

ITEM FOR FINANCE COMMITTEE

CAPITAL WORKS RESERVE FUND

HEAD 710 – COMPUTERISATION

Leisure and Cultural Services Department

New Subhead “Development of New Intelligent Sports and Recreation Services Booking and Information System”

Members are invited to approve a new commitment of \$499,816,000 for development of a new intelligent sports and recreation services booking and information system.

PROBLEM

The Leisure and Cultural Services Department (LCSD) needs to develop a new intelligent sports and recreation services booking and information system to replace the existing Leisure Link System (LLS) so as to provide a more user-friendly, operationally efficient and effective system to meet public expectations, thereby encouraging members of the public to exercise regularly and lead a healthy lifestyle.

PROPOSAL

2. The Director of Leisure and Cultural Services, with the support of the Secretary for Home Affairs and the Government Chief Information Officer, proposes to create a new commitment of \$499,816,000 for the development of a new intelligent sports and recreation services booking and information system (the new system).

/JUSTIFICATION

JUSTIFICATION

Ageing and obsolescence of the existing LLS

3. At present, members of the general public may book selected sports and recreation facilities and enrol in community sports and recreation programmes online, over the telephone, at booking counters or self-service kiosks via the LLS. The LLS was launched after the amalgamation of the two computer-booking systems of the former Urban Council and Regional Council, and has been in use for over 20 years. Despite a number of upgrades and enhancements in the past years, the rapid development of information technology has inevitably rendered the key components of the LLS obsolete. LCSD commissioned a consultancy study in 2015 to review the existing system and identify room for enhancement to better meet public expectations. The findings of the study confirmed that the existing LLS is incapable of meeting the present and future need for the booking of sports and recreation services for the following reasons –

- (a) Both the hardware and software of the LLS have become obsolete and are approaching the end of their lifespan. Timely replacement is essential for sustaining the booking services.
- (b) The current system design cannot provide users with up-to-date functions such as mobile applications (mobile apps), wider adoption of electronic services, enhanced venue booking services (e.g. handling bookings from organisations) and new measures for combatting touting activities. Moreover, group users (such as “national sports associations” (NSAs), community sports clubs and schools) cannot submit applications for organisation booking through the LLS, which have to be processed manually. Due to technical limitations, the capacity and functionality of the existing LLS cannot be further upgraded in a cost-effective manner to meet new service needs.

Proposed new system to meet public needs

4. It was announced in the Policy Address delivered in January 2017 that LCSD will develop a new intelligent system for Hong Kong’s public sports and recreation services to allow more efficient, convenient and user-friendly booking of the sports and recreation facilities provided by LCSD. The new system will make use of the Internet, mobile apps and new smart self-service stations in about 270 leisure venues (including the 18 District Leisure Services Offices (DLSOs)) to manage the booking of public sports and recreation services so that the community can access the services anytime and anywhere. With wider use of information and

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communication technology, the new system will provide more customer-oriented functions, thereby encouraging members of the public to make greater use of the facilities, exercise regularly and leading a healthy lifestyle. Apart from adoption of new technologies including mobile check-in of programmes and mobile payments, big data analytics technology will also be adopted to enhance the planning and management of public sports and recreation programmes/services. A comprehensive list of key functions of the proposed system is at Enclosure 1.

Encl. 1

5. The new system will extend the services to cover the following areas on top of the existing LLS services –

- (a) more sports and recreation facilities – at present, members of the public may book around 450 sports and recreation facilities through the LLS. The new system will expand the coverage to about 800 non-fee charging hard-surface pitches for different sports (such as football pitches and basketball courts), 44 swimming pools and 25 sports grounds, covering a total of more than 1 300 fee-charging and non-fee charging facilities with about 70 000 sessions each day;
- (b) more sports and recreation programmes – there are about 23 000 sports and recreation programmes held annually with over 1.4 million enrolments. The new system will provide a unified electronic service platform where members of the public can enrol in various sports and recreation programmes in districts as well as territory-wide major sports events, such as the Hong Kong Games, obviating the need of visiting booking counters or designated DLSOs for submission of paper applications, enrolment in individual programmes and making payments;
- (c) personal accounts – members of the public can register for a personal account to enjoy a variety of personalised services, including instant viewing of booking or enrolment records and other new functions for maintaining a personal profile with qualifications and eligibility information to facilitate the booking process for specific facilities and programmes, receipt of useful information with respect to individual preferences (e.g. available sessions of facilities or remaining places of programmes) and system-generated notifications (such as emergency closure of venues due to inclement weather and/or cancellation of classes);
- (d) organisation bookings – the new system will enable group users such as NSAs, community sports clubs and schools to submit and follow up group applications for block booking of sports and recreation facilities electronically;

/(e)

- (e) smart self-service stations – new smart self-service stations will be installed in about 270 leisure venues for instant registration of patron accounts, booking, enrolment, payment and sign-in for sessions and programmes to meet public expectations for convenient services as well as to improve operational efficiency and service quality;
- (f) facility management – the new system will replace the existing manual-based operation and, through the electronic platform, assist LCSD in handling organisation bookings and compiling management information (e.g. utilisation of sports facilities and attendance of programmes, etc.) of its sports and recreation facilities, which comprise 99 sports centres, five water sports centres, four holiday camps, 42 natural turf pitches, 39 artificial turf pitches, two hockey pitches, 256 tennis courts, four golf driving ranges and various free sports and recreation facilities. Specific functions would also be developed in the new system to best fit the operational needs of different types of facilities, such as administration of monthly tickets for fitness rooms and swimming pools, allotment of camp places and booking of swimming lanes; and
- (g) user-data analysis – the new system will enhance data analysis capabilities to facilitate LCSD in the planning and management of public sports and recreation services. Besides, data of sports and recreation facilities and programmes, and other data created by further analyses can be released in machine readable format for public consumption to facilitate members of the public in providing feedback to LCSD and NSAs. It also facilitates the development of innovative applications for sports and recreation services by the private sector.

Anticipated benefits to users

6. The new system will adopt a customer-oriented design with a view to bringing the following benefits to the users –

- (a) one-stop electronic service platform – the new system will enable the public to enquire about and book sports and recreation facilities/services through the Internet and mobile apps anytime and anywhere. Users who create personal accounts under the new system will also be able to enjoy personalised services such as instant viewing of booking or enrolment records, maintaining a personal profile with qualifications and eligibility information to facilitate the booking process for specific facilities and programmes, etc.;

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- (b) user-oriented interface and functions – the new system will be equipped with more powerful and convenient functions with greater flexibility which enable users to set specific selection criteria according to their needs and preferences when searching for and booking facilities and programmes. The new system will also extend the electronic service coverage to a wider range of sports and recreation facilities and programmes, obviating the need to make bookings in person or by post. The additional sports and recreation facilities and programmes to be covered by the new system include about 800 non-fee charging hard-surface pitches, 44 swimming pools, four holiday camps and more than 10 000 programmes per annum;
- (c) more efficient allocation and utilisation – for more efficient and fairer allocation of valuable community resources, and to help curb touting activities and prevent the abuse of facilities, the new system will include a new function of allocating facilities by ballot on top of the first-come-first-served allocation mechanism. LCSD will consider the adoption of balloting first for some popular facilities, such as turf football pitches and multi-purpose arenas (badminton courts, basketball courts, volleyball courts, etc.) of sports centres, with the remaining sessions to be allocated in accordance with the existing allocation mechanism, i.e. advance bookings of unallocated sessions can be made within ten days from the current date on a first-come-first-served basis;
- (d) convenient territory-wide booking service – the new system will provide a unified and one-stop electronic service platform for the public to enrol in sports and recreation programmes and enable a more efficient and fairer allocation of places. At present, the enrolments of about 50% of sports and recreation programmes are processed manually. With the new system, all enrolments will be processed electronically. In future, participants will only need to submit one application each month through the system instead of filling out various application forms or queueing up at different booking counters in early morning for popular programmes. Generally speaking, the balloting approach will be adopted for the allocation of sports and recreation programmes after the launch of the new system. Places not taken up after balloting will be made available for enrolment on a first-come-first-served basis;
- (e) user-friendly check-in service – with the new self-service stations to be installed at leisure venues, members of the public can use self-service for check-in of facility sessions and programmes in a more efficient and user-friendly manner. With the reduced administrative workload, programme instructors can focus more on coaching;

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- (f) instant registration of personal accounts – with the new self-service stations, the time required for registration of personal accounts will be shortened from the existing ten working days to instant completion. The number of venues providing self-service for booking will increase from the existing 47 venues to about 270 venues;
- (g) enhanced customer services – the new system will be equipped with customer relationship management functions. For instance, customers can express their views to the system administrator via the system anytime and anywhere such that venue managers can be informed of the customers' views and make timely improvement for enhancing venue services. The system will push information to patrons with respect to individual preferences on sports and locations (e.g. new programmes, available sessions of facilities or remaining places of programmes within a week); and
- (h) more efficient and effective use of data – the new system will provide big data such as utilisation of sports and recreation facilities and programmes to enable LCSD to better understand and analyse the distribution, usage patterns and preferences of customers, demand of different facilities and programmes in different districts as well as the relevant changes and trend, thereby providing a stronger foundation for refinement of services. The analyses will also facilitate the planning and provision of sports and recreation facilities/services for meeting the changing needs of the community.

7. Prior to the launch of the new system, LCSD will provide the public with timely information about the new system through different channels. LCSD will also arrange staff and customer service ambassadors to station at venues to advise the public on how to use the smart self-service stations for booking of sports and recreation facilities or programme enrolment when the new system is rolled out (including the installation of the smart self-service stations at the venues). In addition, a telephone hotline will be set up to handle public enquiries. At the initial stage of implementation, LCSD will also maintain the booking counter services at the 18 DLSOs to cater for patrons not ready to migrate to a fully electronic platform.

/FINANCIAL

FINANCIAL IMPLICATIONS**Capital expenditure**

8. It is estimated that the implementation of the proposed system will incur a total capital expenditure of \$499,816,000 over eight financial years from 2017-18 to 2024-25. The breakdown and estimated cash flow are as follows –

Item	(\$'000)								Total
	2017- 2018	2018- 2019	2019- 2020	2020- 2021	2021- 2022	2022- 2023	2023- 2024	2024- 2025	
(a) Hardware	-	-	-	-	44,277	9,640	3,956	-	57,873
(b) Software	-	-	-	-	44,611	3,369	1,219	-	49,199
(c) Communication network	-	-	-	-	30,520	13,635	13,635	-	57,790
(d) Implementation services	-	-	20,026	12,590	16,680	27,800	44,479	11,120	132,695
(e) Contract staff	100	5,621	14,200	13,725	14,141	12,823	4,215	-	64,825
(f) Site preparation	-	-	4,700	11,040	36,327	23,783	-	-	75,850
(g) Miscellaneous	-	-	1,395	1,047	5,594	5,248	2,860	-	16,144
(h) Contingency	10	562	4,033	3,841	19,215	9,630	7,037	1,112	45,440
Total	110	6,183	44,354	42,243	211,365	105,928	77,401	12,232	499,816

9. On paragraph 8(a) above, the estimated expenditure of \$57.87 million is for purchasing computer hardware, such as database servers, application servers, web servers, other functional servers, storage and backup equipment, and equipment at leisure venues such as self-service stations, terminals, swimming pool monthly ticket management equipment, swimming lane management equipment and fitness room management equipment.

10. On paragraph 8(b) above, the estimated expenditure of \$49.20 million is for purchasing system software for servers, data backup, endpoint protection and management system, and system and network monitoring tools.

11. On paragraph 8(c) above, the estimated expenditure of \$57.79 million is for purchasing network communication equipment and network security protection equipment at data centres and leisure venues.

12. On paragraph 8(d) above, the estimated expenditure of \$132.70 million is for acquiring implementation services of the new system from external service providers. Major implementation activities include system studies,

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system design, application development, system installation and configuration, infrastructure implementation at data centres and venues, enhancement on other systems interfacing with the new system, independent testing services, venue setup, production rollout and nursing.

13. On paragraph 8(e) above, the estimated expenditure of \$64.83 million is for engaging services of contract IT professional staff to supplement the in-house project management team on the development of application, infrastructure and enhancement of other systems interfacing with the new system.

14. On paragraph 8(f) above, the estimated expenditure of \$75.85 million is for cabling, optical fibre lead-in services and related renovation works at 270 venues, and engaging services of contract IT professional staff to supplement the in-house project management team on site preparation.

15. On paragraph 8(g) above, the estimated expenditure of \$16.14 million is for procuring start-up consumables, services for privacy impact analysis, audit on balloting platform, services for security risk assessment and audit, change management, IT and computer equipment for new project office, and training for internal users and IT professional staff.

16. On paragraph 8(h) above, the estimate of \$45.44 million represents 10% contingency on the cost items set out in paragraphs 8(a) to 8(g).

Other non-recurrent expenditure

17. The implementation of the proposed system will require a project team for project management, tendering, system analysis and design, site preparation, quality assurance, acceptance testing, implementation control, etc. This will entail a total staff cost of \$76.58 million from 2017-18 to 2023-24.

Recurrent expenditure

18. The proposed system will entail an indicative annual recurrent expenditure of \$10.45 million in 2021-22, increasing to \$66.40 million from 2024-25 and onwards. This expenditure covers the costs of hardware and software maintenance, on-going support and contract staff services, communication network, consumables, e-payment transaction fee and staff cost, as follows –

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Item	(\$'000)			
	2021-22	2022-23	2023-24	2024-25 and onwards
(a) Hardware maintenance	1,008	2,993	3,986	6,002
(b) Software maintenance	2,690	6,457	6,457	6,457
(c) Communication network	2,528	6,068	6,068	6,068
(d) On-going support services	1,042	2,500	9,028	18,167
(e) Contract staff	1,350	5,305	6,610	14,640
(f) Consumables	167	400	400	500
(g) e-Payment Transaction Fee	1,667	4,000	5,000	5,000
(h) Staff cost	-	-	797	9,568
Total	10,452	27,723	38,346	66,402

19. The new system will require a net additional recurrent cost of \$12.30 million per annum after offsetting a realisable savings of \$54.10 million per annum (mentioned in paragraph 20(a) below) from 2026-27 and onwards.

Savings and cost avoidance

20. It is estimated that the implementation of the proposal will bring about the following cost savings and avoidance upon decommissioning of the existing LLS and full implementation of the new system by phases –

- (a) realisable recurrent savings of \$54.10 million per annum from 2026-27 onwards for regular maintenance and staff costs, comprising \$32.23 million of staff cost for sustaining the current business processes and \$21.87 million for maintaining the existing LLS;
- (b) notional recurrent savings of \$55.99 million per annum from 2024-25 onwards achieved through streamlined business processes in the new system;
- (c) non-recurrent cost avoidance of \$43.78 million for upgrading the infrastructure and technical platforms of the existing LLS and its peripheral systems for addressing the problems of hardware and software; and
- (d) cost avoidance of \$10.99 million per annum from 2022-23 onwards for deploying additional staff for implementing new services and on-going maintenance of the upgraded infrastructure and technical platforms of the existing LLS arising from paragraph 20(c) above.

/21.

Encl. 2 21. A cost-benefit analysis for the proposed system is at Enclosure 2.

IMPLEMENTATION PLAN

22. Subject to Finance Committee's approval of the proposed new commitment, we plan to implement the proposed project in phases according to the following schedule. The target is to have all the core functions¹ of the proposed system launched by 2021, self-service stations² rolled out by 2022 and other enhanced functions³ available by 2023.

Activity	Target Timing
(a) Preparation for procurement, tendering and award of contract	January 2018 – January 2019
(b) System analysis and design	February – October 2019
(c) System development of core functions	November 2019 – December 2020
(d) Testing, site preparation, data migration and launch of Phase 1 for core functions	December 2020 – November 2021
(e) Roll-out of self-service stations in about 270 leisure venues	December 2021 – November 2022
(f) Development and progressive launch of Phase 2 for other enhanced functions	December 2021 – May 2023

23. LCSD will provide specific arrangements as mentioned in paragraph 7 above to facilitate the roll-out and smooth implementation of the new system.

/PUBLIC

¹ Core functions include facility booking, programme enrolment, membership registration and management, venue/facility management, programme management, balloting and allotment, attendance management, e-payment and mobile app.

² Smart self-service stations provide functions for patron registration, facility booking, programme enrolment, payment, check-in and pick-up booking by standby hirer, etc.

³ Enhanced functions include bookings by organisations, major events management, holiday camps allotment, fitness room management, water sports facilities management, swimming lane booking and management.

PUBLIC CONSULTATION

24. In planning the development of the new system, the LCSD commissioned a consultancy study in 2015. Members of the public and key stakeholders (e.g. NSAs and schools) were engaged through opinion surveys and meetings to gauge their views on user requirements and expectations. The LCSD has taken into account the feedback in planning the proposed framework and design concept of the new system and briefed key district personalities on the proposal. The LCSD has also consulted the Community Sports Committee (CSC) and the Working Group on Sports Facilities under the auspices of the Sports Commission (SC)⁴ on 17 February 2017 and 4 December 2017 respectively. The Terms of Reference of the CSC include, among others, advising through the SC on the strategies and initiatives to promote community participation in sports and improvement of existing facilities. Both the CSC and Working Group welcomed and supported the proposed project.

25. We consulted the Legislative Council Panel on Home Affairs on 26 April 2017. Members are generally supportive of the proposal.

BACKGROUND

26. In 2016, around 5.8 million bookings of sports and recreation facilities and 600 000 enrolments to LCSD's community sports and recreation programmes were recorded in the existing LLS.

Home Affairs Bureau
Leisure and Cultural Services Department
January 2018

⁴ The terms of reference of the SC are to advise the Government on –

- (a) the policies, strategies and implementation framework for sports development in Hong Kong; and
- (b) the provision of funding and resources in support of sports development in Hong Kong, taking into account the input from various stakeholders in sport through partnership and collaboration. Membership of the SC can be accessed via <http://www.sportscommission.hk/eng/member.htm#>.

Key Functions of the Proposed System

Functions for General Public

(via Mobile Apps, Internet Services and Self-service Station (3S))

(a) Patron services

- Patron registration service for public enjoyment of personalised services;
- More powerful, convenient and customer-friendly search functions for booking facilities and programmes;
- Easy updating of personal profile with activities-related qualifications to facilitate the booking of specific facilities and programmes;
- Setting personal preferences (e.g. on facility types and programmes) and receipt of e-notifications based on individual preferences (e.g. available sessions of facilities or remaining places of programmes) and system-generated notices;
- Push notification via mobile apps on emergency notices such as emergency closure of venue due to inclement weather and cancellation of programme/class; and
- Viewing status of balloting, refund, checking of penalty record, etc.

(b) Payment services

- e-Payment (credit card, PPS, etc.);
- Mobile payment; and
- e-Application and system-initiated refunds on specific conditions (e.g. due to inclement weather) to obviate the need for customers to submit paper application in person.

/(c)

(c) Facility booking on fee charging and non-fee charging facilities

- Enhanced online search on facility information;
- Viewing of real-time availability of facilities;
- First-come-first-served based booking;
- e-Application for balloting of facilities;
- e-Notification and enquiry of balloting and allotment result;
- e-Reminder or e-Notification to patrons on subscribed leisure services;
- Online cancellation of booking (and obviate the need for customers to submit paper application in person);
- Assignment of secondary patron for check-in of facilities in case of sudden sickness of hirer or other emergency circumstances;
- On-site check-in function for fee-charging facilities by using HKID Card through 3S; and
- Mobile check-in function for non-fee charging facilities by using location-based technology through mobile apps.

(d) Enrolment on recreation and sports programmes, competitions and theme camps

- Enhanced online search on programme information;
- Viewing of real-time information on remaining places of programme;
- Unified electronic service platform that enables e-Application for balloting of programmes for all districts and territory-wide major events;
- e-Notification of balloting and allotment result; and
- Check-in function for programmes by using 3S or mobile apps.

/(e)

(e) Purchase of various leisure services tickets

- Purchase or topping-up of swimming pool monthly ticket;
- Purchase of fitness room monthly ticket;
- Purchase of the Hong Kong Flower Show admission ticket; and
- Instant viewing of subscribed ticket status.

(f) e-Submission for booking of filming locations and wedding venues

Functions for Groups and Major Events (via Internet Services)

(g) Group Patron Service (e.g. “national sports associations” (NSAs), schools and registered organisations)

- Group patron account;
- Enquiry of facility availability;
- e-Application for block booking;
- Online management of applications by group users (e.g. revising booking, checking booking status and results); and
- Online updating of coaches/ responsible person information for check-in by group users.

(h) Swimming lanes booking by group users

- Online enquiry of swimming lanes availability to save effort on checking with individual swimming pools by telephone or written enquiries;
- e-Application for swimming lanes;
- Online management of applications by group users (e.g. revising booking, checking booking status and results); and
- Online updating of coaches/ responsible person information for check-in by group users.

/(i)

(i) Major events (the Hong Kong Games, the Master Games and the Corporate Games)

- e-Application for major events competitions;
- e-Notification of balloting and allotment result and fixture draw; and
- e-Notification of competition results.

Functions for LCSD Staff

(j) Venue, facility and programme management to enhance efficiency and effectiveness of public services

- Electronic platform for managing the sports and recreation facilities in sports centres, swimming pools, fitness rooms, water sports centres, holiday camps, golf driving ranges, sports grounds and outdoor pitches;
- Electronic platform for managing block booking applications from groups e.g. NSAs, schools and registered organisations;
- Electronic platform for managing major events;
- e-Allotment function for camps space after balloting;
- e-Balloting and allotment functions for cross district facilities (including holiday camps) and programme to ensure fairness;
- Electronic platform for arranging refund; and
- Attendance logging and analysis for facilities and programmes to enable the Government to better understand and analyse the distribution, usage pattern and preference of customers, supply and demand of different facilities and programmes in different districts as well as the relevant changes and trend, thereby providing a stronger foundation for on-going review and future planning.

Other Functions

(k) Open data and big data analytics

- Big data analytics to enhance planning and management of public sports and recreation services; and
- Release of real-time data for sports and recreation facilities and programmes, and other data created by analytics as public sector information for public consumption.

Cost and Benefit Analysis for the Proposed System

	(\$'000)												
	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	Total
Cost of proposed system													
Capital expenditure	110	6,183	44,354	42,243	211,365	105,928	77,401	12,232	-	-	-	-	499,816
Non-recurrent staff cost	7,752	11,634	11,634	11,634	11,634	11,634	10,658	-	-	-	-	-	76,580
Sub-total	7,862	17,817	55,988	53,877	222,999	117,562	88,059	12,232	-	-	-	-	576,396
Recurrent expenditure	-	-	-	-	10,452	27,723	37,549	56,834	56,834	56,834	56,834	56,834	359,894
Recurrent staff cost	-	-	-	-	-	-	797	9,568	9,568	9,568	9,568	9,568	48,637
Sub-total	-	-	-	-	10,452	27,723	38,346	66,402	66,402	66,402	66,402	66,402	408,531
(A) Total cost	7,862	17,817	55,988	53,877	233,451	145,285	126,405	78,634	66,402	66,402	66,402	66,402	984,927
Savings and cost avoidance													
<u>Non-recurrent</u>													
Cost avoidance	-	-	-	-	-	43,783	-	-	-	-	-	-	43,783
Sub-total	-	-	-	-	-	43,783	-	-	-	-	-	-	43,783
<u>Recurrent</u>													
Realisable savings	-	-	-	-	9,483	22,758	25,580	29,530	29,530	54,098	54,098	54,098	279,175
Notional savings	-	-	-	-	98	235	23,467	55,991	55,991	55,991	55,991	55,991	303,755
Cost avoidance	-	-	-	-	4,578	10,988	10,988	10,988	10,988	10,988	10,988	10,988	81,494
Sub-total	-	-	-	-	14,159	33,981	60,035	96,509	96,509	121,077	121,077	121,077	664,424
(B) Total savings	-	-	-	-	14,159	77,764	60,035	96,509	96,509	121,077	121,077	121,077	708,207
(C) = (B) - (A)	-7,862	-17,817	-55,988	-53,877	-219,292	-67,521	-66,370	17,875	30,107	54,675	54,675	54,675	-276,720
Net cost (-)/ net saving (+)													
Net Cumulative Cost/Savings	-7,862	-25,679	-81,667	-135,544	-354,836	-422,357	-488,727	-470,852	-440,745	-386,070	-331,395	-276,720	
