

# Enermodal Engineering

*Creating energy and resource efficient buildings*



## Allen District Plan

LEED ND Feasibility Report

Prepared for: Build Toronto Inc.  
May 2013 | BTO1001



## EXECUTIVE SUMMARY

Enermodal Engineering was commissioned by Build Toronto Inc. to carry out an assessment of the green and energy efficient design of the Allen District Plan. The aim of this study was to examine the current sustainability status and to prioritize sustainable measures that could be implemented into the design to achieve LEED® (Leadership in Energy and Environmental Design) for Neighbourhood Development (LEED ND) certification. The intent of this study is not to commit to the LEED ND rating system but to provide recommendations and use principles of LEED ND to incorporate as many LEED requirements as practical through integrated design process.

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## LEED RATING SYSTEM BACKGROUND

LEED New Construction (LEED NC) is a rating system originally developed by the US Green Building Council (USGBC) to assess the environmental performance of new buildings. Since the 2004 release of the Canadian version of the system, it has quickly become the standard assessment tool in the Canadian building industry. Furthermore, a number of groups, including developers, tenants and municipalities, have made LEED certification a requirement for all new buildings.

As such, historically, LEED has focused on a building and its immediate site – there has been little, or no, guidance regarding larger developments such as academic campuses, military bases or large-scale housing and multi-use development projects. LEED for Neighbourhood Development (LEED ND) is a relatively new system and is based on LEED NC's underlying principles, as well as, a number of the core “smart growth” values.

The USGBC opened registration for certification under the LEED ND Development 2009 Rating System in April 2009. Canadian Alternative Compliance Paths (ACP) were introduced in 2011. Canadian projects pursuing LEED ND apply through the USGBC using the Canadian ACP's where applicable.

All LEED rating systems are point based systems with different levels (Certified, Silver, Gold and Platinum) being achieved once the criteria for a set number of credits has been satisfied. Each rating system has its own set of criteria and metrics based on the overall intent of that particular system (i.e. building vs. community).

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## ASSUMPTIONS & METHODOLOGY

We have used the Allen District Plan Concept Plan, Allen District Plan Affordable Housing Strategy June 2012, Traffic Impact Assessment, Phase I ESA Update by DCS January 2006, and the Phase II ESA by Trow November 2009 (Final), as well as input received at meetings with the Build Toronto and planners to inform our evaluation of the LEED ND potential for the proposed development.

This evaluation is based on the LEED for Neighbourhood Development 2009 rating system for the United States Green Building Council as well as the LEED ND 2009 with Canadian Alternative Compliance Paths. The scoring is reflective of the full build-out of the project.

Each of the potential LEED credits was evaluated for suitability, practicality and feasibility at this stage of design.

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## CURRENT DESIGN

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An analysis of the project showed that six of twelve LEED prerequisites have already been met in the current design and a further five of the prerequisites can be achieved with minor changes and/or commitment of the design team to incorporate specific design elements moving forward.

Based on our assessment, it appears as though the proposed concept plan currently meets the requirements for approximately 40 points. The current Allen District Plan has the potential to achieve a maximum of 65 points (plus some pending points that cannot be accounted for at this time). These credits range in their feasibility and cost of implementation. The additional 25 points have been identified as targeted points by the design team, bringing the project to a Gold rating.

It is recommended that the Allen District Plan project pursue LEED Gold Certification. The next phase will be to work with a development partner to target implementation of LEED Gold.

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## 1.0 SUSTAINABILITY AND THE CONSTRUCTION INDUSTRY

In 1987 the Brundtland Commission report generated the now widely accepted definition of sustainable development:

"Sustainable development is development which satisfies the current needs of society without compromising the needs of future generations"

Sustainability is the balance of environmental, social and economic issues. It is challenging to get this balance correct and ensure that a project is as sustainable as possible. To maximize the opportunity to be as sustainable as possible it is recommended that sustainability targets be included in the design as early as possible.

The built environment is responsible for a significant proportion of mankind's overall environmental impact. Buildings are responsible for approximately

- 40% of all raw materials used
- 36% of the world's total energy
- 25% of wood harvested
- 12% of potable water
- 25% of landfill materials
- 35% of greenhouse gas emissions

Communities that emphasize a high quality of life and the creation of highly liveable neighbourhoods are enjoyable places to live. People must have the ability to work, live, learn and be entertained within their community. Sustainable communities and their close connection with nature are important to personal health and well-being.

Sustainable communities can enhance a sense of place, reduce crime, moderate natural hazards, conserve energy and resources, preserve culture and heritage, improve traffic modes and circulation and reduce waste. Sustainable communities provide a living environment that neither degrades the natural environment nor achieves its goals at the expense of future generations. A key component of the sustainable community will be its buildings. In 2007, the IPCC (International Panel on Climate Change) stated that energy efficiency measures in buildings could considerably reduce carbon dioxide emissions with a net economic benefit. The same report also identified buildings as the sector with the greatest global potential for cost effective greenhouse gas emissions reductions in the short term. Sustainable buildings also provide benefits in terms of reduced operating costs, improved indoor environment quality, public relations opportunities.

Sustainable neighbourhood design means effectively addressing three master plan issues identified by LEED® (Leadership in Energy and Environmental Design): site development and linkage to neighbouring communities, neighbourhood development, and green building and infrastructure. The first step is to set goals and suitable design targets to effectively deal with these issues.

The simplest and most cost effective way to establish goals for a neighbourhood is through an "integrated design process". Rather than have each discipline work independently, the master plan designers, building designers, owners and stakeholders meet as a group, on a regular basis, to discuss the various designs. The objective of the meetings is to come up with the optimum design for each neighbourhood component or element. The interaction of various professional disciplines results in a more holistic and integrated neighbourhood design.

The role of a sustainability consultant on a design team is to present energy and sustainability concepts that meet the needs and goals of the stakeholders. For each concept and alternative, the economics, benefits and liabilities, and experience in implementation should be outlined. All team members should be included in subsequent discussions to arrive at a consensus decision on the concept. Where there is some resistance or uncertainty regarding a new concept, research may be required to validate.

Following the acceptance of sustainable concepts, continued review of the various plans and designs to verify that the concepts are correctly applied is needed. Ultimately, it is the responsibility of the project stakeholders to provide direction to design teams on the concepts targeted for LEED ND certification.

## 2.0 OVERVIEW OF LEED

LEED is the most widely used and recognized green building rating system. LEED is a point-based system with four levels of achievement: Certified, Silver, Gold and Platinum, that are awarded based on the number of points earned.

While LEED has no financial incentives attached to it, a LEED designation lends a higher profile to the community. More importantly, LEED communities have a reduced impact on the environment, and offers superior living environment.

LEED was originally developed by the U.S. Green Building Council (USGBC) to provide a recognized standard for the construction industry to assess the environmental sustainability of building designs. The Canadian Green Building Council (CaGBC) has since adapted the USGBC LEED rating system to the specific concerns and requirements of buildings in Canada.

In the spring of 2009, USGBC introduced LEED for Neighbourhood Development 2009 (LEED ND). There are a total of twelve prerequisites and 110 points available for selection. The twelve prerequisites must be met to achieve any level of LEED certification, while any of the 110 available points may be pursued depending on project priorities, budget and schedule.

Similar to LEED New Construction (LEED-NC), the LEED ND system is designed to certify projects that exhibit exemplary performance in the key principles of smart growth, new urbanism and green building. The framework provides a standard for assessing and rewarding environmentally superior development practices.

Since, the LEED ND rating system is “new” in comparison with the existing LEED rating systems (i.e. new construction, core & shell, etc.) few Canadian projects have achieved certification. To date, there are 11 certified (various stages) Canadian projects and an additional 33 registered projects under the Pilot program (now discontinued) and the fully launched LEED ND program. As such, registering and certifying the Allen District Plan under the LEED ND rating system would set it apart from other developments.

Beyond a rating system, LEED is a useful design tool - focusing design team attention on each of the green issues covered by the system. A commitment to being a LEED neighbourhood greatly expands the environmental issues addressed, beyond energy efficiency to include aspects of walkability, protection of natural environments, and reducing automobile dependence, as three examples.

As a point-based rating system, credits are earned for attributes considered environmentally beneficial. LEED differs from other rating systems in that it has quantified most of the "green credits". For example, a density of 10 dwelling units per acre and 0.75 FSI must be achieved to earn a point for the compact development credit.

Perhaps the most important aspect of LEED, and its greatest strength, is the fact that it is third-party verified. That is, once the project is completed, the sustainable strategies and achievements must be documented and submitted to the Green Building Certification Institute (GBCI) for review. The submission is audited to verify that the targeted credit requirements have been met. Once reviewed, the official LEED rating is released and a plaque stating the level achieved is provided to the developer.

## 2.1 LEED CATEGORIES AND POINTS

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LEED ND (Neighbourhood Development) has 110 points covering five topic areas. Each topic area has a statement of associated goals.

LEED Category	Description
Smart Location & Linkage	Protect habitat and water bodies, reduce automobile dependence, locate on an infill and/or brownfield site, provide linkages to adjacent communities.
Neighbourhood Pattern & Design	Create walkable, connected communities, encourage compact and mixed-use development, include access to public space, minimize parking.
Green Infrastructure & Buildings	Reduce building and infrastructure energy & water consumption, use renewable energy, stormwater management, minimize solid waste, re-use existing building components, use recycled materials, reduce light pollution
Innovation in Design	Use a LEED Accredited Professional, greatly exceed the requirements of a LEED credit, incorporate innovative environmental features not covered in other areas.
Regional Priority	<p>Regional priority focuses on giving extra weighting to existing credits that are important to a particular region. Due to the presence of regionally-unique environmental issues and to encourage design teams to focus on issues that are particularly important near a project site, these regional priority points provide an opportunity to teams to achieve additional recognition for addressing issues pertinent to their locale.</p> <p>Note: These points are not available to non-US projects.</p>

Designers can pick and choose the credits most applicable to their project to achieve a rating. LEED ND has four performance ratings based on the number of points earned:

- 40 to 49 points: Certified

- 50 to 59 points: Silver
- 60 to 79 points: Gold
- 80 or more: Platinum

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## 2.2 LEED ND CERTIFICATION

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LEED Certification for an ND project can be obtained at 3 stages of a project. This is in recognition of the long timelines, from initial design to construction completion, that are associated with a Neighbourhood Development project. The certification stages are:

### OPTIONAL PREREQUISITE COMPLIANCE REVIEW:

This stage is not required but is available to projects prior to the Stage 1 or 2 review/certification. The Smart Location & Linkage (SLL) Prerequisite Review is available to projects registered for certification under the LEED for Neighbourhood Development (LEED ND) Rating System. The SLL Prerequisite Review enables project teams to ensure achievement of the SLL prerequisites. If a prerequisite is not met, the design team can modify the design before proceeding further.

### OPTIONAL PRE-REVIEW (STAGE 1):

This stage is not required but is available to projects at any point before the entitlement process begins. The submission to the USGBC for Stage 1 is largely based on conceptual plans and intents. If the pre-review approval—and rating—of the plan is achieved, the project will receive a letter stating that if the project is built as proposed, it will be able to achieve LEED ND certification. The purpose of the letter is to assist the developer in building a case for entitlement among land use planning authorities, as well as, a case for financing and occupant commitments.

### CERTIFICATION OF AN APPROVED PLAN (STAGE 2):

This stage is available after the project has been granted the necessary approvals and entitlements to be built to the proposed plan. Once submitted to the GBCI the approved plan will be reviewed. If the review is successful the project will receive a certificate stating that the approved plan is a LEED for Neighbourhood Development Certified Plan of rating 'X' (Certified, Silver etc.) and it will be listed as such on the USGBC and CaGBC websites.

### CERTIFICATION OF COMPLETED NEIGHBOURHOOD DEVELOPMENT (STAGE 3):

This stage takes place when the construction is complete, or nearly complete (dependent on the submittal requirements of the targeted LEED credits). Any changes to the Stage 2 certified approved plan should be clearly noted if they affect any LEED pre-requisites or targeted LEED

credits. If certification is awarded, the USGBC or CaGBC will issue plaques for public display at the project site, as well as listing the project on their website.

## 2.3 LIST OF LEED-ND PROJECTS

Below is a list of LEED ND registered and certified projects. The first table shows the LEED ND projects registered under the fully launched LEED ND program. Under this program, there have not been any certified projects to date, but there are 10 projects currently registered in Stage 1 and 2. The following table shows the LEED ND projects that were initially enrolled in the Pilot program. The Pilot program has since been discontinued since the full launch, and it shows that there were a total of 23 projects participating in the Pilot program with 11 certified in Stage 1 and 2, and several are attempting Stage 3.

### LEED 2009 ND Registered Canadian Projects and Plans List (by project location) - updated April 17, 2012

Project Name	City	Province	Stage Currently Attempting
1 Les Bassins du Nouveau Havre de Montréal	Montréal	QC	LEED-ND v2009, Stage 2
2 La Bella Strada	Windsor	ON	LEED-ND v2009, Stage 1
3 Lansdowne Park	Ottawa	ON	LEED-ND v2009 Stage 2
4 Pleasantville Redevelopment	St Johns	NL	LEED-ND v2009, Stage 2
5 Rebecca Street	Oakville	ON	LEED-ND v2009, Stage 2
6 Technopole Angus	Montréal	QC	LEED-ND v2009, Stage 2
7 UdeM - Campus Outremont	Montréal	QC	LEED-ND v2009, Stage 2
8 UniverCity East Neighbourhood	Burnaby	BC	LEED-ND v2009, Stage 2
9 Upper Richmond Village	London	ON	LEED-ND v2009, Stage 2
10 Wesbrook Place Neighbourhood	Vancouver	BC	LEED-ND v2009, Stage 1

**LEED for Neighbourhood Development Registered Pilot Projects and Plans List (by project location) - updated June 27, 2011**

The USGBC conducted a LEED for Neighbourhood Development pilot, which opened in 2007 with nearly 240 projects participating. The LEED for Neighbourhood Development pilot is no longer open to new projects. A number of Canadian projects participated in the pilot and have informed the development of Canadian equivalencies for the rating system. The CaGBC will not be conducting a separate Canadian LEED for Neighbourhood Development pilot.

Project Name	City	Province	Acreage	Certification Status	Stage Currently Attempting
1 Currie Barracks	Calgary	AB	196.00	Stage 2, Gold (9/21/08)	Stage 3
2 Harmony	MD Of Rocky View	AB	480.00		Stage 2
3 Strathearn Masterplan	Edmonton	AB	22.40	Stage 2, Silver (10/26/09)	None
4 The Village At Griesbach, Stage 8	Edmonton	AB	19.00	Stage 2, Gold (8/5/09)	Stage 3
5 TwinHills CENTRO	Calgary	AB	100.00		Stage 1
6 Docksider Green	Victoria	BC	15.00	Stage 2, Platinum (11/19/09)	Stage 3
7 Garrison Crossing	Chilliwack	BC	150.00	Stage 2, Certified (2/17/10)	Stage 2
8 Rainbow Hill	Victoria	BC	9.39		Stage 1
9 Southeast False Creek Neighbourhood	Vancouver	BC	80.00	Stage 2, Platinum (2/3/10)	Stage 3
10 Squamish Waterfront	Squamish	BC	13.00		Stage 2
11 Wesbrook Place Neighbourhood Plan	Vancouver	BC	99.00		Stage 2
12 Westhills Green Community	Langford	BC	470.00		Stage 2
13 Whistler Athletes Village	Whistler	BC	89.00		Stage 2
14 Batawa Community	Quinte West	ON	1,500.00		Stage 1
15 Metrogate	Toronto	ON	17.00		Stage 2
16 North Oakville East Secondary Plan	Oakville	ON	5,400.00		Stage 2
17 Preston Meadows	Cambridge	ON	10.00	Stage 2, Certified (09/27/10)	Stage 1
18 Toronto Waterfront Area 1	Toronto	ON	250.00	Stage 1, Gold (7/23/09)	Stage 2
19 Eco-Quartier, St-Marc sur Richelieu	St-Marc sur Richelieu	QC	19.50		Stage 1
20 Faubourg Boisbriand	Boisbriand	QC	54.20	Stage 2, Gold (12/15/08)	Stage 3
21 Pointe Nord	Montreal	QC	23.45	Stage 2, Gold (10/29/10)	Stage 2
22 Technopole Angus	Montreal	QC	36.00	Stage 1, Gold (9/16/08)	Stage 2
23 UdeM - Campus Outremont	Montreal	QC	95.00		Stage 2

## 2.4 THE IMPACT OF LEED

### BENEFITS OF DEVELOPING A LEED FOR NEIGHBOURHOOD DEVELOPMENT COMMUNITY

LEED for Neighbourhood Development emphasizes the creation of compact, walkable, vibrant, mixed-use neighbourhoods with good connections to nearby communities. Research has shown that living in a mixed-use environment within walking distance of shops and services results in

increased walking and biking, which improve human cardiovascular and respiratory health and reduce the risk of hypertension and obesity. The benefits of LEED developments include but are not limited to:

- Improved energy and water efficiency (minimized impact on the environment and municipal infrastructure)
- Protected natural resources by native landscaping and best practices to reduce stormwater runoff
- Minimized cost and land area required for roads and parking
- Destination and showpiece for the community and the city
- High quality of life and healthy inhabitants
- Vibrant and financially stable community
- Reduced vehicle traffic and associated emissions

### **BENEFITS TO PROJECT DEVELOPERS OF LEED FOR NEIGHBOURHOOD DEVELOPMENT COMMUNITIES**

Increasingly, municipalities are reducing fees or review periods associated with the approval process for community projects that can demonstrate a commitment to sustainability. Successfully completing the first or second stage of LEED for Neighbourhood Development certification may assist projects that are still in the planning stages to gain the necessary approvals as expediently and cost-effectively as possible. A LEED for Neighbourhood Development certification can help projects explain the environmental and community benefits of a project to residents and businesses in nearby areas. The rating system also encourages projects to work collaboratively with the existing neighbourhood to make sure their needs are taken into account. Finally, rising demand for housing and commercial space in highly walkable or transit-accessible areas can result in higher tenancy rates.

## 3.0 ASSESSMENT OF DESIGN

### 3.1 CURRENT DESIGN

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The following provides a summary of the LEED ND feasibility assessment of the Allen District Plan and outlines the strategy developed to achieve a LEED ND Certification.

#### SUSTAINABILITY STRATEGY - LEED® ND CERTIFICATION

Prerequisite/Credit has been categorized in the following manner:

- Prerequisite/Credit In Design - Are incorporated into the current district plan.
- Targeted – Were reviewed and are available as possible credits, however they are currently not in the design or were unable to be determined due to the level of detail. These credits will be targeted moving forward with the design and will be implemented into future design and/or Urban Design Guidelines and/or Development Agreements.
- Pending - Are pending due to dependence on construction activity and final design details and/or insufficient detail was provided at the time to determine.
- Not Pursued - Not recommended due to cost and/or appropriateness to the design.

From the team’s experience with the GBCI review process, it is necessary to “target” at least 5 points above any certification level threshold to allow for a safety buffer going into certification with the GBCI.

This assessment has been developed through an integrated approach with input from all design team members. Each LEED® ND credit is discussed and evaluated from a sustainability, feasibility, cost, and benefit perspective. Credits selected under the strategy were deemed the most practical and cost-effective sustainable measures to include in the design.

#### PREREQUISITES “IN DESIGN”

The prerequisites that are targeted include:

Credit Title	Credit Description
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SLLp1	Smart Location - The project is located on an infill site.
SLLp2	Imperiled Species and Ecological Communities Conservation – Work with the Ministry of Natural Resources to determine if the site contains any threatened or endangered species. If yes, a conservation plan must be developed by a qualified biologist.
SLLp3	Wetland and Water Body Conservation - No new development will occur within 30 meters of a water body.
SLLp4	Agricultural Land Conservation - The project is located on an infill site.
SLLp5	Floodplain Avoidance - New development will not occur within the 100-year floodplain.
NPDp3	Connected and Open Community – Through streets/intersections are provided at least every 250m where required, assuming the following exceptions - Allen Road, entire West boundary along airport and DND lands as well as parks greater than 1 acre and where existing residential backs directly onto property boundary.

The remaining six prerequisites can be achieved with commitment to implement specific sustainability measures in the buildings and on site.

### CREDITS ACHIEVED

The current design of The Allen District Plan has achieved 40 points. Taking the current design only, the 40 points achieves a LEED Certified level.

A total of 60 points is required to achieve a LEED ND Gold certification, and 65 are recommended for a safety buffer. The current Allen District Plan has the potential to achieve a maximum of 65 points, 40 points in the current design, plus the 25 points identified as ‘targeted’ by the design team (plus some pending points that cannot be accounted for at this time).

## 3.2 POTENTIAL DISTRICT PLAN PERFORMANCE

The prerequisites that are not met include:

## PREREQUISITES REQUIRING COMMITMENT

The following table breaks down the prerequisites which "Require Commitment" in that they are not required by code nor are they considered standard practice. It has been assumed that these prerequisites can relatively easily be integrated into the existing design.

Title	Prerequisite Description
NPDp1	<p>Walkable Streets - Unable to determine achievement as the blocks are not detailed showing buildings, entrances and elevations.</p> <ul style="list-style-type: none"> <li>▪ Ensure building's principle entry faces a public space such as a street, square, park, but not a parking lot</li> <li>▪ Street frontages have a minimum building-height-to-street-width ratio of 1:3</li> <li>▪ Provide continuous sidewalks for walking along both sides of the streets within the project</li> </ul>
NPDp2	<p>Compact Development – For residential components located within 400m of bus routes design for 12 or more dwelling units (DU) per acre, for residential components outside of the 400m of bus routes design to 7 or more DU per acre. For non-residential components located within 400m of bus routes design to 0.80 floor space index (FSI) or greater, for non-residential components outside of the 400m design to 0.50 FSI or greater. Note that the minimum densities must be achieved within 5 years from first building occupancy. Public right of ways and parking structures can be excluded from the 'buildable land'.</p>
GIBp1	<p>Certified Green Building - LEED ND requires that a minimum of one building on-site must be certified under an existing LEED rating system or equivalent.</p> <ul style="list-style-type: none"> <li>▪ Develop a land development agreement to ensure that above requirement is met</li> </ul>
GIBp2	<p>Minimum Building Energy Efficiency - New non-residential and MURBS over 3 stories: Construct 90% of the building floor area to have an energy performance 10% better than ASHRAE Standard 90.1-2007. New 1-3 family, townhouse residential, and MURBS 3 stories or fewer: At least 90% must meet Energy Star or equivalent criteria.</p> <ul style="list-style-type: none"> <li>▪ Develop a land development agreement to ensure that above requirement is met</li> </ul>

GIBp3	<p>Minimum Building Water Efficiency - Non-residential, mixed-use &amp; MURBS &gt;3 stories: Use 20% less than the water consumption baseline. MURBS &lt;3 stories &amp; single-family residential: 90% of buildings must use a combination of fixtures that would earn 3 points through the Indoor Water Use credit of LEED for Homes 2008.</p> <ul style="list-style-type: none"> <li>▪ Develop a land development agreement to ensure that above requirement is met</li> </ul>
GIBp4	<p>Construction Activity Pollution Prevention - There are no site design requirements associated with this prerequisite.</p> <ul style="list-style-type: none"> <li>▪ Ensure that erosion and sedimentation specifications and plans are included in construction scope of work</li> </ul>

### LEED CREDITS REQUIRING COMMITMENT

40 credits have been considered 'In Design'. There are 25 points assigned to 'Targeted'. These targeted credits have been presented to the team and the team collectively agreed that they are possible and will be implemented in future design and/or development agreements. These 25 points are needed to ensure that the project meets the LEED Gold level of certification.

Assuming Allen District Plan plans to target at minimum a LEED rating of Gold, Enermodal recommends targeting at least 65 points, which requires the 25 points in "targeted" be implemented into future design and development agreements in addition to the 40 points that are already in the design.

There are 20 points in labelled as "Pending". These points cannot be assessed at this time because the design is not developed to sufficient detail or are dependent on construction activities which have not begun yet. Theoretically, if all of the Targeted and Pending points were achieved, the project would have 85 points – enough for Platinum. However it is likely that not all the Pending points will be achieved. It is recommended that the project pursue all the Targeted and Pending points with the expectation of LEED Gold certification. Platinum is a possibility but should not be counted on.

## 4.0 THE PATH FORWARD

### 4.1 ACHIEVING LEED

Currently the project is achieving six of the 12 prerequisites and 40 LEED points. To achieve LEED Gold the project must achieve a recommended 65 points (60pt minimum + 5pt safety buffer). In addition to the LEED prerequisites requiring work listed in Section 3.2 and noted below, the following section provides guidance to achieve LEED Gold rating.

#### PREREQUISITES REQUIRING COMMITMENT

Credit Title	Credit Description
NPDp1	Walkable Streets
NPDp2	Compact Development
GIBp1	Certified Green Building
GIBp2	Minimum Building Energy Efficiency
GIBp3	Minimum Building Water Efficiency
GIBp4	Construction Activity Pollution Prevention

#### PATH TO GOLD

The following changes are recommended to the design to target LEED ND Gold:

- Provide affordable housing and various housing types
- Integrate additional "walkable community" measure into the buildings
- Reduce surface parking area

- Reduce automobile dependence through TDM plan (trips reduced by 20%), and/or subsidized transit passes, and/or car share vehicles on-site, and/or sell or rent parking spaces
- Implement a recreation facility, playground and/or sports playing surface into the proposed green space
- Provide street trees on both sides of 60% on new and existing streets no greater than 40 feet apart.
- Construct at least one building (beyond the prerequisite) to be certified under a LEED rating system - 40% total GFA LEED Certified
- New non-residential and MURBS over 3 stories: Design and construct at least 90% of all buildings in the project for improved energy efficiency; 18% (1 point) improvement over ASHRAE 90.1-2007. New 1-3 family, townhouse residential, and MURBS 3 stories or fewer: 90% achieve a HERS index score of at least 75
- Reduce potable water consumption for outdoor landscape irrigation by 50% from a calculated mid-summer baseline
- Implement a comprehensive stormwater management plan that retains on-site at least 95% of the average rainfall through infiltration, reuse, or evapotranspiration
- Reduce the heat island effect by providing light and/or green roofs
- Implement solid waste management measures to divert waste in the community from landfill

### PATH TO POSSIBLE PLATINUM

The following changes are recommended to the design to target LEED ND Platinum:

- Provide additional affordable housing and various housing types
- Integrate additional ""walkable community"" measure into the buildings
- Provide additional through streets or intersections along project boundary
- Use trees or other structures to provide shade (within 10 years) over at least 40% of the length of sidewalks on streets within the project
- Construct at least one building (beyond the prerequisite) to be certified under a LEED rating system - >50% total GFA LEED Certified
- New non-residential and MURBS over 3 stories: Design and construct at least 90% of all buildings in the project for improved energy efficiency; 26% (2 point) improvement over ASHRAE 90.1-2007. New 1-3 family, townhouse residential, and MURBS 3 stories or fewer: 90% achieve a HERS index score of at least 82
- Design or purchase all new infrastructure, including but not limited to traffic lights, street lights, water and wastewater pumps and treatment systems to achieve a 15% annual energy reduction below a lowest first-cost energy baseline

## 4.2 PROCESS FORWARD

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This section outlines the next steps as the project moves towards finalizing the Allen District Plan as it relates to sustainability and LEED for Neighbourhood Development. The objective of these steps is to ensure that the changes required to achieve any level of LEED ND certification are successfully implemented.

1. Integrated Workshop – the full design team needs to discuss details of recommendations, areas that require work and commitment as well as discussing cost implications and schedule/milestones as the project progresses.
2. Urban Design Guidelines – Sustainability section of the Urban Design Guidelines should be developed to assist developers and designers during the design phase.
3. Detailed Design Specifications / Land Development Agreement (LDA) – separate from the Urban Design Guidelines, detailed design specifications are required to be included in design documents and LDA, the LDA would be a binding document that would require developers/designers/builders to adhere to various LEED ND requirements to ensure that all prerequisites and targeted credits are met.
4. Register the project with the GBCI and apply for the optional Site Location and Linkage (SLL) prerequisite screening review to ensure that these prerequisites are met prior to continuing.
5. Design Review – a sustainability consultant is recommended to review and approve all design plans moving forward to ensure that it adheres with the project sustainability goals.
6. Submit the project for LEED Stage 2 certification.

## 5.0 CONCLUSIONS & RECOMMENDATIONS

The intent of this study is not to commit to the LEED ND rating system but to provide recommendations and use principles of LEED ND to incorporate as many LEED requirements as practical through integrated design process.

Currently the project is achieving six of the 12 prerequisites and 40 LEED points. To achieve LEED Gold the project must achieve a recommended 65 points (60pt minimum + 5pt safety buffer).

The current report is based on the available information for the district at this time; as more details are determined / finalized, it is anticipated the points will be modified/changed/increased. It can be noted that certain details cannot be known until a developer is on side and we are further into the process. The current Allen District Plan has the potential to achieve a maximum of 65 points (plus a further 20 pending points that cannot be assessed for at this time). These credits range in their feasibility and cost of implementation. Of these 65 points, 40 are currently in the design and 25 have been identified as targeted by the design team, achieving a Gold Rating.

Due to the high profile of this project it may be desirable to review the credits available and to aspire to at least a Gold level certification. Referring back to the list of Certified LEED ND Pilot projects, it seems the majority of them are LEED Silver and Gold, with few being Certified and Platinum.