



2019-2022 One Calgary Service Plan Preview

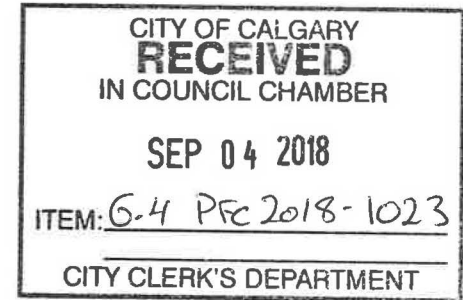
Compilation of Written Public Submissions
September 2018

Service Plan Preview

A Well-Run City

Priorities & Finance Committee
September 4, 2018

Compilation of Written Public Submissions



Calgary Climate Hub

Presentation to the Priorities and Finance Committee

A Well-Run City:
A Climate-Positive Budget for current and future Calgarians



Who is the Calgary Climate Hub?

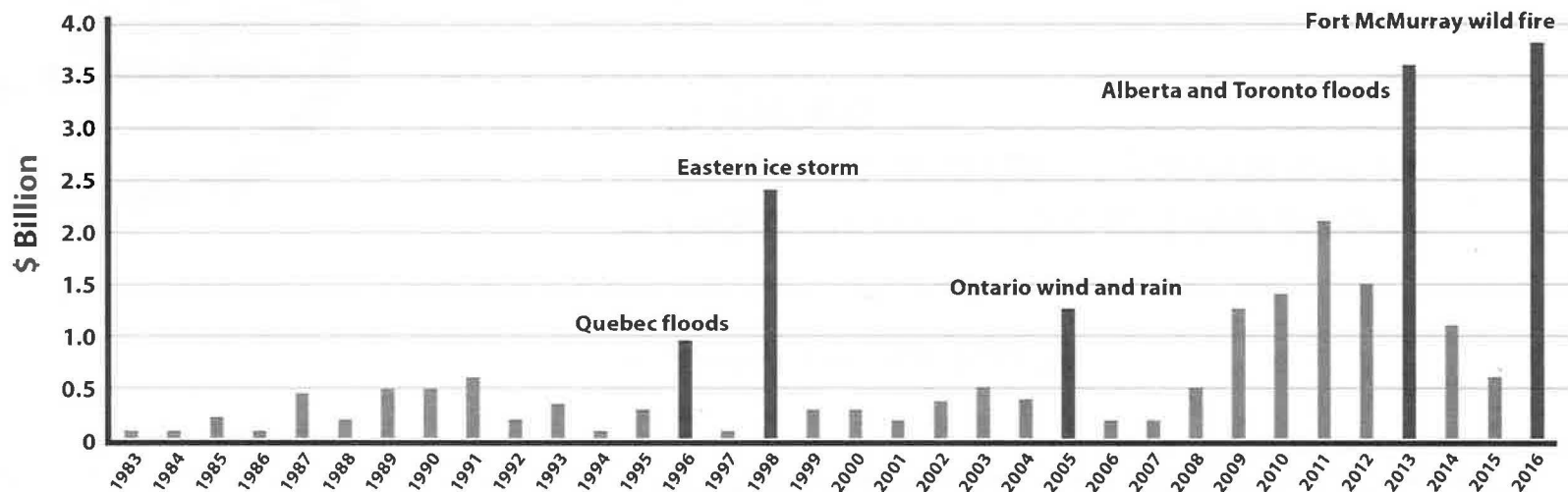
- **Vision:** Calgary to become a leader on climate action and successfully transition into the future economy.
- **Mission:** To support and influence City of Calgary planning and processes to ensure citizens are engaged, that sufficient resources are provided, and that plans are adequate to meet climate targets
- **Membership:** We represent a large number of diverse Calgarians concerned with climate change.



The *Climate Resilience Strategy* is a valuable move in the right direction:

2018 climate adaptation action plan

FIGURE 6 – CANADIAN CATASTROPHIC INSURED LOSSES (INSURANCE BUREAU OF CANADA)



It demonstrates that climate change threatens our prosperity...



...and that a climate-positive city is:

The Economics of Low Carbon Development: Calgary, Canada

Andrew Sudmant, Matt Tierney, Eduard Cubi,
Effie Papargyropoulou, Andy Gouldson, Joulé Bergerson



- Better financially than “business as usual”
- Better for our health
- Better for vulnerable and low-income Calgarians, and future generations of Calgarians
- Better for our safety and security
- Better to diversify and stimulate our economy, and create new jobs

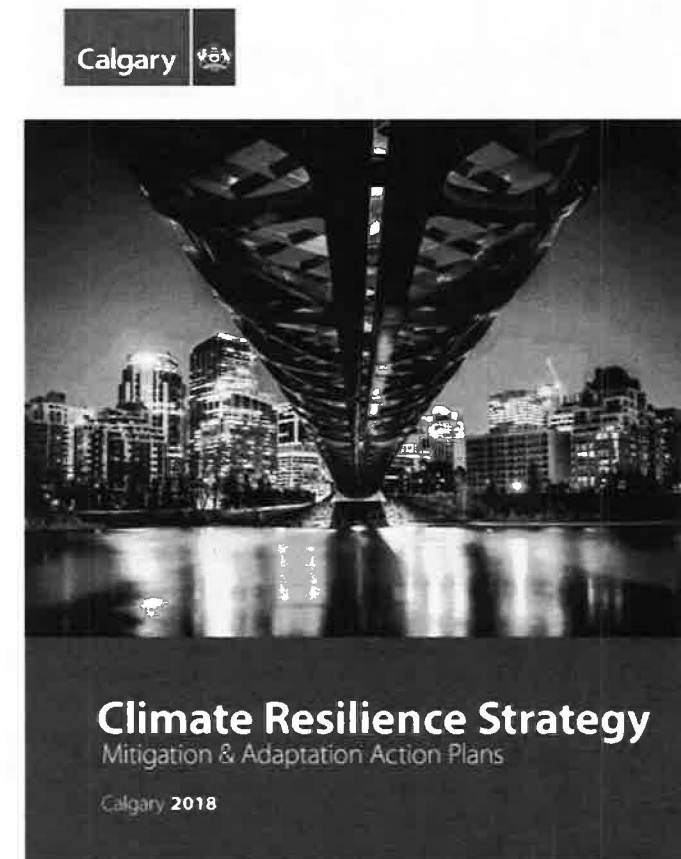


Overall Climate Principles for One Calgary

A Climate-Positive Budget for current and future Calgarians

Principle #1. Fund and monitor the Climate Resilience Strategy during this budget cycle – not to defer to the second business cycle!

Principle #2. Apply a Climate Lens to all priority areas and in appropriate service lines





Climate Needs for A Well-Run City

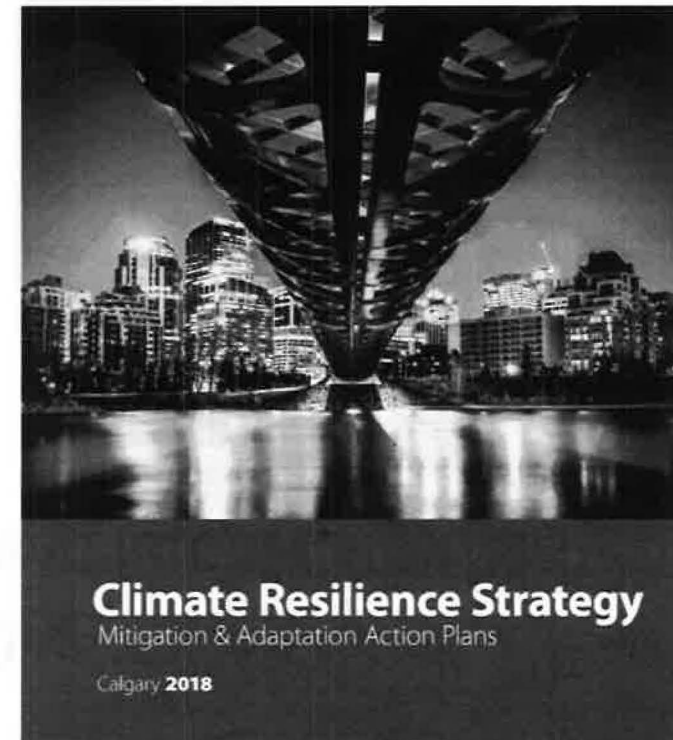
A Climate-Positive Budget for current and future Calgarians

Need #1. Adopt *Innovative, environmental*, and *long-term* accounting methods for capital projects and procurements

Need #2: Create a Low Carbon Action Committee

Need #3: A Strong Corporate Governance for the Climate Resilience Strategy

Need #4: Adopt innovative financing mechanisms and a PACE funding program





Climate Need #1. Adopt *innovative, environmental, and long-term* accounting methods

Use a “climate lens” when implementing City Plans and Strategies

- Consider Ecological Footprint – Embedded Costs and Externalities for capital projects and procurements (Comprehensive integration of land, air, and water use)

Transparent and effective enforcement of the City’s Sustainable, Environmental and Ethical Procurement Policy (SEEP), with monitoring and annual reporting on social and environmental benefits

Adopt a full-life cycle accounting for capital projects

- Look beyond quarter to quarter budgeting
- Include escalating carbon pricing in budget documents
- Factor costs from “cradle to grave,” i.e. from production to disposal



Climate Need #2: Create a Low Carbon Action Committee

- Create and fund *Low Carbon Transition and Climate Action Committee* of climate scientists and organizations involved in climate change and sustainability
 - Monitor and advise on implementation of the *Climate Resilience Strategy*
- Provide and fund a broad range of meaningful engagement opportunities for Calgarians on Climate Resilience Plan implementation





Climate Need #3: A Strong Corporate Governance for the Climate Resilience Strategy

A black and white photograph of the Calgary skyline with a dark rectangular overlay in the center containing the text "City Auditor's Office" and "assurance, advisory and investigative services".

City Auditor's Office

assurance, advisory and investigative services

Give executive responsibilities to City Manager Mandate and provide resources to the City Auditor's Office to ensure proper monitoring and reporting of results achieved



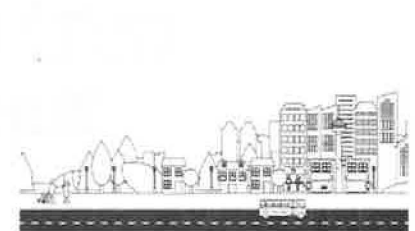
PFC2018-0088
ATTACHMENT

In the next Accountability Report for Action Plan, add the two following Performance Measures:

- Carbon Emissions Reduction
- Implementation of the City Climate Mitigation and Adaptation

Action Plan 2015-2018

Final Accountability Report for Action Plan





Climate Need #4: Adopt innovative financing mechanisms and a PACE funding program (1/2)

- Allocate resources to establish and monitor the Property Assessed Clean Energy (PACE) program in partnership with Energy Efficiency Alberta
 - Innovative tier-financing program that contributes to energy efficiency and greenhouse gas reduction
 - Foster a green economy by stimulating activities in renewable energy and energy retrofits building
 - Successfully implemented in California





Climate Need #4: Adopt innovative financing mechanisms and a PACE funding program (2/2)

FINANCIAL POST

Nov 3, 2017

Ottawa becomes first municipality in Canada to issue green bonds

Barry Cruchley: Mark Martin, manager of treasury for Ottawa, said the issue's success arose from a number of factors



The Canadian flag above the Peace Tower on Parliament Hill in Ottawa. (Photo: Justin D. Smith)

FINANCIAL POST

May 7, 2018

Canada slow to embrace green bond market, even though investors are eager to buy

An ILC report calls for a more developed domestic green bond market, in large part to provide an alternative financing structure for infrastructure projects



Among corporates, TD Bank last year completed a US\$1-billion three-year offering of green bonds. (Photo: The Canadian Press)

- Investigate innovative financing mechanisms to fund improved energy performance (Action 1.4, *Climate Resilience Strategy*)
- Develop *Municipal Green Bonds*



A Climate-Positive City aligns with many cross-corporate service plan strategies identified in the One Calgary process



Cross-corporate service plan strategies

PFC2018-0974
ATTACHMENT 1

- Build a resilient transportation network
- Build a more resilient and sustainable city
- Develop a dynamic and diversified economy
- Develop strategies to manage greenhouse gas emissions and reduce climate change risks and vulnerabilities
- Foster diversified communication and engagement with all Calgarians
- Increase accessibility to Transit for Calgarians
- Manage growth in a way that achieves the best possible social, environmental and economic outcomes within financial capacities
- Protect historic resources and promote arts and culture
- Provide sufficient supply of affordable housing
- Reduce corporate risks and strengthen safety and insurance
- Strengthen indigenous relations
- Support the delivery of City of Calgary services through enabling services

“We need to recognize that we miss opportunities for innovation in management, service delivery and planning because of an existing culture of risk avoidance. We need to create a culture that embraces appropriate levels of risk, innovation, experimentation, and embraces lessons learned as opportunities to improve.”

Calgary City Council Directives for One Calgary

403 305 9447

Service Plan Appeals and Tribunals

My name is Jean Blackstock and I am born and raised in Calgary. I live in Rosemont and have lived there most of my life except for about 10 years. I bought the family home from my parents, Rosemont is an established neighbourhood of 50s bungalows and large trees

I am speaking today to the Service Plan Appeals and Tribunals as a private citizen but I belong to and support Climate Hub and Calgary Climate Action Network In fact most of what I do now is through a climate or ecological lens

About 3 years ago a development was started next door to me. The development permit number is DP2015 4799. The contentious issues were that the people were taking down 19 trees and putting in a front drive garage where there had not been one before. The building was very large as well and where it was situated would block my view of the street. Two of the trees in the front bordered my property and the roots were well into my lawn and the branches were well into my property in the front yard.

The front drive garage was particularly contentious as there is a bylaw # IP 2007 section 3418 that addresses this specifically saying

A front drive must not be constructed altered or replaced except where

- 1) Located on a laneless parcel
- 2) Located on a laned parcel with 50% or more front drives on same block face
- 3) Legally existing driveway not being relocated or widened

This property also does have a double garage in the lane which was on the plans and is still part of the property

I wrote my concerns to the development office within the deadlines that were given. At least 3 other neighbours wrote their concerns as well.

Rosemont Community sent comments as well supporting that the front drive should not be built as all of the three criteria were met on the South Side of Rosery Drive. The community also commented on the Mass of the Structure and the loss of the trees.

The first report regarding this development talked about comments made by Parks regarding the City Trees and had Alderman Farrells comments but did not include any of the neighbours comments or the community's comments or mine.

City of Calgary RECEIVED IN COUNCIL CHAMBER SEP 04 2018 ITEM: 6.4 PFC 2018-1023 Receive for Corporate Record CITY CLERK'S DEPARTMENT

Jeff Martin tried to explain this to me but I really did not understand why we had gone to the trouble of writing and researching when nothing was even mentioned. The front drive was approved so I had no option but to go to the Appeal Board

I paid my \$100 dollars took time off of work and so did the community and community members. Long story short the front drive was approved.

My concerns are the following

#1 From a climate and ecological standpoint I feel that Calgary should follow many other Municipalities in the last few years that have instituted Tree protection Bylaws that protect private trees on private land. Victoria Vancouver and greater Vancouver including Richmond Burnaby Coquitlam Port Coquitlam Surrey Maple Ridge Mission Abbotsford, London Toronto Ottawa.

The following I found for the City of Yorkton Saskatchewan.

~~Arboriculture; Entomology; Pathology~~ INTRODUCTION Urban Forestry is the generally accepted reference being used when dealing with the maintenance and care of the trees and shrubs that line our streets and beautify our parks. A community's trees or its "urban forest" constitute a valuable but vulnerable component of the civic infrastructure. Not only do trees and shrubs provide shade, shelter, beauty, wildlife habitat and civic landmarks, they are also a statement of community pride and civic image. Throughout North America, the health of urban forests is in decline. Very few communities plant more trees than they remove and the threats of disease, vandalism, microclimate and neglect continue to diminish the vitality of the urban forest. Renewed attention is needed to conserve this very important community asset. Preserving our urban forest will leave a legacy for future generations to benefit from in many ways. These are the same benefits residents of, and visitors to Yorkton receive today. They include, but are not limited to: Improved Air Quality Trees and their foliage act as an air filter for our community by cleaning dust, micro sized metals and other pollutants such as ozone, nitrogen oxides, ammonia and sulfur dioxides. They reduce the amount of carbon in the air by storing it in the form of wood. They also help reduce carbon in the air by aiding with heating and cooling requirements, thus reducing the amount of carbon dioxide produced from fossil fuels. The bi-product of this process of removing pollutants is oxygen released into the atmosphere. Improved Water Quality and Erosion Impacts As development increases, hard non-evaporative surfaces increase, which decreases the soil infiltration by ground water. The result is increased water volume, velocity and pollutant load from runoff. Tree canopies and root systems intercept, slow and reduce storm water runoff through normal tree functions, thus reducing the effects of flooding and erosion. This increases the amount of rainwater runoff that percolates into the soil, which in turn helps purify the water by removing nutrients and sediments and recharging aquifers. Reduced Temperature and Energy Use Trees reduce temperatures in summer by shading surfaces, dissipating heat through evaporation and by blocking wind, which transfers heat from the ground. Trees can also block winter winds and reduce the wind chill factor, which reduces energy loss due to heat dissipation. Noise Reduction and Visual Screening Trees provide a

3

calming environment by absorbing noise and improving aesthetics. They soften sound waves that attempt to pass through them and further dampen these sounds by adding sounds of their own. The „white noise“ of leaves and branches in the wind and associated natural sounds, mask other man made sounds. Trees can be used to for screening undesirable and disturbing sight lines. They also reduce glare and filter out harmful UV rays. Components of good Urban Forestry Management include; and the execution of good Horticultural practices.

#2 Why are bylaws not enforced? In my presentation I had several examples whereby the bylaw had been enforced in Calgary and in fact one of my neighbours had just recently been turned down for a front drive garage in Rosemont

The people who wanted a front drive garage also took a petition around getting signatures in support and saying on the letter they would pay people \$ 25.00 for their trouble.

#3 To allow front drive garages in all these neighbourhoods that have back lanes is to increase the hard surfaces for rainwater runoff and decreases absorption through soil to increase groundwater. Rosemont in particular had a large flooding problem and many millions of dollars were spent on Rosehill Drive and 10th Street to mitigate this just last year.

These are my concerns Thank you for your time

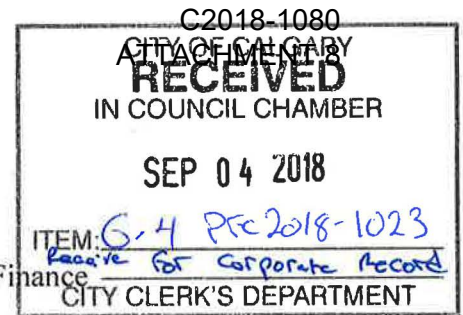
Sept 4, 2018. Priorities and Finance Committee Meeting public presentation.
Dr. Andrea Hull

I am a family doctor, a member of CAPE (Canadian Association of Physicians for the Environment), and a proud Calgarian. I recognize that you are faced with many competing agendas, but I am here today to remind this city council of its commitments to action under the Climate Resilience Strategy (CRS). As illustrated in the Leeds Report commissioned by the City, there is 'a strong economic case for Calgary to pursue an ambitious and cost-effective low carbon development path'. We have heard today of one small example of cost-savings made through energy efficiency with LED streetlights. I am asking that you ensure the City will embed the CRS and Leeds Report recommendations within the budget across all service plans. As the One Calgary executive summary states: "Making life better every day for Calgarians is our common purpose." That is why I am calling on you to do what is in your realm of power and influence to affect positive change, for the well-being of Calgarians, using a climate lens. The Canadian and American Public Health organizations recognize that climate change is a major public health threat. The World Economic Forum ranks climate change effects highest in global risks and impact. Environmental issues are health issues. And Calgary is not immune. We need clean air, clean water and thriving nature for good health. As physicians we are called to address the social determinants of health, such as poverty, access to clean water and air, nutritional food and social disparities. It's certainly our role and responsibility to advocate for public policy that focuses on prevention of hazards to people and to the natural environment.

For a Well-Run City, we need leadership in citizen engagement to help inform the public openly about the negative health impacts of climate change and the health benefits of pursuing low carbon planning and development. The health benefits are indeed numerous, and can be applied across the Citizen Priority themes: A city that moves, A prosperous city, A healthy and green city. For example, active transportation, walking, using bicycles and public transit, has been shown to decrease mortality and chronic diseases. Have denser urban areas lead to shorter in-car commute times, and decreased pollution from fewer cars on the road means better respiratory and cardiovascular health. Having access to green spaces in communities has been shown to improve mental health. Cities that address much needed affordable housing, food security, and that have strong social programs can also positively impact health outcomes.

Economic stability and a low-carbon future go hand-in-hand with good health policy, we just need to seize the opportunities, and as pointed out in the One Calgary exec. Summary: "we need to create a culture that embraces appropriate levels of risk, innovation, experimentation, and embraces lessons learned as opportunities to improve." Let's not learn our lesson about climate health impacts too late. As the Priorities and Finance Committee it is imperative that you provide the funds needed to resource and properly implement the Climate Resilience Strategy within this budget cycle and give the service plans/lines this clear mandate. It can be win-win for city planning, the economy and most importantly for the future of healthy communities.





Submission to the City of Calgary Standing Policy Committee on Finance

Sept. 4, 2018

Hello,

My name is Walter Hossli and I'm the founder of Momentum, the organization that works with low income Calgarians using economic development principles - business start-up, trades training and financial literacy. I'm also a Changemaker in Residence at the Institute for Community Prosperity at Mount Royal University.

However, today I am here as a citizen, a Calgarian, Albertan and Canadian deeply committed to making a difference on increasing our efforts to cut CO2 emissions. I want to start by congratulating every member of City Council for voting in favour of adopting the Calgary Climate Strategy.

As a leader of a community organization I have learned at least one thing after 20 years of work: **You can only do what you have money for.** (yes, it took me a long time to learn this, because we live in a city where many of us do tremendous volunteer work and we do it for free. However, if it wasn't for paid staff, paid back-office support, paid marketing, brand promotion, etc. etc. most if this volunteer work would simply not happen).

So I am here to make two points:

The climate strategy needs to be adequately funded and
Funding for the education program envisioned in the plan is key to the success of the plan. In particular section 10.6 of the action plan "Develop and implement a comprehensive climate change education program" needs to be top priority. Education on this touchy subject needs to use all the best practice tools available.

As a decades-long advocate of policy to support low-income folks, why am I now so passionate about this topic?

Simply put: I know that the lower you are on the income and wealth ladder, the greater your chances of being hit hard by the effects of climate disruption.

In addition, our children and grandchildren deserve to live on a planet that has a realistic chance of not becoming hostile to human civilization. Humans have achieved remarkable things and unless we curb our emissions, many of these achievements are threatened before the end of the century.

So, on a very practical note: I am here to propose that Council invest a percentage of the climate adaptation infrastructure funding in this comprehensive education effort envisioned in section ten of the recommendations.

I mentioned the word touchy above. Some of you know that the minute you say climate change to someone you don't know in Calgary, you either get a blank look or an argumentative remark about the importance of the oil and gas industry. Both of these responses are understandable given the many years of absolute neglect of science-based comprehensive education on this topic.

As in so many other areas of life, education is the only tool to have sound and stable public policy in place for the long term.

In summary my hope is that council will put adequate resources behind the more touchy areas of the Calgary Climate Strategy – those that deal with leadership on comprehensive education.

Thank you.

Walter Hossli
Ph. 403 629-6180

Service Plan Preview A Prosperous City

SPC on Community & Protective Services
September 5, 2018

Compilation of Written Public Submissions



A Prosperous City: Building a City Budget for current and future Calgarians

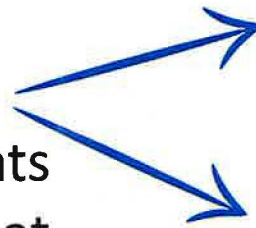
Presentation to
the Community and
Protective Services
Committee

Climate Resilience Strategy

Mitigation & Adaptation Action Plans

Calgary **2018**

Calgary could reduce its baseline emissions by 70% by 2050 through cost-neutral investments that could be adopted at **no net cost** to the city's economy



Generating **savings of up to \$5.6 Billion per year.**

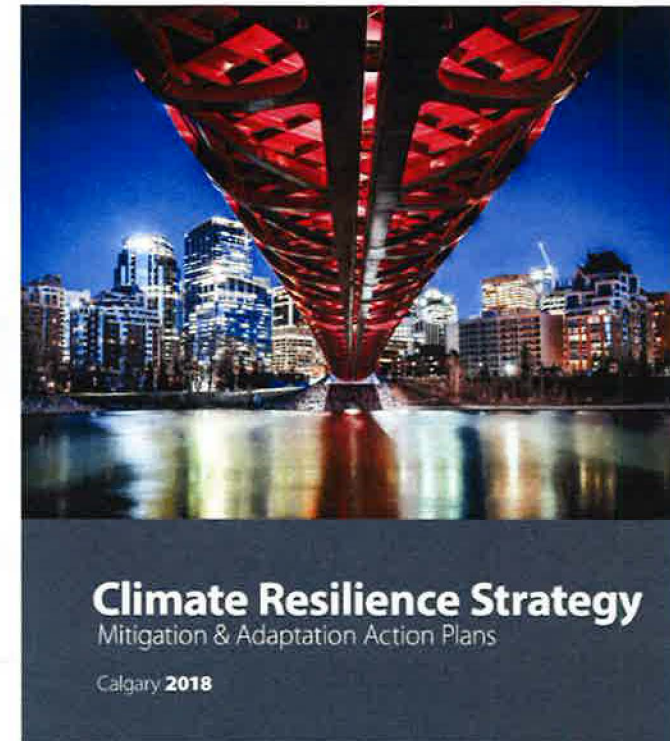
Generating **860,000 job-years**



Key Asks from One Calgary Building a City Budget for current and future Calgarians

Fund and monitor the Climate Resilience Strategy during this budget cycle – not defer it to the next business cycle.

Apply a climate lens to all priority areas and in appropriate service lines





A Prosperous City: Building a City Budget for current and future Calgarians

Affordable Housing

Support innovative methods to improve the energy performance of affordable housing

Social Programs, Community Strategies

Maintain the Fair Entry program, and programs that support vulnerable Calgarians

Library Services

Enhance the Calgary Public Library's Climate Education work

Economic Development & Tourism

Support low-carbon economic development

Support innovative methods to improve the energy performance of affordable housing

Net-zero affordable housing for low income Calgarians:

- ✓ Affordable housing for low income households remains Calgarians' #1 priority for more City investment (2017 Citizen Satisfaction Survey)
- ✓ Net-zero housing has proved itself here and elsewhere – even in Edmonton!
- ✓ Encouraging these long term investments makes affordable housing more affordable long term

Climate Resilience Strategy

Mitigation & Adaptation Action Plans

Calgary 2018

- 1.3 Investigate Policy approaches to provide monetary & non-monetary incentives to improve building performance
- 1.4 Enable innovative financing mechanisms to fund improved energy performance

Maintain the Fair Entry program, and programs that support vulnerable Calgarians

Maintain the Fair Entry program during the next budget cycle:

- ✓ The Fair Entry program has already enabled 36,000 low-income Calgarians to access multiple services this year, including a public transit pass at a low-price.
- ✓ Affordable public transit supports seniors, students, families with kids, and low-income Calgarians.
- ✓ Supports a low-carbon economy, and the Climate Resiliency Plan's aim to promote "Low or Zero-emissions Transportation Mode", and "enable increased use of Calgary Transit".

Enhance the Calgary Public Library's Climate Education work

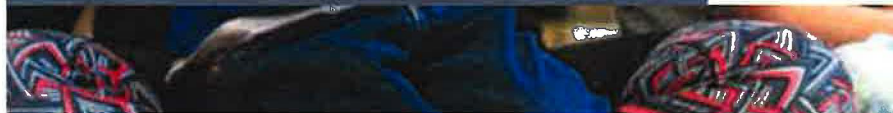


Climate Resilience Strategy

Mitigation & Adaptation Action Plans

Calgary 2018

- 10.5 Develop and implement a comprehensive climate change education program
- 10.6 Integrate climate messages into existing City of Calgary public education program



Support low-carbon economic development

Economic development should have a climate lens, fostering low carbon entrepreneurship and innovation

- ✓ Supports the “need to continue ***building a local economy*** that is more resilient to changes in commodity prices” (City Council directives for One Calgary)
- ✓ “The analysis shows that there is a ***strong economic case*** for Calgary to pursue an ambitious and cost-effective low carbon development path”
- ✓ Funding for Calgary Economic Development should be tied to climate-positive actions e.g. reducing waste and improving energy and resource efficiency, which make Calgary businesses more competitive

Climate Resilience Strategy

Mitigation & Adaptation Action Plans

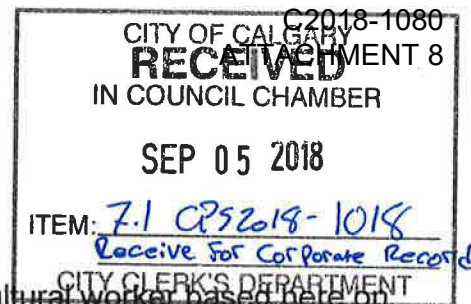
Calgary 2018

- 10.11 Establish a structure and resources to enable innovation between The City and the private sector (Calgary Approvals, Environmental & Safety Management)



About the Calgary Climate Hub

- **Vision:** Calgary to become a leader on climate action and successfully transition into the future economy.
- **Mission:** To support and influence City of Calgary planning and processes to ensure citizens are engaged, that sufficient resources are provided, and that plans are adequate to meet climate targets



Wednesday, Sept.

Community & Protective Services, agenda item 7.1

Hello, my name is Su Ying Strang, and I'm an artist and cultural worker based here on Treaty 7 territory. I am the executive director of The New Gallery, a charitable centre for contemporary art in Calgary Chinatown, and the Chair for the Alberta Association of Artist-run Centres. Today I am here representing the citizens and arts community that make up Creative Calgary. I want to tell you about my introduction to Calgary via the arts, and then speak more broadly about the opportunity that the City has this fall to invest in a vibrant, sustainable arts sector that will help build a prosperous city.

I emigrated to Canada in September 2006. I had never heard of Calgary or Alberta prior to learning about the Alberta College of Art + Design, which took place in 2004 at a National Portfolio Day event for art schools across North America. The recruiter, artist Tim Zuck, did their job well, and I decided to attend ACAD over my other top choices of art schools in Vancouver and Toronto.

I have to admit that during my first two years here, I felt that the city was missing something. I've lived all over the US, and have been fortunate to travel internationally throughout my life. At the time, it was difficult to imagine Calgary ever becoming my home.

However, as I got closer to graduating in 2010, I felt a slow but discernible shift in the culture of the city. My friends were starting pop-up galleries in their apartments and garages, the quality and diversity of restaurants was picking up, and finally, major music acts started booking shows here on their way across the country. All of the sudden, it didn't feel like leaving Calgary was my best option, instead, I graduated with a community of peers who were asking, what if we stay?

Since then, I have been committed to working in the charitable arts sector, hoping and doing my best to contribute to the dynamic and exciting arts and culture happening in Calgary. Throughout the last 8 years of my involvement in this sector, it has become evident that Calgarians' appetite for arts and culture is only growing. I could never have imagined Calgary being selected as one of the most liveable cities in the world when I first arrived here, but Calgary is now ranked #4 by The Economist. What spurred this? The magazine cited "improved cultural availability" and "quite a large art and music scene" as key factors moving Calgary up the ranking. This further underscores the importance of arts and culture for Calgarians of today and of the future, and I believe with the proper investment and support, this hugely important aspect of Calgary will thrive, drawing people to our prosperous city from across the world to live, visit, work, and play.

Calgary's arts and culture has been growing without the resources necessary to match its development, and this is unsustainable over the long term. A significant increase to Calgary Arts Development is key to stabilizing the sector so that we don't lose valuable activities and organizations such as the Children's Festival in the future. Furthermore,

our city, and country as a whole are working towards being more accessible, inclusive, and equitable. Recent statistics rank Calgary as the third most diverse city in the country. Our artists and arts organizations are striving to make the work we all do accessible for all Calgarians, but significant and ongoing increases in arts funding is necessary for this important work to continue. This year we've seen organizations like Asian Heritage Foundation utilize the arts to make new connections and strengthen existing ones between Pan-asian Calgarians and Calgarians from all walks. The New Gallery has implemented translated exhibition tours and texts to better welcome our Mandarin and Cantonese-speaking audiences. Other organizations like Stride Gallery are working directly with T'suu T'ina Nation to develop relevant arts programming in an indigenous paradigm, and newer arts organizations like Chromatic Theatre are creating and supporting programming that is a diverse cross section of voices.

This budget cycle is a rare opportunity for Calgary to take a major step forward towards the vision of being a prosperous city - existing organizations and artists have continued making do with stagnating resources, but the burn-out is real, and many new organizations and artists that have popped up in Calgary have had few opportunities to access funding, meaning that some people leave, and some projects have to end. We've recently seen the development of an innovative new masters program at the Alberta College of Art + Design, and they've just received their university status. This will bring some of the most artistically excellent talent from across North America to this city. The Province will announce its Status of the Artist legislation this fall, commemorating the importance of art and the contributions of artists in Alberta. Furthermore, at Canada Council's recent town hall, Alberta had the highest amount of new artists enter the grant stream in last year's funding competition, demonstrating that our artists are competitive nationally, and the need for these resources. An investment in the arts today will create generations of strong institutions that present the highest caliber of programming to Calgarians, as well as support and cultivate the next generations of artists who will share their work here at home, and abroad, acting as an ambassador for Calgary. Creative Calgary has shared numerous economic benefits that arise from a strong arts sector, and why investing in Calgary arts makes business sense, so now I ask you to think about some of the qualitative benefits of the arts - how the arts can build or strengthen relationships, how the arts can communicate disparate ideas and encourage critical discourse, how the arts can celebrate culture and share it with our family, friends, and Calgarians at large, and how the arts can help build a prosperous city. The time for a transformational investment in the arts is now. Thank you for your time.

About Creative Calgary

Creative Calgary is a non-partisan group of citizens that care deeply about the role the arts play in connecting our communities and building a healthy, thriving city.

Calgary's artists are world-class and we aspire to be a creative hub, accessible to people of every age, ability and background. The arts and cultural sector currently employs more than 50,000 Calgarians and is a critical component of the economic diversification of the city, yet we could be contributing even more. Unfortunately, the sector is under threat due to persistent underfunding from the municipal government, presenting a substantial risk to our city's educational, financial and community vitality.

We have a considerable opportunity to enhance Calgary's future through sustainable arts funding.

The time is ripe for the City to make a transformational and significant investment in the arts.

- A significant investment will have a game-changing result and will establish Calgary as a leader among Canadian municipalities. We need to act to ensure our creative sector not only weathers the downturn, but drives the growth and diversification of our economy over the years ahead.
- Calgary's corporate sector continues to be under strain and can no longer be expected to make up for the municipal arts organization funding gap. Arts organizations have seen a 30% drop in overall contributions from the corporate sector since the start of the most recent downturn (1).

Arts means business. Arts organizations drive local business and fuel Calgary's creative sector.

- Calgary Economic Development has identified growth of creative industries as part of a focus on making Calgary a magnet for business fostering pathways to purposeful economic diversification and growth (2).
- Arts organizations deliver returns. \$1 invested in the arts returns \$1.9 directly and \$2.6 when you consider tourism benefits (3).
- In North America, the fastest growing industries are creative and technology (4). In Calgary, creative industries employ over 50,000 of our citizens and is integral to economic diversification of the city (5).
- Over 4,000 students graduate from the city's four major schools each year with creative industries-related degrees and diplomas (6).

Arts Transforms Lives. The arts make cities more livable, interesting and inspirational for all citizens.

- Children grow and achieve their full potential through lessons, classes, performances and creative interactions. 397,087 children and youth participated in arts education events in 2016 (7).
- "With 61% of our population being of a visible minority group and 48% of residents born outside of Canada, often the only way to bridge cultures and groups is through the arts." *Brad Anderson, Executive Director, The Genesis Centre*

Calgary's municipal support for arts organizations is the lowest among comparable cities in Canada.

- Calgary art grants per capita are behind Edmonton, Montreal, Toronto, Winnipeg and Vancouver (8), meaning fewer arts sector jobs for Calgarians.

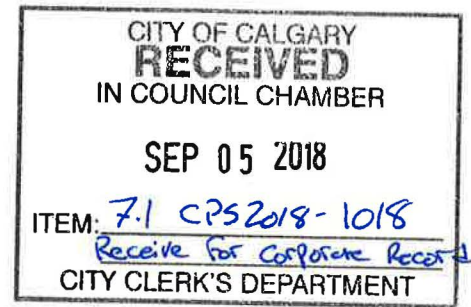
References

(1) 2017 data from organizations receiving investment from Calgary Arts Development



September 5, 2018

Mayor Nenshi and Members of Council
City of Calgary
P.O. Box 2100 Station M
Calgary, Alberta
T2P 2M5



RE: Investing in Affordable Rentals

Dear Your Worship, Mayor Naheed Nenshi and Members of City Council,

We are pleased that the 2018 Citizen Satisfaction Spring Pulse Survey indicated affordable housing was Calgarians' top priority. Calgary needs 15,000 new units of affordable rental housing. To bridge a gap that large, The City will need partners. This fall, Council has an opportunity to address the pressing need, with relatively modest investment, by partnering with non-profit housing providers to leverage dollars available from other orders of government.

Since the adoption in 2016 of the Corporate Affordable Housing Strategy, CHAC members have seen a marked improvement in their ability to develop new housing units. Assistance with pre-development processes and costs through the Affordable Housing Planning Coordinator and Housing Incentive Program have been welcome. However, if there is one place The City can truly help non-profit housing providers, it is with affordable, appropriate land transfers.

Investing in affordable housing aligns with the top priority of the citizens of Calgary. Housing citizens reduces costly use of social services and is a critical cornerstone for treating mental health and addiction. Moreover, by investing in affordable housing, The City can be a catalyst, tapping into a powerful multiplier effect by leveraging available funds from other orders of government.

The window of opportunity to tap into provincial and federal funding will close quickly as other municipalities take advantage. As you enter budget deliberations this fall we encourage you to increase investment in affordable housing--particularly in appropriate, affordable land transfers to non-profits--to ensure Calgary remains a prosperous city where there is opportunity for everyone.

Sincerely,

Beverly Jarvis
Director of Policy, Projects and Government Relations
BILD Calgary
Co-Chair, CHAC
403-730-4266
beverly.jarvis@bildcr.com

Martina Jileckova
Chief Executive Officer
Horizon Housing Society
Co-Chair, CHAC
403-297-1705
martinaj@horizonhousing.ab.ca

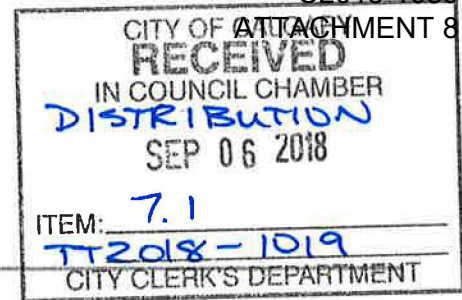
Service Plan Preview

A City That Moves

SPC on Transportation & Transit
September 6, 2018

Compilation of Written Public Submissions

From: Akther, Nasreen
To: Council Clerk
Subject: FW: [EXT] for council meeting on Thursday Sept. 6.
Date: Wednesday, August 29, 2018 12:34:54 PM



From: Mary Salvani [mailto:marysalvani@gmail.com]
Sent: Tuesday, August 28, 2018 5:09 PM
To: City Clerk <CityClerk@calgary.ca>
Subject: [EXT] for council meeting on Thursday Sept. 6.

Dear city council members:

My name is Mary Salvani. I'd like you to please read my comments in regards to the following topics:

1) Snow removal:

I think it's important for snow and ice to be removed in a timely manner so people can walk safely around the city without fear of falling and being injured.

As a person with a disability and as a daughter of 2 active seniors who live in Calgary, I know that my folks and I would love to be able to get around Calgary without fear of being injured. As a mobility disability I'd like to be able to walk around without fear of falling, fear of my walker getting stuck in snow, and without fear of being stranded. One of my parents is blind. My fear for him is that he would fall because he can't see a snow bank that is in front of him when crossing the road, especially to places like the Kerby Center, Peter Lougheed hospital, and his doctors office. Because no one shovels snow for him. He does it himself despite the fact he is in his late 70s. I am scared that he may have a heart attack shoveling snow on his own.. He shouldn't have to do that, yet he does because he owns the home he lives in with my mom. My mom has heart problems. I'm scared that she may have a heart attack if she shovels the snow. She too is going blind. She can't tell where the cross walks are let alone if a snow bank is there.

Rather than penalizing them or forcing them to shovel the snow. I'd like the city of Calgary to help them find assistance with snow removal. Almost everyone around them is too old to shovel snow for them. The people across the street are in there 90s. The people beside them don't even shovel their own snow. They instead throw the snow on to my parents sidewalk.

I have a mobility disability. I try my best to help my dad shovel the snow off his property even though I don't live there. But I can't bend down to pick up teh snow and toss it in their yard. All I can do is use the shovel and push the snow towards the grass. I wsh the city would work with the poor, the disabled, and the seniors to remove the snow off their personal property rather than penalize them. Penalize those who can afford and have the ability to remove the snow, if they are just being lazy.

2) Low income sliding scale:

I get the low income bus pass. I'm really glad the city and province worked together to fund

that pass. I use the pass every day to do the things I need to do: go to school, go to the library, go to get groceries, go see my mental health worker, go to my doctor, and to go see my family. I am advocating for the province to continue to provide funding for the city so that the low income bus pass sliding scale can continue. Access to public transportation is a human right. It is the one of the tools that can help the poor, the disabled, and isolated become engaged members of society. Please continue to support the low income bus pass sliding scale. Your help is very much appreciated.

3) Accessible taxis:

While Calgary Transit Access provides rides to the disabled, including me, my dad and my mom. They're not enough. Often times they are delayed or lost.

Sometimes we need to go somewhere on short notice and sometimes our trips are very time sensitive (ie. doctors appointments, school appointments etc...)

That is where the need for accessible taxis comes in. We'd like to be able to get an accessible ride at a moments notice when needed, just like people without disabilities can when they call a taxi provider.

Please approve Accessible taxi licenses so that more will be on Calgary roads providing services to people with disabilities.

This may also help Calgary Transit Access out reducing their ridership so they can provide more timely rides to their customers.

Please pass this email on to city council members for their meeting on Sept. 6.

Sincerely: Mary



Calgary Climate Hub

Presentation to
the SPC on Transportation and Transit

A City That Moves
A Climate-Positive Budget for current and future Calgarians

The Economics of Low Carbon Development

A report by the City of Calgary

- Better financially than "business as usual"
- Better for our health
- Better for vulnerable and low-income Calgarians, and future generations of Calgarians
- Better for our safety and security
- Better to diversify and stimulate our economy, and create new jobs

Climate-Positive Mobility

Why is Transportation Key to a Climate-Positive Budget?

Climate Change Impacts on Calgarians by 2050

Climate Need #1: More Sustainable Transportation Choices

Council Directive

"We want to make walking, cycling, and transit attractive choices for Calgarians while not unduly penalizing motorists."

Climate Need #2: Make Walking and Cycling Top Priorities

Fully implement *Step Forward* (the City's pedestrian strategy), the *Cycling Strategy*, and *Complete Streets*

...and Yes, make sure the sidewalks, crosswalks, and pathways are clear in winter.

Climate Need #3: Make Transit Sustainable, Accessible, and Affordable



- Continue to implement the Route Ahead strategy
- Complete the Primary Transit Network within this budget cycle.
- Ten-minute frequency, fifteen hours per day, seven days a week
- Dramatically improve the ride.
- Promote appealing, sustainable, neighbourhood-friendly nodes and corridors

Climate Need # 4: Electrify the City's Vehicles

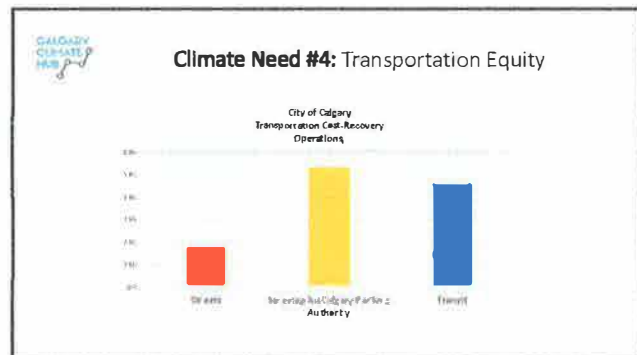
- Electrify Calgary Transit's buses and City corporate's vehicle fleet
 - Electric Vehicles are a global game changer
 - Offset electricity consumption with solar and wind generation
- Economic benefits:
 - Foster economic diversification: attract businesses from the green economy
 - Showcase entrepreneurial spirit of the City
 - Made Calgary a truly Energy Hub for all energy sources
- Aligns with the actions of the Climate Plan: "Support/Enable Electric Vehicle Uptake" (program 4)



Adopt innovative, environmental, and long-term accounting methods



Full Life-Cycle Accounting



Who is the Calgary Climate Hub?

- **Vision:** Calgary to become a leader on climate action and successfully transition into the future economy.
- **Mission:** To support and influence City of Calgary planning and processes to ensure citizens are engaged, that sufficient resources are provided, and that plans are adequate to meet climate targets
- **Membership:** We represent a large number of diverse Calgarians concerned with climate change.



Mr Chairman
Honourable City Councillors
Fellow Guests

My name is Lois Kelly from Community Connections
East Village Ward 7. I live at Carter Place 1st ST SE

I want to speak today on a "City That Moves"
Sidewalks, Pathways, Public Transit, Special Transit

On behalf of all seniors, disabled people, fellow walkers
and transit users we want to give our heart felt
thanks for the approval of monies 9.5 million for ice and
snow removal 2018-2019 which we talked to you
about in June and for its recommendations 2019^{to} 2022

We felt heard and validated by our city councillors
and the democratic process.

MOBILITY IS A BASIC NEED: We are truly grateful
esp. ① those of us who fell down and those of us who
couldn't get up. AND there were too many last winter
② those of us who could not get out to church, doctor
family, shopping, senior clubs & social groups - THANK YOU
③ those of us who felt unheard and uncared for in the
trying days of last winter. - Thank you - Someone
called - It is about the Basic Dignity and Value of the
person. ^{THANK YOU} Please Do Not Forget Us. Thank you

A city that moves means "us too" and "you too"
At a meeting I said - We are looking for equality
in ice and snow removal - I tell you there was
quite a reaction from several men - "What do you
mean equality they asked (the old male/female thing)
I answered "I am as good as a car" "You are as
good as a car"

A city that moves means moving people and

that includes people that walk, scooters, wheelchairs, walkers, cyclists, cars and transit.

Lack of proper snow removal results in higher costs in the long run - loss of wages a BIG ONE, HEALTH CARE Freedom is a Bus Pass: You can find your way any where in the city.

I went to a funeral on Tues - I called Transit - they told me the bus, the stops, the times so I arrived ~~to min.~~ before time safely and in proper time.

It affects the whole family

For thousands in this city, this is normal daily travel to school, doctor, shopping, Church - DAILY LIFE MOBILITY IN WINTER IS ABOUT ACCESSIBILITY

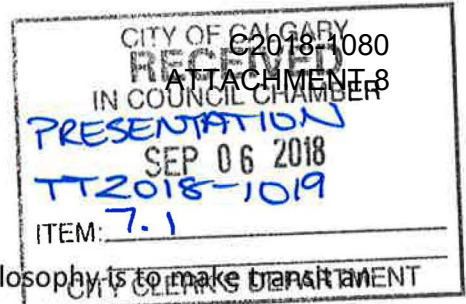
Special needs have special transit - but they have to book 4 days in advance so leave little room for spontaneity or emergency travel ~~except~~ walk in clinic - so in WINTER - Transit becomes even more important so "Please Do Not Forget Us"

A city that moves - does not mean just cars / traffic

Most people love their cars, they love to drive I know - just listen to an 80 yr old male who has had his license taken away - He is ~~shock~~ devastated - until he learns there is another way. We are as good as a car. Freedom is a Bus Pass.

We are many, a collective consciousness, ~~independent~~ independent to the best of our ability We are the SENIORS and we are the demographic that VOTES.

Thank you for your time and attention to this serious part of a "City That Moves" and we are grateful We have travelled a long way together already ~~of~~ Please DO NOT FORGET US! Thank you Mr Chairman



(show first slide)

Doug Morgan, director of Calgary Transit once told me that his philosophy is to make transit an option for every Calgarian. I would say Calgary Transit is far from reaching that goal. The 2018 action plan aims to accelerate RouteAhead implementation, yet riders are seeing RouteAhead decelerate with continuous drops in per capita service since 2011. Consequently, bus frequency and trip directness are falling, despite the best efforts of Calgary Transit. Good morning councillors and mayor Naheed Nenshi, my name is Matthew Yeung, and I am a student at the University of Calgary and the acting chair of the Calgary Transit Customer Advisory Group.

(show customer satisfaction survey)

The advisory group, as some of you may recall, speaks mostly to customer experience issues on Calgary Transit relating primarily to the customer commitment outlined several years ago. Though we speak to customer experience issues, today I would like to emphasize the important of reliability, frequency, and safety on transit. These three concerns have always been on the customer radar, as seen in this graphic.

Calgary Transit's responsibility to all citizens, first and foremost, is the job at the root of all transit systems. That is the ability to move Calgarians reliably, efficiently, and frequently. **(show per capita service graphic)** Calgary Transit has had continuous reductions in per capita service, and riders experience this by being unable to have routes serving important corridors, and being unable use the transit system at convenient times, driving car usage. Across Calgary, even the most properly timed transit trips are consistently twice as long, if not more, compared to driving, particularly for individuals in the southeast, as you can see here. **(show map)** Think about it. Every transit-dependent individual in the city spends twice as much of their lifetime commuting compared to the car driver. In the age of improving sustainability, we should be trying to improve the speed and reliability of mass transit over the car to foster more efficient usage of the road network.

For Calgary Transit to survive and remain competitive to the automobile, I would appeal to you to provide Calgary Transit with the funding necessary to increase per capita service hours and implement rapid-transit capital projects ahead of schedule. Frequent and direct routes allow citizens to use the system at more times, making transit convenient and attractive, reducing car usage. As you can see here, Calgary Transit difficult to use for those in the southeast and northwest despite RouteAhead mandating these areas be covered by rapid-transit. **(show RouteAhead)**

(show Crowchild slide)

In partnership with frequency, is reliability, and by proxy, efficiency. The car is not the future of transportation in Calgary, and measures need to be in place so customers can rely on the system, snow or shine. If single-occupant SUVs are able to occupy a large amount of road real-estate, then it is fair that the people crammed onto one bus are allocated the same space. Car

congestion should not be impacting the reliability, efficiency, and ultimately the cost of transit. As riders, our second priority for transit budgeting are projects designed to improve the speed and reliability of transit, including dedicated lanes, signal prioritization, queue jumps, and vehicle maintenance.

(show BRT slide)

Transit prioritization needs to be funded for during design and implementation of other road projects. We, transit riders expect Calgary Transit to be able to adhere to schedules regardless of weather and traffic. However, Calgary Transit's ability to do so is impeded by the implementation of car-oriented infrastructure, encouraging an unsustainable car-culture. Reliability and priority during times of congestion will ultimately attract riders, reinforcing the transit system as a part of the community.

Similarly, for the LRT, a perception exists that CTrains are unreliable, with frequent "mechanical delays" or accidents. The reputation of rapid-transit in Calgary cannot be allowed to slide because of reliability issues. Calgarians expect no delays, particularly when billions of dollars are being poured into constructing rail-based infrastructure. We would like to see a small amount of funding allocated to reducing the likelihood of mechanical delay on the rail network. Citizens need a reliable, rail backbone to use transit.

(show PSE slide)

Finally, the Calgary Transit Customer Advisory Group would also like to recommend funding increases for additional nighttime peace officers. I have personally been on several ride-alongs with Calgary Transit peace officers, and am impressed by their ability to scrape by with just one team per leg at night. Calgary Transit Peace Officers know it, customers know it, and Calgary Transit statistics show it with one in three women feeling unsafe on Calgary Transit after 6PM. The system needs additional officers at night to bolster the perception of a safe system, and again, to improve off-peak ridership.

(show final slide)

In short, Calgary Transit riders would like to see 4 key aspects of service improved in the future. First and foremost, is additional service hours for trunk routes and new communities, secondly, the approval of additional capital projects designed to create reliable, car-competitive service, thirdly, road priority, and finally, for additional nighttime peace officers to bolster perceptions of a safe system. Councillors, it is up to you to make these issues non-issues for the next generation of transportation in Calgary.

CTCAG One Calgary Presentation

September 6, 2018

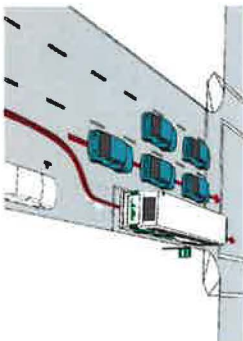


1. Service hours improved



Green Line

2. Capital projects



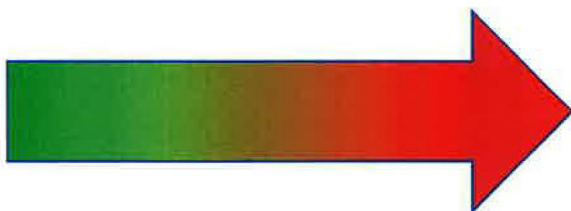
3. Reliability measures



4. Security

Service hours per capita, per annum:

Year	Service per Capita	Hours Transit	Service Hours	Calgary Population
2009	2.42		2,576,264	1,065,455
2010	2.38		2,554,766	1,071,515
2011	2.47		2,694,766	1,090,936
2012	2.39		2,673,141	1,120,200
2013	2.38		2,740,669	1,149,552
2014	2.34		2,796,469	1,195,194
2015	2.28		2,806,469	1,230,915

(2011)2.47  2.28 (2015)

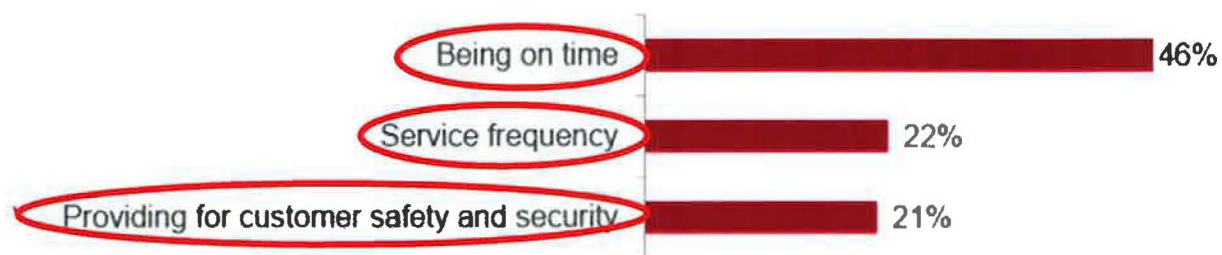
Calgary



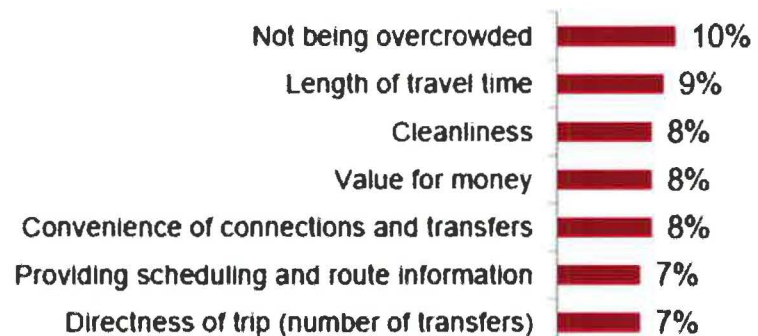
Claimed importance factors

Q. Thinking of the factors we have just discussed, what, from your point of view, would you say is the one most important service factor? And what is the second most important? (TOTAL MENTIONS)

Most commonly claimed importance factors - 2016

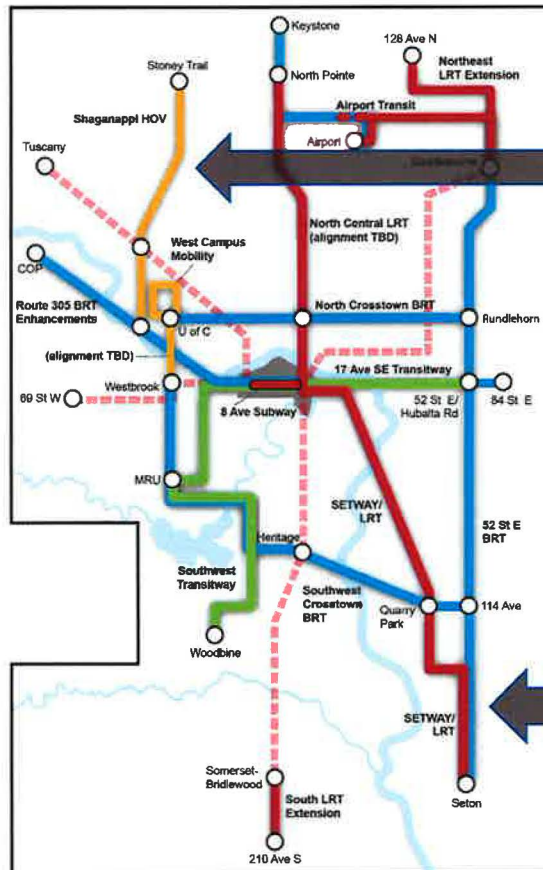


Other claimed important factors - 2016



Base (valid responses) n=495

Calgary Transit Future Capital Projects
(includes existing rapid transit network)



North-Calgary BRT

SE LRT

Legend

- Terminus/Connection
- Existing LRT
- Proposed Transitway
- Proposed LRT
- Proposed BRT
- Proposed Rapid Transit (HOV or other)

Calgary



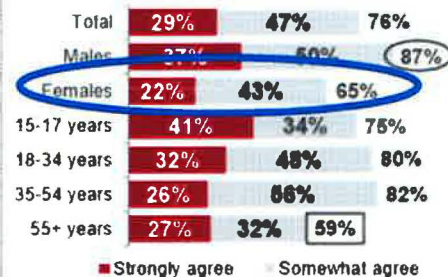
2016 snapshot of safety attitudes at different travel times

Demographic differences

Q. Calgary Transit is also interested in your views on safety and security with CTrains/Calgary Transit buses. I'd like to ask you how strongly you agree or disagree with a few statements concerning safety and security.



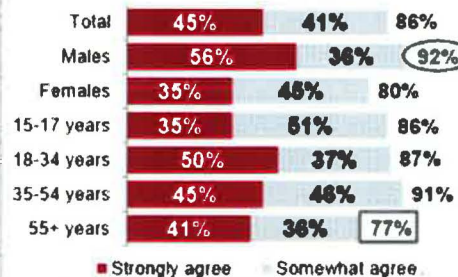
Safe on CTrains AFTER 6PM



Base (valid responses): Total, n=437; Males, n=222; Females, n=216; 15-17, n=20; 18-34, n=154; 35-54, n=163; 55+, n=100



Safe on buses AFTER 6PM



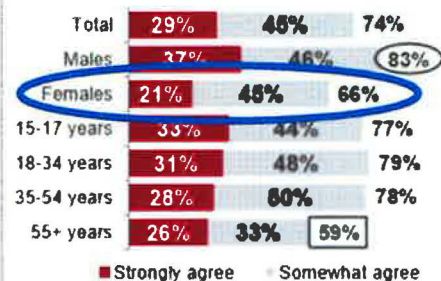
Base (valid responses): Total, n=376; Males, n=179; Females, n=196; 15-17, n=20; 18-34, n=134; 35-54, n=133; 55+, n=88

Males feel safer than females when travelling on transit vehicles after 6pm or waiting at transit stops after 6pm.

Those aged 55+ feel the most vulnerable under these same circumstances – relative to those under 55.



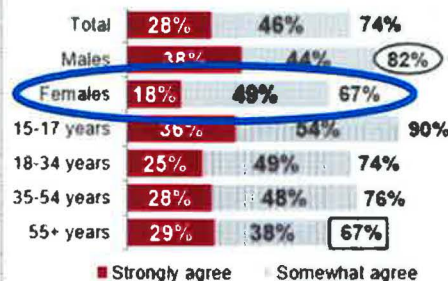
Safe at a CTrain station AFTER 6PM



Base (valid responses): Total, n=432; Males, n=219; Females, n=213; 15-17, n=20; 18-34, n=153; 35-54, n=163; 55+, n=97

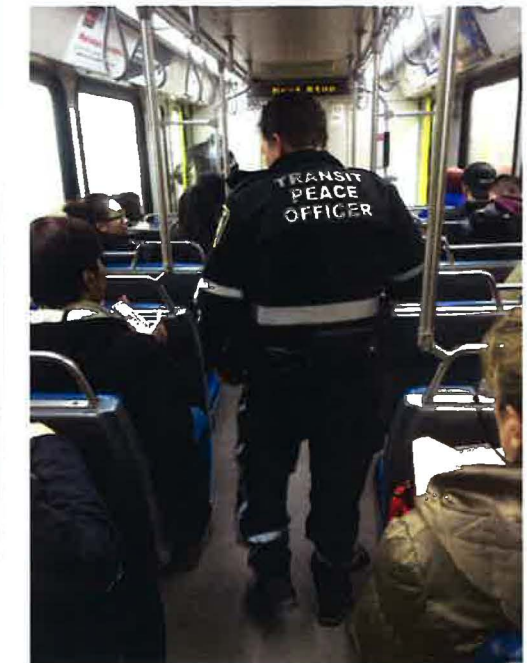


Safe at bus stops/ passenger shelters AFTER 6PM



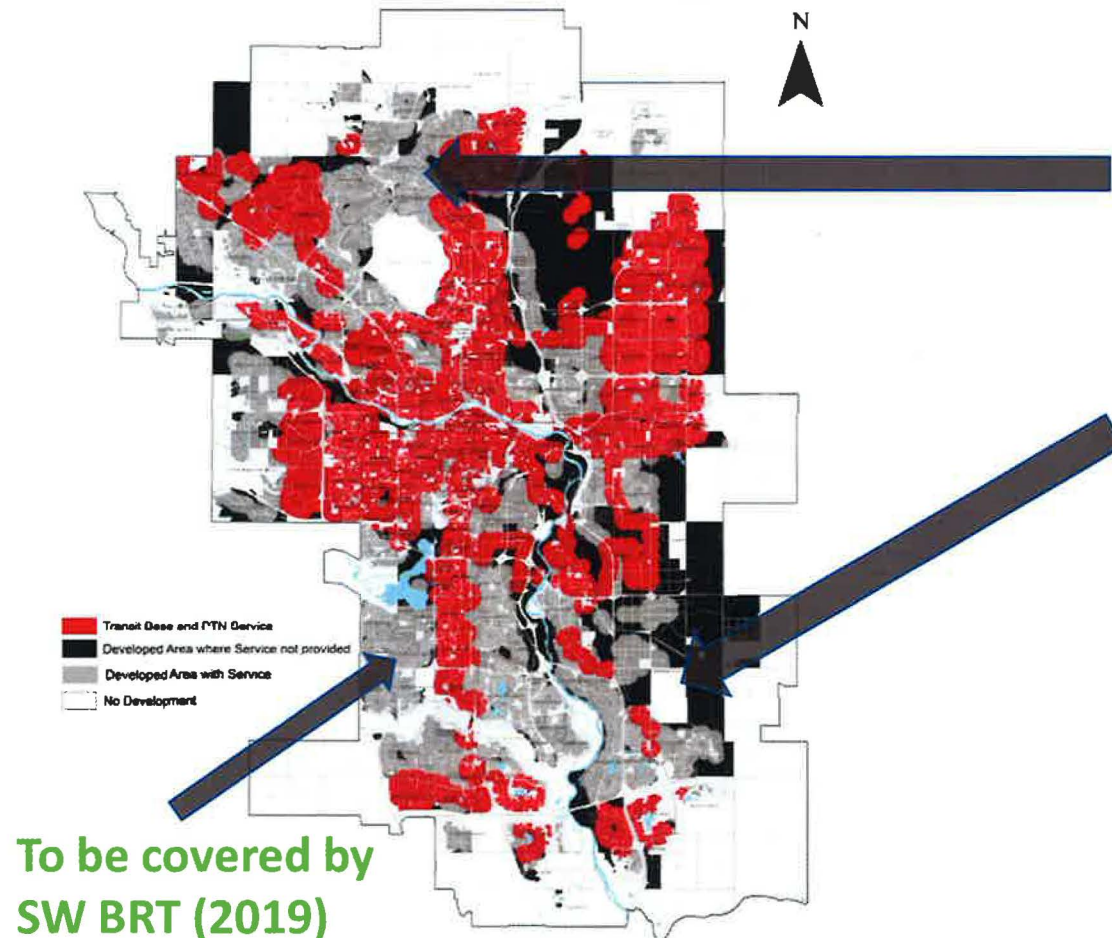
Base (valid responses): Total, n=374; Males, n=178; Females, n=196; 15-17, n=20; 18-34, n=133; 35-54, n=133; 55+, n=88

○ Significantly higher relative to females
□ Significantly lower relative to other age groups



2015 Transit Service Coverage

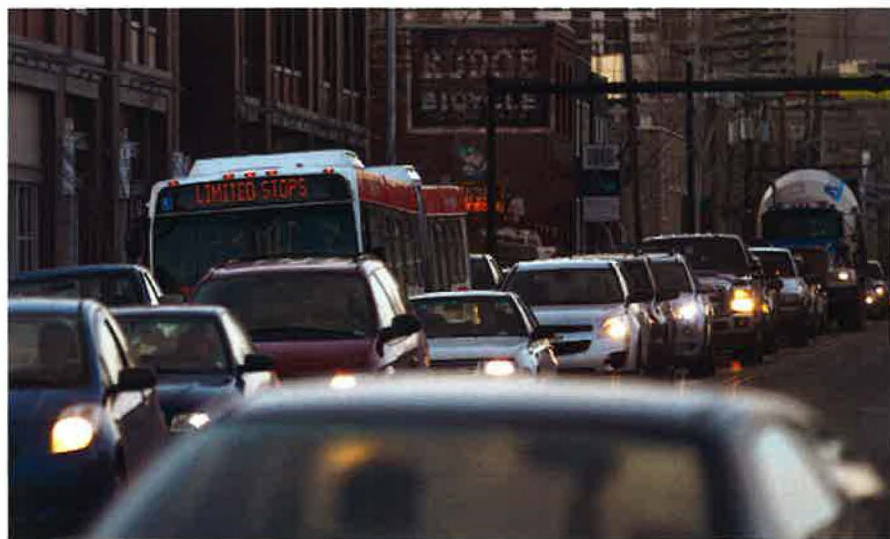
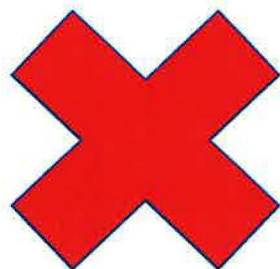
North-central
and Southeast
Calgary
severely
underserved



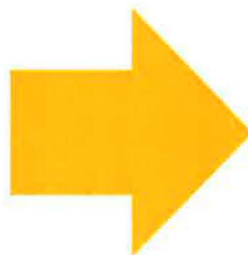
**In-street priority
=
Reliability**



**Reliability
=
Dependability**



Unreliable



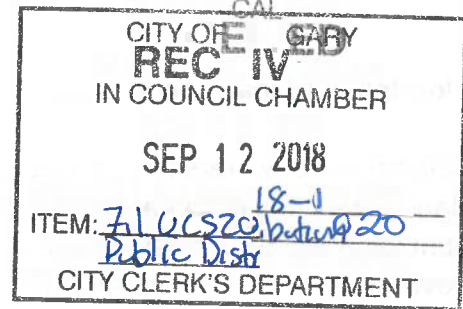
Reliable

Service Plan Preview

A Healthy & Green City

SPC on Utilities & Corporate Services
September 12, 2018

Compilation of Written Public Submissions



Additional Comments

A Healthy and Green City SPC on Utilities & Corporate Services

Watershed Management

Council Directive

(H3) Integrated watershed management is essential to protect public health and the environment, while strengthening our resiliency to a changing climate. Calgary must develop our communities with a focus on achieving future water security and a sustainable water supply. Accordingly, watershed management must be integrated into our land use policies, plans and decisions. Accomplishing sustainable, effective watershed management within Calgary and the region will also require working collaboratively with other orders of government, adjacent municipalities, residents, landowners, developers, businesses, and the First Nations.

Calgary Climate Hub's Comments

Watershed Management in general

We agree fully with you that

- Integrated watershed management is essential to protect public health and the environment
- Watershed management must be integrated into the City's land use policies, plans and decisions

Much must be done to accomplish those things to ensure the security and sustainability of our water supply. Our proposals to the Priorities and Finance Committee for:

- A Low Carbon Transition and Climate Action Committee
- Strong Corporate Governance

will substantially approve the City's ability to identify and exploit opportunities to better protect the watersheds we rely on – the Bow, Elbow, and, yes, Nose Creek.

However, those actions will not succeed unless the City changes land use policies and design standards and Council holds all business units accountable to achieving results in these areas.

Floodplain Management

One aspect of watershed management where the City needs to be pro-active is in managing floodplains. Much can be done by the City on its own. On other matters outside the City's control, it will be vital to achieve the cooperation of First Nations, the federal and provincial governments, and, especially, other municipalities in the watershed.

Flooding is a natural disaster that is predictable in terms of both location and frequency. It causes

- Immeasurable physical and psychological damage
- Catastrophic financial losses to families, businesses, and government
- Rising insurance and borrowing rates
- The risk of flood-related lawsuits, especially for negligence

Climate change is increasing the frequency of heavy precipitation events that lead to flooding.

We recommend that the City do the following – hopefully in cooperation with the provincial and federal government:

1. Follow Saskatchewan's lead and define the floodplain using:
 - The 1-in-500 year flood
 - plus additional freeboard for hydrologic and hydraulic uncertainties
2. During the 2019-2022 business cycle, adapt floodplain best management practices to conditions in Calgary and fully implement those practices (e.g., best management practices as developed by the Intact Centre on Climate Adaptation)
3. Allow new residential, commercial, and industrial development in a floodplain only if it will result in no-net loss of the watershed's natural capacity for flood absorption, storage, and conveyance.
4. Require all landowners in the City to carry full-protection flood damage insurance.
5. For construction, operation, maintenance, and rehabilitation of flood reduction and protection measures
 - Develop a cost-sharing program between the City, the Province, and owners of flood-prone land, buildings, and facilities

These measures will ensure that, as we adapt to climate change,

- the City, in its land use decisions, will provide superior protection of residents while not increasing the damage from flooding
- those who benefit from the advantages of using floodplain land will safeguard their interests and pay their fair share of the costs of flood mitigation efforts

- **PARKS & OPEN SPACES**
- **RECREATION OPPORTUNITIES**

Council Directives

(H5) We need to continue to implement a range of accessible and affordable recreational programs and opportunities that encourage active daily living. Continuous investment in indoor and outdoor recreation facilities that address the changing needs of Calgarians will be important to support healthy lifestyles for all.

(H6) Finally, we must continue to make parks and green spaces a priority and proactively seek to increase green space in neighbourhoods.

Calgary Climate Hub's Comments

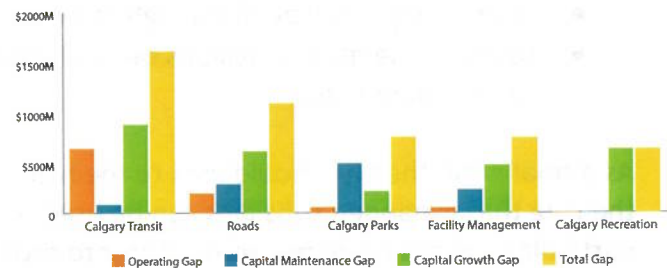
Based on the most recent *Infrastructure Status Report*, the City's recreation and parks departments face serious funding challenges from, among other things, aging buildings and equipment, increased standards, and a shortage of land in existing communities. This has led to a ten-year funding gap approaching \$1.5 billion (a quarter of the City's total funding gap).

Appendix 4

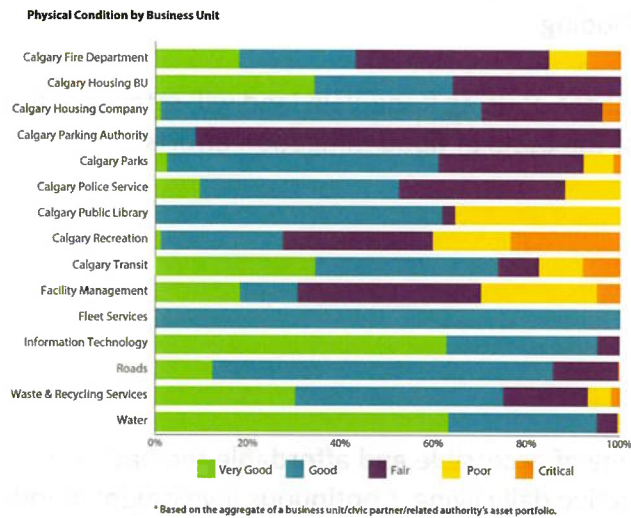
10-year infrastructure funding gap by business unit/civic partner/related authority

Total Corporate Gap = \$5.67 billion (\$5670 Million)

Business units with a 10-year infrastructure funding gap of \$600 million or more



*Recreation's capital maintenance requirements for assets that would be replaced as part of capital growth have been deducted from the overall maintenance requirement value resulting in capital maintenance cost savings of approximately \$101 million over 10 years, and hence, closing the capital maintenance gap.



The recreation department is in the most serious situation for all City departments with over 20% of its assets and the assets of its civic partners in critical condition. Combined with assets in poor condition, just under 40% of the recreation departments investment portfolio do not achieve the minimal rating of "fair."

This may seem unconnected to the effort to reduce greenhouse gas emissions. However, buildings and equipment that are old and inefficient

require more energy to operate, resulting in higher emissions. More importantly, the City will not achieve its twin goals of reduced emissions and increased active transportation if recreation and park facilities are

- not in place
- are not conveniently available to residents
- do not meet their needs.

This is because

- fewer people will be fit enough to benefit from walking and cycling opportunities
- to reach the fitness facilities beyond a walking or cycling distance – people will have to rely on their cars.

As a final note, the City should look to the higher recreational participation rates in Toronto and the role that expanded subsidies can be used to get more people more active, more often. In particular, we note the free access Toronto provides all residents in districts with low income levels. [See Attachment 1: Service Plan Review, p. 9 – Benchmarking)

September 12, 2018 – Council Chambers, City Hall

- Good Day, my name is **Diane Dalkin**, & I am the **President** of the *Friends of Reader Rock Garden Society (FoRRGS)*
- Further to the discussion of “*A Healthy & Green City*”, I **thank-you** for this opportunity to acquaint you with “*Calgary’s Best Kept Secret*”.
- The current 3 acres site hardly resembles its original development, which commenced ~**1910**. It is no longer a barren, wind-swept hill, but a verdant oasis.
- It is situated across from Erlton C-train station & is located in **Ward 9** – (under Councillor Carra’s purview)

- Our *volunteer, non-profit* group was established in **2003** & has worked diligently & collaboratively, side-by-side with City Parks’ staff on the *restoration, education and promotion* of this **Cultural Landscape** and now **National Historic** site.
- Since this recent designation, greater public awareness has been afforded, resulting in an increase in-attendance and private tours requests. The local onsite Café has also reported measureable improvements this season.
- As early as **1914**, one of our founding City Superintendents, *Mr. William Reader* noted that:
 - “A progressive **park** extension program is inseparably associated with **public welfare**.
 - *It is not nowadays a question whether parks can be afforded, but rather whether we can afford not to have them.*”
- Clearly parks have been important for a very long time!

- Mr. Reader dedicated ~30 years of service to Calgary. Fortunately for us, he left a legacy of details & extensive notes in his Annual City Reports (dated 1913-42). Yet, over the past 100 years, I wonder if the lessons have really resonated with City leaders?
- **Reader Rock Garden** is a perfect example of what can occur (*& did indeed happen*) when neglect & shifting administrative priorities move ongoing *operational & capital investment* away from existing established resources. *I’m not sure if you are all aware*, that this City Park remained in severe disrepair and was barely recognizable for several decades, before the restoration & rehabilitation took place in 2005? **No one** wants to witness this sad possibility ever again. *Let us learn from this big past mistake.*

- These special places can easily slip back into demise without the dedication of *sufficient staff* and *supportive funds*. Overgrowth of weeds & lack of regular maintenance quickly suffocate the best intentions; *one season can do it*. Gardening is *labor-intensive*, that's a reality! This historic Garden cannot thrive without the caring hands of City workers.
- It is not enough to merely state priorities ... tangible, proactive provisions ... must be kept in-place to sustain this treasure we are so fortunate to have. As you know, "*Actions always speak louder than words*".
- This **National Historic Site, Reader Rock Garden**, needs to be protected and conserved. After all, public parks are part of *world-class cities*. It is all of **our responsibilities** to ensure this, especially under current constrained resources & trying economic times.
- We, @FoRRGS have done our parts, by volunteering hundreds of hours annually since 2003 & also by establishing a healthy **Endowment Fund** with the **Calgary Foundation** to assist with the care of this special Garden – which is meant to only *compliment City efforts*.
- City budgetary commitments must be directed here, for the well-being of Calgarians & our legacy for future generations. We urge Council to prioritize & promote Stewardship of **existing** local heritage. Our concerns are well founded, based on what has transpired in the history of this park!
- In closing, the *Friends of Reader Rock Garden Society* urge all Councillors & the Mayor to *get to know this hidden gem*. You can't make informed decisions without familiarity. We graciously invite you for a personalized tour(s) of the Garden / lunch at the onsite Café, ASAP.
- I **thank-you** for this opportunity to communicate with you directly.
- Our website can provide you further details: www.ReaderRock.com
- *Merci pour votre temps!*



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SEP 12 2018

ITEM: 7.1 UCS2018-1020

Rec'd for Corp Board

CITY CLERK'S DEPARTMENT



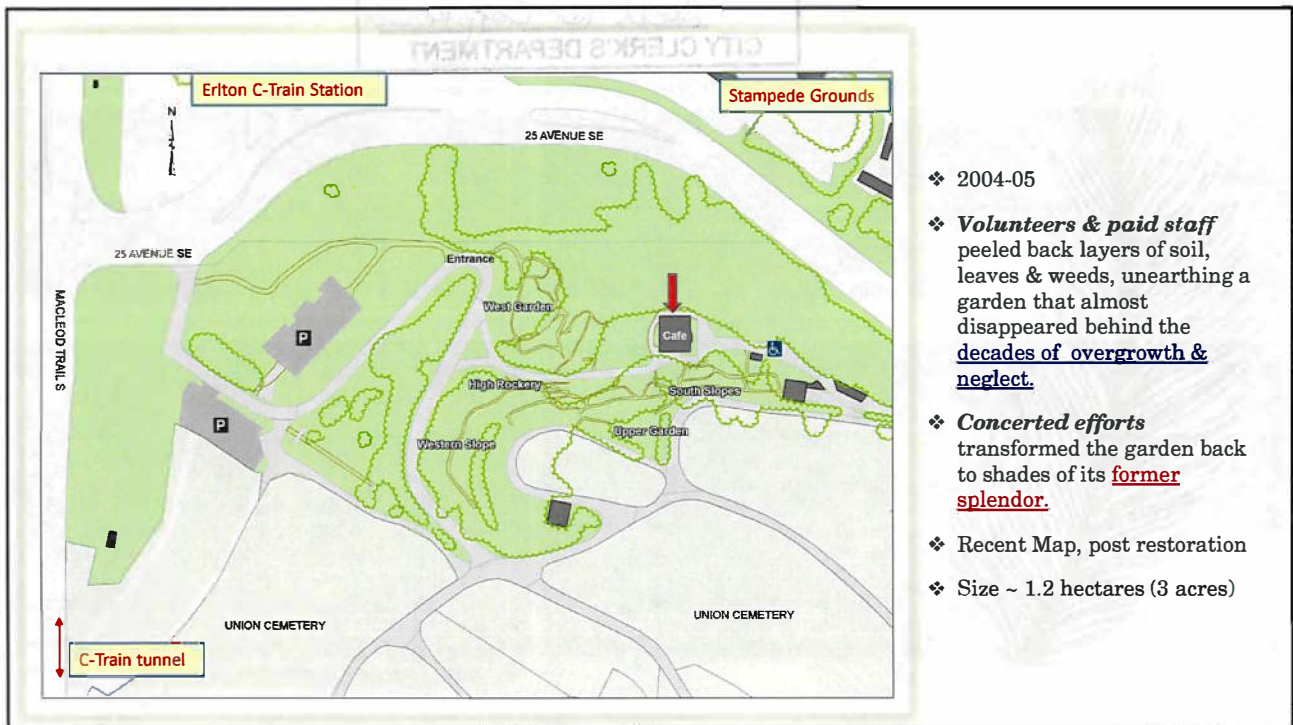
Reader Rock Garden

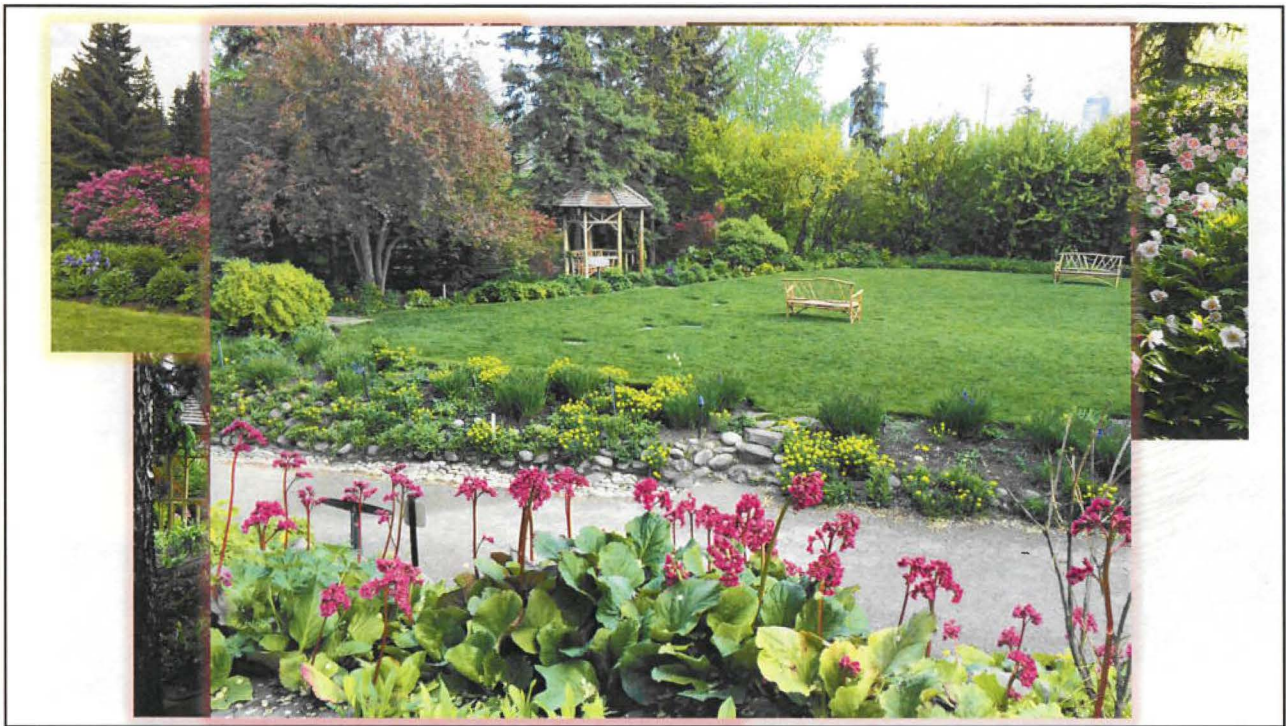
Calgary's Newest
National Historic Site

Diane M. Dalkin
President - Friends of Reader Rock Garden Society
September 2018

Initial surface grading commences on
the *barren & windswept* hill ~1910.

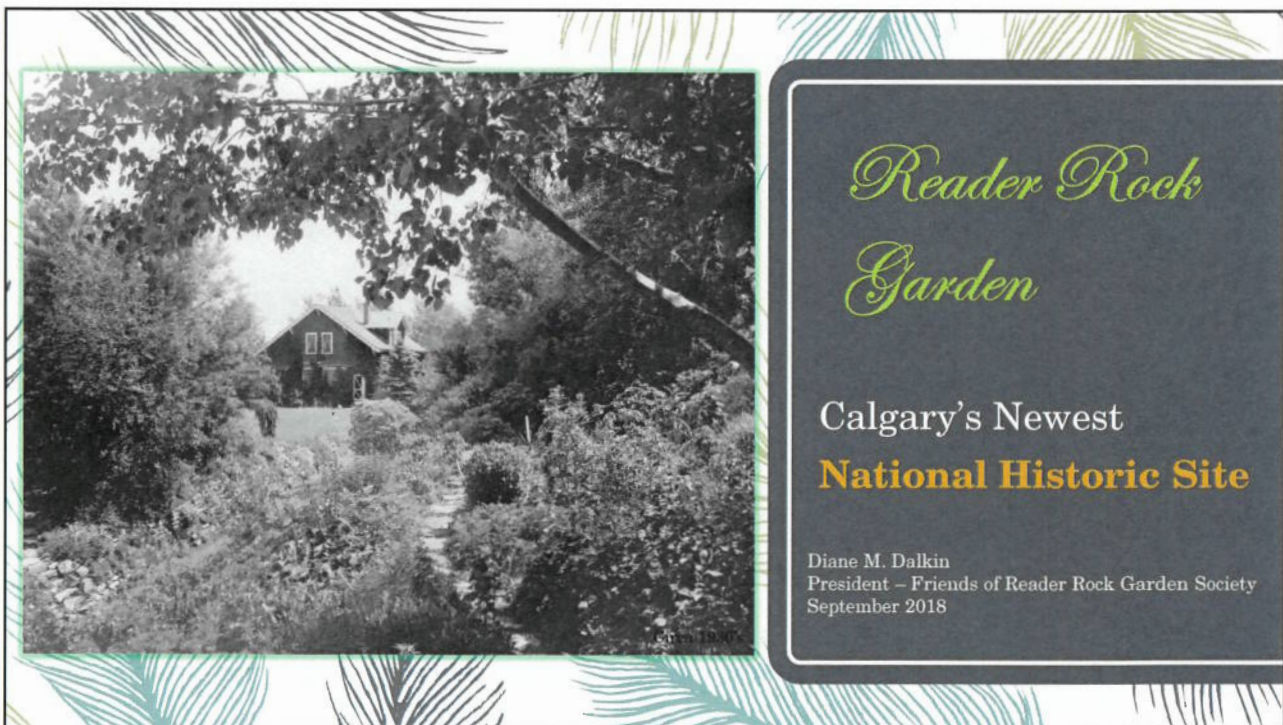






Making new memories at the Garden ...





Presentation to City of Calgary Council Committee re: budget Healthy and Green City

Good morning Chair and Council members and thank you for the opportunity to present to this Council Committee.

My name is Phil Carlton and I am the Engagement Liaison with the First 2000 Days Network, which acts as a catalyst to link, align and leverage efforts within the Early Childhood Development System to enable collective action towards improving early childhood development indicators.

My presentation, I believe supports Council Directives H4 and H5 for a Healthy and Green City.

One of the important linkages and alignment is with the City of Calgary – Parks, recreation and Neighbourhood Services. The First 2000 Days Network has actively been engaged in the committee YYC Plays Sector Development that developed the Calgary Play Charter and were pleased to be an original signee and fully support the 5 belief statements in the Charter:

- * Play develops a a corset of skills for healthy well being.
- * That play is a vital component of childhood; it is freely chosen, personally directed and intrinsically motivated.
- * Play is fun, uncertain, challenging and flexible.
- * When children have opportunities to play they used creativity, innovation, and reflection to learn, experiment, solve problems, create new worlds, test boundaries , assess risk and meet challenges.
- * Play is a natural state for a child.

What we know about early brain development and the 5 developmental domains is that Play is the one domain that transcends and supports the other domains; Physical Health and Well-being, Emotional Maturity, Language and Cognitive Development and Communication.

Teresa Casey, President of the International Play Association when she attended the Triennial IAP Conference here in Calgary last year, wrote an article for the First 2000 Days Network, entitled “The Importance of Play in the Early Years”, in which she states:

“When the right to play is valued fully it implies commensurate attention to:

- the environments in which children play
- the organisation of children’s days (uninterrupted time to play, the social dimensions of play)
- the education and training of practitioners (navigating the tensions between adult organised and determined activities and children’s autonomous play, understanding of play as a right)
- support to families and caregivers
- investment and research into play in ECD.

Placing a high priority on the design and care of spaces for play, particularly outdoor environments with access to nature, is a significant step towards promoting children’s right to play. Local authorities and national governments have a role in ensuring investment in grounds so that all children have daily access to well designed and maintained spaces while practitioners have a hugely important role in the co-creation of these environments with children.

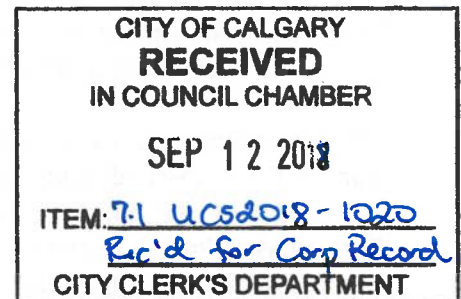
A rich environment for play includes: natural elements; opportunities for risk and challenge; places to express emotions; stimulation for the senses; chances for social interactions; interesting and varied physical and human environment and sufficient space to do what is wanted. Children will play more in environments that afford opportunities for various types of play.”

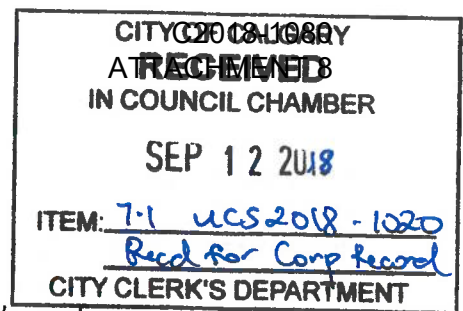
Calgary Parks Adventure Playgrounds, community initiatives like the Coventry development of natural play areas and the partnership with Vivo and the City to support loose parts bins activities, not only support the above, but also support the importance of pretend play in the early years for language development, creativity and problem solving.

A Quick persona story – we live in Panorama Hills, right across from Buffalo Rubbing Stone and right from a very early age, my grand children have asked “can we go to the big rock”, where they climb to their comfort level, chase around the rock and play hidden seek in the bushes and trees and under the rock.

As we continue to build a legacy from last year’s City of Calgary hosted International Play Conference, as we all continue to promote and support the Calgary Play Charter, it is imperative that sound and supportive financial and budget decisions are made to ensure we are indeed a Healthy, Playful and Environmentally friendly city for all.

Thank You





Colleen McCracken: Calgary Horticultural Society Presentation

Hello I would like to introduce you to the Calgary Horticultural Society.

The Calgary Horticultural Society has been educating and supporting Calgary's gardening community since 1908. It is one of Canada's oldest, largest and most active gardening groups with more than 4,000 members and 350 volunteers. Over the years, we have delivered classes, hosted events, planted over 20,000 trees, published gardening books and magazines, answered gardening questions, supported over 150 community gardens

We believe that as the gardening community grows, the city's quality of life is enhanced, and so is the environment.

A healthy and green city as a Council priority is our priority. Our vision is a city that gardens for life! Gardening touches many aspects of life:

provides physical, mental and social benefits

connects people with nature, reduces nature deficit disorder,

learn about science and create art and

gardening together in a communal setting reduces isolation and

builds a sense of community

The Society's focus is education.

We:

- Educate on ways and means to garden successfully in this challenging climate, and as a result assists gardeners enhance and beautify the city
- Work to foster environmental stewardship of watersheds, soils, the urban forest and the climate
- Contribute knowledge to food growing and building community connections by supporting community gardens

Our Key Programs:

Garden Show- A two-day event that celebrates spring and all things gardening. We attract 5,000 people each year.

Courses and Talks-. A wide-range of topics are presented throughout the year.

In 2017 we launched its own Master Gardener Course , which was gifted to us by the Zoo. It is a north American acclaimed program.

Plant and garlic sharing events

Education is open to the public

Demonstration and Teaching Gardens -A traditional suburban yard has been transformed from a lawn into an outdoor classroom.

Community Gardens program now in its 17th year, is designed to strengthen them through education the creation of a network of gardens resources, expertise

The Calgary Horticultural Society and The City of Calgary have a long-standing relationship right back to our roots more than 110 years ago as part of the City Beautiful movement working to make the city more attractive to newcomers..

Today that relationship continues.

We support The City's messages about water, invasive plants, integrated pest management, rebuilding the urban canopy, orchards in community gardens and climate resiliency and now integrate them into our education programs

The Society and its volunteers can provide expertise, and expand The City's capacity to leverage resources to build knowledge and behavioural changes for Calgarians to help the city manage resources more efficiently.

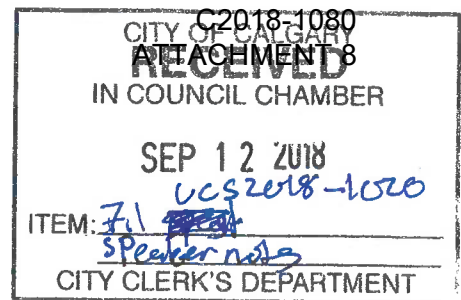
Gardening is one of the ways in which Calgarians have a direct impact on water consumption and storm water quantity and quality. Our research (2015) indicated that 45% of Calgarians 55% of Albertans are gardener. Our target and our reach is residential gardeners. We have this audience and can reach out to them in a variety of ways

To-date we have connected with 1,500 Calgarians through this program to protect Calgary's water supply, use water wisely, keep our rivers healthy and build resiliency to flooding.

We also delivered 4 years of community talks through the ReTree YYC reaching more than 500 Calgarians to help the City's efforts to build a tree culture and rebuild the urban canopy.

Calgary has matured and is beautiful. Steps to rebuild the canopy, protect and enhance special historical places like Reader Rock garden, Lougheed House, the Dean House, Fort Calgary – all contribute to the value of Calgary.

Park are brimming in the summer months with newcomers sitting together celebrating, open spaces are full of families. Community gardens and urban farming are all part of a healthy and green city that I urge you to continue to fund City initiatives in this area. Cutting back will really make the city suffer.



Numbers:

36.5C achieved Aug 19

450 hours (previous smoke record 315 in 2017)

1.25 million hectares burned in BC, worst fire season on record

93: deaths from heat in Montreal

3 in the top 5 of financial natural disasters. All within Ab, all in the last 6 years

800 km of bike paths in the city

101.9 million: number of trips on Calgary transit in 2017

69 Percent of Voters support City climate leadership

told it is about environment. Polar Bears. Coral reefs.

But it is really about us. Political, social, economic, ethical and yes, health problem.

It not some other people affected. Not some future time. It is now, and it is us.

This summer's smoke composed Partic. Matter impacts resp and CVhealth.

This schools/daycare/summer camps unable to play outside. For weeks.

So exposed to health impacting chemicals, and not able to exercise. Enjoy fresh air.

Local sources, Transportation #1 cause of air pollution in city

Embrace active transit: walking, cycling, public transit, and even scootering. And of course the density that allows such modes to be practical.

And of course THE flood. Causing displaced people. From Sunnyside, Inglewood, Mission. And the resulting mental health impacts.

Monday, the United Nations secretary general António Guterres warned that the world is facing "a direct existential threat" and must rapidly shift from dependence on fossil fuels by 2020 to prevent "runaway climate change".

Direct existential threat is kinda a big deal

NAME EACH COUNSELLOR

Sadie Willa Aidan Ryan Sasha Me

How to lead?

Asks:

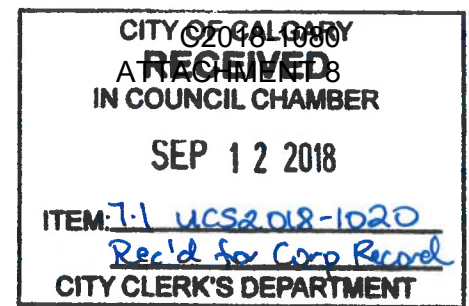
Urgency

Ensure funding

Active transportation

You have the privilege, more than anyone in this room, to create the future. Please, do your best to make it a safe one.

Mike Bingley
Director of Education
Canadian Wildlife Federation
mikeb@cwf-fcf.org
403-464-4993



Good morning, Mr Chair and committee members, thank you for this opportunity to speak,

My name is Mike Bingley and I am the Education Director for the Canadian Wildlife Federation. CWF is Canada's largest conservation charity, reaching more than 2.5 million people each year who join us in maintaining a bright future for wildlife from coast to coast to coast. We do this through programming like the WILD Family Nature club, which reaches more than 45,000 people each year in unstructured play in nature, or the Canadian Conservation Corps, a program that we offer in conjunction with the Canada Service Corps, launched by the Prime Minister this past spring, which sees young adults engaged in expeditionary learning, meaningful service learning with a community partner and finally delivering a project of their own design, in their own community, when they return home. Of course, we have a variety of other



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programs across the country, but we have limited time this morning.

I'm also a citizen of Calgary, living in Citadel with my wife and two children and, as a Calgarian, I have a vested interest in the community that we live in.

It should be of no surprise to any of you that Albertans love the outdoors – nature is a 5 Billion dollar industry here in Alberta where more than 75% of Albertans spending some time in a natural area each year and more than half say that they choose where to live based on their proximity to the natural world. This is good news because people who are connected with the natural world are more likely to protect these natural spaces that support wildlife in our communities. Put simply: connection builds constituency for the natural world.

Mike Bingley
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The bad news is that people who spend time in nature are a species at risk and, like the peregrine falcon in the 1960s, it's the youth numbers that are plummeting. Having a strong connection to an outdoor place is the first step to ensuring any kind of conservation ethic, and it is an essential component of our Canadian identity. We must act decisively to reverse this trend or we will soon find ourselves in the position where it is too late.

We know through peer reviewed science that a connection with nature is a key indicator of current and future conservation ethic. That's why we at CWF care about it. That's only one reason why you, as our city council should care. A connection with nature has been shown to increase community social capital, reduce violence across communities, raise property values and has a host of health and education benefits. People who spend time outdoors on a daily basis are healthier, more likely to vote, more likely to shovel a neighbours walkway and more likely to graduate from

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university that those who don't, regardless of their socioeconomic background. Any nature is good, but wild nature, like Nose Hill Park, are even better.

The City of Calgary has done admirable work in setting aside land for future generations to experience through its park program. My colleagues in other parts of the country are impressed with the urban wildlife that we live with daily in our city and we have an opportunity to do more.

I'd like to suggest a few things to help Calgary become an even greener city:

- First – the city needs to understand that partnerships with NGOs, like CWF, are an essential part of conservation. We would like to partner with the city through programs like our

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Canadian Conservation Corps and our Wild Family Nature club, but we find it difficult to do so.

- Second – the city has an opportunity to pilot some best practices that will help make Calgary an even better place for all wildlife. Programs like habitat offsets, riparian waterway enhancement or encouraging the use of native species over non-native species will help enhance our shared environment.
- Finally, the city should expand the opportunities for young people to get their hands dirty in a natural environment and to learn about that environment through formal, non-formal and informal learning programming. It should be careful not to use a "look, but don't touch" philosophy that will not allow young people to really experience the natural world. Where it is appropriate, young people should be able to flip over rocks, dig, climb trees and build forts in our natural places.

Mike Bingley
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I have one more suggestion for each of you as you move through this process. I'd like you to spend a few minutes over the next week in one of our city's fantastic natural areas and consider how we can ensure that future generations of Calgarians get the same opportunities, no matter what their socioeconomic background and no matter where they live in our growing city. Our predecessors were very forward thinking in making sure that we have these precious natural spaces and I want to make sure that we have even more of them in the future.

Thank you very much, I'd be happy to answer any questions that you might have.

ENVIRONMENT AND CRIME IN THE INNER CITY Does Vegetation Reduce Crime?

FRANCES E. KUO is an assistant professor and codirector of the Human-Environment Research Laboratory at the University of Illinois, Urbana-Champaign. Her research focuses on attention, defensible space, and novice-friendly information.

WILLIAM C. SULLIVAN is an associate professor and codirector of the Human-Environment Research Laboratory at the University of Illinois, Urbana-Champaign. His research focuses on the psychological and social benefits of urban nature and citizen participation in environmental decision making.

ABSTRACT: Although vegetation has been positively linked to fear of crime and crime in a number of settings, recent findings in urban residential areas have hinted at a possible negative relationship: Residents living in “greener” surroundings report lower levels of fear, fewer incivilities, and less aggressive and violent behavior. This study used police crime reports to examine the relationship between vegetation and crime in an inner-city neighborhood. Crime rates for 98 apartment buildings with varying levels of nearby vegetation were compared. Results indicate that although residents were randomly assigned to different levels of nearby vegetation, the greener a building’s surroundings were, the fewer crimes reported. Furthermore, this pattern held for both property crimes and violent crimes. The relationship of vegetation to crime held after the number of apartments per building, building height, vacancy rate, and number of occupied units per building were accounted for.

The highway from one merchant town to another shall be cleared so that no cover for malefactors should be allowed for a width of two hundred feet on either side; landlords who do not effect this clearance will be answerable for robberies committed in consequence of their default, and in case of murder they will be in the king’s mercy.

—Statute of Winchester of 1285, Chapter V, King Edward I



AUTHORS’ NOTE: A portion of these findings was presented in invited testimony to the National Urban and Community Forestry Advisory Council (NUCFAC). This

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There is a long tradition of addressing crime in problem areas by removing vegetation. As early as 1285, the English King Edward I sought to reduce highway robbery by forcing property owners to clear highway edges of trees and shrubs (Pluncknett, 1960). Today, that tradition continues as park authorities, universities, and municipalities across North America engage in active programs to remove vegetation because it is thought to conceal and facilitate criminal acts (Michael & Hull, 1994; Nasar & Fisher, 1993; Weisel, Gouvis, & Harrell, 1994).

One of the settings in which crime is of greatest concern today is the inner-city neighborhood. To combat crime in this setting, should vegetation be removed? This article suggests the opposite. We present theory and evidence to suggest that far from abetting crime, high-canopy trees and grass may actually work to deter crime in poor inner-city neighborhoods.

COULD THERE BE EXCEPTIONS TO THE RULE?

As a rule, the belief is that vegetation facilitates crime because it hides perpetrators and criminal activity from view. Here, we review the evidence in support of this "rule" and suggest conditions under which it might not apply.

Although no studies to date have examined whether crime rates are actually higher in the presence of dense vegetation, a variety of evidence links dense vegetation with fear, fear of crime, and possibly crime itself.

It is certainly the case that many people fear densely vegetated areas. In research on urban parks, densely wooded areas have consistently been associated with fear. In one study, safety ratings for 180 scenes of urban parks showed that individuals felt most vulnerable in densely forested areas and safest in open, mowed areas (Schroeder & Anderson, 1984). And in another study, individuals who were asked for their open-ended responses to photo-

work was also supported by the Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture, under Project No. ILLU-65-0387. We are grateful for the assistance of many individuals and other institutions as well. John Potter and Liesette Brunson assisted in data entry and data analysis in the initial stages of this project. A reviewer's suggestion substantially strengthened the analyses presented here. The Chicago Housing Authority and the management of Ida B. Wells were helpful in many ways, and the Chicago Police Department graciously gave us access to their year-end crime reports. Jerry Barrett helped produce the figures, and Helicopter Transport of Chicago donated the helicopter flight over Ida B. Wells. Correspondence concerning this article should be addressed to Frances E. Kuo, Human-Environment Research Laboratory, University of Illinois, 1103 S. Dorner, Urbana, IL, 61801; e-mail: f-kuo@uiuc.edu.

graphs of urban parks indicated that heavily vegetated areas seemed dangerous (Talbot & Kaplan, 1984). Although neither of these studies specifically probed fear of crime (as opposed to more general fear), it was clear that at least some participants had crime in mind; one respondent specifically suggested that weedy areas gave muggers good hiding places (Talbot & Kaplan, 1984).

Dense vegetation has also been linked specifically to fear of crime. In safety ratings for 180 scenes of parking lots, the more a photo was covered by vegetation, the lower the perceived security (Shaffer & Anderson, 1985). And in research examining fear of crime on a university campus, dense understories that reduced views into areas where criminals might hide were associated with fear of crime (Nasar & Fisher, 1993). In these and other studies, view distance seems to be an important factor. Fear of crime is higher where vegetation blocks views (Fisher & Nasar, 1992; Kuo, Bacaicoa, & Sullivan, 1998; Michael & Hull, 1994).

Not only has dense vegetation been linked to general fears and to fear of crime in particular, but two studies have pointed more directly at a facilitative role of vegetation in crime. In the first study, park managers and park police indicated that dense vegetation is regularly used by criminals to conceal their activities (Michael & Hull, 1994). In the second, burglars themselves lent support to this notion. In this study, automobile burglars described how they used dense vegetation in a variety of ways, including to conceal their selection of a target and their escape from the scene, to shield their examination of stolen goods, and finally, in the disposal of unwanted goods (Michael, Hull, & Zahm, 1999). At the same time, Michael and his coauthors made it clear that vegetation was neither necessary nor sufficient for a crime to take place.

The clear theme in all these studies is that dense vegetation provides potential cover for criminal activities, possibly increasing the likelihood of crime and certainly increasing the fear of crime. Large shrubs, underbrush, and dense woods all substantially diminish visibility and therefore are capable of supporting criminal activity.

But, not all vegetation blocks views. A well-maintained grassy area certainly does not block views; widely spaced, high-canopy trees have minimal effect on visibility; and flowers and low-growing shrubs seem unlikely to provide cover for criminal activities. We suggest that although the rule that vegetation aids crime may hold for visibility-decreasing forms of vegetation, there are systematic exceptions to this rule. To wit, we propose that widely spaced, high-canopy trees and other visibility-preserving forms of vegetation do not promote crime.

MIGHT VEGETATION DETER CRIME? THEORY

Furthermore, we propose that in some settings, visibility-preserving forms of vegetation may actually deter crime. Specifically, we propose that in poor inner-city neighborhoods, vegetation can inhibit crime through the following two mechanisms: by increasing surveillance and by mitigating some of the psychological precursors to violence. Let's look at each of these in turn.

Increasing surveillance. Surveillance is a well-established factor in criminal activity. Jane Jacobs (1961) suggested that the simple presence of more "eyes on the street" would deter crime, and this concept was prominent in Oscar Newman's (1972) classic *Defensible Space* and appeared in Jeffery's (1971) *Crime Prevention Through Environmental Design*. Since then, many studies have shown that perpetrators avoid areas with greater surveillance and greater likelihood of intervention (e.g., Bennett, 1989; Bennett & Wright, 1984; Cromwell, Olson, & Avary, 1991; Poyner & Webb, 1992). And, substantial research has shown that criminals avoid well-used residential areas where their activities might easily be observed (Coleman, 1987; Macdonald & Gifford, 1989; Merry, 1981; Rhodes & Conley, 1981).

There is some evidence to suggest that in inner-city neighborhoods, vegetation might introduce more eyes on the street by increasing residents' use of neighborhood outdoor spaces. A series of studies conducted in inner-city neighborhoods has shown that treed outdoor spaces are consistently more well used by youth, adults, and mixed-age groups than are treeless spaces; moreover, the more trees in a space, the greater the number of simultaneous users (Coley, Kuo, & Sullivan, 1997; Kuo, Sullivan, Coley, & Brunson, 1998; W. C. Sullivan, Kuo, & DePooter, 2001). Not surprisingly then, a recent study found that children were twice as likely to have adult supervision in green inner-city neighborhood spaces than in similar but barren spaces (A. F. Taylor, Wiley, Kuo, & Sullivan, 1998). Thus, in these settings, higher levels of vegetation not only preserve visibility but may also increase surveillance.

Perhaps just as important as actual surveillance in deterring crime is implied surveillance. Newman (1972) suggested that criminals might be deterred by environmental cues suggesting that surveillance is likely even when no observers are present (also see Jeffery, 1971; R. B. Taylor, 1988). Consistent with this, territorial markers have been empirically linked to lower rates of incivilities and crime (Brown & Altman, 1983; Perkins, Brown, & Taylor, 1996; Perkins, Wandersman, Rich, & Taylor, 1993; R. B. Taylor, 1988). (And even those *E&B* readers who are not criminals may have

experienced the power of implied surveillance—on the highway after passing an empty police car.)

There is some evidence to suggest that residential vegetation can act as a territorial marker. Chaudhury (1994) showed front views of houses to students and examined how a host of environmental features affected their ratings of *territorial personalization*. He found that the presence and maintenance of vegetative features was the strongest predictor of territorial personalization, with an *R*-squared of .65. Similarly, Brown and colleagues (Brown & Altman, 1983; Brown & Bentley, 1993) found evidence suggesting that plants and other territorial markers make properties less attractive for burglary. We suggest that well-maintained vegetation may constitute a particularly effective territorial marker. Well-maintained vegetation outside a home serves as one of the *cues to care* (Nassauer, 1988), suggesting that the inhabitants actively care about their home territory and potentially implying that an intruder would be noticed and confronted.

Mitigating psychological precursors to violence. Another mechanism by which vegetation might inhibit crime is through mitigating mental fatigue. S. Kaplan (1987) suggested that one of the costs of mental fatigue may be a heightened propensity for “outbursts of anger and potentially . . . violence” (p. 57), and three proposed symptoms of mental fatigue—irritability, inattentiveness, and decreased control over impulses—are each well-established psychological precursors to violence. Irritability is linked with aggression in numerous studies (e.g., Caprara & Renzi, 1981; Coccaro, Bergeman, Kavoussi, & Seroczynski, 1997; Kant, Smith-Seemiller, & Zeiler, 1998; Kavoussi & Coccaro, 1998; Stanford, Greve, & Dickens, 1995). Inattentiveness has been closely tied to aggression in both children (Stewart, 1985) and adolescents (Scholte, van Aken, & van Leishout, 1997). And, impulsivity is associated with aggression and violence in a variety of populations (for reviews, see Brady, Myrick & McElroy, 1998; Markovitz, 1995; Tuinier, Verhoeven, & Van Praag, 1996).

A considerable body of studies indicates that vegetation aids in the recovery from mental fatigue. Contact with nature in a variety of forms—wilderness areas, prairie, community parks, window views, and interior plants—is systematically linked with enhanced cognitive functioning as measured by both self-report and performance on objective tests (e.g., Canin, 1991; Cimprich, 1993; Hartig, Mang, & Evans, 1991; R. Kaplan, 1984; Lohr, Pearson-Mimms, & Goodwin, 1996; Miles, Sullivan, & Kuo, 1998; Ovitt, 1996; Tennessen & Cimprich, 1995). To the extent that irritability, inattentiveness, and impulsivity are symptoms of mental fatigue, as first proposed in

S. Kaplan (1987) and recently elucidated in Kuo and Sullivan (in press), reductions in mental fatigue should decrease violent behavior.

In sum, we propose that vegetation can deter crime in poor urban neighborhoods in any or all of the following ways: by increasing residents' informal surveillance of neighborhood spaces, by increasing the implied surveillance of these spaces, and by mitigating residents' mental fatigue, thereby reducing the potential for violence. Next, we review empirical work pointing at a negative relationship between vegetation and crime.

MIGHT VEGETATION DETER CRIME? CIRCUMSTANTIAL EVIDENCE

There are a number of scattered hints in the empirical literature that vegetation might have a negative relationship to crime in residential settings.

A few studies have used images to examine the relationship between vegetation and sense of safety in residential settings. The findings from residential settings are in direct contrast to those obtained in studies of nonresidential settings: In residential settings, the more vegetation there is, the less fear of crime. One study used photographs of residential sites to examine effects of architectural and landscape features on fear of crime and found that higher levels of vegetation were associated with less fear of crime (Nasar, 1982). Another study used drawings of residences and found that properties appeared safer when trees and shrubs were included than when they were not (Brower, Dockett, & Taylor, 1983). And, similar results were obtained from an experiment using computer-based photo simulations. In that study, an inner-city courtyard was depicted with varying densities of trees: The more dense the tree planting was, the greater the sense of safety (Kuo, Bacaicoa, et al., 1998).

One study used controlled comparisons of real residential settings to examine the relationship between vegetation and sense of safety. In a public housing development where residents were randomly assigned to architecturally identical apartment buildings with varying levels of vegetation immediately outside, those residents who lived in buildings with more trees and grass gave systematically higher endorsements to the statement "I feel safe living here" than did their counterparts living in relatively barren buildings (Kuo, Sullivan, et al., 1998). That is, not only do images of green residential settings evoke a greater sense of safety, but individuals living in such settings report a greater sense of safety as well.

There is some indication that this greater sense of safety is warranted. A few studies have examined the relationship between vegetation and "incivilities." R. B. Taylor, Gottfredson, and Brower (as cited in R. B. Taylor, 1988) compared street blocks with higher and lower levels of high-maintenance

gardening and found fewer problems reported on street blocks with higher levels of high-maintenance gardening. And in another study, Stamen (1993) surveyed landscaped and nonlandscaped areas in a community and found that the incidence of vandalism or graffiti in sites without plantings was 90% as compared to 10% in sites with plantings. Similarly, Brunson (1999) examined both physical and social incivilities in public housing outdoor spaces with trees and grass versus in similar spaces without vegetation. Resident reports indicated that graffiti, vandalism, and littering were systematically lower in outdoor spaces with trees and grass than in comparable, more barren spaces (Brunson, 1999). Furthermore, resident reports indicated that social incivilities, such as the presence of noisy, disruptive individuals, strangers, and illegal activity, were also systematically lower in the greener outdoor spaces (Brunson, 1999).

Additional evidence that vegetation may reduce crime comes from two studies that examined the relationship between residential vegetation and residents' levels of aggression and violence. Mooney and Nicell (1992) compared violent assaults by Alzheimer patients during two consecutive summers in five long-term care facilities—three without gardens and two in which exterior gardens were installed. In Alzheimer patients, increases in the number of aggressive assaults each year are typical because of the progressive deterioration of cognitive faculties; and indeed, in the facilities without gardens, the incidence of violent assaults increased dramatically over time. By contrast, the incidence of violent assaults in the other facilities stayed the same or decreased slightly after gardens were installed.

Another study compared levels of aggression and violence in an urban public housing neighborhood where residents played no role in planting or maintaining the vegetation outside their apartments and were randomly assigned to levels of greenness. Levels of aggression and violence were systematically lower for individuals living in green surroundings than for individuals living in barren surroundings; moreover, lack of nature significantly predicted levels of mental fatigue, which in turn significantly predicted aggression. Mediation testing indicated that the relationship between vegetation and aggression was fully mediated through attention (Kuo & Sullivan, *in press*).

In sum, there is a variety of evidence suggesting that vegetation may be linked to lower levels of crime in residential neighborhoods, particularly poor inner-city neighborhoods. Residential vegetation has been linked with a greater sense of safety, fewer incivilities, and less aggressive and violent behavior. Of these findings, the most direct evidence of a negative link between vegetation and crime comes from residents' reports of illegal

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activities in the space outside their apartment building and from residents' self-reports of (criminally) aggressive behavior.

The study presented here is the first to examine the relationship between vegetation and crime in an inner-city neighborhood using police crime reports. Although police crime reports are far from infallible (O'Brien, 1990), one advantage of such reports is that they are based on actual counts of crimes reported over the course of a year and thus are less subject to the distortions introduced by having residents estimate the frequencies of such events from memory. Thus, the convergence of findings from resident reports and police reports would lend confidence to a negative link between vegetation and crime. In this study, we examined the relationship between the vegetation outside of apartment buildings and the number of police crime reports for those buildings over a 2-year period. We collected police data on property crimes, violent crimes, and total crimes for 98 apartment buildings in one inner-city neighborhood and used the amount of tree and grass cover outside each building to predict crime.

METHOD

Data presented here were collected as part of the Vital Neighborhood Common Spaces archive, a multistudy research effort examining the effects of the physical environment on the functioning of individuals, families, and communities residing in urban public housing.

POPULATION, SETTING, AND DESIGN

Ida B. Wells is a large public housing development in Chicago. Wells provides housing for approximately 5,700 individuals, of which 65% are female, 97% are African American, and 44% are children younger than 14 years old (Chicago Housing Authority, 1995). Ida B. Wells is one of the 12 poorest neighborhoods in the United States (Ihejirika, 1995). At the time of this study, approximately 93% of the people living at Wells were officially unemployed, and roughly 50% of the families received Aid to Families with Dependent Children (Chicago Housing Authority, 1995).

The amount of nature outside apartment buildings at Ida B. Wells varies considerably. When the development was originally built in the 1940s, trees and grass were planted around each of the low-rise buildings. Over time, many of these green spaces have been paved in an effort to keep dust down and maintenance costs low; this paving has killed many of the original trees,



Figure 1: Ground Level View at Ida B. Wells Showing Apartment Buildings With Varying Amounts of Tree and Grass Cover

leaving some areas completely barren, others with small trees or some grass, and still others with mature high-canopy trees (see Figure 1). Because shrubs were relatively rare, vegetation at Ida B. Wells was essentially the amount of tree and grass cover around each building.

A number of apartment buildings at Wells were excluded from this study. First, the high-rise and midrise (seven-story) buildings were excluded to keep the buildings sampled similar in size, number of residents, and amount of outdoor common space. Second, of the 124 low-rise (one to four stories) apartment buildings, those buildings adjacent or nearly adjacent to the police station within the development were excluded because the presence of police officers would be expected to be a significant deterrent to crime. And finally, a small cluster of low-rise buildings was excluded because the buildings' irregular placement with respect to each other and the street made it unclear where the common space associated with one building ended and the next began. The final sample included 98 buildings.

Ida B. Wells offers a number of rare methodological advantages for investigating the relationship between residential vegetation and crime. Although levels of vegetation outside the apartment buildings vary considerably, the residents are strikingly homogeneous with respect to many of the individual characteristics that have been shown to increase vulnerability to crime—income, education, and life circumstances. This similarity among residents coupled with the consistent low-rise architecture decreases the sources of extraneous variability in crime. This increases the power to detect differences in the amount of crime associated with differences in the level of vegetation outside each apartment building.

Perhaps more important, the apartment assignment procedures and landscaping policies of public housing work to ensure that there are no systematic

relationships between the vegetation outside an apartment building and the characteristics of its residents. Applicants for public housing at Ida B. Wells (and elsewhere in Chicago public housing) are assigned to individual apartments without regard for the level of nearby vegetation. And although residents have some choice in accepting or rejecting a particular apartment in theory, in practice the level of nearby vegetation is not a significant factor in residents' choices, and most residents simply accept the first available apartment (Kuo, Sullivan, et al., 1998). Moreover, residents play little or no role in decisions to introduce or remove trees. Thus, in this study, there were no *a priori* reasons to expect a relationship between the level of vegetation outside an apartment building and the characteristics of its inhabitants—more “responsible” residents might just as likely live in barren buildings as in green buildings.

MEASURES

Crime reports. Chicago Police Department year-end Uniform Crime Reports were analyzed for this study. These crime reports summarize for each address at Ida B. Wells the specific crimes (e.g., aggravated assault and strong-armed robbery) that were reported during the year. These reports include both citizen-initiated complaints and those filed by an officer without a citizen complaint.

When a crime is reported to the police, an officer is dispatched to interview the victim or victims and any witnesses. The officer then files a report about the incident describing the specific crime or crimes, the date, the address where the crime(s) occurred, and other pertinent information. Details from this report are then summarized in the year-end crime reports.

From 2 years of crime reports, we created three summary variables indexing crime for each low-rise apartment building at Ida B. Wells, following the classification scheme used by the Department of Justice (Bureau of Justice Statistics, 1999). In this scheme, property crime is the sum of simple thefts, vehicle thefts, burglaries, and arson; violent crime includes assaults, batteries, robberies, and homicides; and total crimes is the sum of all crimes reported.

Vegetation. To assess the density of trees and grass around each of the low-rise buildings, we took dozens of 35mm slide photographs of the development by helicopter, passing over each cluster of buildings from a number of vantages (see Figure 2). We also took ground-level photographs of many of the outdoor spaces. All the slides were taken in June when the tree canopy



Figure 2: Aerial View of a Portion of Ida B. Wells Showing Buildings With Varying Amounts of Tree and Grass Cover

was full and the grass was green. For each building, the aerial slides were put together with slides taken at ground level; there were at minimum three different views from aerial and ground-level photos of each space (front, back, left side, and right side) around each building. Five students in landscape architecture and horticulture then independently rated the level of vegetation in each space. Each of the individuals rating the spaces received a map of the development that defined the boundaries of the specific spaces under study. The raters viewed the slides and recorded their ratings on the maps. A total of 220 spaces was rated, each on a 5-point scale (0 = no trees or grass, 4 = a space completely covered with tree canopy). Interrater reliability for these ratings was .94.¹ The five ratings were averaged to give a mean nature rating for each space. The nature ratings for the front, back, and side spaces around each building were then averaged to produce a summary vegetation rating. Ratings of vegetation for the 98 buildings ranged from 0.6 to 3.0.

Other factors likely to affect crime. Four additional variables possibly related to vegetation and the number of crimes reported per building were assessed through (a) on-site analysis, (b) Chicago Housing Authority floor

TABLE 1
Simple Ordinary Least Squares Regressions
Using Vegetation to Predict Crimes Per Building

<i>Predictor</i>	<i>Total Crimes</i>			<i>Property Crimes</i>			<i>Violent Crimes</i>		
	<i>R²</i>	<i>β</i>	<i>p Value</i>	<i>R²</i>	<i>β</i>	<i>p Value</i>	<i>R²</i>	<i>β</i>	<i>p Value</i>
Vegetation	.08	-2.2	< .01	.07	-1.0	< .01	.07	-1.3	< .01

plans of each building type in the development, and (c) Chicago Housing Authority apartment vacancy records.

Number of units is the number of apartment units in a building; the range was from 4 to 20.

Number of occupied units is the average number of units rented in a particular building during the 2 years of the study; the mean was 7.8, and the range was from 0.5 to 15. We were able to obtain data on 84 of the 98 buildings in this sample.

Vacancy is the 2-year average of the number of vacant apartments divided by the number of units in the building; the mean was 13%, and the range was from 0% to 92%. We were able to obtain data on 84 of the 98 buildings in this sample.

Building height is the number of floors in a building; the range was from 1 to 4.

RESULTS

If vegetation reduces crime, then we would expect to find that the greener a building's surroundings are, the fewer crimes reported. Perhaps the most straightforward test of this possibility is to conduct simple regressions with vegetation as the independent variable and the three summary crime indices as dependent variables (see Table 1). Results from these ordinary least squares regressions indicate that vegetation is significantly and negatively related to each of the measures of crime. The greener a building's surroundings are, the fewer total crimes; this pattern holds for both property crimes and violent crimes. For each of the three indices, vegetation accounts for 7% to 8% of the variance in the number of crimes reported per building.

Figure 3 provides a more concrete sense of the amount of crime associated with different levels of vegetation. For this figure, the continuous vegetation variable was recoded into the following three categories: low (ratings from

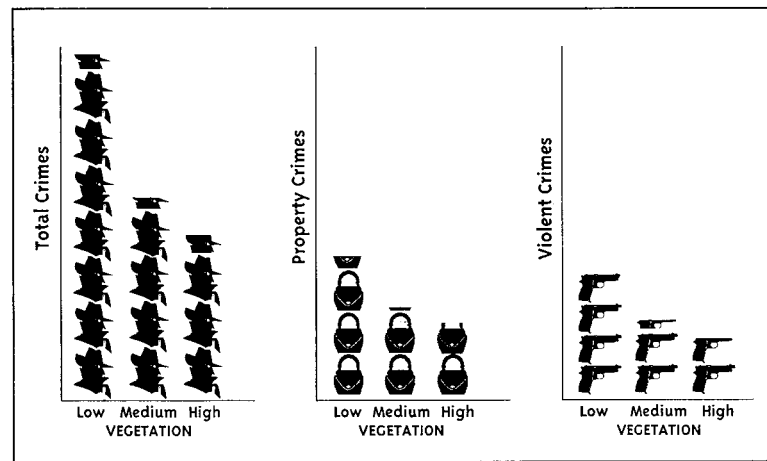


Figure 3: Mean Number of Crimes Reported Per Building for Apartment Buildings With Different Amounts of Vegetation (each icon represents one reported crime)

0.0 up to 1.0), medium (from 1.0 up to 2.0), and high (from 2.0 up to 3.0, inclusive). Figure 3 shows the average number of total, property, and violent crimes reported for buildings with low, medium, and high levels of vegetation. Compared to buildings with low levels of vegetation, those with medium levels had 42% fewer total crimes, 40% fewer property crimes, and 44% fewer violent crimes. The comparison between low and high levels of vegetation was even more striking: Buildings with high levels of vegetation had 52% fewer total crimes, 48% fewer property crimes, and 56% fewer violent crimes than buildings with low levels of vegetation. Fisher's protected least significant difference analyses indicate that for each measure of crime, low and medium buildings were significantly different at $p < .05$. The same pattern held for comparisons between low and high buildings. Although buildings with high levels of vegetation had 17% fewer total crimes, 13% fewer property crimes, and 21% fewer violent crimes than buildings with medium levels of vegetation, these differences were not statistically significant.

These data reveal a clear negative relationship between vegetation and crime and hint that this relationship is strongest when comparing buildings with low levels of vegetation to buildings with either medium or high levels. Although these findings are exciting and intriguing, they do not control for other important variables. The analyses that follow provide a closer look at

TABLE 2
Multiple Regressions Using Number of Units
and Vegetation to Predict Crimes Per Building

<i>Predictors</i>	<i>Total Crime</i>		<i>Property Crimes</i>		<i>Violent Crimes</i>	
	β	<i>p Value</i>	β	<i>p Value</i>	β	<i>p Value</i>
Number of units	0.70	< .0001	0.31	< .0001	0.39	< .0001
Vegetation	-1.44	< .05	-0.63	< .05	-0.81	< .05

NOTE: The multiple regressions for total crimes: adjusted $R^2 = .52$ ($N = 98$, $p < .0001$); for property crime: adjusted $R^2 = .45$ ($N = 98$, $p < .0001$); for violent crime: adjusted $R^2 = .44$ ($N = 98$, $p < .0001$).

the relationship between vegetation and crime, taking into account other factors likely to affect the number of crimes per building.

TESTING POTENTIAL CONFOUNDS

Controlling for number of apartments. Perhaps one of the most important variables to control for in predicting the amount of crime in a setting (e.g., a building, neighborhood, or city) is the number of people in that setting. Because more apartments per building mean more potential perpetrators and more potential victims, one would expect more crimes in buildings with more apartments. Indeed, previous research has shown the number of units in a building to be related to the number of reported crimes (Newman & Franck, 1980). Thus, it is not surprising that in this sample, strong positive linear relationships exist between the number of units and the number of property crimes ($r = .62$, $p < .0001$), violent crimes ($r = .63$, $p < .0001$), and total crimes ($r = .67$, $p < .0001$). That is, the more apartments in a building, the more crimes reported for that building.

To examine whether the relationship between vegetation and crime still held when the number of apartments in a building was controlled, a series of multiple regressions were conducted in which both vegetation and number of units were used to predict the number of crimes reported per building. As Table 2 shows, when the number of units per building is controlled, vegetation continues to be a significant negative predictor of total crime, property crime, and violent crime. In other words, the level of greenness around a building at Ida B. Wells predicts the number of crimes that have occurred in that building even after the number of apartments in the building has been accounted for.

TABLE 3
Intercorrelations Among Possible Predictors
of Crime and Three Crime Scales

	<i>Vegetation</i>	<i>Number of Units</i>	<i>Vacant Rate</i>	<i>Number of Occupied Units</i>	<i>Building Height</i>	<i>Property Crime</i>	<i>Violent Crime</i>
Vegetation							
Number of units	-.15						
Vacancy rate	-.02	.26					
Number of occupied units	.12	.82**	-.31**				
Building height	-.48**	.67**	.40**	.35**			
Property crime	-.27**	.62**	.01	.38**	.53**		
Violent crime	-.27**	.63**	.25**	.30**	.58**	.72**	
Total crime	-.29**	.67**	.16	.38**	.60**	.91**	.95**

** $p < .01$.

Other potential confounds. To identify other potential confounds between vegetation and crime, correlations were conducted between vegetation and the following three factors that have been shown in other studies to be associated with crime: vacancy rate (R. B. Taylor, Shumaker, & Gottfredson, 1985), the number of occupied apartments per building (Newman & Franck, 1980), and building height (Newman, 1972; Newman & Franck, 1980). As the first column in Table 3 shows, vegetation is not related to either vacancy rate or number of occupied units but is strongly and negatively related to building height; the taller the building is, the lower the level of vegetation. The fourth column in Table 3 indicates that building height has a strong positive relationship to total crime, property crime, and violent crime. Thus, the relationship between vegetation and crime is confounded by building height: Taller buildings are both less green and have more reported crimes than shorter buildings. These findings raise the possibility that vegetation predicts crime only by virtue of its shared variance with building height.

To test for this possibility, we examined whether vegetation still predicts crime when building height and number of units are controlled. Table 4 provides the results of a series of multiple regressions in which vegetation, building height, and number of units were used to predict crime. If vegetation predicts crime by virtue of its relationship with building height, then vegetation should no longer predict crime when building height is controlled, and building height should predict crime with vegetation controlled. As Table 4

TABLE 4
Multiple Regression Using Three Independent Variables (number of units, vegetation, and building height) to Predict Crimes Per Building

<i>Predictors</i>	<i>Total Crime</i>		<i>Property Crimes</i>		<i>Violent Crimes</i>	
	β	<i>p Value</i>	β	<i>p Value</i>	β	<i>p Value</i>
Number of units	0.69	.0001	0.33	.0001	0.34	.0001
Vegetation	-1.41	< .05	-0.69	< .05	-0.55	.07
Building height	0.05	<i>ns</i>	-0.13	<i>ns</i>	0.18	<i>ns</i>

NOTE: The multiple regressions for total crimes: adjusted $R^2 = .51$ ($N = 98$, $p < .0001$); for property crime: adjusted $R^2 = .44$ ($N = 98$, $p < .0001$); for violent crime: adjusted $R^2 = .43$ ($N = 98$, $p < .0001$).

shows, however, this is not the case; vegetation remains a significant or marginally significant predictor of crime with building height and number of units controlled. Moreover, building height has no predictive power when vegetation and number of units are controlled. These findings indicate that although building height is confounded with vegetation, it cannot account for the link between vegetation and crime.

Thus far, the analyses have established that (a) there is a reliable association between the amount of vegetation outside a building and the number of crimes recorded for that building by the police, (b) these relationships are independent of the number of units in a building, and (c) these relationships are independent of building height. These analyses show that vegetation predicts crime and that this relationship cannot be accounted for by these other confounding variables.

DOES ADDING VEGETATION IMPROVE THE CURRENT ARSENAL OF CRIME PREDICTORS?

To determine whether vegetation makes any unique, additional contribution to the current arsenal of predictors, we conducted a multiple regression in which all available significant predictors of crime were entered (i.e., vegetation, other predictors that were confounded with vegetation, and other predictors that were not confounded with vegetation). This kitchen-sink multiple regression, in which vegetation and number of units, building height, vacancy rate, and number of occupied units were entered as predictors, indicated that vegetation does make a unique contribution to the current arsenal of predictors. Vegetation was a significant predictor of total crime ($\beta = -1.1$, $p = .05$) even when all other crime predictors have been accounted for. Moreover, the relatively low variance inflation factor for vegetation in this regression (1.31) indicates that vegetation is relatively independent of the

other predictors. In addition, comparison of the adjusted R^2 s of the kitchen-sink multiple regressions with and without vegetation indicated that the additional predictive power gained by adding vegetation outweighs the loss of degrees of freedom incurred in increasing the total number of predictors. The adjusted R^2 for the model with only the current arsenal of predictors was .23; the adjusted R^2 for the model with the current arsenal of predictors plus vegetation was .26. Although this increase represents only 3% of the total variance in crime, it represents a sizable proportion of the current predictive power (13%). Together, these findings indicate that adding vegetation improves the current arsenal of predictors, adding unique explanatory power.

A Cuthbert plot (Cp) analysis yielded additional evidence of the predictive power of vegetation. Cp analysis is a technique for determining the most powerful, most parsimonious model out of a set of multiple predictors (SAS Institute, 1998). Essentially, given a set of predictors, Cp analysis tests all possible combinations of predictors and selects the best model. An alternative to comparing adjusted R^2 s, Cp analysis is particularly helpful when there is multicollinearity between predictors, as was the case here. Cp analysis indicated that the best model for predicting total crime, selecting from the entire set of available predictors (number of units, building height, vacancy rate, number of occupied units, and vegetation), comprises only two predictors—number of units and vegetation ($C_p = 1.32$). Thus, in these data, the best possible model of crime comprises only vegetation and one other predictor.

DISCUSSION

This study examined the relationship between vegetation and crime for 98 apartment buildings in an inner-city neighborhood. Analyses revealed consistent, systematically negative relationships between the density of trees and grass around the buildings and the number of crimes per building reported to the police. The greener a building's surroundings are, the fewer total crimes; moreover, this relationship extended to both property crimes and violent crimes. Levels of nearby vegetation explained 7% to 8% of the variance in the number of crimes reported per building. The link between vegetation and crime could not be accounted for by either of the two confounding variables identified. Vegetation contributed significant additional predictive power above and beyond four other classic environmental predictors of crime. And out of all possible combinations of available predictors, vegetation was identified as one of the two predictors in the best possible model of crime.

The findings contribute to our understanding of the relationship between vegetation and crime and suggest opportunities for intervention and future research.

CONTRIBUTIONS TO THE UNDERSTANDING OF VEGETATION AND CRIME

One contribution of this work is to propose a systematic exception to the rule that vegetation promotes crime. The rule in both folk theory and environmental criminology has been that vegetation promotes crime by providing concealment for criminals and criminal activities. If the mechanism by which vegetation affects crime is indeed concealment, then one implication of this rule is that vegetation should not promote crime when it preserves visibility. The contribution here is simply to point out that many forms of vegetation preserve visibility and therefore ought not promote crime. Indeed, we found that in this sample of inner-city apartment buildings, buildings with widely spaced, high-canopy trees and grassy areas did not experience higher rates of crime. These findings suggest that at the very least, crime prevention concerns do not justify removing high-canopy vegetation in inner-city neighborhoods. They demonstrate that one of the classic suspects in environmental criminology does not always promote crime.

Moreover, the findings indicate a large and systematically negative link between levels of vegetation and police reports of crime in this setting. Although this is the first study to demonstrate such a link, the findings are consistent with previous work linking vegetation with lower levels of incivilities (Brunson, 1999; Stamen, Yates, & Cline, as cited in S. Sullivan, 1993) as well as previous work linking vegetation with lower levels of aggression and violence (Kuo & Sullivan, *in press*). The results obtained here were based on police crime reports, whereas the Brunson (1999) and the Kuo and Sullivan (*in press*) findings were based on residents' memories and self-reports. The convergence of findings from such different measures lends confidence that in inner-city residential settings, the relationship between vegetation and crime is negative—the more vegetation, the less crime.

A third contribution of the work here is to help resolve a puzzle in previous work on residential vegetation and sense of safety. A number of studies have found that residential vegetation is associated with greater sense of safety (Brower et al., 1983; Kuo, Bacaicoa, et al., 1998; Kuo, Sullivan, et al., 1998; Nasar, 1982). In combination with the old rule that vegetation promotes crime, such findings raised the disturbing possibility that residents systematically misperceive green areas as safe. And yet other research has found good concurrent validity between measures of fear, perceptions of disorder, and media reports of crime (e.g., Perkins & Taylor, 1996). The finding here that

vegetation is systematically linked with lower levels of crime suggests that individuals are accurate in their perception of green areas as safer.

A final contribution of this work is to propose two mechanisms by which vegetation may deter crime in inner-city neighborhoods. Specifically, we propose that vegetation may deter crime both by increasing informal surveillance and by mitigating some of the psychological precursors to violence. Although neither of these mechanisms—nor the more general question of causality—can be addressed in these data, there is clear empirical support for these mechanisms in other work. Substantial previous research has shown that surveillance deters crime and that in inner-city neighborhoods, greener outdoor spaces receive greater use, thereby increasing informal surveillance. Moreover, Kuo and Sullivan's (in press) work showed that for residents randomly assigned to apartment buildings with different levels of vegetation, higher levels of vegetation systematically predicted lower levels of aggression, and mediation analyses indicated that this link was mediated via attentional functioning. In addition, we can address a number of alternative interpretations for the findings here. Public housing policies in this setting are such that levels of income, education, and employment among residents are largely held constant; residents are randomly assigned to varying levels of vegetation; and the amount of trees and grass outside an apartment is not under residents' control. And the confound analyses conducted here indicate that the link between vegetation and lower crime could not be explained by a number of classic environmental predictors of crime—vacancy rates, building height, the number of apartments, and the number of occupied apartments in a building.

POSSIBILITIES FOR INTERVENTION AND FUTURE RESEARCH

The findings in this study set the stage for more ambitious explorations of the relationship between urban residential vegetation and crime. Now that there is good reason to think that visibility-preserving vegetation does not necessarily promote crime and may even inhibit crime in inner-city neighborhoods, it seems appropriate to attempt an intervention study or two. Intervention studies employing true experimental designs might be used to answer a number of important questions with regard to the effects of vegetation on crime. Urban public housing communities might be especially amenable sites for such research as housing authorities tend to have centralized control over landscaping for dozens and even hundreds of identical buildings.

A study in which identical or matched apartment buildings in a poor urban area were randomly assigned to receive different levels of vegetation could help address the question of causality and the question of the shape of the

relationship between vegetation and crime. Would crime rates decrease linearly or curvilinearly with increasing vegetation? In this sample, the difference between low and moderate green cover buildings was 3.1 crimes, but the difference between moderate and high green cover buildings was only 0.7 crimes. One possible interpretation of this pattern is that the relationship between vegetation and crime is nonlinear with diminishing returns. Another is that the 0.7 crime difference between the moderate and high vegetation conditions is a poor estimate because of the relatively low number of high-vegetation buildings in the sample, and the relationship between vegetation and crime is actually linear across the entire range of vegetation.

Future studies might systematically vary the arrangement and maintenance of vegetation and examine the rates of crime associated with these factors. The vegetation in this study was not configured to provide symbolic barriers or to mark the territory of particular apartment buildings. Would arrangements that create symbolic barriers and delineate the territory of particular residences (e.g., with small hedges) be more effective in decreasing crime than other arrangements? Brown and colleagues (Brown & Altman, 1983; Brown & Bentley, 1993) found evidence suggesting that plants and other territorial markers may make a property less attractive for burglary, but no study has yet randomly assigned different planting arrangements to different buildings and compared the resulting rates of property crime. Analogously, well-maintained vegetation seems to be a particularly effective territorial marker (Chaudhury, 1994), but research has yet to systematically examine the effect of different levels of maintenance on crime.

Future research might also look more closely—and more broadly—at the outcomes of planting interventions. In this sample, vegetation predicted levels of both property crime and violent crime. This is noteworthy given that studies in environmental criminology often find that the relationship between the physical environment and crime depends on the specific category of crime (e.g., Brantingham & Brantingham, 1993). It would be interesting and useful to examine the relationships between vegetation and more specific categories of crime or other categories altogether. For instance, does vegetation have more of an effect on impulsive crimes than on “rational” crimes? We might expect impulsive crimes committed out of frustration or rage to be reduced through the beneficial effects of vegetation on mental fatigue. And to the extent that perpetrators consciously calculate risks in selecting their targets, more “rational,” premeditated crimes might be reduced through the beneficial effects of vegetation on informal surveillance.

In examining the outcomes of planting interventions, it will be important to address the possible displacement of crime. One of the standard concerns in efforts to combat crime is that although interventions may reduce crime in

targeted locations, the effect may be to simply displace crime to other areas, yielding no overall decrease in crime (Gabor, 1981). Would adding vegetation and decreasing crime in one part of an inner-city neighborhood simply increase crime in another part of the neighborhood? The answer may depend on the type of crime in question. By reducing the irritability, impulsivity, and cognitive deficits associated with mental fatigue and hence preventing minor conflicts from spiraling out of control, vegetation might inhibit violent crimes in some residences without increasing violent crimes in others. On the other hand, by increasing informal surveillance of some outdoor spaces without reducing the actual impetus for burglary and other premeditated crimes, vegetation might serve to simply shift such crimes to more vulnerable targets. Future research should examine rates of crime both in and around the intervention areas.

Such comparisons might shed light on the mechanisms by which vegetation affects crime. To further address the question of mechanism, levels of informal surveillance and mental fatigue might be measured in buildings receiving the planting intervention and in matched buildings selected as controls. Mediation analyses could then be conducted to examine the joint links between vegetation, crime, and the proposed mediators. Does vegetation affect crime only when it increases residents' use of outdoor spaces and levels of informal surveillance?

Finally, one exciting possibility for future work would be to compare the outcomes from intervention studies in which residents were either involved or uninvolved in the greening process. The question here would be whether the process of tree planting could enhance residents' territoriality, thereby deterring crime over and above the direct effect of the presence of vegetation. Active involvement in tree-planting programs has been claimed to enhance a community's sense of territoriality (Dwyer, McPherson, Schroeder, & Rowntree, 1992), and the community greening lore is replete with stories in which greening efforts have been accompanied by dramatic decreases in crime and incivilities (e.g., Hynes, 1996; Lewis, 1980; Littman, 1996; Trust for Public Lands, 1996). Previous research in inner-city neighborhoods suggests that residents would be willing to help plant and care for trees (Kuo, Bacaicoa, et al., 1998). As planting is the single largest cost associated with the care and maintenance of the urban forest (McPherson, Nowak, & Rowntree, 1994), involving residents would substantially defray the already low costs associated with a planting intervention.

Ultimately, the largest reductions in crime will come from strategies that address the factors underlying crime (e.g., intense poverty and the availability of guns). In the meantime, this study offers a ray of hope by identifying an easily manipulable environmental feature that has a systematic, negative

relationship with property crimes, violent crime, and total crimes. The work presented here suggests the exciting possibility that in barren inner-city neighborhoods, planting a few trees may work to inhibit crime, creating safer neighborhoods for poor families and their children.

NOTE

1. In these data, agreement between raters is analogous to the reliability of items in a scale; the hope is that different raters will respond to a particular building in a similar fashion. Thus, to assess interrater agreement, a Cronbach's alpha was calculated with individual raters treated like individual items in a scale and individual buildings treated like individual respondents.

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VIEWS OF NATURE AND SELF-DISCIPLINE: EVIDENCE FROM INNER CITY CHILDREN

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Abstract

Children growing up in the inner city are at risk of academic underachievement, juvenile delinquency, teenage pregnancy, and other important negative outcomes. Avoiding these outcomes requires self-discipline. Self-discipline, in turn, may draw on directed attention, a limited resource that can be renewed through contact with nature. This study examined the relationship between near-home nature and three forms of self-discipline in 169 inner city girls and boys randomly assigned to 12 architecturally identical high-rise buildings with varying levels of nearby nature. Parent ratings of the naturalness of the view from home were used to predict children's performance on tests of concentration, impulse inhibition, and delay of gratification. Regressions indicated that, on average, the more natural a girl's view from home, the better her performance at each of these forms of self-discipline. For girls, view accounted for 20% of the variance in scores on the combined self-discipline index. For boys, who typically spend less time playing in and around their homes, view from home showed no relationship to performance on any measure. These findings suggest that, for girls, green space immediately outside the home can help them lead more effective, self-disciplined lives. For boys, perhaps more distant green spaces are equally important.

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Introduction

Children growing up in the inner city are at risk of academic underachievement (Brooks-Gunn, 1986), juvenile delinquency (Berrueta-Clement, 1984), teenage pregnancy (Furstenberg, 1976), and other important negative outcomes, with profound consequences for themselves, those around them, and society. Outcomes such as these often reflect failures of self-regulation, or self-discipline (Baumeister *et al.*, 1994). Could a feature of the physical environment affect inner city children's capacity for self-discipline, and as a consequence, play a role in these outcomes?

This paper explores whether children's self-discipline might be enhanced by contact with nature. Previous research suggests that natural settings and views can help renew the psychological resource used in deliberately directing attention. It has been proposed that self-discipline draws on this same resource (Kuo, 2000); if so, we would expect self-discipline to decline when this resource is depleted or fatigued, and we would expect self-disci-

pline to improve when this resource is renewed. Thus, regular contact with natural settings and views might be expected to enhance children's capacity for self-discipline on a day-to-day basis.

To test this possibility, this study tested for links between the view from home and three forms of self-discipline in children. Specifically, it examined whether, in an inner city neighborhood, children with 'greener' views from home were better able to concentrate, inhibit initial impulses, and delay gratification.

Three forms of self-discipline

Concentrating, inhibiting initial impulses, and delaying gratification are each distinct and important forms of self-discipline. They are distinct forms of self-discipline in that each involves overriding different, unhelpful tendencies. And they are important in that each seems likely to play a pivotal role in the course of a young person's life. More specifically, each seems likely to play an important role in negotiating the risks faced by inner city children:

academic underachievement, juvenile delinquency, and teenage pregnancy.

Concentrating requires overcoming the tendency for the mind to wander, and sustaining attentional focus despite distractions, boredom, frustration, or fatigue. As it involves directing one's thoughts to the topic at hand, concentration is the form of self-discipline that most clearly draws on our capacity to deliberately direct attention. The ability to concentrate is important because it enables an individual to mentally 'buckle down' and stay on a task long enough to make progress and be effective. It also seems to enable an individual to complete tasks more quickly. In children, chronic or acute deficits in concentration could result in valuable time spent in less-than-effective ways. A child too mentally fatigued to concentrate might spend countless hours in front of books and assignments, yet learn very little due to their inability to focus on the task at hand. Indeed, inattentiveness is a significant predictor of academic underachievement (e.g. Mantzicopoulos, 1995; Rowe, 1992).

Inhibiting initial impulses¹ requires overcoming the tendency to jump to conclusions or to act on impulse. It involves overriding one's initial response to a problem or situation, in order to consider alternatives or consider the potential costs and benefits of a course of action. The ability to inhibit initial impulses is important because it gives rise to more prudent and cautious choices, and consequently, more prudent and cautious actions. Chronic or acute deficits in a child's ability to inhibit impulses can have serious, negative long-term repercussions. For example, a child too mentally fatigued to inhibit impulses is more likely to give in to repeated offers of a lit cigarette or other dangerous substance. A diminished capacity to inhibit impulses could also cause a child to accept a dare to jump from one balcony to the next, or to snatch an elderly woman's purse. Consistent with this, impulsivity is consistently linked with risky behavior (Donohew *et al.*, 2000; McCoul, 2000), aggression and violence (e.g. Hynan & Grush, 1986; Markovitz, 1995), and delinquency (Lynam, 2000; Rigby, 1989; White, 1994).

Delaying gratification requires overcoming impatience and the tendency to favor short-term rewards over long-term goals. It involves internalized standards and morals. The ability to delay gratification is important because reaching future goals often requires postponing immediate rewards. It assists the individual in persisting at goal-oriented behaviors for the good of their future. Even a temporary deficit in the ability to delay gratification can have ma-

jor repercussions. For example, a temporary inability to delay gratification might lead a young couple to give in to immediate desires and engage in unprotected sex, rather than wait until they are better prepared. Consistent with this, poor ability to delay gratification is a significant predictor of unplanned pregnancy (Donoghue, 1993; Shaffer *et al.*, 1978).

In sum, concentration, impulse inhibition, and delay of gratification may play pivotal roles in the course of a young person's life. How might these vital forms of self-discipline be enhanced by the presence of natural elements immediately outside the home? We suggest that each of these forms of self-discipline draws on a resource which can be renewed by contact with nature — the capacity for deliberate or self-directed attention. In the next section, we review the literature on how natural settings and views can renew directed attention; we then consider why self-discipline might draw on this resource.

How natural settings and views restore directed attention

Both theory and evidence suggest that the resource underlying our capacity to direct attention can be renewed by contact with nature. Attention Restoration Theory (Kaplan, 1995; Kaplan & Kaplan, 1989) builds on William James' description of attention to provide an explanation for why natural settings and views might be expected to renew this resource. James observed that certain elements in the environment are effortlessly engaging, and draw on what he called involuntary attention: 'strange things, moving things, wild animals, bright things...' (James, 1962, p. 231). For those stimuli and situations that do not effortlessly engage us, he proposed, we draw on a voluntary form of attention, or what S. Kaplan (1995) calls directed attention.

The mechanism underlying directed attention appears to behave like a mental muscle. With prolonged or intense use, the capacity to deliberately direct attention becomes fatigued and performance declines (Cohen & Spacapan, 1978; Glosser & Goodglass, 1990). In *Attention Restoration Theory*, S. Kaplan proposed that stimuli that draw primarily on involuntary attention give directed attention a chance to rest. Further, he noted that natural settings and views appear to draw on involuntary attention; as a consequence, contact with nature should assist in recovery from the fatigue of directed attention.

Evidence in Adults. A number of studies in adult populations support Attention Restoration Theory. Several studies have shown that nature draws upon involuntary attention (e.g. Kaplan, 1973, 1983; Kaplan & Talbot, 1983, Ulrich, 1981). In addition, a number of other studies have shown that exposure to natural environments can be effective in restoring directed attention from fatigue (Canin, 1991, Cimprich, 1990, Hartig *et al.*, 1991; R. Kaplan, 2001; Kuo, 2001; Lohr *et al.*, 1996; Miles *et al.*, 1998; Ovitt, 1996, Tennessen & Cimprich, 1995).

Of the previous empirical studies linking nature and directed attention, three are particularly relevant to the study presented here. These studies focus on residential nature and residential views of nature. In one study, residents randomly assigned to relatively 'green' high-rise apartment buildings scored significantly higher on an objective measure of attention than did residents assigned to relatively 'barren' buildings (Kuo, 2001). In another study, university students with 'all natural' or 'mostly natural' views from their dormitory room windows scored significantly higher on two objective measures of directed attention than did residents with 'mostly built' or 'all built' views (Tennessen & Cimprich, 1995). And in a third study, residents of low-rise apartment buildings with window views of natural elements or settings rated themselves as functioning better on several indices thought to be related to attention restoration (Kaplan, 2001). Thus, there is some reason to think that residential views of nature might prove restorative in this study.

Evidence in children. Numerous studies have linked directed attention to nature and near-home nature in adults; very little research has been conducted with children. Although Attention Restoration Theory does not exclude children and it has been suggested nature might support directed attention in children (Trancik & Evans, 1995), only two empirical studies have examined this possibility. Wells (2000) examined children who moved from poor quality housing to better quality housing in better neighborhoods. Among these children, those whose move involved the greatest increase in nature had the highest rated levels of attentional functioning post-move. Another study provides three additional pieces of evidence about the link between nature and directed attention in children. That study revealed that exposure to nature through green activity settings was related to better attentional functioning (reduced attention deficit symptoms) in a population of children with Attention

Deficit Disorder (Faber Taylor *et al.*, 2001). In that study, parents rated a variety of leisure activities with respect to whether those activities left their child's attention deficit symptoms better than usual, worse than usual, or the same as usual: results indicated that children function better than usual after activities in green settings. Moreover, ratings were higher for those activities conducted in green settings than for those conducted in built outdoor or indoor settings. In addition, the greener a child's usual play setting, the less severe their attention deficit symptoms were rated in general. And most relevant to the current study, several measures of residential greenness were significantly and negatively linked to overall severity of symptoms — but only for girls and not for boys. Multiple potential confounds were evaluated; none could explain the relationships between green settings and better attentional functioning.

In sum, not only do theory and evidence suggest that nature supports directed attention in adults, but there is some evidence that it does so in children as well. Moreover, there is evidence to suggest that near-home nature and residential views of nature can help renew directed attention.

Does self-discipline draw on directed attention?

Might self-discipline draw on directed attention, and hence, be renewed by contact with nature? More than one investigator has proposed that the capacity for self-discipline is a limited but renewable resource (Kuo, 2000; Muraven & Baumeister, 2000). Perhaps it is no coincidence that both what personality psychologists call 'self-control strength' (Muraven & Baumeister, 2000) and what environmental psychologists call 'directed attention' (Kaplan, 1995) are subject to the same patterns of decline and restoration — decline with overuse and renewal with rest. Kuo (2000) has proposed that the mental mechanism that underlies self-discipline and the mental mechanism that underlies directed attention are one and the same.

Although directed attention has been operationalized primarily in terms of effective cognitive performance (e.g. maintaining focus or paying attention, resisting distractions, planning, decision making, remembering things), it is clear from Kaplan's description that the mechanism he proposes may be involved in much more (Kaplan & Kaplan, 1989; Kaplan, 1995). In essence, Kaplan proposes a general control mechanism for directing any of a variety of different forms of mental activity, including thoughts, images, sensations, and

impulses. Thus, the mechanism for directing attention may be involved in the inhibition of any strong-but-unhelpful mental activity in favor of any weak-but-helpful mental activity.

Each of the three forms of self-discipline examined here could plausibly draw on this proposed mechanism. Concentration involves both inhibiting distractions and other task-irrelevant thoughts, and supporting on-task thoughts. Similarly, inhibition of impulses may involve inhibiting initial impulses, blocking out the stimuli that give rise to those impulses, and supporting the consideration of alternatives. And delay of gratification may involve inhibiting impulses, inhibiting unhelpful thoughts and sensations that fan one's desire for immediate gratification (e.g. warm chocolate cake), and supporting thoughts about long term goals (e.g. weight loss).

Consistent with this conception, a number of studies and reviews have linked voluntary or controlled aspects of attention to forms of self-discipline and self-regulation. Mischel and colleagues have shown that children's ability to direct attention away from immediate rewards is pivotal in their ability to delay gratification (Mischel *et al.*, 1972), and that adolescents' attentiveness and ability to concentrate is predicted by their ability to delay gratification as pre-schoolers (Shoda *et al.*, 1990). Two studies have independently linked aspects of attention to more disciplined ways of dealing with anger or conflict (Eisenberg *et al.*, 1994; Kuo & Sullivan, 2001b). In factor analyses of questionnaire data, Rothbart *et al.* (2001) have found a broad effortful control factor, in which attentional focusing clusters with inhibitory control. Posner & Rothbart (2000) review literature suggesting that high-level attentional networks provide the neural basis for self-regulation. And finally, in their review of over 500 books and articles on self-regulation failure, Baumeister *et al.* (1994) conclude that loss of control over attention is a key factor in self-regulation failure.

This study

If nature renews directed attention in children, and if directed attention is indeed involved in self-discipline, as we suggest, then children's self-discipline should be strengthened by contact with nature. This study examined whether near-home nature is related to three forms of self-discipline in both girls and boys. Specifically, we asked

- *Do residential views of nature enhance children's concentration?*

- *Do residential views of nature enhance children's inhibition of initial impulses?* and
- *Do residential views of nature enhance children's delay of gratification?*

This study breaks new ground in two respects. First, previous research has linked concentration to nature empirically, but only in adults with normal attentional functioning and in children with compromised attentional functioning. This study is the first to examine the relationship between nature and concentration in a sample of children with normal attentional functioning. And second, although nature and concentration have been linked in some populations, neither impulse inhibition nor delay of gratification have been linked to nature in any population. The findings of two studies (Kuo & Sullivan, 2001b; Kuo, 2001) are consistent with a link between nature and self-discipline, but neither of these studies directly examined impulse inhibition or delay of gratification.

To examine the relationship between residential views of nature and concentration, impulse inhibition, and delay of gratification in children, we conducted one-on-one tests and interviews with a sample of inner city girls and boys and their mothers. Objective performance measures were used to assess children's concentration, inhibition of initial impulses, and delay of gratification. Mothers' ratings were used to assess the naturalness of views from home.

Methods

Site and design

The site was Robert Taylor Homes, a large public housing development in Chicago, Illinois, USA. At the time of this study, Robert Taylor Homes (RTH) comprised 28 16-story buildings. It had over 12,000 official residents, of whom 31% were children between 5 and 14 years old (CHA, 1995). Almost all of the heads of household (99.7%) were African-American and most (75%) received Aid to Families with Dependent Children (CHA, 1995).

The physical characteristics of RTH help make it an optimal site for studying the effects of near-home nature. When the development was built in the 1960s, trees and grass were planted in the common spaces next to every building. Over the years, for reasons of reducing maintenance and dust, grass in most of the spaces was replaced with pavement, causing many of the trees to die and subsequently be removed. This attrition has left some buildings

barren and others with pockets of green. While the amount of nearby nature varies from building to building, the buildings themselves are nearly identical in architecture, layout, size, and number of residential units. Thus, many would-be confounds are held constant at RTH, allowing for clean comparisons of the effects of near-home nature.

The social characteristics of RTH also help make it an optimal site for studying the effects of near-home nature. The housing assignment practices of Chicago Housing Authority result in *de facto* random assignment of residents to buildings, and residents are not involved in landscaping decisions or maintenance. Previous research at this site with a different sample of residents found no systematic relationships between levels of vegetation outside apartment buildings and residents' age, education, marital status, work status, income, Aid to Families with Dependent Children status, number of children at home, length of residence, or numerous other factors (Kuo & Sullivan, 2001a).

Participants and procedures

To boost rapport between the participants and interviewers, we hired and trained residents of RTH as interviewers. The four interviewers were African-American women between 30 and 45 years old. Each had achieved at least a high school diploma. The interviewers received 40 hours of training in interviewing and administering objective performance measures from our staff and the National Opinion Research Center.

In order to minimize distractions to interview participants during the interview, we also hired and trained residents to serve as child-care providers. Child care providers accompanied the interviewers to the interviews and kept any children in the apartment who were not being interviewed safe and entertained. All child care providers were at least 18 years old and were completing or had completed high school.

Twelve apartment buildings with varying amounts of vegetation were sampled; we excluded buildings adjacent to parks, police stations or other relatively unique features. Within the selected buildings, sampling was limited to the 2nd, 3rd, and 4th floors because those floors provide residents maximal views of the trees and grass outside their building; there are no residences on the ground floor.

To recruit participants, flyers were posted and interviewers canvassed door-to-door. Interviewers did not canvas or interview in the building in which they lived, and they were instructed not to inter-

view anyone with whom they were acquainted. Parent-child pairs were invited to participate in a University of Illinois study about 'the physical environment of the neighborhood and how it affects mothers and children.' Any 7–12 year old child and their mother or primary caregiver was eligible to participate, so long as they had been residents of RTH for at least a year. Potential participants were told that they could refuse to answer any question, and could stop the interview at any time. Adults received \$10 and children received a small gift at the completion of the interview.

Of the eligible adult-child pairs approached, 169 of 174 agreed to participate — a 97% response rate. Ninety one of the child participants were boys; 78 were girls. Both the boys' and girls' mean ages were 9.6 years old (ranges 7.7–11.7 and 7.7 to 12.2 years old, respectively). All participants were African-American.

Interviews and testing were conducted in participants' apartments at the kitchen table. Adult interviews and testing typically lasted a little more than an hour. Child interviews and testing typically lasted 45 minutes.

Measures

We measured near-home nature and three types of self-discipline: concentration, inhibition of initial impulses, and delay of gratification.

Near-home nature. Near-home nature was assessed by asking the adult participants to rate the views from their apartment windows. Ratings in response to two items were combined: 'How much of the view from your window is of nature (trees, plants, water)?' and 'How much of your view from your window is man-made (buildings, street, pavement)?' (reverse-scored). Each item was rated on a five-point scale, from 0 'not at all' to 4 'very much.' Figure 1 shows barren and green areas immediately outside RTH apartment buildings.

Concentration. Concentration was assessed using four tasks. These tasks have previously been used as measures of attention or concentration: Symbol Digit Modalities Test (Cimprich, 1992, Lezak, 1983; Smith, 1968), Digit Span Backwards (Cimprich 1992; Wechsler, 1955), Alphabet Backwards (Cimprich, 1992), and Necker Cube Pattern Control (Cimprich, 1990; Schwartz, 1994; Tennessen & Cimprich, 1995). Phenomenologically, each of these tasks is characterized by the effortful use of attention or paying attention.



FIGURE 1. Views of near-home nature vary from apartment to apartment at Robert Taylor Homes.

In Symbol Digit Modalities (SDM), the participant substitutes numbers for nine geometric symbols, including three mirror image pairs, as quickly as possible (Smith, 1973). Scores on SDM were the number of correct substitutions in a 90-s period. One participant's score was more than 2 S.D. higher than the next highest score; this outlier was excluded from further analysis.

In Digit Span Backwards (DSB), the participant listens to a sequence of numbers two to eight digits long and then repeats the sequence aloud in reverse order (Wechsler, 1955). Scores on DSB were the longest number of digits repeated correctly before two consecutive failed trials.

In Alphabet Backwards (ABK), the participant recites the alphabet backwards beginning with a specified letter (e.g. the letter u) (Cimprich, 1992). In this study, three trials were given; scores were the average number of letters recited in correct (reverse) sequence divided by the average time spent reciting them (i.e. the average speed with which the participant could recite the alphabet backwards).

In Necker Cube Pattern Control (NCPC), the participant attempts to mentally 'hold on to' one interpretation of an ambiguous stimulus (Tennessen & Cimprich, 1995). First, the participant stares at a three-dimensional line drawing of a cube for 30 s, signaling each time the front and back faces appears to reverse. Then, the participant tries to mentally 'hold the cube still' or inhibit it from reversing for 30 s, signaling each time the faces reverse. Scoring for this measure was the percent reduction in the number of reversals from the first task — letting the cube reverse freely — to the second task — holding the cube still. Scores were based on performance of the two tasks after a practice trial.

Scores on SDM, DSB, ABK, and NCPC were standardized and averaged to create a summary index of

concentration. Z-scores were used because the four tasks were scored on very different scales.

Inhibition of initial impulses. Inhibition of initial impulses was assessed by combining scores on three established measures of impulsivity or impulse inhibition: Matching Familiar Figures Test (e.g. Welsh *et al.*, 1991; Brown & Quay, 1977; Kagan, 1966), Stroop Color-Word Test (Boucugnani & Jones, 1989; Davies *et al.*, 1984; Dyer, 1973), and Category Matching (Melnik & Das, 1992). Each of these tasks tends to evoke an initial response that is incorrect or very likely to be incorrect. In each of these tasks, good performance requires avoiding the initial incorrect response in order to discern the correct response.

In Matching Familiar Figures (MFF), the participant is presented with a target figure and a set of six alternatives; the task is to select the single alternative that exactly matches the target figure (Kagan, 1966). Because all the alternatives all look the same at first glance, participants must be careful in evaluating them. For each trial, the number of erroneous choices a participant makes before selecting the correct alternative is recorded. In this study, a participant's score on the measure was the total number of errors over 12 trials. MFF has been found to be a reliable measure: reliability for total number of errors ranges from 0.62 (Block *et al.*, 1974) to 0.78 (Cairns & Cammock, 1978). Matching Familiar Figures has also been found to be a valid measure of impulsivity (Brown & Quay, 1977; although *cf.* Block *et al.*, 1974).

In the Stroop Color-Word Test (Stroop), the participant is given a sheet of paper with 50 color names presented in rows (Dodrill, 1978). Each color name is printed in incongruent ink colors; e.g. the word *red* might be printed in green ink. The participant is first asked to read each of the words on the page aloud, and then asked to name the *ink color* of each

word on the page. The challenge of this task is to avoid the initial impulse to read the words rather than name the ink colors. In this study, a participant's score was the number of ink colors named correctly on first attempt.

In Category Matching (CM), the participant is presented with a sheet containing 84 pairs of icons (Schwartz, 1994; adapted from Melnyk & Das, 1992). The participant evaluates pairs of icons, attempting to circle only those pairs in which the two icons belong to the same conceptual category. Twenty-one of the pairs are target pairs, while the remaining 63 are distractor pairs. The challenge of this task is in resisting the impulse to circle pairs in which the icons are similar in form but not in conceptual category. A participant's score was the number of pairs evaluated in 30 s less any errors.

We created a summary index of inhibition of initial impulses by averaging the *z*-scores of MFF (reverse-scored), Stroop, and CM.

Delay of gratification. A version of Rodriguez *et al.*, (1989) task was used to assess children's capacity to delay gratification. In this task, the challenge is to resist an immediate, smaller reward in favor of a delayed but larger reward. The participant is first asked which of two kinds of candy they prefer. Then, they are shown a very large and a very small bag of their preferred candy, and told that if they can wait long enough, they can have the larger bag; otherwise, they will receive the smaller bag. The test administrator then instructs the child to wait quietly with their eyes closed and leaves the room, taking the candy with her (*cf.* Rodriguez *et al.*, 1989). Scores on this task were the total time waited, with a maximum score of 15 min.

Results

Results are presented in four parts. We begin by presenting preliminary analyses suggesting that the relationship between near-home nature and self-discipline should be examined separately by gender. We then examine relationships between near-home nature and self-discipline for girls and boys. Finally, we address the potential role of age differences in the relationship between nature and self-discipline.

Preliminary analyses: should girls and boys be analyzed separately?

Previous research has hinted at gender differences in the effects of near-home nature on children (Faber Taylor *et al.*, 2001). To determine whether the effects of near-home nature on self-discipline would best be analysed separately for girls versus boys, we conducted a number of preliminary analyses.

First, we used independent *t*-tests to examine gender differences in self-discipline. Did the girls and boys in this study differ in their performance on the three forms of self-discipline? As Table 1 shows, there are gender differences on each of the three forms of self-discipline tested, with girls outperforming boys on two forms and boys outperforming girls on the third. Girls' scores are significantly higher on concentration and marginally significantly higher on impulse inhibition ($p=0.08$); boys' scores are significantly higher on delay of gratification.

These findings suggest that it would be prudent to take gender into account in testing for links between nature and self-discipline. To do so, we conducted 2×2 factorial ANOVAs examining the

TABLE 1
Means, standard deviations, and mean comparisons between girls and boys on measures of self-discipline

	Means		Standard Deviations		<i>t</i>	<i>p</i>
	Girls [¶]	Boys ^{**}	Girls	Boys		
Concentrating*	0.15	-0.12	0.58	0.52	3.24	<0.01
Inhibiting impulses [†]	0.09	-0.09	0.69	0.62	1.79	0.08
Delay of gratification [‡]	358	454	309	325	-1.95	0.05
Self discipline [§]	0.03	-0.02	0.53	0.48	0.65	ns

*Concentration summary=average of *z*-scores on four constituent measures

[†]Inhibition of impulses summary=average of *z*-scores on 3 constituent measures

[‡]Delay of gratification scores=total time waited in seconds

[§]Self-discipline summary=average of three *z*-scores: concentration summary, inhibition summary, and delay of gratification.

[¶]*n*=78

^{**}*n*=91

effects of gender and nature on self-discipline. In particular, we were interested in whether any effects of nature might be moderated by gender. Indeed, consistent with previous research, gender by nature interactions emerged for each of the three forms of self-discipline. Findings indicated that girls differed from boys significantly in the effect of near-home nature on concentration, $F(1,165)=5.7$, $p<0.05$, and delay of gratification, $F(1, 165)=5.4$, $p<0.05$. Girls differed from boys marginally significantly in the effect of nature on impulse inhibition, $F(1,165)=3.6$, $p=0.06$.

Accordingly, we examined the relationships between near-home nature and each of the three forms of self-discipline separately for girls and for boys.

Near-home nature and self-discipline in girls

Concentration. If near-home nature enhances this form of self-discipline in girls, we might expect girls with greener views to perform better, overall, at Symbol Digit Modalities, Alphabet Backwards, Necker Cube Pattern Control, and Digit Span Backwards. We used a simple OLS regression to examine the relationship between parent-rated naturalness of apartment view and a summary index of these four measures of concentration.

Do girls with greener views perform better at tests of concentration? Yes. On average, the greener a girl's view from home, the better she concentrates. As Figure 2 shows, there is a strong positive linear relationship between naturalness of apartment view and girls' performance on the summary index of concentration, $F(1,76)=10.9$, $p<0.01$, and each of the constituent measures echo this pattern. For each

scale point difference in rated greenness of view (for example, from 0 'not at all' to 1 'a little'), performance increases by roughly a quarter of a standard deviation, $\beta=0.233$. Greenness of view explains approximately one-eighth of the variance in concentration scores, $R\text{-squared}=0.126$.

Inhibition of initial impulses. If near-home nature enhances this form of self-discipline in girls, we might expect girls with greener views from home to perform better, overall, at Matching Familiar Figures Test, Stroop Color-Word Test, and Category Matching. We used a simple OLS regression to examine the relationship between naturalness of apartment view and a summary index combining these three measures of impulse inhibition.

Do girls with greener views perform better at tests of impulse inhibition? Yes. On average, the greener a girl's view from home, the more effective she is at inhibiting impulses. As Figure 3 shows, there is a positive relationship between naturalness of view and girls' performance on the summary index of these three measures; and again, the constituent measures echo this pattern. Naturalness of apartment view significantly and positively predicts impulse inhibition, $F(1, 76)=3.8$, $p=0.05$. Greenness of view explains roughly 5% of the variance in impulse inhibition scores, $R\text{-squared}=0.048$, with a β of 0.172.

Delay of gratification. If near-home nature enhances this form of self-discipline in girls, we might expect girls with greener views from home to perform better on the Mischel delay of gratification task.

Are girls with greener views more able to resist the temptation of an immediate-but-smaller reward?

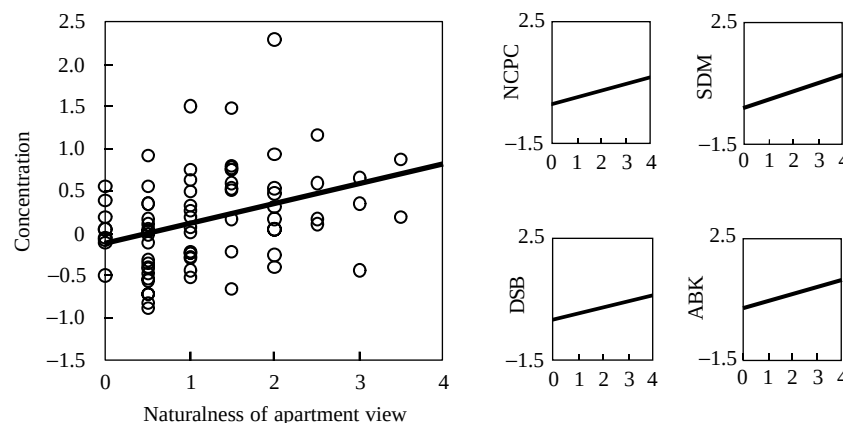


FIGURE 2. OLS regression of naturalness of view on the summary measure of girls' concentration (left) and its four constituent measures. All scores are standardized.

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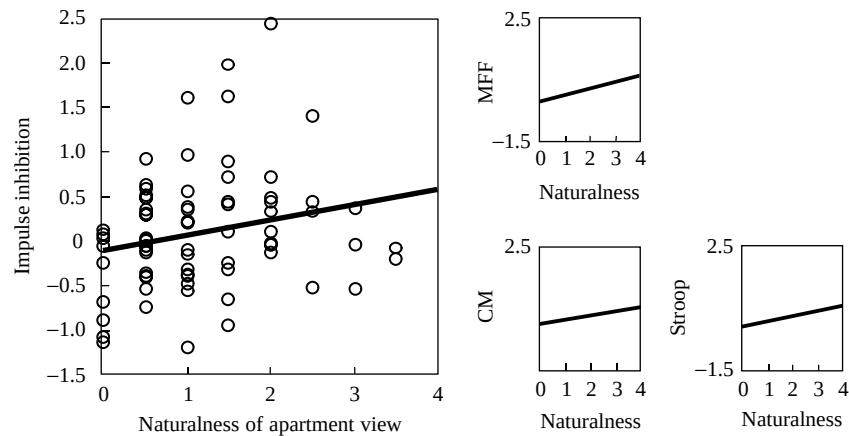


FIGURE 3. OLS regression of naturalness of view on the summary measure of girls' impulse inhibition (left) and its three constituent measures. All scores are standardized.

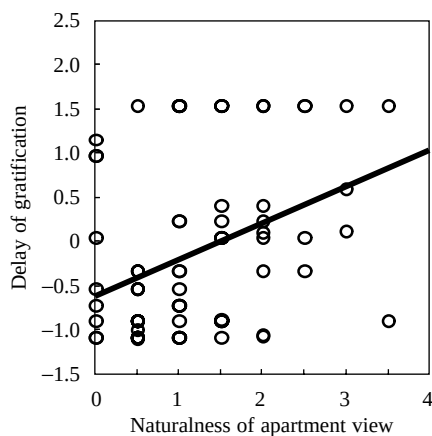


FIGURE 4. OLS regression of naturalness of view on girls' delay of gratification. Delay of gratification scores are standardized.

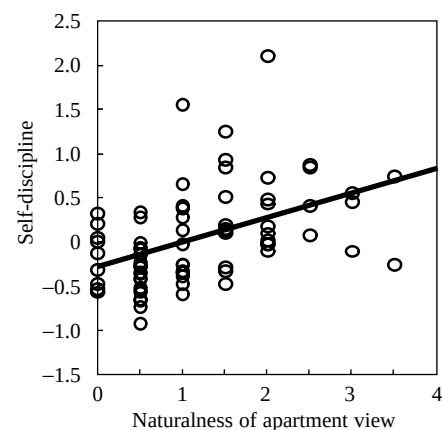


FIGURE 5. OLS regression of naturalness of view on the summary measure of girls' self-discipline. Self-discipline scores are standardized.

Yes. On average, the greener a girl's view from home, the longer she is able to delay gratification. As Figure 4 shows, there is a strong positive relationship between naturalness of view and performance on this task. Naturalness of apartment view significantly and positively predicts delay of gratification, $F(1, 76) = 12.7, p < 0.001$. For each point difference in rated greenness of view (for example, from 0 'not at all' to 1 'a little'), performance increases by almost half of a standard deviation, $\beta = 0.417$. Greenness of view explains roughly one-seventh of the variance in impulse inhibition scores, $R\text{-squared} = 0.143$.

Combined self-discipline measure. To further test the relationship between near-home nature and girls' self-discipline, we created a single index combining scores on the three forms of self-discipline. Do girls

with greener views perform better, overall, on these three forms of self-discipline? Yes. As Figure 5 shows, view from home strongly and positively predicts girls' scores on this combined measure, $F(1, 76) = 19.4, p < 0.0001$. On average, the greener a girl's view from home, the better she scores overall on different forms of self-discipline; for each point difference in greenness of view, scores increase by roughly a quarter of a standard deviation, $\beta = 0.274$. Greenness of view explains roughly one-fifth of the variance in self-discipline scores, $R\text{-squared} = 0.203$.

Near-home nature and self-discipline in boys

Table 2 summarizes the findings for the relationship between near-home nature and self-discipline by

gender. As a comparison between the left and right halves of the table shows, the findings for boys stand in startling contrast to the findings for girls. Whereas girls show consistent and often strong links between near-home nature and various forms of self-discipline, boys show only the barest hint of such a link. Beta coefficients for boys hover around zero for concentration, delay of gratification, and the combined self-discipline measure. For impulse inhibition, boys' scores show a slight tendency to increase with naturalness of the view from home, $\beta = 0.116$, but this relationship is not significant, $p = 0.13$.

Age, near-home nature, and self-discipline

To address the potential role of age in this study, we conducted 2×2 factorial ANOVAs (age $\times$ nature) for concentration, impulse inhibition, and delay of gratification. Girls' scores and boys' scores were analysed separately. Findings for girls showed, not surprisingly, a main effect for nature view for each of the three forms of self-discipline. Girls' concentration showed a main effect of nature view, $F(1, 74) = 17.3$, $p < 0.0001$, as did girls' impulse inhibition, $F(1, 74) = 4.9$, $p < 0.05$ and girls' delay of gratification, $F(1, 74) = 8.6$, $p < 0.01$. There was no significant main effect for age, nor was there a significant interaction between age and nature for any of the three forms of self-discipline.

Findings for boys showed, again, no main effect for nature view for any of the three forms of self-discipline. There was a hint of a main effect of age on concentration, $F(1, 74) = 2.8$, $p = 0.10$, but there were no other significant effects for age on other forms of self-discipline, and no significant interactions between age and nature for any of the measures.

These results indicate that the basic findings of the study do not change when age is taken into account: for girls, near-home nature is consistently linked to self-discipline; for boys, near-home nature is not linked to self-discipline.

Discussion

This study tested for possible links between near-home nature and children's self-discipline, more specifically their capacities for concentration, impulse inhibition, and delay of gratification. Because preliminary analyses indicated gender differences — and, more importantly, interactions between gender and nature — for each of these three forms of self-discipline, we examined the relationship between nature and self-discipline separately for girls and boys.

For girls, views of near-home nature were systematically related to each of these three forms of self-discipline. Girls' performance on each of the following measures was significantly and positively related to nature: a summary measure of concentration (based on Symbol Digit Modalities, Alphabet Backwards, Necker Cube Pattern Control, and Digit Span Backwards); a summary measure of impulse inhibition (based on Matching Familiar Figures, Stroop Color-Word Test, and Category Matching); Mischel's delay of gratification measure; and an index combining the three forms of self-discipline. Differences in girls' near-home nature explained 20% of the variance in overall self-discipline scores.

Findings for boys stood in striking contrast to those for girls. Whereas girls showed significant, positive relationships between near-home nature and each of the outcome measures, boys showed no significant relationships between near-home nature and any of the outcomes. What might account for these gender differences?

One possibility seems promising at first, but becomes less plausible on further inspection — that nature restores directed attention in girls but not boys. First, there is no a priori theoretical reason to expect these effects to be limited to girls. Attention Restoration Theory (Kaplan & Kaplan, 1989; Kaplan, 1995) would suggest that nature supports directed attention in any individual with an intact attentional system. And consistent with this, the empirical work with adults suggests that the

TABLE 2
OLS regression summaries for naturalness of apartment view on measures of self-discipline for girls and boys.

	Girls (78)				Boys (91)			
	R^2	beta	F	p	R^2	beta	F	p
Concentrating	0.13	0.23	10.9	0.001	0.01	0.07	1.2	ns
Inhibiting impulses	0.05	0.17	3.8	0.05	0.01	0.12	2.3	0.13
Delay of gratification	0.14	0.42	12.7	<0.001	0.00	-0.03	0.6	ns
Self discipline	0.20	0.27	19.4	<0.0001	0.01	0.05	0.7	ns

nature-directed attention relationship is true for both males and females (Canin, 1991; Cimprich, 1990; Hartig *et al.*, 1991; Lohr *et al.*, 1996; Miles *et al.*, 1998; Ovitt, 1996; Tennessen & Cimprich, 1995). It is difficult to imagine why nature would affect directed attention in women, men, and girls, but not boys.

Another possible explanation for the lack of relationship between near-home nature and self-discipline in boys seems more promising. That is, perhaps boys are affected by contact with nature in just the way that girls are, but boys have relatively less contact than girls with the nature immediately outside their homes. Studies that have geographically mapped children's play have found that boys typically play farther from home than girls (Hart, 1979; Sobel, 1993); for reviews see Moore & Young, (1978), Wohlwill and Heft (1987). Perhaps boys are unaffected by near-home nature simply because they spend time elsewhere. Consistent with this, findings from a previous study indicated that boys' attentional functioning was not related to the level of nature immediately around their home, but was related to the level of nature in their usual play space (Faber Taylor *et al.*, 2001). Future research should examine the relationship between levels of nature in boys' most typical play spaces and their self-discipline.

The findings in boys notwithstanding, the overall pattern of findings in this study strongly suggests a link between near-home nature and concentration, impulse inhibition, and delay of gratification in girls.

Alternative interpretations

To what extent do the links between near-home nature and these forms of self-discipline reflect a causal relationship between nature and self-discipline? While definitively showing a cause and effect relationship requires a true experimental design, we can begin to address some possible alternative interpretations here.

One possible alternative interpretation for the current findings might be that self-discipline is linked to near-home nature, but not because nature enhances self-discipline. That is, perhaps some form of self-selection is operating: perhaps more effective, more self-disciplined parents find ways to be assigned to greener apartments, or they find ways to create greener surroundings, or the Chicago Housing Authority assigns 'better' prospective tenants to greener buildings. Chicago Housing Authority policies work against each of these possibilities. Apart-

ment assignment policies result in de facto random assignment of residents with respect to levels of nearby nature at RTH. Furthermore, on-going landscape maintenance at RTH is handled by a small landscaping crew; residents are not involved in maintenance and funds are inadequate to fulfill special requests from residents. Thus it seems unlikely that any of these forms of self-selection are taking place. Moreover, it is not clear why, if 'better' parents self-select into, or create, or are assigned to greener apartments, their superior qualities would be reflected only in their daughters.

Another possible interpretation might be that more self-disciplined children actually have the same levels of near-home nature as their less self-disciplined counterparts, and the link between self-discipline and high greenness ratings is an artifact. For example, perhaps more self-disciplined, more effective parents tend to have better lives and be in more positive moods than their less effective counterparts, and these positive moods lead them to be more agreeable, thus leading them to endorse items more highly – including their greenness ratings. Consistent with this, previous research has found links between mood and suggestibility (Tata & Gudjonsson, 1990). However, two considerations render this possibility implausible. First, the measure of naturalness of view in this study was composed of two items, one of which was reverse-scored. To the extent that positive moods induced residents of greener buildings to endorse all items more highly, the inflation in the reverse-scored item should balance the inflation of the positively scored item. And second, again, it is not clear how this explanation could account for the mothers of girls, but not boys, giving higher greenness ratings.

A third possible alternative interpretation might involve some form of experimenter demand. Might the interviewers have somehow influenced mothers with high-performing children to give greener ratings? Alternatively, might they have influenced children from greener buildings to score higher? Although these possibilities cannot be ruled out entirely, neither seems likely. The test administrators did not know the hypothesis of the study and thus would not know which mothers or children to influence, or in what direction to influence them. And yet again, it is not clear how this interpretation could account for the lack of relationship between nature and self-discipline for boys.

In sum, the links between nature and self-discipline found here do not appear to be simple artifacts of self-selection, systematic biases in assignment of participants to conditions, mood-

elevated nature ratings, or experimenter demand. Nonetheless, a causal relationship between nature and enhanced self-discipline — even for girls — remains to be substantiated.

Contributions to the literature

By documenting a systematic, positive link between near-home nature and three forms of self-discipline in girls, this work contributes to the research on the benefits of nature in three ways.

First, the results underscore the potential importance of views of nature. Previous research has shown that a variety of positive outcomes are associated with views of nature in adults in a variety of settings. In residential settings, views of nature have been linked to residential satisfaction, enhanced well-being, more effective patterns of coping, and greater day-to-day effectiveness (Kaplan, 1985, 2001; Kuo, 2001; Tennessen & Cimprich, 1995) respectively. In workplaces, views of nature have been linked to job satisfaction and well-being (Kaplan, 1993); in prisons, to decreased demand for health care services (Moore, 1981); and in hospitals, to faster recovery from surgery (Ulrich, 1984). The findings here add to a growing body of evidence suggesting that views of nature are no mere amenity.

Second, this work contributes to our understanding of the benefits of nature for children. Specifically, the findings from this study combine with the findings from a previous study to suggest that attentional restoration may be an important and universal benefit of nature for children. The current study links nature and superior attentional functioning in a sample of extremely low-income, attentionally normal African American children. The previous study linked nature and better attentional functioning in a primarily middle and upper-income, predominately European American sample of children with Attention Deficit Disorder (Faber Taylor *et al.*, 2001). Together, the two sets of findings suggest the possibility of a nature-attention link that generalizes across socioeconomic status, race, and attentional status, as well as different levels of residential greenness — from the most barren of public housing grounds to the lushest of backyards in wealthy neighborhoods.

Perhaps the most important contribution of this work is to identify two new benefits of nature. Previous research on a nature-directed attention relationship has focused primarily on cognitive outcomes, especially the capacity to pay attention or concentrate. Although previous findings linking nature and reduced aggression are certainly consis-

tent with the hypothesis that nature enhances self-discipline (Kuo & Sullivan, 2001b), to our knowledge, this is the first study to systematically document a link between nature and less cognitive forms of self-discipline, specifically impulse inhibition and delay of gratification. Failure to inhibit impulses can have both immediate consequences and important long-term implications for an individual; similarly, a pattern of failure in the delay of gratification may substantially alter the course of an individual's life and their chances of success in a variety of domains. For example, previous research has indicated that children's ability to delay gratification predicts their academic achievement, social competency, and ability to cope with frustration and stress in adolescence (Mischel *et al.*, 1988). If near-home nature can provide a daily, easily accessible means of supporting impulse inhibition and delay of gratification in a setting where individuals are likely to be chronically mentally fatigued (Kuo, 1992), the implications for individuals, families, and society may be enormous.

This study underscores the potential importance of views of nature, extends previous research on attentional restoration in children to a very different population and setting, and introduces two potential new benefits of nature: enhanced impulse inhibition and delay of gratification. The findings have a number of implications for practice.

Implications for practice

These findings help reinforce the importance of incorporating trees and grass in spaces for children. One implication of this research concerns the design of public housing developments. As a large proportion of urban public housing residents are children (in Chicago family housing in 1995, for example, roughly 60% of residents were 19 years old or younger; roughly 50% were 14 or younger, CHA, 1995), these findings argue for the potential importance of incorporating trees and grass around public housing apartment buildings. Moreover, these findings suggest that designers of public housing should consider more than just ground-level views of common spaces when placing trees and grass; it may be helpful to place trees and grass strategically within view from the surrounding apartments. Along the same lines, the findings here suggest that, in suburban areas and on the urban-rural fringe, the practice of constructing treeless residential developments may have important unintended costs. Previous work has suggested that the urban forest may be a vital part of children's

living environments (Faber Taylor *et al.*, 2001; Faber Taylor *et al.*, 1998); the work here reinforces that notion.

Another implication of this research concerns the design of schoolyards. These findings raise the possibility that incorporating trees and grass in schoolyards could play an important role in the classroom. Perhaps after spending breaks in green schoolyards, children return to their classrooms better prepared to pay attention, to suppress disruptive impulses, and to wait patiently for future breaks. Again, strategic placement may be important here. It may be that an occasional long glance out a classroom window helps support a child's capacity for self-discipline throughout the school day. Perhaps greater benefits from a given investment in landscaping can be obtained by placing vegetation to maximize views of trees and grass through classroom windows.

We close by noting the implications of this study for helping inner city children negotiate the many risks of urban poverty. The findings here suggest that the barrenness of inner city neighborhoods may contribute to lower levels of self-discipline and, potentially, to higher rates of negative outcomes in inner city children. In this study, the greener a girl's view from home, the better her performance on measures of concentration, inhibition of impulses, and delay of gratification. These three forms of self-discipline may play key roles in the likelihood of such negative outcomes as academic underachievement, juvenile delinquency, and teenage pregnancy. Perhaps when housing managers and city officials decide to cut budgets for landscaping in inner city areas, they deprive children of more than just an attractive view. Neglecting landscaping may deprive inner city children of a much needed resource for self-discipline – for the psychological capacities that lead to a brighter future.

Notes

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Urbana-Champaign. We are grateful for the work done by Dr. Angela Wiley in hiring, training, and supervising interviewers and child care providers, and coordinating and supervising the data collection. We thank the interviewers, child care providers, and the residents of Robert Taylor Homes for their participation, and Chicago Housing Authority for their assistance in the data collection for this research. We are also grateful to Dr. Stephen Kaplan for his helpful suggestions regarding terminology. Correspondence concerning this article should be addressed to Andrea Faber Taylor, Human Environment Research Laboratory, University of Illinois, 1103 S. Dorner Dr., Urbana, IL 61801, U.S.A. E-mail: afabtay@uiuc.edu

¹'Inhibiting initial impulses' has also been labeled 'inhibiting prepotent responses' (Logan *et al.*, 1997).

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Nature and Self Discipline

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SEP 12 2018

ITEM: 7.1 UCS2018-1020
Rec'd for Corp Record
CITY CLERK'S DEPARTMENT

- Thank you Chair and Councillors for having me today.
- I'm here today as the President of the Board of Calgary Wildlife Rehabilitation Society.
- For those of you who are not already familiar with our charitable non-profit, we have been fulfilling an essential service for the City of Calgary and its citizens for the past 25 years by rehabilitating our local injured and orphaned wildlife.
- To give you an idea of the positive impact we have on the City and its goal of creating a Healthy and Green City allow me to break down our work by the numbers:
 - Each year we service upwards of 2,200 wildlife patients - the majority of which are brought to us by concerned citizens with injuries resulting from human impact and an expanding city. Injuries are often caused by Calgary Transit, garbage, pets, tree pruning, window strikes, development, and barbed wire.
 - Despite the high volume of patients we maintain one of the highest release rates in North America at 43%.
 - We produce these results with a small core team of employees and approximately 150 volunteers.
 - Each year we also answer over 500 inquiries that come to us through our social media channels as well as over 10,000 calls from Calgarians a year, many of which are directed to us by the City's 311 service.
 - In addition to rehabilitating wildlife we also educate over 5,000 Calgarians a year through over 200 education programs about how to live safely and harmoniously with our local wildlife to ensure a healthy, green and safe city.
 - And we do all of this on a shoestring budget of less than 350,000 dollars a year.
- I would also like to highlight that our services are fully regulated by Alberta Environment and Parks and the Federal Government which is what allows us to interact with local wildlife in ways that up to this point would be illegal for City staff, citizens and other departments such as Calgary Police Service and the Fire Department. We have also had a friendly and productive relationship with both City Administration and Councillors over the years often consulting on wildlife topics that contribute to maintaining the biodiversity of our city.
- Additionally people are sometimes surprised to learn that we run a fully accredited wildlife veterinary hospital.

- Calgary Wildlife Rehabilitation Society is a key component to maintaining healthy biodiversity in Calgary despite the ongoing and increasing impact our growing city has on its local wildlife. We contribute to maintaining a vibrant and attractive city by helping to ensure a vibrant and attractive local wildlife population, which is directly linked to creating psychologically healthier societies, happy citizens and a thriving economy.
- We often receive feedback through various channels about our work and impact from Calgarians from Wards across the City. I'd like to share a few verbatims to give you another perspective on the impact we have:
 - Verbatim 1: "CWRS ignites children's curiosity about nature, science and the environment and helps them become adults who understand the critical choices they will need to make in their own lives to protect our wildlife for future generations."
 - Verbatim 2: "I am grateful to CWRS for giving me a community of like-minded souls, teaching us how to co-exist with wildlife, and, most importantly, helping wild animals in need. I have found Calgary is an incredible place to live. To me, CWRS, and the wildlife it endeavours to sustain, are true expressions of what is great about the city."
 - Verbatim 3: "We are all stewards of this world, stewards of nature and the environment and we have a responsibility not to just look after ourselves but look after the environment. What they do at CWRS is part of that."
 -
- Like many nonprofits the economic climate of Calgary has made it exceedingly difficult for us to maintain the essential service we provide to the City in light of declining donations. While we are grateful for the bridge financing the City has provided to the CWRS the past two years, in order to plan for the future and effectively operate we ask that the City consider us in the budget planning to make room for ongoing, sustainable and long-term funding - allowing us to help the City achieve their mandate of creating a healthy and green city.
- Thank you for your time.

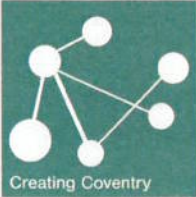
Notes:

Revenue

- 42% donations
- 34% gov grants
- 12% in kind
- 8% education
- 2% membership

Expenses

- 56% vet services
- 23% education and development
- 20% administration
- 2% facility costs



Creating Coventry

Creating Coventry is a community-driven plan to improve and connect our neighbourhood's parks.

It is a collaboration between community residents, the Northern Hills Community Association and Vivo for Healthier Generations.

 creatingcoventry@gmail.com  [@creatingcoventry](https://www.facebook.com/creatingcoventry)

UCS-12Sep2018-Public-Comment

Good Morning

I'm Moraig McCabe, resident of Coventry Hills and creator of the volunteer led Creating Coventry project. Thank you for giving me an opportunity to let you know what matters to me, and how important our local park network is to communities.

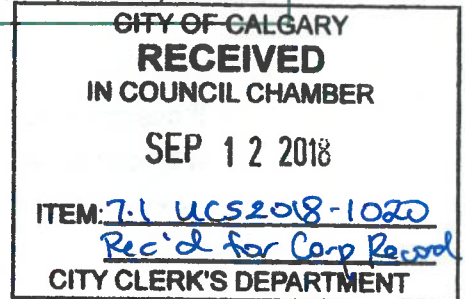
Living in the Northern Hills, we are lucky to have access to many local green spaces, whether that be a soccer field, a natural, green corridor, or a network of smaller parks and playground spaces.

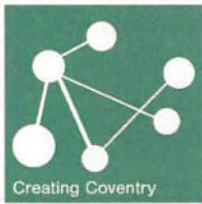
Parks are more than just green spaces that look nice. These green spaces are vital to the health and wellbeing of the residents, and allow us to:

- Connect with one another, making our neighbourhoods safer.
- Learn how to grow food and eat well, through volunteer run community gardens and the healthy eating education sessions they run.
- Get active and exercise, whether that be in a community or City organized activity, or by more spontaneous play.

This is especially important for the many in our area who don't quite qualify for the low-income recreation passes, or those who can't get in to the oversubscribed classes at Vivo.

- Improve our air quality, by virtue of the trees and plants (as a previous speaker mentioned).
- Help protect our pollinators, through corridors designed to help them traverse our city's network of roads and built up spaces.





Creating Coventry is a community-driven plan to improve and connect our neighbourhood's parks.

It is a collaboration between community residents, the Northern Hills Community Association and Vivo for Healthier Generations.



creatingcoventry@gmail.com



@creatingcoventry

If designed well, then these naturalized green spaces within our parks, with native wildflowers, also help to reduce watering and maintenance costs for the City, through the use of water-wise and environmentally tolerant plantings instead of grass.

I'm here today because I'm concerned about the proposed cuts to the Parks Capital budget.

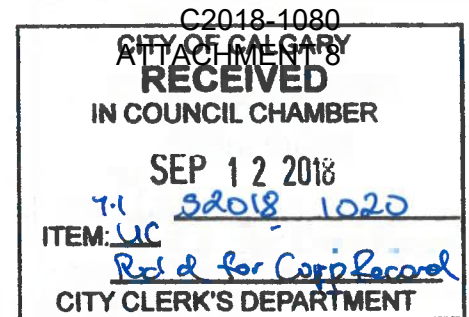
As some of you are aware, communities like Coventry Hills and Beddington are working on plans in partnership with Parks to help to replace many of the ubiquitous developer-installed tot lots with resident chosen alternatives. Many of these alternatives are designed to be more inclusive and actually cheaper than spending \$75K on a replacement tot lot, that has the same equipment as all the others. The community led plans have been designed to make the network cheaper to maintain, while still providing more of the things residents want.

Communities and volunteers are happy to help, but we can't do it all ourselves – we need help from the City.

Without the help and vital partnership of all the various specialists at Parks, from our local representative to ecologists for our planned pollinator pods, and the capital budget which provides in-kind services for rebuilding parks, benches and more; without funds that community organizations can use as matching for grant funding, projects like Creating Coventry wouldn't happen. Playgrounds and rec spaces will just have to be taken out and grassed over, which neither meets the directives of Council, nor the will of Calgarians.

Working with communities on projects like Creating Coventry provides a long-term benefit to both residents and the Council budgets, but requires capital funding.

Thank you.



Presentation to Standing Policy Committee on Utilities and Corporate Services
September 12 2018

Danah Duke
Executive Director
Miistakis Institute

Calgarians expect that a healthy green city includes clean air, pure water, abundant and diverse wildlife and connected systems. They expect a healthy green city is also climate, flood and drought resilient. A healthy green city costs Calgarians less – natural areas are efficient flood and drought mitigators, roadways and communities planned with knowledge of wildlife have fewer collisions and natural vegetation cools our streets and buildings. Calgarians know our natural areas and parks are the foundation to a healthy green city.

Calgary's parks are the "wild" that is accessible to the people often forgotten in environmental conservation work. For many people who do not have the ability to access our national and provincial parks, their first real connection to nature comes when they wander along a trail in the Weaselhead or Nose Hill, or when they are first shown how many things live in the pond within their community, or when their class goes for a walk in the woods, or when they see a bobcat nursing a kitten in their backyard (as my colleague did a couple of weeks ago). This is where conservation starts, and municipalities are the front lines.

The City of Calgary is committed to leading and inspiring actions to reduce Calgary's ecological footprint and to conserve, protect and enhance the environment locally and regionally. In order to do that you need to understand the city's natural systems so you can better manage them, and so that we can plan more appropriately for future development.

And that's what the Miistakis Institute does. We determine research needs, we analyze conservation issues in a way that supports decision-making, and we engage communities and resource managers as partners in using the results. We are a not-for-profit, charitable, conservation research institute, and have been based in Calgary for 20 years. We are affiliated with Mount Royal University, and we have a

long history of working collaboratively with Calgary Parks on issues including:

- Connectivity and wildlife movement
- Human wildlife conflict
- Biodiversity
- Watershed management
- Regional conservation planning
- Climate change adaptation

In all of these initiatives, we have worked with Parks staff to find opportunities to leverage funding we have access to as a charity, and the City has access to as a municipality, creating a great fiscal synergy, critical in a time of restrained resources.

We have partnered with Parks on two citizen science programs. Citizen science is volunteers collecting data to generate new information. Call of the Wetland engages Calgarians in understanding the health of wetlands through monitoring. It was designed to support the City's Biodiversity Strategy and results will inform the city's restoration priorities and support the city's Water Management Division in managing wetlands in Calgary not just as storm water infrastructure but for the high levels of biodiversity they support.

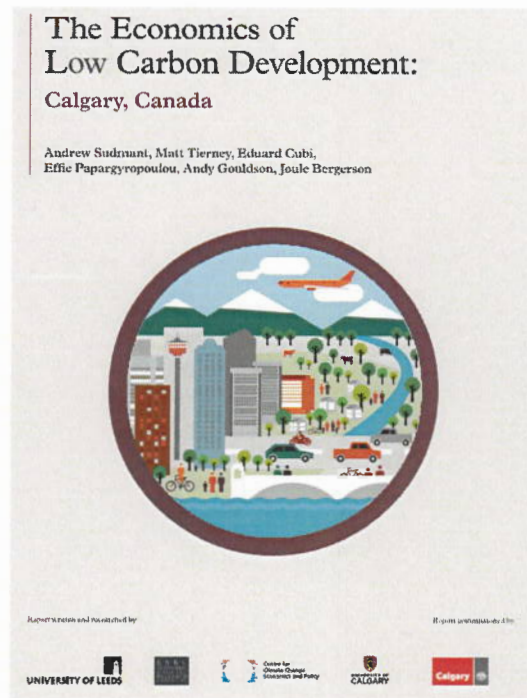
While citizens participate in gathering valuable data on frogs, toads and salamanders they are garnering a better understanding of the importance of wetlands, they are meeting neighbours with similar interests, new Canadians are out experiencing Calgary's fabulous natural areas and they are seeing first hand some of the issues our wetlands are facing.

Calgary Captured sees citizens from Calgary and from around the world viewing and classifying wildlife images taken from remote cameras placed throughout Calgary's natural areas. Programs like this allow Calgarians to engage in the cities natural areas even if they have limited opportunity to visit them themselves.

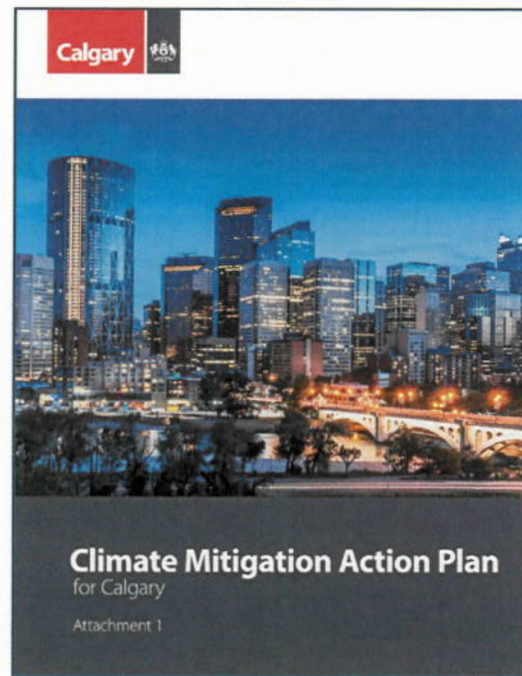
We know from our 15 years of experience designing and implementing citizen science programs that engaging in citizen science results in behaviour changes. We know it results in citizens engaging in local decision-making. We know it results in better data. We know it fosters a greater connection to place and community. We know it results in citizens improving their ecological literacy. And when people know better, they do better.

Calgarians value nature. Calgarians value the personal, social, cultural, environmental and economic benefits that come from the natural environment. It is important that you appropriately resource Parks to ensure Calgary remains a healthy green city.

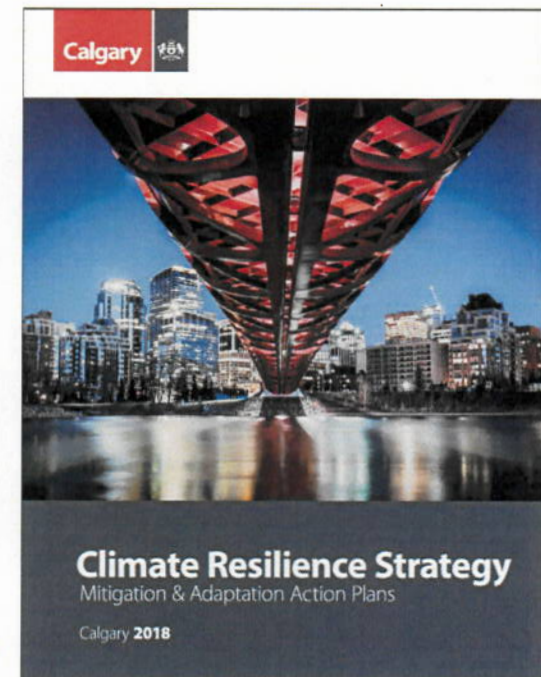
Context – “the Leeds study”



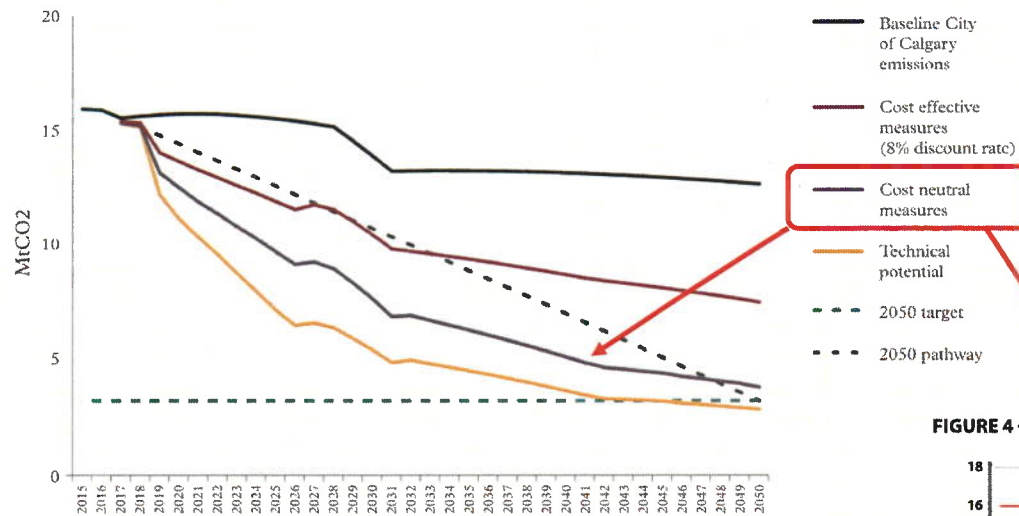
Informs



Is part of



Context – “the Leeds study”

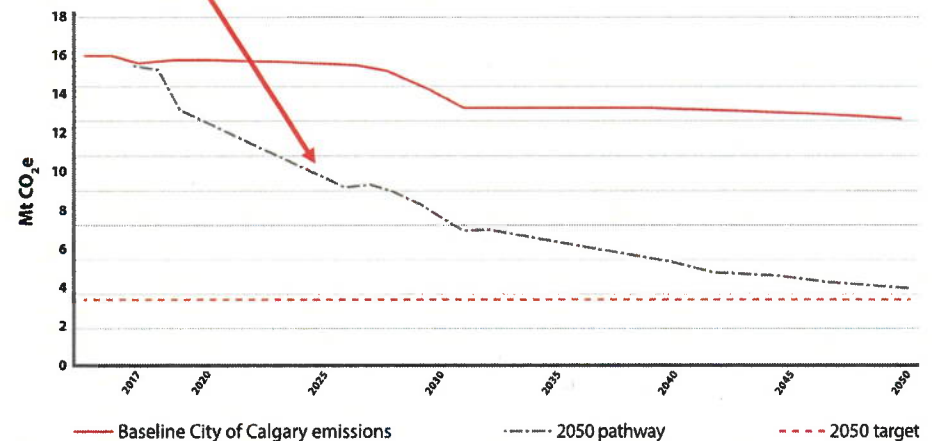


Potential GHG savings (relative to baseline):

- **41%** through **cost effective** investments
- **70%** through **cost neutral** investments
- **77%** with exploitation of the **technical potential**

Climate Mitigation Action Plan

FIGURE 4 – CALGARY'S POTENTIAL FUTURE EMISSIONS UNDER THE BASELINE AND CARBON REDUCTION SCENARIOS



1 – The “Cost Neutral” scenario needs financing

- Cost neutral scenario: *“deployment of all measures that could be afforded if the benefits from the cost effective measures were captured and reinvested in future low carbon options”*
- THIS WILL NOT HAPPEN SPONTANEOUSLY
 - “Cost neutral” for the economy as a whole, but there will be winners and losers
 - Why would someone invest the profit of a cost effective measure in one that is NOT cost effective?
- CN needs someone to “redistribute” the costs and profits, and find/create/support the financial mechanisms to make the measures happen

PROGRAM 1: ENERGY PERFORMANCE STANDARDS (Climate Mitigation Action Plan)

“this program focuses on supporting energy performance beyond code through incentives and access to financing”

- Great!
- Note: the Cost Neutral scenario requires lots of interventions (including some aggressive ones)
 - Focus on “access to financing”? (e.g., PACE)

2 – Finance the measures that save the most GHG

- They get us closer to the target
- The most “GHG effective” interventions are not necessarily the most “cost effective”
- Findings of the Multi Criteria Analysis
 - People have concerns about the more aggressive measures
 - Need for “early adopters” to accelerate market transformation

GHG effective (Residential)

Housing type	Intervention	Description	Total carbon savings (lifetime, Mt)
single family house	Retrofit 7	Net Zero Energy Building	86
single family house	Retrofit 6	Upgrade to high performance base + Heat pump	71
single family house	Retrofit 5	Upgrade to high performance-base	67
single family house	New 6	Net Zero Energy Building	57
single family house	New 5	Upgrade to high performance base + Heat pump	49
single family house	Retrofit 4	Upgrade to mid performance-base	44
single family house	New 4	Upgrade to high performance base	43
single family house	Retrofit 3	Upgrade to code + Heat pump	32
single family house	Retrofit 2	Upgrade to code	24
Townhouse	Retrofit 7	Upgrade to code	22

Do not match

Cost effective (Residential)

Housing type	Intervention	Description	Cost (\$)
single family house	Retrofit 1	Efficient lights and appliances	\$(70)
Apartment	Retrofit 1	Efficient lights and appliances	\$(70)
Townhouse	Retrofit 1	Efficient lights and appliances	\$(60)
single family house	New 1	Code + Efficient lights and appliances	\$(41)
Townhouse	Retrofit 2	Upgrade to code	\$(39)
Apartment	New 1	Code + Efficient lights and appliances	\$(39)
Townhouse	New 1	Code + Efficient lights and appliances	\$(32)
single family house	Retrofit 2	Upgrade to code	\$(31)
Townhouse	Retrofit 4	Upgrade to mid performance-base	\$(31)
Apartment	Retrofit 2	Upgrade to code	\$(22)

3 – Stay open to take a regulatory approach (or lower expectations on GHG reductions)

The provisions of the new Calgary City Charter enable The City to implement building code requirements beyond the current provincial building code. However, rather than utilizing this regulatory ability, this program focuses on supporting regulation at the provincial and federal level, and supporting energy performance beyond code through incentives and access to financing.

(Climate Mitigation Action Plan)

- What if the province takes no action?
- Municipal level performance standards are being implemented in Vancouver and Toronto
 - And effectively changing the building industry!
 - (Absolute targets)
- Regulation isn't sexy... but it is more effective than subsidies

My name is Alex Mann. I am a Calgary resident and mother to two young children (a 3 year-old and a 3-month old). Like many Calgary residents, I have been very dismayed by the increasing severity of forest fires in the area, which have left our air thick with toxic smoke for ever longer periods of the summer. This has been especially concerning to me as a parent, and inspired me to join the Calgary Climate Hub, a grassroots group of citizens aimed at taking action against climate change. I was happy to learn that in June of this year, the City Council adopted the *Climate Resilience Strategy*. The question now is what funds will Council dedicate to implementing this plan.

Over this past week, the Climate Hub has made several presentations to Council addressing the need for Calgary to reduce greenhouse gas emissions by funding and implementing the *Climate Strategy*. Our presenters drew largely on the findings of a report prepared by the University of Calgary and the University of Leeds called *The Economics of Low Carbon Development*. This report, which was commissioned by the City and is referenced heavily throughout the *Climate Strategy*, shows that Calgary can achieve the following:

- reduce its carbon emissions by 71% through actions that either save money or are financially neutral
- cut Calgary's energy bill by \$1,100 per person and
- create up to 860,000 full-time jobs by 2030
- increase energy security and economic competitiveness
- improve the health of Calgary residents.

To be able to make that happen, the City must assign and fund people directed to work specifically on climate work and not just from the "side of their desk." Environmental and Safety Management is not the only department that requires a climate team. Rather, all of the City's business units should have people dedicated to climate change work.

We understand that \$1.6 million have been assigned to the *Climate Strategy*. The Climate Hub believes that this will be insufficient, and that additional funds and staff are necessary in order to implement the Strategy.

When deciding what to prioritize in this budget, we encourage you to refer to the *The Economics of Low Carbon Development* report, which identifies a series of cost effective options to reduce greenhouse gas emissions. We also make the following specific requests in order to ensure that the *Climate Strategy* is a success:

- Request #1: MORE CITIZEN ENGAGEMENT. Create and fund a Low Carbon Transition and Climate Action Committee of climate scientists and organizations involved in climate change and sustainability in order to monitor and advise on implementation of the *Climate Strategy*,
- Request #2: MORE PUBLIC TRANSIT. To reduce air pollution and congestion, and for mental health (recall earlier testimony from the public on how public transit also enhances social inclusion)
 - Complete the Route Ahead strategy
 - Complete the Primary Transit Network during this budget cycle to achieve the goal of 10-minute frequency, fifteen hours per day, seven days a week (Actions 5.4 & 5.7).

CITY OF CALGARY
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IN COUNCIL CHAMBER

SEP 12 2018

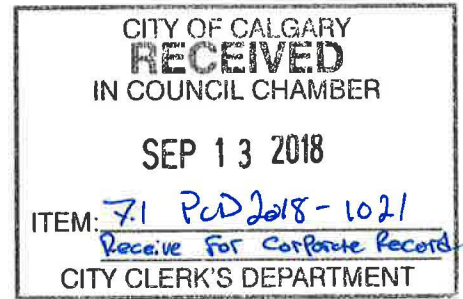
ITEM: 7.1 C2018-1080 Attachment 8
Re'd ISC UNRESTRICTED
CITY CLERK'S DEPARTMENT

Service Plan Preview

A City of Safe & Inspiring Neighbourhoods

SPC on Planning & Urban Development
September 13, 2018

Compilation of Written Public Submissions



A City of Safe & Inspiring Neighbourhoods SPC on Planning & Urban Development

• CITY PLANNING & POLICY

Council Directives

(N4) We must also **ensure that all communities are complete communities**. Greenfield communities need to quickly, sustainably and sensitively grow to a scale where they can support community services such as transit. Developed communities need to be encouraged to re-develop sustainably and sensitively, in a way that accommodates changing community needs, and supports the public investment in them. Making it easier to build development that meets our Municipal Development Plan and the Calgary Transportation Plan will be essential to achieve this.

(N5) **Growth of the city needs to be managed in a way that achieves the best possible social, environmental and economic outcomes within financial capacities**. The cost of growth needs to be minimized for The City while maximizing housing choice and affordability within these constraints.

Council Priority

A City of Safe and
Inspiring
Neighbourhoods

Every Calgarian lives in a safe, mixed and inclusive neighbourhood, and has the right and opportunity to participate in civic life. All neighbourhoods are desirable and have equitable public investments.

Comments on Community Development¹

The Calgary Climate Hub recognizes that it needs to gain a better understanding of how Calgary can grow and develop in the future and contribute to a climate-positive city. Over the next six to eight weeks, the Climate Hub will be reviewing the current status of

¹ "Community development," as used here, is a step up from what is called "growth and development" and is broader than the usual social services approach to community development. The term covers the sort of thing City planners think about - land use, infrastructure, and design - but broadens that to include the social, financial, and environmental aspects of building and maintaining community. This is not to say that the City and some of its planners do not, in one way or another, try to cover those things, but as Council and Administration have acknowledged, the "silos" too often get in the way.

community development in the city, assessing trends, and identifying opportunities to use the City's budget to improve the effectiveness of planning policy and land use decisions and contribute to a reduction in Calgary's greenhouse gas emissions.

We will ask ourselves four questions:

1. Does the City of Calgary need an *Established Area Growth & Change Strategy*?

Or are there existing and/or alternate policies and initiatives that can promote and improve sustainable community development?

2. What are the opportunities for and constraints on community development?

a. Are there incentives that should be implemented or improved to sustain and enhance community development?

b. Are there costs to the City of Calgary, other forms of government, or communities that should be considered for inclusion in levies, fees, or other forms of cost-recovery charged to those who receive approval to alter the character or landscape of communities?

3. Should the City of Calgary and other forms of government limit their involvement in affordable housing to providing or promoting housing for low-income households?

4. Are the engagement and analytical techniques used by governments and communities adequate to provide climate-positive and effective community development?

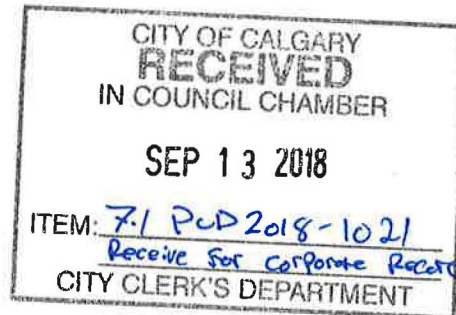
We recognize this is ambitious. However, as we have noted in previous presentations, climate-positive, community-positive actions need to be taken soon. We want to ensure we can contribute to that effort in a practical and constructive way.

Although we will be working on a tight timeline, we hope we will be able to tap into the knowledge and expertise of members of Council and the Administration.



CRESCENT HEIGHTS COMMUNITY ASSOCIATION

Councillor Druh Farrell
City Of Calgary
Ward Seven



September 12, 2018

Dear Councillor Farrell:

At our monthly board meeting last evening we discussed the proposed funding cuts to the Main Streets and compete street initiatives, on which the community of Crescent Heights has placed much faith for the future improvement and revitalization of our important commercial corridors: Centre Street North, Edmonton Trail and the 16th Avenue Urban Corridor. Much of our efforts in recent years has been focussed on the Centre Street corridor, as the Green Line discussion continued and ultimately settled upon that corridor as the alignment of choice: this was an outcome that was seen as optimum for both the City of Calgary and the community of Crescent Heights. Our residents have been fully engaged in the ongoing discussion, aware that our full participation in Main Streets awaited the resolution of the Green Line alignment. While that process proceeded, Crescent Heights kept abreast of the evolution of Main Streets, and our thinking and planning has evolved in such a way as to keep the two initiatives closely aligned in our planning and engagement processes.

Of the hundreds of hours of engagement and discussion that has focussed primarily on the Green Line, this commitment has also anticipated our future participation in Main Streets. The prospect of funding cuts to Main Streets is a body blow to our community, and seems to us to place in jeopardy much of the hard-won consensus with respect to the Green Line and future hard-won improvements that we fairly expected would flow from Main Streets, once Green Line issues were settled and embraced, as they have been in Crescent Heights. The Green Line is a crucial next step in the evolution of our historic community; Main Streets was our best hope to improve the Centre Street Corridor and take it to the next level as a vibrant Urban Corridor: a true and vital Main Street.

Page 1

Our commercial corridors continue to evolve but will benefit greatly from the processes that have emerged from Main Streets. We have significant urban density in our community. We embrace greater density and have strong and well-reasoned opinions as to where such increased density and vibrancy will work best in Crescent Heights: critical density will achieve its highest and best expression along our commercial corridors. For us, Main Streets is still the best opportunity to realize our density, safety and vibrancy objectives, and we regard the proposal for undoing appropriate funding to be a great disappointment and a lost opportunity, not only for our community but for the greater City of Calgary.

We urge City Council to protect funding for Main Streets, an initiative that we in Crescent Heights see as essential to the full expression of our community and our city.

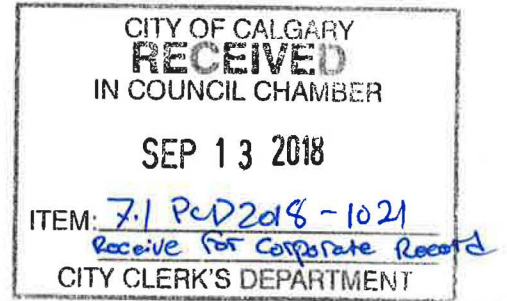
Yours very truly,

John McDermid
Director, Facilities
CHCA

for the Crescent Heights Community Association

Cario, MayAnn

From: Akther, Nasreen
Sent: Thursday, September 13, 2018 10:44 AM
To: Cario, MayAnn
Subject: FW: Speaking notes from PUD today



Hello!

From: Josh Traptow [mailto:Josh@calgaryheritageauthority.com]
Sent: Thursday, September 13, 2018 10:35 AM
To: City Clerk <CityClerk@calgary.ca>
Subject: [EXT] Speaking notes from PUD today

Good Morning Mr Chair and Committee

My name is Josh Traptow and I'm the Executive Director of the Calgary Heritage Authority

The CHA is very pleased to see that Council has made Heritage a priority through Council priority N3 and we are looking forward to our Civic Partners presentation on Monday.

We are also very pleased to see that Administration is recommending an increase to the Heritage Conservation Grant Program. This grant program has not seen an increase since 2010 from the \$225,000 with a portion of that allocated to the Lougheed Building until 2022.

I would note that the Edmonton heritage grant program is over \$2M.

Calgary's grant program is over subscribed as it is and cannot meet the demand. In 2017 alone we saw 12 properties designated with a majority of those sites looking to access the grant program.

We think there is always opportunity to do more when it comes to heritage, but with competing priorities we understand that items like the tax abatement program aren't part of One Calgary.

Calgary currently has 92 municipally designates sites compared to 151 in Edmonton. Clearly their grant program is working when it comes to incentivizing home owners to seek designation.

The Inventory lists 847 sites, 159 have been demolished leaving 688 sites that are eligible to be designated. Only 13% of the Inventory is designated. We have a lot of work to do to continue to provide tools and incentives to property owners.

Thank-you.

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Josh Traptow
Executive Director
Calgary Heritage Authority

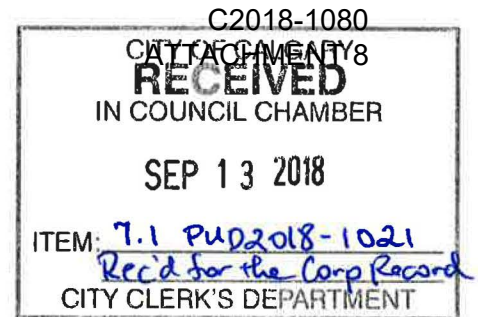
T: 403-805-7084

E: josh@calgaryheritageauthority.com
W: www.calgaryheritageauthority.com

July 5, 2018

Michael Magnan (Michael.magnan@calgary.ca)

Kaely Dekker (kaely.dekker@calgary.ca)



Dear Michael and Kaely:

As it has now been a bit since our meeting in June, I wanted to follow up.

I have been thinking about how during the community engagement sessions I was under the impression that the Main Streets Project on Bowness Road was funded and would be moving forward. As I have not heard from either of you since the meeting to provide clarity as promised, I reviewed the information provided on the City website:

<http://www.calgary.ca/PDA/PD/Pages/Main-Streets/yyc-Main-Streets/B-bowness-road-montgomery.aspx#mainst-top>

"As part of regular road maintenance, Bowness Road N.W. is scheduled for repaving in 2019. The road surface will be removed and replaced which presents an opportunity to redesign the road so it functions more effectively for all users. As a result, the projects will be combined and implemented together, providing significant improvements on Bowness Road N.W. while reducing construction costs and minimizing impacts on businesses, residents and road users.

Our investment in Montgomery starts in 2019."

I think that this statement is very clear. I am not sure how the promise of the work being started in 2019 and the information provided June 20, 2018 that there is no money to begin any work align. And by "work" I am referring to actual construction and not simply conceptual design.

This may be an egregious oversight but the confusion is not on the part of the community.

If the project is not funded and the work is not scheduled to begin in 2019 then I request that all tax revenue that has been garnered as a result of the rezoning be returned promptly to the businesses and the residents impacted. The community supported the initiative and helped promote the vision of the densification to meet the MDA targets; however, we are not supporting a tax grab without significant investment from the City. During the engagement with the Main Streets team, there was an acknowledgment that the City needs to invest in the community to promote private investment targets as agreed to by the amendment to the ARP.

Our local businesses have been hit very hard with increases not only as a result of the rezoning that occurred but also because of the shifting of the tax base from downtown. Some have commented that their taxes have doubled and that this is creating hardship for them.

The infrastructure in Montgomery dates back to the 1960's and there has been very minimal investment in the community since that time. This project, as promised, was an opportunity for this situation to change. I request firstly that a copy of the infrastructure inventory be provided to me as requested on two separate occasions, that a clear time line for moving forward be given, and/or the money be returned to the impacted community businesses and residents until such time as you (The City) are ready to proceed.

Sincerely,

Marilyn Wannamaker

President

Montgomery Community Association

cc Druh Farrell

cc Dale Calkins

cc Leon Nellissen (BIA)



Montgomery Main Street Project - Bowness Road N.W.

Project Brief

The City of Calgary is planning improvements on Bowness Road N.W., through the community of Montgomery. The project will include streetscape improvements associated with The City's [Main Streets](#) initiative, and transportation improvements for all travel modes as identified in The City's [Complete Streets Policy and Guide](#).

As part of regular road maintenance, Bowness Road N.W. is scheduled for repaving in 2019. The road surface will be removed and replaced, which presents an opportunity to redesign the road so it functions more effectively for all road users. Council also approved funding in May 2017 to implement the Montgomery Main Street improvements. As a result, the projects will be combined and implemented together, providing significant improvements on Bowness Rd N.W. while reducing construction costs and minimizing impacts on businesses, residents and road users.

The project limits for the transportation improvements extend from 52 Street N.W. to 43 Street N.W. (a continuation of the recent upgrades on [Bowness Road N.W.](#)), and the streetscape upgrades begin just west of 49 Street N.W. and end at 42 Street N.W.



Bowness Road N.W. (Montgomery) Improvement Project - Project Brief

The scope of the project includes:

- Streetscape and public realm enhancements (street trees, benches/seating, lighting, public art)
- Pedestrian improvements
- Bicycle facilities
- Traffic operation improvements
- Transit stop / waiting area improvements

Project Goals

- Improve safety, mobility and comfort for all road users (people who walk, bike, take transit and drive)
- Address community traffic issues through that will also enhance the pedestrian and cycling realm
- Improve pedestrian and cycling connections between key destinations within Montgomery
- Implement streetscape improvements that comply with new land uses
- Connect existing pathways and future connections determined in adjacent project plans, particularly those proposed as short-term improvements for the [South Shaganappi Study](#) and the Bow River pathway
- Coordinate improvements with other area projects, including recent improvements to [16 Avenue N.W. and Home Road N.W.](#)

Engagement

The project team will implement a thorough public engagement and communications process. The engagement process is still being finalized, but is anticipated to include:

Phase 1: Project introduction and issue identification (WINTER 2017/2018)

- Stakeholder meetings (Montgomery Community Association, Montgomery BIA, developers, active and sustainable modes)
- Public workshop
- Online feedback

Phase 2: Refine concepts (SPRING/SUMMER/FALL 2018)

- Stakeholder meetings as needed
- Public workshop
- Online feedback
- Tactical urbanism

Phase 3: Share final plans (WINTER 2019)

Phase 4: *Construction (2019)

* Some utility construction may be initiated in 2018



Memo

August 1, 2018

To: Marilyn Wannamaker
Montgomery Community Association

From: Michael Magnan

Re: July 5 Letter Response

Dear Ms. Wannamaker,

Thank you for your letter requesting further clarity on the status of the Bowness Road Main Street Streetscape Master Plan project. Since our last stakeholder meeting in June, I have been collaborating with City staff to seek answers to the questions you brought up on behalf of the Montgomery Community Association during the meeting, which were summarized in your letter. Please find the following summary of my findings below.

Capital Investment Timeline

As discussed in the meeting, there have been some miscommunications between The City and the community with respect to capital funding availability for Bowness Road Streetscape improvements within the existing Main Streets Streetscape Program capital budget. The City recognizes that the information on the website is incorrect, and we are committed to updating our website to reflect the that there is currently no funding allocated for construction of streetscape improvements within the 2016-2019 budget cycle. However, The City recognizes the need for infrastructure and public realm investment in Montgomery, and has listed Bowness Road as a priority Main Street project. Once Council has issued directives on the 2019-2022 capital budget, The City will provide an update on capital funding availability in early 2019.

In speaking with the Roads department, the roadway paving resurfacing project has capital funding available starting in 2019. Ideally, this work will be completed at the same time as Main Streets improvements to minimize impacts the community, provided funding is available to the Main Streets Streetscape project. I have also been informed that the phasing and timing of the resurfacing project is partially contingent on completion of Crowchild Bridge upgrades currently underway, as resurfacing would further congest traffic on Parkdale Blvd, 3 Avenue NW and Bowness Road. Should coordination of the repaving and Main Street improvements not be possible, The City is committed to working with the community to finding the best solution for residents and businesses. We will keep you informed of this moving forward.

Business Tax and Non-Residential Property Tax Concerns

The City recognizes that there have been recent tax increases for property owners. The calculation of non-residential property tax is the result of numerous factors including the provincial requisition, business tax consolidation (calgary.ca/btc), tax shift from the office sector, expiry of 2017 tax rebates and Council's decision to increase funding the Calgary Police Service (0.8%) and Civic Partners (0.1%), and assessment.

Property assessments are prepared annually and are based upon market value. An analysis was performed to determine what, if any, assessment impacts would have resulted from the land use changes from the *Montgomery Bowness Road and 16 Avenue NW Policy Amendment and Land Use Amendment*. In reviewing the 755 properties' 2018 assessments, only one property's assessment would have been affected by the land use assessments. This excludes properties that have had physical changes like the construction of a new building. As the majority of the properties that are within the Main Streets area are properties with contributing buildings on them, they are valued as such and not as developmental land. Further some of the minor up zoning to land use amendments were determined not to affect values this year such as R-C2 to R-CG and M-C1 to M-X1. Business assessments, which are used to calculate business tax, are based upon a premises' net annual rental value. Or simply, what that space would rent for over the year. For properties with buildings on them, land use zoning does not play a role in determining business assessments.

Given the complexity of calculations surrounding taxation, The City's Chief Financial Office has recommended that business and property owners contact the Assessment Business Unit to discuss their individual assessments with an assessor. Property and business owners can contact Assessment staff directly at 403-268-2888. If the community association has assessment questions, please contact Edwin Lee, Manager Valuation – Commercial via email at Edwin.Lee@calgary.ca. Assessment information can also be found online at <http://calgary.ca/assessment>. It is The City's intention that through discussion with Assessment, business and property owners will gain a greater understanding of how their assessments are derived and how taxes are determined.

Conclusion

The infrastructure inventory you referenced in your letter has been completed. It will be circulated shortly to external stakeholders for review.

Thank you for taking the time to reach out and express your concerns over the Bowness Road – Montgomery Main Street project. If you have any further questions or concerns, please don't hesitate to contact me directly.

Sincerely,

Michael Magnan



Public Realm Lead
Urban Strategy, City of Calgary
T 403.268.3450

Attachments N/A

cc: Druh Farrell, Ward 7 Councillor
Leon Nellissen, Montgomery BIA
Edwin Lee, Assessment

SAFE AND INSPIRING NEIGHBOURHOODS

Mr. Chair

I'm Bob Hawkesworth. I'm a resident of Huntington Hills in Ward 4.

Thank you for the opportunity to present to you today.

Like others appearing before Council Committees this month, I'm here to encourage you to get on with making Calgary climate resilient. I commend Council for adopting this strategy. Now, the trick is to make sure it has adequate resources so you get the job done.

Here's a question you may be asking yourselves: The Climate Resilience Strategy is a "nice to have". But, can we afford it?

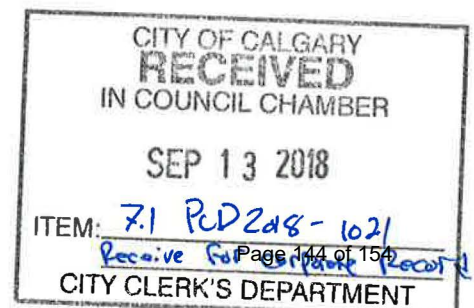
In the two page summary document for Emergency Management in front of you today, it says:

"From 2010 to 2016, total public and private loss from Calgary disasters was greater than \$3.3 billion."

Is \$3.3B in losses over 6 years an issue you need to address? I would hope so. As a point of comparison, we're having a referendum in November on a question of similar magnitude.

The Service Plan Preview also says that the CEMA Budget of \$5M is 1% of Calgary's annual disaster losses. Both these references would indicate that annual disaster losses are in the range of \$500M/year.

My insurance renewal notice this year confirms these statements. 8 out of the 12 most expensive catastrophic loss events in Canadian insurance history happened in Alberta.



Assessing the impact of severe storm events in Calgary from 2010 - 2016
A Case Study

BOB'S PLACE

HOME INSURANCE PREMIUMS

vs

MUNICIPAL PROPERTY TAX

<u>Year</u>	<u>Description</u>	<u>Limit</u>	<u>Premium</u>	<u>Assessed Value</u>	<u>Amount</u>
2011	Dwelling insured, including Comprehensive Water coverage *	\$ 256,600	\$ 725	\$ 346,000	\$ 1,109
	* Deductible of \$500/claim for no additional premium				
2018	Dwelling insured for \$309,100 * including Comprehensive Water coverage †	\$ 309,100	\$ 1,356	\$ 403,000	\$ 1,572
	* Deductible of \$800/claim				
	† Deductible of \$1000/claim or 2% of total loss for \$303 premium				
Increase 2011 - 2018			\$ 631 87% increase	\$ 463 42% increase	

If I'm typical, in the 7 years since 2011, my insurance premiums have gone up by 87%.

On my insurance bill, the risks of climate disruption are real and are growing. I now pay almost as much to insure my home as I pay in the municipal portion of property taxes to the City.

The City of Calgary Climate Resilience Strategy is essential. It is not a "nice to have".

What should you take from this?

Here's my list, based on the things you can control:

1. Take climate risks seriously. How high can this trend go before there is a consumer backlash or before insurers become more pro-active in calling public authorities to account?
2. Take action. Invest in the priorities identified in the Climate Resilience Strategy.
3. Time is of the essence. Don't delay. The longer protective action is delayed, the longer is our community exposed to risks.
4. Don't put development in harms way. Your Planning Department let you down big time when they agreed to the rezoning of the Highland Park Golf Course before the storm water drainage study was available. That was an expensive mistake. If you learn not to do it again, then it will have been a valuable lesson instead. Water Resources are your friends when it comes to development approvals, not your nemesis.
- ⇒ 5. You have a report on what constitutes best practices. And you have the Report from the Expert Management Panel on River Flood Mitigation. Adopt those practices.

What can we do about the couple billion or so people who are also chiefly responsible for the hot house gases that are disrupting our climate and increasing the risks to our collective wellbeing?

6. I recommend following the great commandment. "Do unto others as you would have them do unto you".

If we don't want their hot house gases harming us, then let's first do what we can to make sure our hot house gases aren't harming them.

This is where the mitigation measures in the Climate Resilience Strategy are so foundational. We can only influence others to take action if we're taking it ourselves. Thank you.

Assessing the impact of severe storm events in Calgary from 2010 - 2016 A Case Study

BOB'S PLACE

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¹ Deductible of \$1000/claim or 2% of total loss for \$303 premium					
Increase 2011 - 2018			\$ 631 87% increase		\$ 463 42% increase

Why Alberta insurance rates keep going up

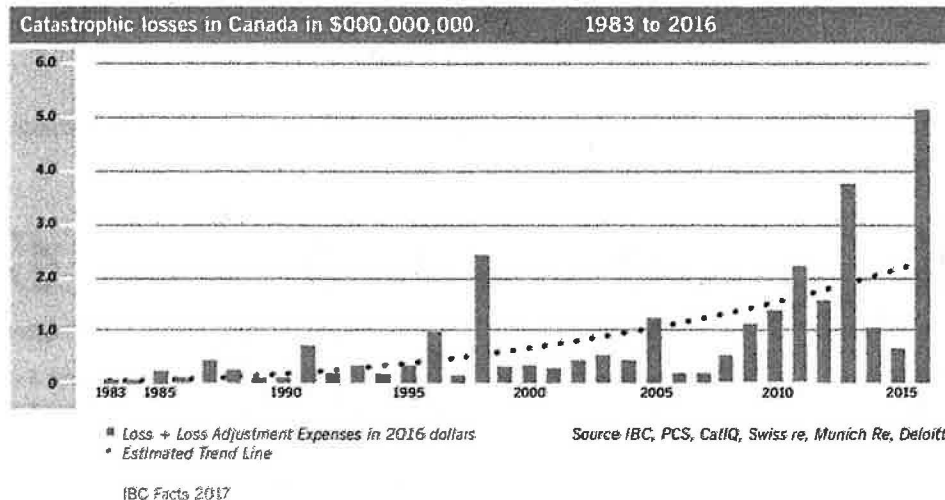


Insurance premiums are based on what we think we'll need to pay in claims. Different insurance companies may have different ways of trying to predict future claims, but ultimately more claims lead to higher rates. And that approach goes across the insurance industry.

To ensure we can continue to provide security for our Alberta clients, we're applying rate increases. We know this isn't welcome news, and we want to share with you why we're doing this and what you can do.

Weather is changing

Every year the Insurance Bureau of Canada (IBC) publishes information about issues and trends in the Canadian insurance industry as a whole in its "Facts" book. In the IBC's Facts 2017, which you can find online at www.ibc.ca/ns/resources/industry-resources/insurance-fact-book, the IBC states "In Canada and around the world, climate change is not a future threat but a present danger." As part of increasingly severe weather events, we're seeing a trend of increasing catastrophic losses across Canada, as shown in the chart.



Alberta faces especially high risks

In recent years, Alberta has been hit by record levels of catastrophic loss events, in large part due to weather-related disasters. If you look at the 12 most expensive catastrophic loss events in Canadian insurance history, eight of them happened in Alberta.¹ In the past five years alone, the Alberta portion of all catastrophic losses in Canada has been three to five times more than its share of the national population.²

Unfortunately, this trend is expected to continue. Rate increases in response to this trend will likely be industry-wide, and not unique to The Co-operators.



¹ Source: www.ambest.com/conferences/canadapcpresentation.pdf

² Source: 2017 IBC Facts and Statistics Canada

We're working for change

In the past decade, insured losses from natural disasters have more than doubled. At The Co-operators, we believe that as insurers, we share the responsibility to educate, prepare and equip Canadians to adapt to climate change.

Until 2015, Canada was the only G7 nation without residential insurance protection for overland flooding. We were the first insurer to offer flood insurance in Alberta and to make it available to all homeowners, even those in high risk flood zones. We started with Alberta because we saw that's where the greatest need was.

We've also partnered with FireSmart Canada to develop a new resource to help residents make their homes more resilient to wildfire. The FireSmart Home Development Guide is now available to all Canadians, and will become part of the FireSmart Home Partners Program. The guide outlines specific measures homeowners can take to reduce the risk of damage from wildfire by considering details like roofing material and design, siding and vents, gutters and eaves, and decks, fencing and landscaping.

Ways you can manage your costs

We're always working to ensure the rates we charge are based on the actual risks we insure. To continue to protect you from life's uncertainties, we've changed how we calculate your rates to more precisely reflect your specific property and the risks it faces. There are some things you can do to help manage your insurance costs depending on the specific risks affecting your property.

1. **Update your information** – if you've updated your home's plumbing, wiring or roofing, it could help with your premium.
2. **Review your coverage** – schedule a complimentary Client Review. Together we can review the next steps.
3. **Adjust your deductible(s)** – it can help lower your premiums.
4. **Bundle your coverage** – consider us for all your insurance needs to maximize discounts.
5. **Talk to us about your specific risks** – we can tell you the biggest risks facing your property and help consider additional actions that can protect your home from these risks and reduce your premium.



Wind or hail risk

- > Replace older roof or siding with weather-resistant products, especially if there are signs of deterioration
- > Change the claims settlement basis to actual cash value for windstorm or hail damage
- > For metal roofing and/or siding, which dent more easily than other materials, exclude dent coverage. If you're planning to renovate, consider replacing with more resistant materials
- > Increase your deductible for windstorm or hail claims



Fire risk

- > If practical, replace wood heating (other than a fireplace) with another heat source like propane
- > Install a fire sprinkler and/or central monitored fire alarm or heat detector system



Plumbing risk

- > Replace older plumbing to prevent water damage in your home
- > Install an automatic water shut-off system and/or central monitored water sensor system
- > Increase your deductible for plumbing claims



Crime risk

- > Install a central monitored alarm system

Contact us to review your insurance needs and coverage options.

MKT621 (11/17)

Home Auto Life Investments Group Business Farm Travel



1. Paul Battistella – 40 yrs developing in inner-city. Member of Developers Advisory Comm
2. Concerned about alignment between MDP objectives for where growth will happen and capital and operating budgets are set.
3. I'm aware of the recent approval of 14 new greenfield communities and the significant contribution by the City of Calgary in the tens of millions of dollars plus an overall property tax increase across the City of .75% to support that growth. It makes me wonder when are we going to see an equivalent level of investment in the established areas.
4. I know that there is a plan that will hopefully be approved, but this will be a year, maybe more to get approval and then maybe see some capital allocated to it by 2020. For me this is too long. This is an issue that has been a challenge for as long as I can remember.
5. Related to this is the ongoing issue charges to developers in established areas that have little or no relation to the costs borne by the City where these revenues are used for other purposes.
6. One of the commitments that came for the City during the stakeholders meetings for the off-site levy bylaw was to review those costs and change them to reflect the same criteria as what was used to determine the sanitary plant charges (that being you pay for what you use). This has hit the brick wall at the highest levels in senior administration. So now not only do we have an extra \$3000 per unit we pass along to customers we have no relief elsewhere that was promised. This is not a subsidy, this is just asking we only have to pay for what we use.

Amongst a long list that took a year to create, the top two. On our latest project these will come in at over \$1 million dollars

- a. Density bonuses (or more accurately penalties).
- b. Building permit costs
7. This leads me to the conclusion that it is very easy to write wonderful vision statements and speak glowingly about the strong commitment that has been made to making our city more economically and environmentally sustainable, but if it is not followed through with significant investment, if commitments made are not carried out with regards to inequitable development costs then it is a false narrative.
8. In my mind we either stat to walk the talk or give up the talk. The expectations that are being set do not match the reality of what is happening.

Recommendations.

1. Fast track established areas investment plan. 1 year approved and funded.
2. Follow through on commitment on reduction or removal of development charges that are above the actual cost to the City.
 - a. BP charges to match actual City cost to provide review

- b. Freeze all density bonus schemes until investment plan is in place,
 - c. reduce or eliminate all other fees where the charges are greater than the costs.
3. Stop approval of policies (including ARP's) without a capital plan and commitment to spend on necessary public infrastructure to realize the plan. This includes below ground and above ground amenities.





PUD – 13 Sept 2018 – Public presentation

Good morning

I am Moraig McCabe, community volunteer in the Northern Hills communities.

NEIGHBOURHOOD SUPPORT

One of the City's priorities (from the presentation) is *"We apply an equity lens to guide our work so that no resident or neighbourhood is left behind."*

Our communities in the Northern Hills no longer have a community social worker as they are already stretched thin. This means we rely heavily on our NPC (Neighbourhood Partnership Coordinator), and other Neighbourhood and Recreation support services.

As we also have no community hub building (except for Vivo, which functions more as a hub than just a rec centre), we also rely heavily on our outdoor amenities, which comprise a few LOCs for volunteer-built community gardens and rinks, plus our rec fields and parks.

The service level needs to increase to help community groups to help the City to attain their goals, as not all communities are able to take part in programs such as This is My Neighbourhood.

CITY PLANNING AND POLICY

Communities are crying out for new or updated ARPs. Increasing funding to achieve this is vital.

With regard to planning policies, focusing on the aims of the MDP and complete communities, making them more walkable should be a priority. Many residents feel this is not always happening.

Improving neighbourhood connections is indeed a priority, not only through supporting community hubs, but also physically through missing link pathways, which support more complete and inclusive communities.



Creating Coventry

Creating Coventry is a community-driven plan to improve and connect our neighbourhood's parks.

It is a collaboration between community residents, the Northern Hills Community Association and Vivo for Healthier Generations.

 creatingcoventry@gmail.com  [@creatingcoventry](https://www.facebook.com/creatingcoventry)

Obviously, some of this overlaps with other areas. However, hopefully the One Calgary vision will allow spending in one area to help make long term savings in another. For example, yesterday I was here and explained about how Creating Coventry is helping to reduce Parks maintenance costs, while giving residents what they are asking for (in our community parks and playgrounds). However, without the help from our Neighbourhood Support team, and without helping to connect our parks by filling in missing link pathways, the whole project fails in those aims and in helping to make our community more connected and safe.

Thank you.

