
TO: GENERAL COMMITTEE

SUBJECT: BARRIE CENTRAL REALIGNED LAND OWNERSHIP AND LAND USE CONCEPT

WARD: WARD 2

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ACTING GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

CHIEF ADMINISTRATIVE OFFICER APPROVAL: M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RECOMMENDED MOTION

1. That the properties municipally known as Red Storey Field and 34, 36, 38 and 40 Bradford Street being part of PIN 587970003 and all of PINS 587970008, 587970009, 587970010 and 587970011 as identified in Appendix "A", be declared surplus to the needs of The Corporation of the City of Barrie in accordance with By-law 95-104.
2. That notwithstanding the provisions of By-law 95-104, staff in Planning and Building Services and Legal Services continue to negotiate appropriate agreements exclusively with HIP Developments (HIP) to facilitate the realigned land ownership as illustrated in Appendix "A".
3. That staff in Planning and Building Services and Legal Services utilize the following principles in negotiations to achieve the proposed realigned land ownership:
 - a) Agreement(s) of land purchase and sale based on fair market value as determined by a professionally prepared appraisal, acceptable to the City;
 - b) Other required infrastructure (ie: Fisher building shell, parking, Kidd's Creek drainage solution) necessary to achieve the desired comprehensive development vision, be appropriately valued and included in the negotiation process, as appropriate;
 - c) The City's purchase decision shall not be tied to development concepts for lands to be owned by HIP;
 - d) Closing of any agreement of land purchase and sale shall be dependent on Council's final acceptance of a business case for development and operation of W.A. Fisher Auditorium and Event Centre and a binding ground lease with YMCA; and

- e) The Kidd's Creek drainage solution be professionally designed and approved by the City and Lake Simcoe Region Conservation Authority (LSRCA) and other regulatory agencies as required.
- 4. That the Mayor and City Clerk be authorized to execute Agreements of Purchase and Sale conditional upon Council approval and any related document or Agreement necessary to achieving the recommended motion.
- 5. That HIP be permitted to submit planning applications on City owned land, subject to Council approval of a conditional Agreement of Purchase and sale, subject to such applications meeting the requirements of the Director of Planning and Building Services and the Director of Legal Services.

PURPOSE & BACKGROUND

Purpose

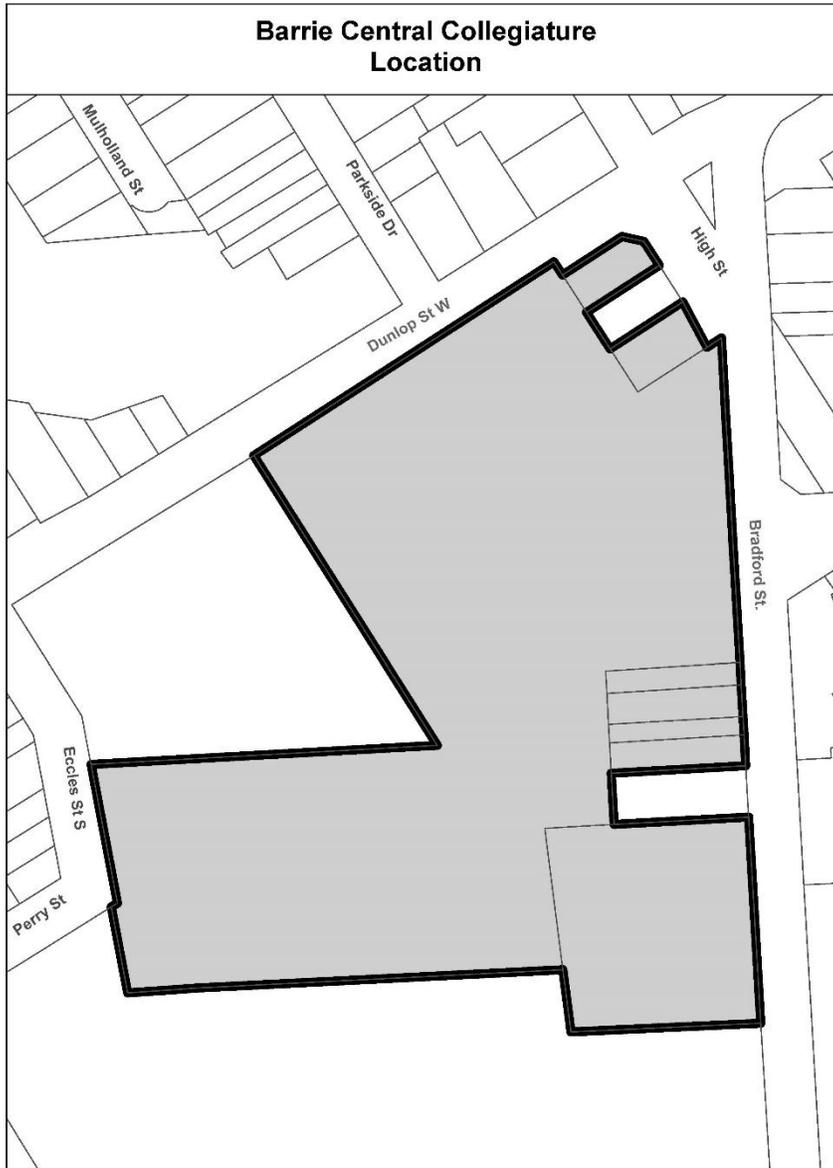
- 6. The purpose of this report is to declare Red Storey Field and 34, 36, 38 and 40 Bradford Street properties surplus to the City of Barrie's needs and outline the preferred land ownership configuration associated with a comprehensive redevelopment of lands in and around Barrie Central Collegiate High School. The lands under consideration are owned by either the City of Barrie or HIP Developments.
- 7. This report is intended to update General Committee on various technical matters that affect realignment of land ownership and subsequent redevelopment of the subject lands. Technical matters include: Kidd's Creek Floodplain, retaining Fisher Auditorium, potential YMCA relocation, road network requirements and parking/site design.
- 8. Further, this report seeks to confirm the principles upon which negotiation with HIP Barrie Central Inc. will proceed, namely:
 - a) Agreement(s) of land purchase and sale based on fair market value as determined by a professionally prepared appraisal, acceptable to the City;
 - b) Other required infrastructure (ie: Fisher building shell, parking, Kidd's Creek drainage solution) necessary to achieve the desired comprehensive development vision, be appropriately valued and included in the negotiation process, as appropriate;
 - c) The City's purchase decision shall not be tied to development concepts for lands to be owned by HIP;
 - d) Closing of any agreement of land purchase and sale shall be dependent on Council's final acceptance of a business case for development and operation of W.A. Fisher Auditorium and Event Centre and a binding ground lease with YMCA; and
 - e) The Kidd's Creek drainage solution be professionally designed and approved by the City and Lake Simcoe Region Conservation Authority (LSRCA) and other regulatory agencies as required.

Background

Subject Site Location

9. The site is approximately 12.5 acres and is currently developed with the former Barrie Central Collegiate High School and Fisher Auditorium along with the former Prince of Wales Public School, surface parking, vacant lands and Red Story Field. See Appendix "A".
10. Lands to be sold to the City are approximately 4 acres.
11. Lands to be sold to HIP are approximately 4.5 acres.
12. Other lands will remain under current ownership.

Surrounding Land Uses



13. **North:** Dunlop Street and commercial uses across the street including Sticky Fingers Restaurant and motel as well as existing residential development deeper into the neighbourhood.
14. **East:** Bradford Street mixed commercial and residential development including one rooming house. Beyond the commercial across the street there is high density residential.
15. **South:** industrial/commercial uses
16. **West:** City of Barrie Fire Department HQ, Eccles Street and residential uses.

Sale of Barrie Central/HIP Developments Offer to Explore Land Exchange

17. HIP Developments purchased Barrie Central Collegiate and Prince of Wales Public School from the Simcoe County District school board in early 2017. The sale of the school sites excluded Red Storey Field (granular track and natural turf football field) which remains in City ownership. The City also owns six lots in and around Barrie Central acquired when the City was actively engaged in bringing a university to the City.
18. HIP is the relatively young development arm of a 36 year old, second generation large general contractor, with projects throughout southern Ontario. With their strong, pension-based equity partners, HIP has completed over \$1 billion of mixed use and forward-thinking residential projects in southern Ontario. One of HIP's development principles focuses on "improving communities rather than just adding to them."
19. HIP discussed potential "community development" options as part of their Barrie Central redevelopment concept; an early option focused on the YMCA relocating to the corner of Dunlop and High Streets as this has been a known goal of the YMCA for many years. Subsequent options expanded to include retaining Fisher Auditorium and developing same as a vibrant community theater.
20. In February 2017, General Committee directed staff to explore potential land acquisition and disposition matters. Throughout the spring, staff completed preliminary technical exploration on engineering and planning matters. Land value appraisals were also completed. City staff also continued discussions with HIP with respect to the structure of an agreement of purchase and sale.
21. In June 2017 via Motion T17-G-18, Council directed staff to continue negotiations with HIP for the acquisition of Fisher Auditorium and associated lands as well as determine the degree to which the community could support fundraising for the acquisition of Fisher Auditorium. While staff in the Barrie Creative Economy Department undertook the community support assessment (see Staff Report CE008-17), Engineering and Planning staff worked with HIP to define a technically feasible development concept that achieves the City's vision for this area while at the same time reflects HIP's desire to bring a modern rental apartment development to downtown Barrie.
22. The resulting development concept, including a Kidd's Creek Drainage solution that allows for more developable land at Dunlop and High Streets, sets the foundation for the proposed realignment of land ownership.

Fisher Auditorium
23. On October 2, 2017, Council approved the Staff recommendation included in CE008-17 to proceed with the Fisher Auditorium and Event Centre concept, subject to addressing a several elements considered key to the project.

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24. Staff in Facilities, Creative Economy and Planning will work to incorporate Council feedback and report back to Council in November 2017. The report back to General Committee will include an updated design, budget, operating model, competitive analysis, parking options, comparables and business case.
 25. Planning and Legal staff will ensure that any Agreement of land Purchase and Sale is conditional on Council's final acceptance of the Fisher business case, operational and funding model.

YMCA

26. The YMCA has long expressed interest in relocating to a high-profile location in Downtown Barrie. In all past redevelopment proposals for the Barrie Central site, the YMCA has been profiled at the corner of Dunlop and High Streets.
27. The YMCA's current location on Grove Street may soon be redeveloped, subject to Council's approval of Official Plan Amendment and Zoning By-law Amendment application addressed in Staff Report PLN024-17, dated October 16, 2017. The YMCA has publicly stated their desire to relocate to the Barrie Central location subject to successful land negotiations with the City and or HIP.
28. Planning Staff met with YMCA representatives over the last several months to confirm: building footprint requirements, type of use requirements, urban design and built form expectations as well as construction timing land tenure assumptions.
29. The YMCA has stated the need for a low to no cost land arrangement for their proposed relocation to the Dunlop and High Streets location.
30. The proposed realignment of land ownership between the City and HIP accommodates the YMCA's conceptual building footprint and architectural style, with the exception of full on-site parking. The land ownership realignment minimizes the YMCA's land acquisition costs; the City would maintain ownership of the land, leaving the YMCA to cover building and associated programming costs. The City will negotiate appropriate ground lease provisions with the YMCA as part of the overall Barrie Central Agreement of Purchase and Sale process. Planning and Legal staff will ensure that any Agreement of land Purchase and Sale with HIP is conditional on Council's acceptance of a binding ground lease with the YMCA and any associated conditions with respect to the YMCA relocation to this location.
31. Planning and Engineering Staff, along with LSRCA staff, will work closely with the YMCA during Site Plan approval to ensure that the City's Urban Design vision for this area, along with the technical requirements of locating the building in proximity to Kidd's Creek, are properly and proactively addressed.
32. It is unlikely that the full complement of required parking will be accommodated on site, given land area constraints and the demands of Fisher Auditorium. Planning and Engineering staff have explored on-site and off-site parking options and will work to achieve an integrated parking solution during Site Plan approval.

Kidd's Creek

33. As significant portion of the Barrie Central site, particularly the Dunlop Street frontage and the Bradford Street frontage between High Street and Simcoe Street, is constrained by the 100-Year Floodline as well as the Regulatory Floodline associated with Kidd's Creek. See Appendix "B".

34. Kidd's Creek is currently piped through the Barrie Central site tying into an existing culvert upstream of Dunlop Street West and downstream at Bradford Street. This piped system has less than a 5 year conveyance capacity. The existing drainage system downstream of Bradford Street was upgraded to a 6 m x 1.5 m concrete box and conveys the 100-year flow to Lake Simcoe. Due to the existing elevation of the Barrie Central parking lot, downstream of Dunlop Street, major storm events pond on Dunlop Street and results in road closures. This flooding also affects the operation of Barrie Fire Station 1.
35. The *Kidd's Creek Master Drainage Plan (Oliver, Mangione, McCalla & Associates, 2001)* outlines various scenarios for reducing flooding along Kidd's Creek. One of the recommendations was to upgrade the culvert to Lake Simcoe (downstream of Toronto Street), which has already been implemented with the construction of a 6 m x 1.5 m concrete box downstream of Bradford Street.
36. Notwithstanding efforts to reduce flooding and the longstanding existing Barrie Central Collegiate buildings on site, the potential for any new development is constrained by the LSRCA floodlines; essentially no permanent buildings would be permitted. This is not in keeping with the City's vision for the Dunlop Street gateway into Downtown, regardless of who owns that land.
37. In an effort to further reduce the potential of flooding, and to increase developable area, the City, HIP and LSRCA staff collaborated to find a solution. The preferred solution is to implement an open channel designed to contain the Regulatory flow. This channel would then discharge into the extended 100-year culvert at Bradford Street with flows above the 100-year level overtopping the roadway and continuing overland.
38. HIP completed a preliminary hydraulic analysis to determine the Regulatory Floodplain from Dunlop Street West to Bradford Street using the preferred option of an open watercourse out letting to a 100-year culvert. This analysis was vetted with LSRCA and the City. While there is more work to be done before the solution can be evaluated for LSRCA permits and City detailed design approval, all parties conclude that the constrained land area is significantly reduced.
39. This Kidd's Creek solution sets the foundation for implementation of the City's vision for this area of Dunlop Street and the proposed realignment of land ownership in and around the former Barrie Central Collegiate High School. The open watercourse solution also has significant environmental and cost benefits over the proposed pipe and culvert upgrade option.
40. Engineering staff will coordinate this open watercourse solution with planned upstream work identified as part of the Kidd's Creek Storm Master Plan. Any Engineering implications associated with the recommended realignment and ultimate redevelopment proposal will be presented in future Staff Reports.
41. Planning and Legal staff will ensure that any Agreement of Land Purchase and Sale is conditional on LSRCA approval of the open channel solution, including all applicable permits.

Road Network

42. Modern best practice for the design of Sustainable Neighbourhoods focuses on creating an integrated network of walkable streets. A "street network" is a connected web of streets, not necessarily in a strict Cartesian grid, which form urban blocks as logical sites for development and which provides numerous routes for pedestrians, cyclists, public transit and motorists to move safely and comfortably through a neighbourhood. A network of streets also provides improved non-motorized alternatives to those under the driving age as well as senior citizens. Smaller block sizes and frequent intersections are necessary to create a walkable community; they provide varied - but direct - routes to destinations for all modes of transportation, and require a slower design speed for motorists (<50km/h), increasing safety and comfort for pedestrians and cyclists.

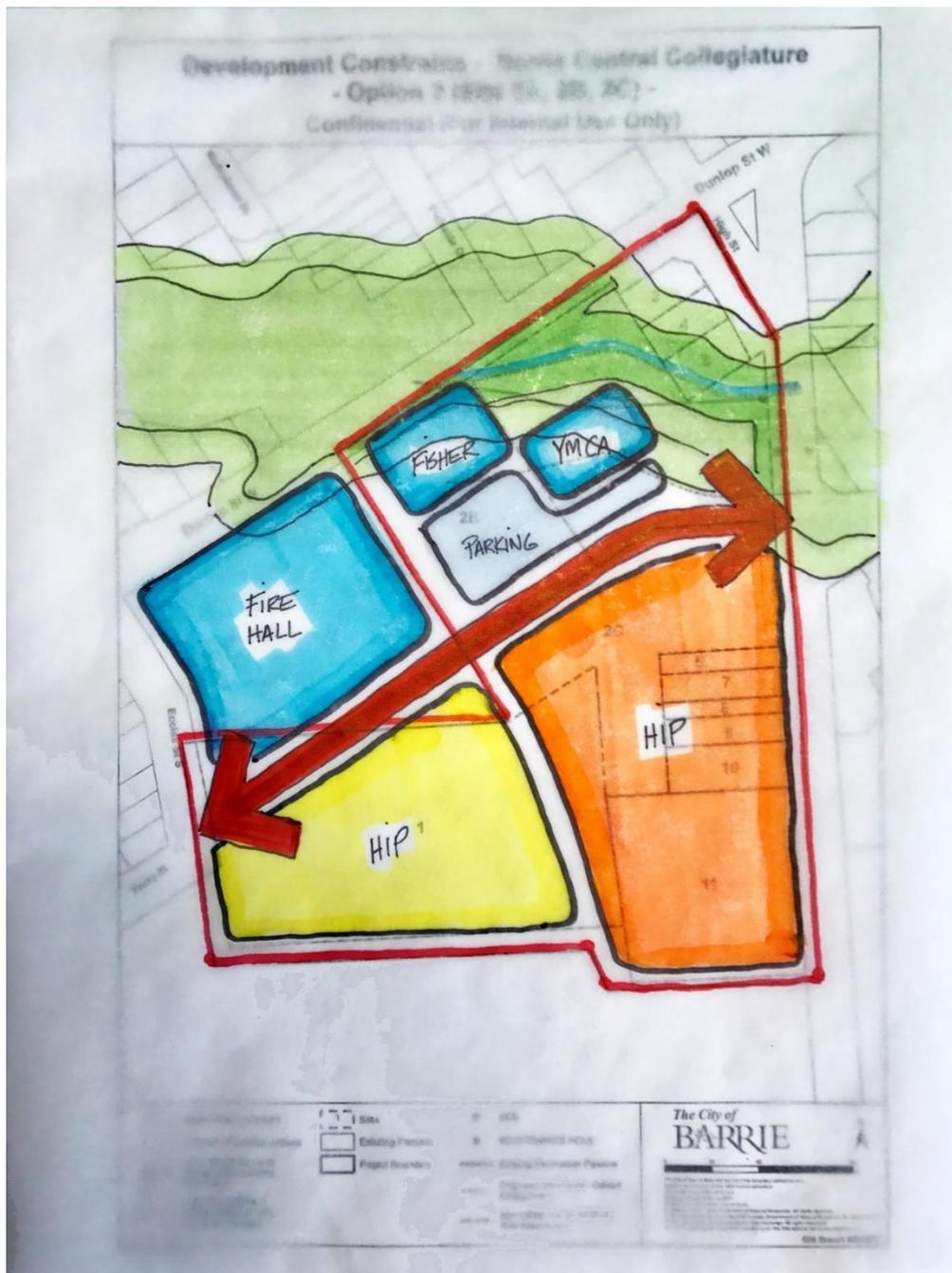
43. Research from UC Berkeley and other leading institutions note that locating population density in well-designed walkable environments with access to transit and a mix of uses is one of the most effective tools for Transportation Demand Management (TDM); these environments reduce Vehicle Kilometres Traveled (VKT), increase modal split by providing transportation choice to residents, and reduce congestion by providing alternative routes.
44. Overall, highly connected and walkable environments create communities that are healthier, have stronger economic and socio-cultural environments, and are more environmentally sustainable. Walkable neighbourhoods have historically established themselves within a 5 minute walking radius (approximately 450m), which is about the distance people are willing to walk before considering taking a bicycle, public transit, or automobile. This has become a key organizing principle in the planning and design of cities across the world. Modern best practice for connected and walkable communities identifies maximum uninterrupted block faces of 140m, with streets at intervals no greater than 180m apart (Sustainable Urbanism, D. Farr, 2008).
45. Street network improvements should seamlessly integrate with the existing urban fabric in Barrie's Urban Growth Centre. Contextual block sizes are approximately 105m x 210m for nearby residential blocks, and approximately 90m x 170m for mixed use blocks in the Downtown.
46. Planning and Engineering staff will continue to work with HIP and the YMCA with respect to defining appropriate road connection to facilitate the comprehensive redevelopment concept. At a minimum staff believe that a public, east/west connection through the site is required. See Appendix "C".

ANALYSIS

Realigned Land Ownership

47. In accordance with By-law 95-104, staff are recommending that City owned lands known as Red Storey Field and 34-40 Bradford Street be deemed surplus to the City's needs. Staff are also recommending negotiating exclusively with HIP rather than offering the property for sale to any interested party. The rationale for this approach is that while the City has a vision for this area as a cultural/community hub and western gateway to Downtown, the location of City lands are not conducive to achieving this vision without a more comprehensive development approach which must include the other significant land owner, HIP Developments.
48. HIP owns the lands that include Fisher Auditorium. Fisher is the cultural anchor in the City's vision. HIP also owns the land with Dunlop Street frontage to High Street, the known preference for YMCA's downtown location. YMCA has the potential to be the community anchor in the City's vision.
49. While By-law 95-104 provides the opportunity to consider various bidders on lands declared surplus, doing so does not facilitate the exchange of lands to achieve a broader vision. Staff will be negotiating the land disposition on the basis of fair market value and in keeping with Council's vision.
50. The realigned land ownership transfers approximately 4 acres of land to the City, with high profile Dunlop Street frontage in keeping with the desire to create a western gateway into Downtown.
51. This land configuration facilitates retention of Fisher Auditorium and facilitates the City's support for the relocation of the YMCA to a prominent downtown location.
52. This configuration protects the opportunity for new public roads should same be required to accommodate the uses envisioned for this comprehensive redevelopment.

53. Approximately 4.5 acres of land is to be transferred to HIP. HIP's existing frontage plus City lots on Bradford Street offer and continuing in depth to include Red Storey field. This configuration can accommodate HIP's conceptual high density rental apartment development (which is subject to future planning approvals which have not yet been submitted) while still meeting the City's planning policy and urban design guidelines.
54. Options to exclude Red Storey Field in the transfer to HIP were explored however, the emphasis on the City's vision for a cultural/community hub incorporating Fisher Auditorium and the YMCA along Dunlop Street required the making Red Storey Field available to HIP, subject to successful negotiations.



Gateway to Downtown

55. Downtown revitalization has been a goal of the City for a long time. All good economic strategies are diversified; Barrie's Downtown is a mixed neighbourhood of residential, boutique retail, commercial, cultural, and civic uses. It has a financial/professional district focused on Collier Street, and three cultural facilities – the Library, MacLaren, and Five Points Theatre. The City is supporting efforts for social entrepreneurship and affordable housing, while also proceeding with a number of exciting residential developments at a range of market levels that will grow the resident population of the core.
56. However, trend data indicates that businesses and residents in the west end continue to report challenges with social problems and the poor condition of some properties. As the western gateway to the Downtown, the Dunlop and High Streets area can serve as a focal point and linking existing revitalized areas of the Downtown and Waterfront to create a robust and cohesive downtown core. The importance of revitalizing this areas is documented in the Cobalt Report attached to the Fisher Staff Report CE008-17.
57. The proposed Kidd's Creek drainage solution in this area not only creates more developable land, it provides a unique opportunity for public investment in an engineering/environmental solution that doubles as a significant physical gateway feature. Planning staff have explored design options that include building terracing and visual amenity incorporated into the open channel's functional design. See Appendix "D" for examples.
58. It is important for the City to have control over such an important gateway, including the physical elements. The proposed land ownership realignment provides the City with the desired control.

Culture/Community Hub and Partnership Model

59. The City's vision for the west end of Downtown is one of mixed use that reinforces diversity of people but also built form and activity/programs. Council's support for the Fisher Auditorium and Event Centre concept reinforces this vision by providing the cornerstone for a creative district. Facilitating relocation of the YMCA to the area support the community hub component. There may be additional social entrepreneurship synergies that emerge as this area develops. The addition of approximately 600 rental apartment units through the proposed HIP development will put more eyes on the street, an important CPTED concept, and also provide an important population base to support the street front commercial and creative uses envisioned for the area. This is a tangible example of public, private and community organizations working in partnership to bring a vision to life.
60. Realigning land ownership provides the City with Dunlop Street frontage and control over land use in the hub area. Providing prominent locations for key community development projects coupled with connected locations to support high density residential development is a savvy implementation plan.

Design Excellence

61. Creative districts are the manifestation of mega-trends altering location preferences for people, firms and institutions and re-imagine the link between economy building, place-making, and social networking. Most creative institutions and people now look for proximity and connectivity so that ideas and knowledge can be transferred quickly and seamlessly. The new 'sharing' economy rewards collaboration, transforming how buildings and entire districts are designed and spatially arrayed. Residents, institutions and companies now demand more and better choices of where to live, work and play, fuelling the demand for more walkable neighbourhoods where housing, jobs and amenities intermix. Creative districts have the unique potential to spur productive, inclusive and sustainable economic development.

62. As both a gateway location into Downtown Barrie and a natural extension of/to the Waterfront, staff envision a convergence of high quality site design, inspiring built form with appropriate massing, and innovation in sustainable design – all which will serve to establish the overarching vision of a new creative district and western gateway to our Downtown and Waterfront.
63. To catalyse the desired neighbourhood change, staff will be pursuing design excellence at all scales of planning, design and development – from street network and site design, to building design, landscape architecture and engineering.
64. Design excellence for each of the development parcels in this district will be controlled and negotiated through the subsequent development applications that follow from this land acquisition strategy.
65. Any urban design implications associated with the recommended realignment and ultimate redevelopment proposal will be presented in future Staff Reports.

Parking

66. The combined standard parking requirements for Fisher and YMCA is approximately 350 spaces. Surface parking for this number of cars is not feasible given land constraints (value and space). Stand-alone structured parking is not financially feasible and it also competes with the gateway urban design principles noted above.
67. Planning and Engineering staff will continue to work on a strategy that involves providing some on-site surface parking for both the YMCA and Fisher; integrating the design of the parking area into the overall site design. Additional off site surface parking may be integrated into upstream Kidd's Creek improvement projects subject to a review of scope of work and budget. On-street and parking lot parking options will be coordinated with Staff from Creative Economy, specifically with respect to Fisher Auditorium requirements. Staff anticipate that the some sort of a drop-off/pick-up loop will be incorporated into the Fisher site plan design.
68. Additional off-site and underground parking will be negotiated as part of the HIP residential proposal.

Road Network

69. The existing Barrie Central Collegiate block is one of Barrie's least permeable blocks and has some of the largest uninterrupted block faces in the Urban Growth Centre. It has an uninterrupted east-west block face of approximately 310m along Dunlop Street, and an uninterrupted north-south block face of approximately 570m along Bradford Street. See Appendix "E"
70. The block, in its existing form, does not facilitate walkability in the Urban Growth Centre nor create connections to Downtown and/or Waterfront destinations.
71. Proposing substantial community development and residential density on this block without providing improvements to the City's street network or walkability will increase automobile trip demand and result in increased pressures on the existing street network. It would also eliminate the opportunity to provide a direct connection for existing and future residents living west of Bradford Street to Downtown and Waterfront destinations.
72. A natural extension of the City's street network could occur by extending Simcoe Street through the subject site to intersect with Perry Street/Eccles Street/Innisfil Street. This would provide a direct connection between the Innisfil Residential Collector and the Simcoe Commercial Collector and the surrounding Waterfront destinations and Milligan's Pond. A direct connection between these Collectors may help to alleviate traffic flows on Dunlop Street and Lakeshore Drive

surrounding downtown streets at peak times by providing an alternate route in and out of the downtown. See Appendix "C".

73. A north-south connection should consider breaking the subject block at mid-point and aligning with Sanford Street to allow the City of Barrie to seamlessly connect with the existing street network at a future date – i.e. at such a time when the Barrie by the Bay Commercial Centre redevelops.
74. Possible realignment of Eccles and Innisfil may also be considered at a future date to create more efficient development blocks and direct connection.
75. The proposed realignment of land ownership aligns with the potential extension of Simcoe Street through the site connecting with Eccles/Perry Street. Further analysis is required however the realigned land ownership will not impeded implementation of the road network improvement should it be identified at site plan approval. Any road network implications associated with the recommended realignment and ultimate redevelopment proposal will be presented in future Staff Reports.

ENVIRONMENTAL MATTERS

76. Kidd's Creek Floodline matter is being addressed via the open watercourse drainage solution. This work is on-gong.
77. Soils testing and risk assessment conditions will be included in the Agreement of Purchase and Sale.

ALTERNATIVES

78. The following alternatives are available for consideration by General Committee:

Alternative #1 General Committee could refuse the proposed land ownership realignment and discontinue negotiations with HIP.

This alternative is not recommended as it will not secure Fisher Auditorium and will not facilitate the City's support for the YMCA's relocation downtown.

Alternative #2 General Committee decide not to declare the City owned lands as surplus as it deems that the lands are required for municipal purposes.

This alternative is not recommended as appropriate departments have been consulted in accordance with By-law 95-104 and the departments have indicated that they are not required.

Alternative #3 General Committee could decide to issue an RFP or market the lands rather than negotiate exclusively with HIP.

This alternative is not recommended due to the opportunity presented by HIP/Fisher Auditorium/YMCA comprehensive redevelopment concept.

FINANCIAL

79. No direct financial implications result from the proposed recommendation to negotiate a land ownership realignment. Finance staff will be actively involved with Planning staff and Legal staff during negotiation of agreements to implement the realignment and ultimate redevelopment proposal. Any financial implications associated with the recommended realignment and ultimate redevelopment proposal will be presented in future Staff Reports.

LINKAGE TO 2014-2018 STRATEGIC PLAN

80. The recommendations included in this Staff Report relate to the Inclusive Community and Responsible Spending pillars of the 2014-2018 Strategic Plan.

Attachments: Appendix "A" – Proposed Realigned land Ownership
Appendix "B" – Floodplain Areas
Appendix "C" – Potential Road Network Concepts
Appendix "D" – Terracing Examples
Appendix "E" – Block Permeability

APPENDIX "A"
Proposed Realigned Land Ownership



-  City Land Stays in City Ownership
-  City Land to HIP
-  HIP Land Stays in HIP Ownership
-  HIP Land to City





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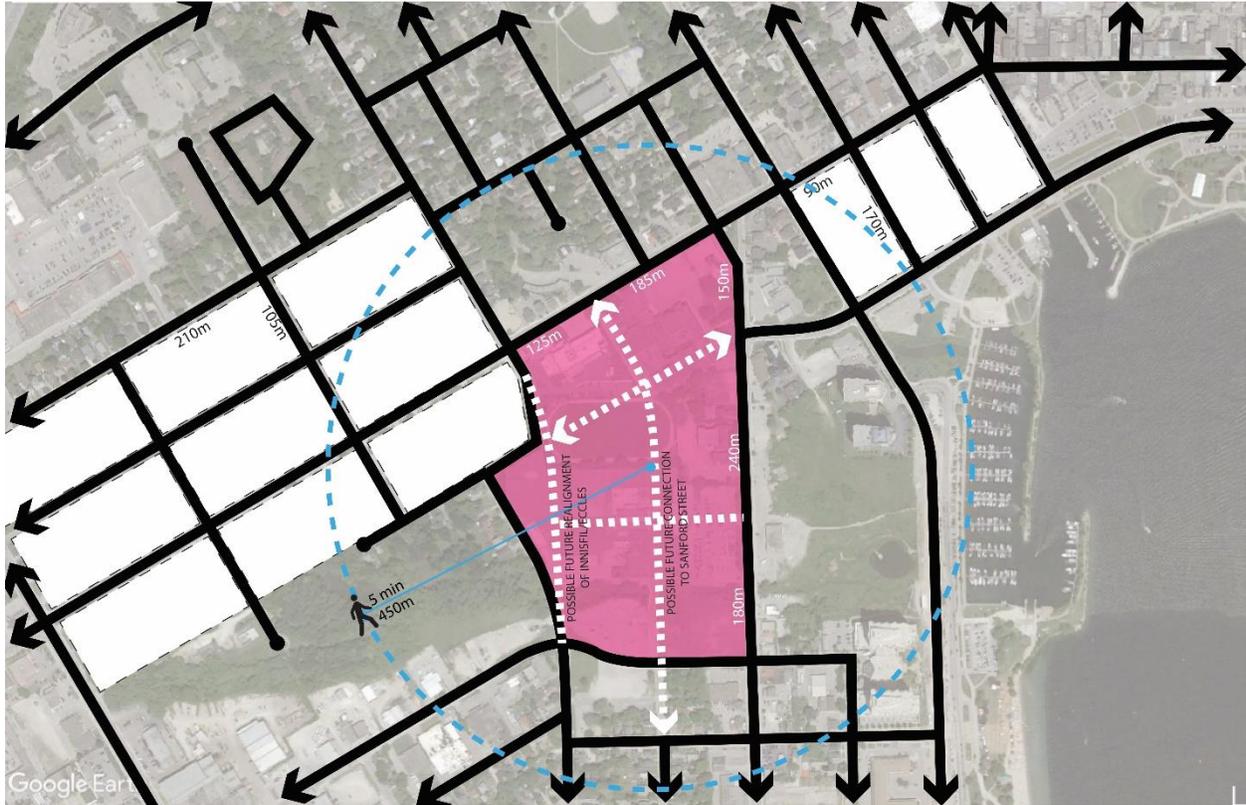
GIS Branch 10/10/2017

APPENDIX "B"
Floodplain Areas



APPENDIX "C"

Potential Walkable Street Network Concepts



APPENDIX "D"

Terracing Examples



Figure 1: Re-naturing Billancourt Park, with its industrial past, was based on the nature/town duality of the Seine and the City. The site used to be a major industrial site in the Paris region: the Renault car manufacturing grounds. Both the area on the bank of Boulogne-Billancourt, as well as the Ile Seguin situated in the Seine River were liberated after industry relocations, and therefore became possible locations for new large-scale urban development projects a stone's throw from the historic centre of Paris.

Project by Agence Ter.



Figure 2: Focused around the restoration of the River Lea, the Queen Elizabeth Olympic Park in London includes a northern environmental park and a southern festival park that showcase the Olympic Gardens, which are themed around the countries who participate in the Games.

The environmental north park converts the channelized industrial canal into a naturalized meandering river corridor with lowland meadows and wetlands, sweeping lawns for gathering, and sculpted banks for viewing. The South Park creates gently terraced river banks and includes the themed Olympic Gardens – a rich and colorful tribute to the plants of the countries that gather for the Games. The Transformation Plan set the framework for the park post-Games, replacing paving and temporary sporting venues with park programming including a cycle track and outdoor performance area, and additional habitat landscapes. The Transformation Plan stitches the park to the surrounding neighborhoods and creates a regenerated regional landscape for this and future generations.

Project by Hargreaves Associates.



Figure 3: Schwäbisch Gmünd, a mid-sized town in southern Germany, has engineered a far-reaching urban redevelopment resulting in a new green heart for the city. This comprehensive project has structurally reoriented the inner city, including its traffic patterns. Historical urban structures were re-exposed, new urban axes were formed and expansive public spaces were built. A new image of the inner city has been forged by a new boulevard, a green promenade, paths and public squares along the old urban streams, as well as sporting areas and playgrounds.

Project by A24 Landschaft.



Figure 4: Formerly a wetland, the Pearl District, in Portland, was bisected by Tanner Creek and sided by the broad Willamette River. Rail yards and industry first claimed and drained the land. Over the past 30 years, a new neighborhood has progressively established itself – young, mixed, urban and dynamic, today the Pearl District is home to families and businesses. The project rejuvenates one downtown block, 60×60 meters (200×200 feet) to create a new city park.

Stormwater runoff from the park block is fed into a natural water feature with a spring and natural cleansing system. The `Art Wall` recycles historic rail tracks, oscillating in and out and inlaid with fused glass pieces hand-painted with nature images by Herbert Dreiseitl. Ospreys dive into the water, art performances unfold on the floating deck, children splash and explore, and others take quiet contemplation in this natural refuge in the heart of the city.

Project by Ramboll Studio Dreiseitl.



Figure 5: Beginning in 2006, a new urban district, Qunli New Town, was planned to be developed at the east outskirts of Harbin City, North China. 32 million square meters of buildings will be constructed in 13-15 years. This scale of development will cover the majority of a flat plain with impermeable concrete. Flooding is a frequent problem in the area. The design strategy for the project is to transform a dying wetland into an urban stormwater park, which will provide multiple ecosystems services for the new community.

The design includes the use of simple cut-and-fill techniques to create a necklace of ponds-and-mounds surrounding the former wetland. While leaving a major core of the wetland untouched and left alone for natural evolution, the pond-and-mound ring surrounding the periphery of the wetland creates a stormwater filtrating and cleansing buffer zone for the core wetland, and a welcoming landscape filter between nature and city. Stormwater from the newly built urban area is collected into a pipe around the circumference of the wetland, and then filtrated and deposited through the ponds. Native wetland grasses and meadows are grown in the ponds of various depths, initiating a natural landscape evolution process. Groves of native silver birch trees are grown on the mounds of various heights that create a dense forest setting. A network of paths are built into the pond-and-mound ring allowing visitors to experience the different ecozones within the wetland. Platforms and viewing towers are set in the ponds and on the mounds to allow visitors have an experience with nature and enjoy distant views. A skywalk links scattered mounds allowing users to experience the wetlands at different elevations.

Through the transformation of this dying wetland, stormwater that frequently causes flood in the city become a positive environmental amenity for the city. The stormwater park now has been listed as a national urban wetland park. This project demonstrates an ecosystem services-oriented approach to urban park design, and showcases a water urbanism approach.

Project by Turenscape.

APPENDIX "E"

Block Permeability

