders University students, as well as opportunities for possible venue expansion.

The academy will provide enhanced community access, opportunities for social enterprise and expanded partnerships with local primary schools.

Community and industry connections

The new Pasadena High School will have stronger connection with families and the community, business and industry and our partners in Flinders University, ASMS, Basketball SA, Sturt Sabres and the redeveloped General Repat Hospital precinct.

Building on the existing business and industry links established through the school's membership of the Business in Schools, it will be engaged with businesses and industries through the Bridging the Gap initiative to contribute to the development of industry's future workforce and South Australia's STEM skills-based economy.

Bridging the Gap is a collaborative research project initiated by the State Government which has Flinders University, schools and industry working together to improve the ability of student teachers to inspire high school students and reinforce the value of learning and understanding STEM. It aims to test models for increasing the understanding of high school students about how STEM is used in real-world contexts, by allowing student teachers to experience first-hand the practical application of STEM skills within industry.

The Bridging the Gap project aims to:

- develop in pre-service science teachers a deep and solid understanding of the connections between theoretical science knowledge and its application in society through immersion in authentic experiential learning in an industry environment
- increase pre-service science teachers' capacity to innovate new approaches to learning and teaching in secondary schools, associated with creative problem solving, a spirit of enterprise and contemporary science in meaningful contexts
- positively impact secondary school students' perceptions of STEM as a creative enterprise, thus increasing the likelihood that they will pursue STEM careers.

Pasadena High School is located opposite General Repatriation Hospital. Significant learning opportunities already exist in the partnership with 'Repat'. The school has an ongoing relationship with the Repat Museum, which funds annual awards for two students who submit research or works about an Australian military campaign. An opportunity exists to reconnect with a range of pathways and learning at the Repat and within the soon-to-be-established Open Daws Health Hub at the Repat site. Expanding the established learning programs in arts, history, science (garden program) and workplace learning, through a STEAM lens, will strengthen this relationship and supports the school's role as a community hub in partnership with the new Repat.

Further opportunities for social enterprise, community engagement and 'pay it forward' experiences will be embedded within the interdisciplinary learning programs at Pasadena and will facilitate stronger connections with families and local community as key partners in student learning.

The newly designed structured transition strategy will be further developed to connect students with disabilities at Pasadena with services, community organisations and industry groups to ensure they are well equipped and prepared for work and life post school. This strategy builds a collaborative relationship with families of students with disabilities and community organisations to create supported pathways to post school success.

International education

Once established, the school's unique STEAM focus achieved through interdisciplinary and inquiry-based learning, along with the Sports Academy and partnership with and proximity to Flinders University will be potentially attractive for international students and families. This opportunity should be explored as the school is established and its programs consolidated.

There is a potential increased interest for international student enrolment if the school provides a bilingual program (French, Spanish or Chinese) as well as ESL and intensive English courses. The appointment of an international student manager will be required.

Rebadging

To signal to the community that Pasadena High School is a redesigned place of learning and to indicate significant change, the school will be rebadged. This will include a new look, logo and a name change. Several suggestions for the name change proposed that the suburb location name 'Pasadena' should be retained, while the school title should be changed, e.g. Pasadena Secondary College or Springbank Secondary College. Along with the new logo, the signage and branding will indicate the school's partnership with Flinders University and ASMS.

5. Risks and mitigations

Potential risks and threats

- School redesign can be complex and challenging in the developmental period
- Quality education capacity including leadership depth is limited based upon current 2017 staff appointments
- Earning local community trust can be quite difficult given the existing unappealing image and reputation of the school and hence reservations with enrolments, which must increase by at least 600 to 700 to make the school viable
- Media may pick up on the difficulties encountered during the formative redesign years
- Neighbouring schools may view the school's partnership with Flinders University as an unwelcome competitive threat
- Partnership relationships take time to develop and will almost certainly encounter relational and bureaucratic obstacles and misunderstandings during the developmental period
- Adult students and academic staff involvements will require police checks which are time consuming and costly
- Potentially increased workload for ASMS training Pasadena High School teaching staff.

Mitigating risks

- Schooling purpose and design clearly stated
- Clear and transparent communication processes in place with all stakeholders
- A partnership steering committee in place to progress the partnership agenda
- Detailed strategies, actions and outcomes transparently articulated
- Monitoring and evaluation processes in place so that all stakeholders are held accountable
- The staffing appointments agreed to by the ASMS with DECD are put in place for Pasadena High School from 2018
- An agreed media strategy put into place by the key stakeholders highlighting a development period for sustainability and best practice of between 5 to 10 years
- Rebadge the school as 'a living laboratory' that has an agenda to take research-informed school development innovation at the heart of its learning agenda in 2018
- Position the school as offering enhanced learning opportunities that are different from the schools located in the competitive schooling marketplace – a small school by design for personalised and flexible learning opportunities with strong partnerships with Flinders University and ASMS that values teacher development and industry links.

6. Financial analysis to redesign Pasadena High School

Redesign options

A cost/benefit analysis was undertaken to determine the cost effectiveness of a range of redesigning options for Pasadena High School over a 10-year time period (2018 to 2027). As described in Table 4, 3 options were compared against a base case scenario (Do Nothing).

Pasadena redesign options	Description
Base case	Do nothing and continue current business
Option 1	Rebadging and improved marketing only
Option 2	Rebadging and establish Pasadena HS as a sport focus school with a close alignment to Unley High School
Option 3	Rebadging, establishing Pasadena HS as a STEAM focus school directly linked to ASMS and Ignite program from year 6 (2023)

Table 4 – Alternative options for the cost benefit analysis

Base case – cost

In 2018, the school will have 22 students for year 8, 12 for year 9, 7 for year 10, 10 for year 11 and 9 for year 12, which will bring up the total enrolments to 60 mainstream students. For the base case (**do nothing**) scenario, it was assumed zero enrolment growth and those 22 students in year 8 will enrol/ rollover to higher year levels at the school. In 5 years' time (2022), the school will have 110 enrolments and the number of students will stay unchanged for the remaining timeframe (from 2022 to 2027). The Resource Entitlement Statement (RES) was allocated to the school per annum based on these enrolment numbers as the cost.

Base case – benefit

The school was initially built to cater for 1700 students. With low enrolments of 110, the site is not used efficiently. A partial land sale could be considered as the benefit for the base case and possibly for the alternative options. At this stage, no land sale benefit was considered in the analysis.

Option 1 – Cost

With Option 1, to **enhance enrolment**, it was assumed to improve marketing and rebadging the school, and hire a project manager (0.6 FTE at SSO3) for redesigning and generating business/industry links for the school.

In 2018, the school will have total enrolments of 60 in the mainstream with 22 students in year 8. With an annual enrolment growth of 2%, the school will have 114 mainstream students in 5 years' time (2022) and 126 in 10 years (2027). For cost purposes, the annual RES was allocated to the school based on enrolment numbers as the associated cost.

A one-off marketing cost of \$119,000 in 2018 (the first year of school redevelopment) was allocated for redesigning the school logo and website, developing and installing the new signage, and advertising campaign. A cost of \$40,614 was allocated for year 2018 to employ a project manager on a part-time contract (0.6 FTE at SSO3 level).

Option 2 – Cost

This scenario considered establishing the school as a **sport focus school** with a close alignment to Unley High School in addition to rebadging and marketing improvement. In 2018, the school will have 22 students for year 8, 12 for year 9, 7 for year 10, 10 for year 11 and 9 for year 12, which will bring up the total enrolments to 60 mainstream students. With Option 2, 4% enrolment growth per annum was assumed, which will bring up the total enrolments to 119 in 2022 and 145 in 2027. For cost purposes, the yearly RES was allocated to the school based on the number of enrolments at Option 2. An annual sports funding of \$220,000 was assigned from 2019.

A marketing cost of \$119,000 was built in the model for the first year of redesigning phase in 2018 and a cost of \$40,614 was allocated to hire a project manager (0.6 FTE) at the SSO3 level in 2018. A cost of \$75,000 was also added for 2018 as the expenditure to upgrade sport equipment at the school, establish Basketball Academy and promote the academy to primary schools.

Option 3 – Cost

Pasadena High School redesign Option 3 reflected establishing the school as a **STEAM focus school** directly linked to ASMS added to a rebadging and marketing campaign. The improvements are anticipated to result in an enrolment growth of 6% per annum. In addition, this option assumed that the Ignite program would be offered to 50 students per annum, starting with year 8 students after 5 years launching in 2023.

In this option, the school will have total students of 124 mainstream students in 5 years' time (2022) and 979 in 10 years (2027). For cost purposes, the yearly RES was allocated to the school based on the number of enrolments at the associated cost plus annual Ignite funding of \$89,053, from 2023.

With this option, a one-off marketing cost of \$119,000 and a capital expenditure of \$153,911 were considered to upgrade equipment/facilities in 2018. For additional staffing, a cost of \$40,614 was allocated to employ a project manager (0.6 FTE at SSO3 level) in 2018 with a 5-year cost of \$131,119 per annum allocated to a STEM coordinator Band B1 (2018 to 2022 inclusive).

Method of analysis

The cost/benefit analysis in this business plan conforms to South Australian and Australian Government guidelines for conducting evaluations of public sector projects (Department of Treasury and Finance 2007 and Department of Finance and Administration 2006).

Given that costs and benefits were specified in real terms (i.e. constant 2017 dollars), future values were converted to present values by applying a 6% discount rate. The financial analysis was conducted over a 10-year time period and results were expressed in terms of net benefits, i.e. the benefits relative to the costs for each option. The evaluation measure employed for the analysis was net present value (NPV) – discounted ⁴ project benefits less discounted project costs. Under this decision rule an option was considered to be potentially viable if the NPV was greater than zero. The NPV for option i has been calculated as an incremental NPV, using the standard formulation:

NPVi = PV (option i benefits) – PV (option i costs)

Results

The results of the financial analysis were expressed in terms of the net present value. The present value is the current value of a sum of cash flows in the future. The current fund is worth more in the future because it could be invested now to produce a greater sum in the future. The present value of fund in the future is calculated by discounting it at a rate of interest (6% in this analysis) equivalent to the rate at which it could be invested.

The summary results of the current values of all future costs generated by each option are listed in Table 5 and the detailed financial analysis spreadsheet model is provided in Appendix 1.

Pasadena High School redesign options			
Option 1 – Rebadging and improved marketing only			
NPV (2017 dollars)	-\$600,983		
Total enrolments in 5 years (#)	114		
Total enrolments in 10 years (#)	126		
10 year total enrolment growth change from 'do nothing' scenario (#)	16		
NPV per additional student (2017 dollars)	-\$36,634		
Annual cost per additional student (2017 dollars)	-\$4,977		
Option 2 – Rebadging and establishing the school as a sport focus school with a close alignment to Unley High School			
NPV (2017 dollars)	-\$2,525,114		
Total enrolments in 5 years (#)	119		
Total enrolments in 10 years (#)	145		
10-year total enrolment growth change from 'do nothing' scenario (#)	35		
NPV per additional student (2017 dollars)	-\$72,197		
Annual cost per additional student (2017 dollars)	-\$9,809		

Table 5 – Financial analysis summary

⁴ Discounting refers to the process of adjusting future benefits and costs to their equivalent present-day values

Pasadena High School redesign options contd.	
Option 3 – Rebadging and establishing the school as a STEAM focus school directly linked to the ASMS and the Ignite program in 6 years (2023) and onwards	
NPV (2017 dollars)	-\$11,681,598
Total enrolments in 5 years (#)	124
Total enrolments in 10 years (#)	979
10-year total enrolment growth change from 'do nothing' scenario (#)	869
NPV per additional student (2017 dollars)	-\$13,447
Annual cost per additional student (2017 dollars)	-\$1,827

As outlined in the above table, each of the 3 reform options will have a net cost.

Option 3 (rebadging and establishing the school as a STEAM focus directly linked to ASMS and Ignite program in 6 years – by 2023 and onward – has the highest cost of \$11.7 million in 2017 dollars. However, this option results in the **highest** growth of enrolments of 979 students over a 10-year period (869 additional students compared with the base case scenario of 110 students).

This option is associated with the lowest annual cost of \$1,827 per student and hence considered as **the most cost effective option**. It is important to note that the inclusion of the Ignite program by 6 years' time results in a significant enrolment growth of 50 students per annum. In the model, it was assumed that the school will require 5 years to build up adequate education capacity to run an Ignite program.

Conclusion

Option 3 is the most cost effective path to rebuild and generate sustainable enrolment growth for Pasadena High School. The government has already announced \$10 million funding to Pasadena High School to lift the quality of infrastructure. With the funding, the school will have a solid foundation to implement Option 3 and turn itself around.

7. Sensitivity analysis

The results of the financial analysis were re-estimated applying the Monte Carlo technique of 10,000 simulations to assess risks of variables with uncertainty. A sensitivity analysis is useful to determine the impact on results in the event variables fluctuate and indicate the level of confidence we can have in the findings.

The financial analysis re-estimated using 50% fluctuations in:

- annual enrolment growth rate for Option 1 between 1% to 3% (2% used in the financial model)
- annual enrolment growth rate for Option 2 between 2% and 6% (4% used in the financial analysis)
- annual enrolment growth rate for Option 3 between 3% and 9% (6% applied in the financial model)
- annual enrolment numbers for Ignite program between 25 and 75 (the estimate assumed 50 students will enrol in Ignite program from year 2023)
- discount rates between 3% and 9% (future values were converted to present values by applying a discount rate of 6% for the financial model)

The Monte Carlo simulations of the current values of the costs per additional enrolment were conducted for each option, where each key variable was randomly assigned values within the range of fluctuation specified above.

The simulations indicated that the outcomes of **Option 3** were incentive to changes to uncertain variables and **confirmed Option 3** as the most cost effective option.

The simulation in Figure 3 indicates the current cost per additional student for Option 3 is \$13,738 over the 10 years, almost identical to the cost conservatively estimated in the financial analysis as \$13,447. The current cost per additional enrolment of the Monte Carlo simulation ranged between \$9,999 and \$18,992. The results of Option 3 fluctuates maximum by 41% whereas the outcomes of Options 1 and 2 change, respectively, by 54% and 105% in the event uncertain variables fluctuate by 50%.





Figure 2 – Current value of costs (in 2017 dollars) per additional student for the 'rebadging and establish Pasadena High School as a sport focus school with a close alignment to Unley High School' option



Figure 3 – Current value of costs (in 2017 dollars) per additional student for the 'Rebadging, establish Pasadena High School as a STEAM focus directly Linked to ASMS and Ignite program in 6 years (2023) and onwards' option



8. Strategic initiatives and outcomes

The Pasadena High School principal with leaders from Flinders Education School and ASMS formulated strategies prioritised by stakeholders to rebuild the school as a specialist in STEAM and offer Ignite program in 6 years by 2023 and onward.

A list of initiatives conducted in 2017 and scheduled for the next 2 years (2018 to 2019) are outlined below. These initiatives will work together to achieve the new Pasadena High School described in Section 4.

Initiative 1 – School culture		
Description	Personalised learning plans for years 8 to 12 students Review the core values: Respect, Relationships, Excellence, Creativity and Citizenship Revisit the values and assess the workplace aligned with the values	
Resources	Principal with the school senior leaders and DECD Learning Improvement division (LID) required to deliver this initiative	
Completion date	Individualised learning methods planned by September 2017 Values updated by November 2017 Values revisited by July 2018 Values and workplace performance documented by July 2018	
Outcomes	It is expected that differentiated practice and personalised learning for every student is planned by all the teaching staff	

Initiative 2 – Staffing		
Description	Negotiate teacher staffing to meet requirements of the redesigned school	
	Negotiate short-term project manager position	
	Appointments for 2018 and 2019	
	 Teachers and curriculum support SSOs – Collaborative, Flexible, Innovative, willing to explore 	
	 STEM coordinator – science or digital technology skills 	
	Business manager SSO4	
	 Project manager (0.6 FTE at SSO3) – Redesigning Pasadena HS, business and 	
	industry links, marketing and promotions, and international education	
Resources	Principal and the school senior leaders with DECD People & Culture	
Completion date	December 2017	
Outcomes	The school will have teaching and supporting staff with STEM skills and passions for the new Pasadena HS	

Initiative 3 – Timetable and organisation		
Description	A. Redesign of timetable and day structure	
	B. Adjust staffing and timetable following counselling	
	C. Year 8 and possibly Year 9 STEAM interdisciplinary learning for 2018	
	 Review change of early dismissal day to align with ASMS as well as for professional learning 	
	E. Develop senior school courses and options for 2019	
	F. Years 8, 9 and 10 interdisciplinary curriculum	
Resources	Principal and the school senior leaders with DECD Learning Improvement	
Completion date	Milestone A: October 2017	
	Milestone B: December 2017	
	Milestone C: January 2018 – December 2018	
	Milestone D: January 2018 – December 2019	
	Milestone E: March 2018 – December 2018	
	Milestone F: January 2019 – December 2019	
Outcomes	The Australian Curriculum standards will be met	

Initiative 4 – Learning	g pedagogy
Description	 The focus is on a) STEAM, b) interdisciplinary and c) inquiry-based learning. Professional learning program collaboratively designed and implemented with DECD LID, ASMS, Flinders University and selected primary schools. A. DECD STEM Careers – PL program B. DECD STEM PLP C. DECD STEM EXPO D. Staff PD day (STEAM focus) E. Staff meeting F. Pasadena High School with DECD, ASMS and Flinders University develop professional learning plan G. ASMS – STEM inquiry presentation H. ASMS collaborative PL and task designing in small teams I. DECD-funded teacher release – STEM industry/ business J. Review PL and planning sessions K. Developing digital literacies and technology skills with ASMS – STEAM and inquiry-based learning – digital tech skills (collaboration with Edwardstown, Colonel Light Gardens, Clapham and Westbourne Park Primary Schools) L. Resource publication and kit development M. Show case student learning
Resources	Principal and the school senior leaders with DECD LID, ASMS and Flinders University, and Edwardstown, Colonel Light Gardens and Clapham and Westbourne Park Primary Schools
Completion date	 Milestone A: August 2017 Milestone B: September 2017 Milestone C: October 2017 Milestone D: August 2017 Milestone E: September 2017 Milestone F: October 2017 – November 2017 and throughout 2018 Milestone G: October 2017 Milestone H: January 2018 – December 2018 Milestone I: January 2018 – December 2018 Milestone J: July – September 2018 & 2019 Milestone L: April 2019 – June 2019 Milestone M: July 2019 – September 2019
Outcomes	 The aim is to explore and develop STEAM understandings and skills. Teachers will have expertise in interdisciplinary STEAM pedagogy, inquiry-based learning and sound subject knowledge. They will be supported in this process through the Flinders University Bridging the Gap strategy. They will plan, assess and moderate learning against the Australian Curriculum achievement standards and SACE performance standards. This initiative will ensure the school is recognised as a centre of world class STEAM learning and achievement

Initiative 5 – Learnin	g facilities and resources
Description	 Identify and design maker spaces/innovation centres rooms and 3 areas designed by students
	B. Resource centre furniture purchased
	C. Commence planning outdoor learning areas
	D. Research furniture for maker spaces with students
	E. Order furniture for maker spaces
	F. Delivery and installation
	G. Research and supply of 3D printers, robotics, laser cutters
	H. Order 3D printers robotics laser cutters
	I. Facilities external upgrade to standard, front of school redesign
	J. Student planning for café for 2018
	K. Sound and lighting upgrade – STEAM
	L. Establish student – designed innovation spaces
	M. Outdoor learning areas planned and developed
	N. Review furniture and resources needs and arrangements
	O. Prepare budget request for additional resources and furniture
	P. Café – designed and developed by students
	Q. Cafe established and managed by Students
	 R. Outdoor learning areas utilised and further developed S. Cafe managed by students
Resources	S. Cafe managed by students Principal and school senior leaders with DECD infrastructure
Completion date	Milestone A: September 2017 – November 2017
completion date	Milestone B: August 2017
	Milestone C: October 2017
	Milestone D: October 2017 – November 2017
	Milestone E: October 2017
	Milestone F: November 2017
	Milestone G: September 2017 – October 2017
	Milestone H: November 2017
	Milestone I: October 2017 – December 2017
	Milestone J: December 2017
	Milestone K: March 2018 – July 2018
	Milestone L: March 2018 – November 2018
	Milestone M: July 2018 – September 2018
	Milestone N: March 2018 – May 2018
	Milestone O: July 2018 – October 2018
	Milestone P: January 2018 – April 2018
	Milestone Q: May 2018 – December 2019
	Milestone R: January 2019 – December 2019
	Milestone S: January 2019 – December 2019
Outcomes	Learning spaces will support STEAM curriculum and diverse learning activities. Students will create a variety of facilities such as a café, outdoor seating and shaded
	areas as part of their learning programs

Initiative 6 – Sports	
Description	 A. Preparation for Basketball Academy with DECD and Basketball SA B. Introduction of Basketball Academy, high performance program with Flinders University C. Promoting and marketing Academy to Primary Schools D. Try Outs for 2019 Squad E. Training days for primary schools F. Design and establish weights training and fitness laboratory, high performance tech equipment G. Shared access to weights and fitness facility across Pasadena High School, Flinders students on site, Basketball SA and Sturt
Resources	Principal and senior school leaders with Basketball SA, Flinders University and DECD
Completion date	Milestone A: October 2017 – December 2017 Milestone B: February 2018 – December 2018 Milestone C: February 2018 – December 2018 Milestone D: March 2018 – May 2018 Milestone E: July 2018 – October 2018 Milestone F: January 2018 – June 2018 Milestone G: July 2018 – December 2019
Outcomes	Pasadena will be recognised by peak sporting organisations throughout South Australia as offering the highest quality elite student athlete development program

Initiative 7 – Marketi	ing
Description	A. Renaming Pasadena survey school community – Collate
	B. Letter to CE re name change
	C. Announce name
	D. Market name change to stakeholders and community
	E. Consultation - Develop marketing strategy – DECD
	F. Corporate image – Logo redesign
	G. Website redesign and development
	H. Uniform consultation begins
	I. Signage developed
	J. Signage installed
	K. New logo corporate image applied across site, documents, 'rebranding'
	L. New website activated
	M. Website further developed and maintained
	N. Uniform consultation continues
	O. Development and manufacture of uniform if changed
	P. New uniform available
	Q. Website further developed and maintained
	R. New uniform introduction phase
Resources	Principal and senior school leaders with DECD Communications directorate

Initiative 7 – Marketi	ing contd.
Completion date	Milestone A: August 2017
	Milestone B: September 2017
	Milestone C: October 2017
	Milestone D: November 2017 – December 2017
	Milestone E: August 2017 – November 2017
	Milestone F: September 2017 – December 2017
	Milestone G: November 2017 – December 2017
	Milestone H: October 2017 – December 2017
	Milestone I: November 2017 – December 2017
	Milestone J: January 2018 – March 2018
	Milestone K: January 2018 – December 2018
	Milestone L: January 2018 – June 2018
	Milestone M: July 2018 – December 2018
	Milestone N: January 2018 – March 2018
	Milestone O: April 2018 – August 2018
	Milestone P: September 2018 – December 2018
	Milestone Q: January 2019 – December 2019
	Milestone R: January 2019 – December 2019
Outcomes	The community will recognise Pasadena HS as a redesigned place of learning

Initiative 8 – Review	and evaluation
Description	A. Project review processes developed and implementedB. Project review & evaluation
Resources	Principal with school senior leaders
Completion date	Milestone A: July 2018 – November 2018
	Milestone B: July 2019 – November 2019
Outcomes	It is envisaged that with comprehensive redesigning strategies, the school will be able to overcome the unappealing reputation, provide high quality education and aim for enrolments growth to 979 students in 10 years' time (2027), an extra 869 students compared with the 'do nothing' scenario of 110 enrolments, continuing the current business

9. Budget

The expenditure costs to implement strategies in 2018 are estimated as \$325,643.56 in total with \$75,196.50 to be contributed by Pasadena High School and the remaining of \$250,447.06 to be funded by DECD.

Staffing

Budget Item 1	
Description	A. STEM coordinator Band B1 (science or digital tech skills)
	B. Project manager (0.6 FTE at SSO3) – Redesigning Pasadena HS, business and industry links, and marketing and promotions
Supplier	DECD People & Culture VSP processes
Cost	Budget Item 1A
	• Cost per unit: \$131,119.00
	No of units: 1.0 FTE
	• Cost: \$131,119.00
	Pasadena HS contribution: \$54,889.50
	Fund requested from DECD: \$76,229.50
	Budget Item 1B
	Cost per unit: \$38.68 per hour
	No of units: 25 hours for 42 weeks
	• Cost: \$40,614.00
	Pasadena HS contribution: \$20,307.00
	Fund requested from DECD: \$20,307.00

Facilities and resources

Budget Item 2	
Description	 A. Furniture for maker spaces a. 25 chairs and stools b. Six benches
	c. Six trolleys B. STEM resources a. Four 3D printers b. One robotic arm
	 c. One laser cutters d. 10 electronics kits C. TAC Sound and lighting upgrade – STEAM
	 a. Mixing desk b. Video c. Mics and speakers
	 D. Café – designed and developed by students a. Catering equipment b. Café furniture c. Refurbishing of facility
Supplier	Leedall
Cost	 Budget Item 2A Cost has not been advised but the cost will be covered by the school Budget Item 2B Cost per unit: \$5,000.00 (3D printers), \$2,150.00 (robotic arm), \$4,800.00 (laser cutters) and \$400.00 (electronics kits) Cost: \$25,950.00 Fund requested from DECD: \$25,950.00 Budget Item 2C Cost per unit: \$8,394.61 (mixing desk), \$3,402.85 (video) and \$12,163.10 (mics
	 and speakers) Cost: \$23,960.56 Fund requested from DECD \$23,960.56 Budget Item 2D Cost per unit: \$15,000.00 (catering equipment), \$10,000.00 (café furniture) and \$4,000.00 (facility refurbishment) Fund requested from DECD: \$29,000.00

Sports Academy

Budget Item 3	
Description	A. Design and establish weights training and fitness laboratory, high performance tech equipmentB. Establishing Basketball Academy, high performance program with Flinders UniversityC. Promoting and marketing Academy to Primary Schools
Supplier	To be advised
Cost	 Budget Item 3 Cost per unit: \$40,000.00 (weights training and fitness lab), \$20,000.00 (Basketball Academy) and \$15,000.00 (promoting Academy to Primary Schools) Cost: \$75,000.00 Fund requested from DECD: \$75,000.00

Marketing

Budget Item 4	
Description	 A. Corporate image – logo redesign B. Website redesign and development C. Signage develop and install D. Advertising E. Electronic signage
Supplier	Boylan and DECD Communications
Cost	 Budget Item 4 Cost per unit: \$10,000.00 (image redesign), \$9,000.00 (website redesign) and \$30,000.00 (signage design and installation), \$40,000.00 (advertising) and \$30,000.00 (electronic signage) Cost: \$119,000.00 Fund requested from DECD: \$119,000.00

Appendix 1 – Detailed financial analysis spreadsheet model

	Present Value	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Base case (Do Nothing)												
Benefit	0	0	0	0	0	0	0	0	0	0	0	0
Total Benefit	0	0	0	0	0	0	0	0	0	0	0	0
Costs												
Pasadena Resource Entitlement Statement	13,888,159	1,328,603	1,345,183	1,424,262	1,569,620	1,754,705	1,878,095	1,878,096	1,878,097	1,878,098	1,878,099	1,878,100
Total Costs	13,888,159	1,328,603	1,345,183	1,424,262	1,569,620	1,754,705	1,878,095	1,878,096	1,878,097	1,878,098	1,878,099	1,878,100
Rebadging and Improved Marketing (Option 1)												
Benefit												
Land Sale	0	0	0	0	0	0	0	0	0	0	0	0
Total Benefits	0	0	0	0	0	0	0	0	0	0	0	0
Costs												
Pasadena Resource Entitlement Statement	14,338,562	1,328,603	1,345,193	1,429,582	1,585,666	1,787,001	1,931,038	1,952,554	1,974,501	1,996,886	2,019,719	2,043,009
Marketing Cost plus Additional Staffing	150,579	0	159,614	0	0	0	0	0	0	0	0	0
Total Costs	14,489,142	1,328,603	1,504,807	1,429,582	1,585,666	1,787,001	1,931,038	1,952,554	1,974,501	1,996,886	2,019,719	2,043,009
Rebadging and Improved Marketing, a Sport Focus School with Alignment to Unley High (Option 2)												
Benefit												
Land Sale	0	0	0	0	0	0	0	0	0	0	0	0
Total Benefits	0	0	0	0	0	0	0	0	0	0	0	0
Costs												
Pasadena Resource Entitlement Statement	14,780,267	1,328,603	1,345,203	1,434,902	1,601,924	1,820,159	1,974,558	2,019,330	2,065,893	2,114,318	2,164,681	2,217,057
Marketing Cost plus Additional Staffing	150,579	0	159,614	0	0	0	0	0	0	0	0	0
Capital Expenditure to Upgrade Sport Facilities	70,755	0	75,000	0	0	0	0	0	0	0	0	0
Annual Sports Funding	1,411,672	0	0	220,000	220,000	220,000	220,000	220,000	220,000	220,000	220,000	220,000
Total Costs	16,413,273	1,328,603	1,579,817	1,654,902	1,821,924	2,040,159	2,194,558	2,239,330	2,285,893	2,334,318	2,384,681	2,437,057
Rebadging and Improved Marketing, a STEAM Focus School with Alignment to ASMS and Ignite from 2023 (Option 3)												
Benefit		-		-			-				-	
Land Sale	0	0	0	0	0	0		-	0	0	0	0
Total Benefits	0	0	0	0	0	0	0	0	0	0	0	0
Costs	04 444 044	4 000 000	4 045 040	4 440 000	4 040 005	4 05 4 4 00	0.040.044	0 554 000	0 454 040	4 700 000	0 740 045	0.040.404
Pasadena Resource Entitlement Statement	24,441,344									, ,	6,746,315	, ,
Marketing Cost plus Additional Staffing	702,900	0	290,733	131,119	131,119	131,119	,	0	0	0	0	0
Capital Expenditure to Upgrade All Facilities	145,199	0	153,911	0	0	0			0	0	0	0
Annual Ignite Funding	280,314	0	0	0	0	0		/	89,053	89,053	89,053	89,053
Total Costs	25,569,757	1,328,603	1,789,857	1,5/1,341	1,749,514	1,985,312	2,150,933	2,643,291	3,543,696	4,829,045	0,835,368	9,329,454

Appendix 1 – Detailed financial analysis spreadsheet model contd.

Option 1												
Incremental Benefits	0	0	0	0	0	0	0	0	0	0	0	0
Incremental Costs	600,983	0	159,624	5,320	16,046	32,296	52,943	74,458	96,404	118,789	141,621	164,910
Net Benefit (NPV)	-600,983	0	-159,624	-5,320	-16,046	-32,296	-52,943	-74,458	-96,404	-118,789	-141,621	-164,910
Discount Rate	6%											
Option 2												
Incremental Benefits	0	0	0	0	0	0	0	0	0	0	0	0
Incremental Costs	2,525,114	0	234,634	230,640	252,304	285,455	316,464	361,235	407,796	456,221	506,582	558,958
Net Benefit (NPV)	-2,525,114	0	-234,634	-230,640	-252,304	-285,455	-316,464	-361,235	-407,796	-456,221	-506,582	-558,958
Discount Rate	6%											
Option 3												
Incremental Benefits	0	0	0	0	0	0	0	0	0	0	0	0
Incremental Costs	11,681,598	0	444,674	147,079	179,894	230,607	272,838	765,196	1,665,600	2,950,947	4,957,270	7,451,354
Net Benefit (NPV)	-11,681,598	0	-444,674	-147,079	-179,894	-230,607	-272,838	-765,196	-1,665,600	-2,950,947	-4,957,270	-7,451,354
Discount Rate	6%											