3.0 DESCRIPTION OF THE EAST CLAYTON LAND USE PLAN

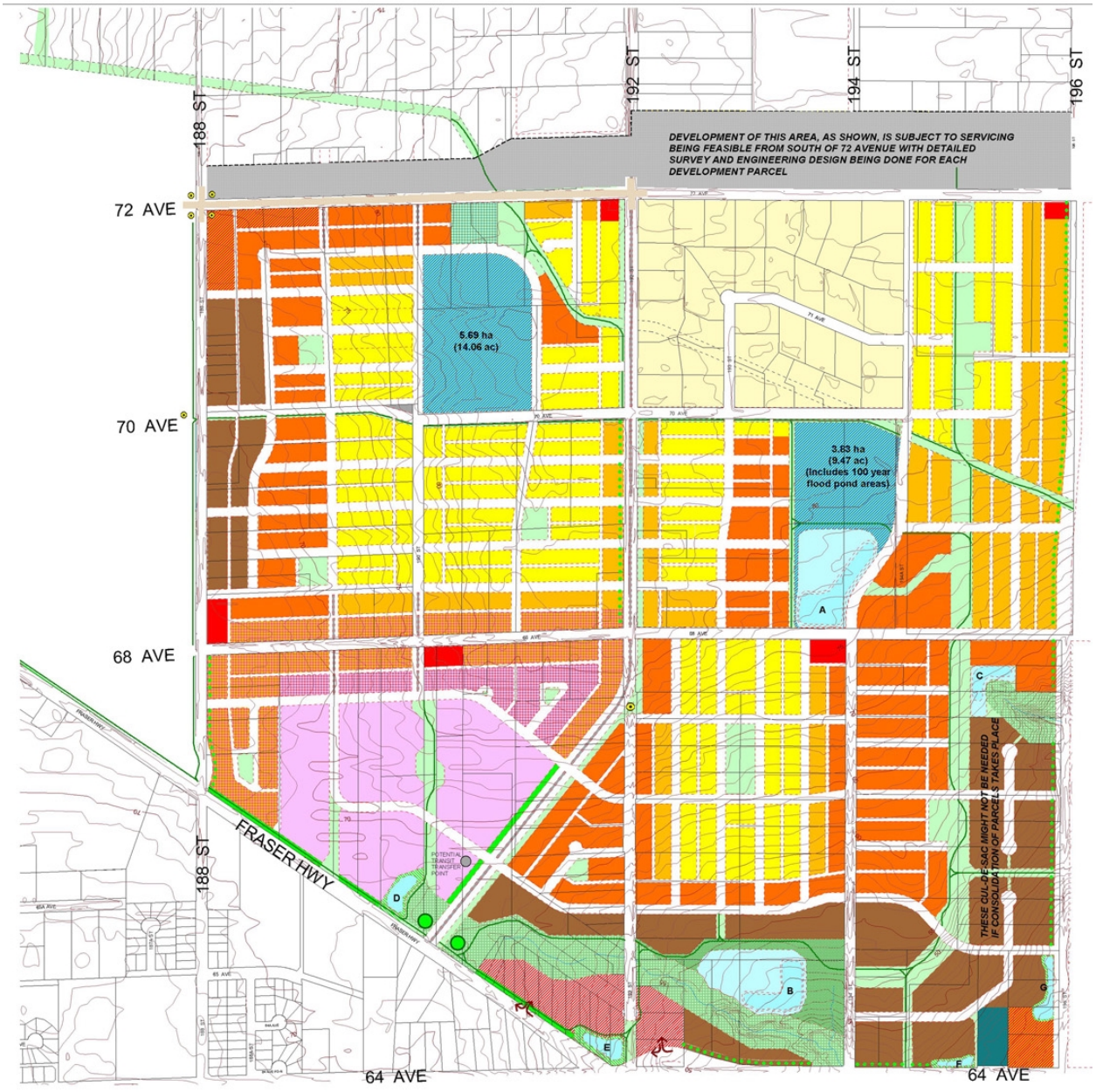
Section 3 provides a description of the various land uses proposed in the East Clayton Development Concept (***Figure 3.1***). The land uses are based upon the approved General Land Use Plan for Clayton and conform to the seven principles for sustainable development in East Clayton, as endorsed by Surrey City Council in December 1998 [1] and outlined in section 1.3.1.

Sections 4 through 7 provide detailed standards and design guidelines pertaining to four interrelated areas of the NCP: Land Use; Building Development; Ecological Infrastructure; and Engineering and Servicing. It is important to note that these standards and guidelines are mutually supportive. For example, the proposed infiltration drainage system for East Clayton is dependant upon (among other things) the fine-grained grid pattern, (which facilitates the dispersal and infiltration of groundwater), as well as ensuring that surface infiltration throughout the site is maximized. Similarly, issues of density, land use integration and street connectivity are expected to influence potential reductions in automobile dependency, while having a positive influence on neighbourhood walkability.

It is anticipated that the standards contained herein will require more detailed refinement as development applications progress through the approval process. However, the following performance standards for the land use, building footprint, ecological infrastructure, road engineering, and servicing plans must be achieved. It is expected that this will require increased efforts on the part of the City and developers to coordinate, engineer, and implement the design standards as future development takes place.

[1] City of Surrey Planning and Development Services, "Corporate Report" (Surrey, British Columbia: City of Surrey, Dec. 7, 1998).

Figure 3.1 East Clayton Land Use Plan



EAST CLAYTON NCP

City of Surrey Planning & Development Department

APPROVED BY COUNCIL ON NOVEMBER 22,1999

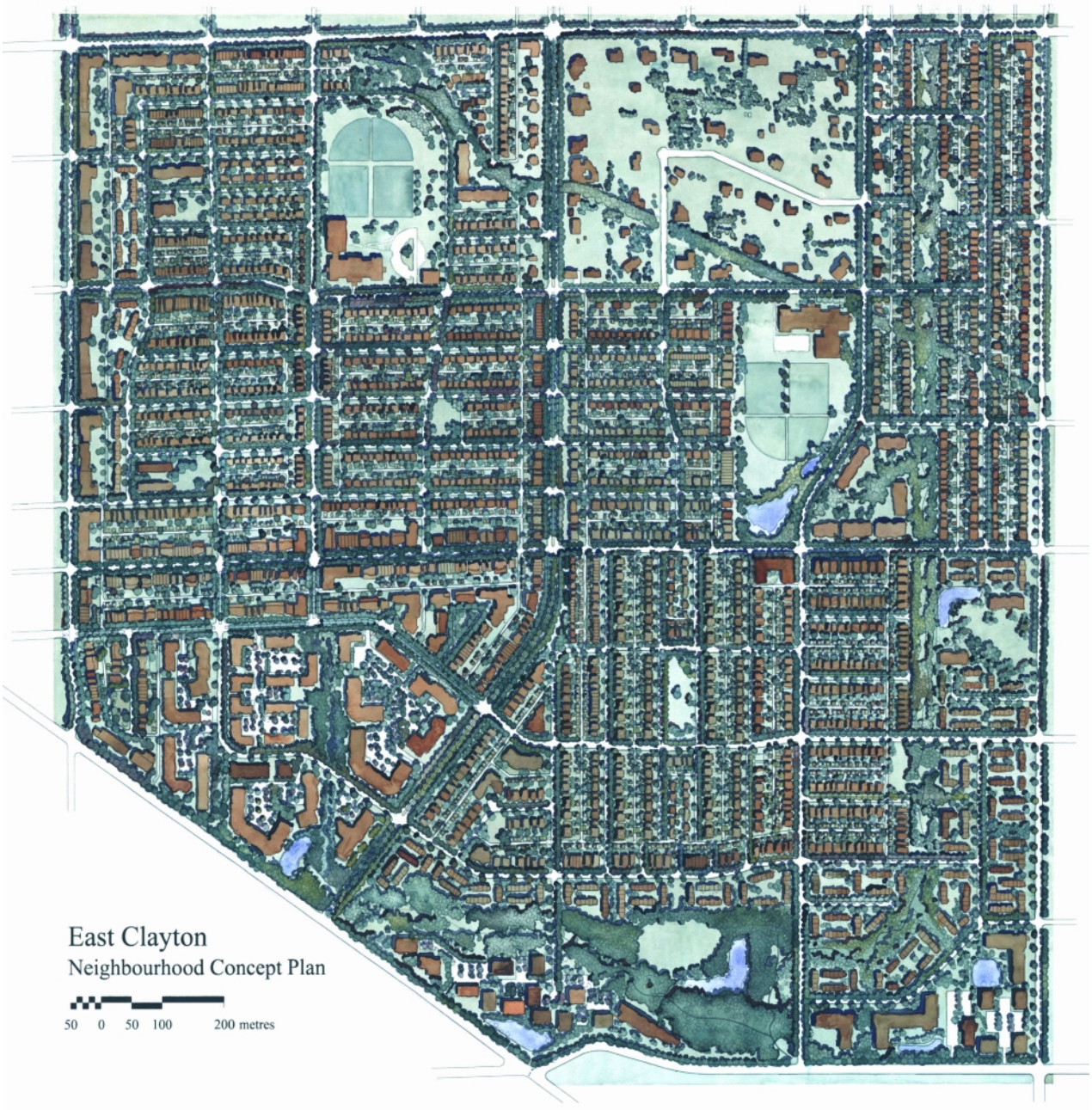
100 0 100 200 300 400 500 Meters

NOTE:
This plan is conceptual in nature and is intended to reflect a general land use pattern.

Half Acre Residential	16.74 ha	(41.36 ac)
6-10 u.p.a.	36.31 ha	(89.72 ac)
10-15 u.p.a.	16.42 ha	(40.58 ac)
15-25 u.p.a.	27.80 ha	(68.68 ac)
25-45 u.p.a.	19.28 ha	(47.65 ac)
Techno / Business Park	11.97 ha	(29.58 ac) (Incl. buffer & pond.)
Work / Live (15-25 u.p.a.)	2.86 ha	(7.06 ac)
Live / Work (15-25 u.p.a.)	7.79 ha	(19.26 ac)
Neighbourhood Commercial	1.58 ha	(3.91 ac)
Commercial / Residential	2.79ha	(6.90 ac)
Specialty Community - Oriented Commercial	3.34 ha	(8.27 ac)
Utility - Open Space	0.64 ha	(1.58 ac)
Proposed Roads		
Special Treatment of Street, Traffic Calming		

Institutional (church, schools, civic buildings, seniors housing, etc.)	0.6 ha	(1.48ac)
Storm Water Ponds (100 year flood event)	A - 2.14 ha 5.28 ac B - 1.94 ha 4.79 ac C - 0.40 ha 0.98 ac	Total 4.48 ha (11.05 ac)
Storm Water Pond on Private Property (amenity)	D = 0.32 ha (0.79 ac) E = 0.38 ha (0.93 ac) F = 0.14 ha (0.34 ac) G = 0.30 ha (0.74 ac)	Total 1.14 ha (2.81ac)
School & Park	9.53 ha	(23.54 ac) (Incl. 100 yr. flood overflow area of pond)
Riparian Protection Area	6.70 ha	(16.55 ac)
Natural Area	1.84 ha	(4.54 ac)
Open Space / Park	14.45 ha	(35.71 ac) Utility (Gas R.O.W.) 1.19 ha (2.94 ac)
Buffers (landscaped area on private property)	0.86 ha	(2.12 ac) (These areas have been incl. in the respective land use totals)
Urban Landmark / Reference Point		
Neighbourhood Gateway Feature		
Special Set Back & Landscaping		
Neighbourhood Multi-use Pathway Network		

Figure 3.2 East Clayton Illustrative Community Plan



3.1 Sustainable Planning Principles

This section presents the seven principles and describes generally how each is represented in the Land Use Plan. The plan supports enough of a variety of land uses and residential/community types to maximize affordability, sociability, and availability of commercial services within easy walking distance for the proposed population of approximately 13,000 persons. Envisioned as a complete, mixed-use community, East Clayton is designed to promote social cohesion, local economic opportunities, and environmental stewardship while providing equitable access to housing and jobs and reducing dependence on the automobile.

Principle No. 1

Conserve land and energy by designing compact walkable neighbourhoods. This will encourage pedestrian activities where basic services (e.g., schools, parks, transit, shops, etc.) are within a five- to six- minute walk of their homes.

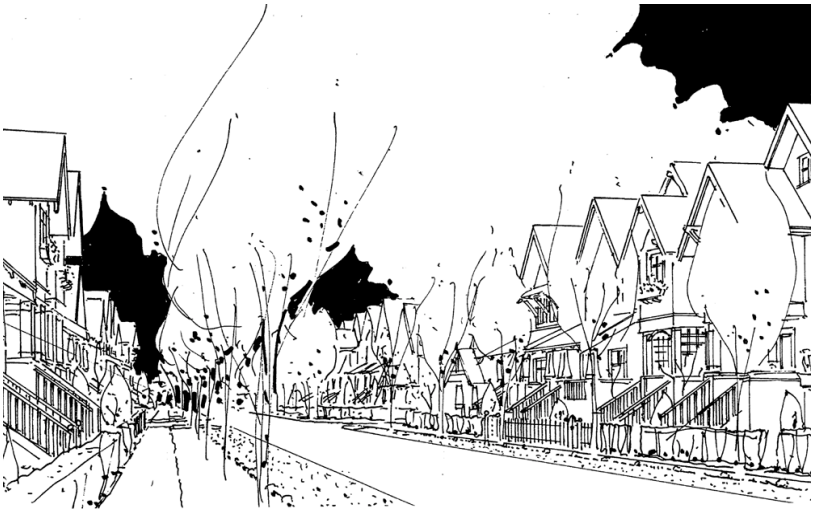
Achieving a pedestrian-oriented neighbourhood requires that homes be within a walkable distance of shops and services and that streets be interconnected to provide the widest possible choices for reaching nearby destinations. Accordingly, residential neighbourhoods are to be structured around a fine-grained modified grid of streets and lanes, with block dimensions averaging 160 metres (525 feet) by 80 metres (250 feet). They are to be considered both public corridors and neighbourhood amenities and are to accommodate automobile, pedestrian, and bicycle traffic while ensuring easy access to local destinations.

Two schools/major parks are to be located centrally within the community and among residential uses, and each smaller residential area is to be organized around a central neighbourhood green. Building design and orientation are to reflect the size, location, and configuration of individual parcels.

The "Main Street" Commercial Area, located at 188th Street and 72nd Avenue, is the most important commercial destination for residents of East Clayton. This district will also serve the additional 15,000 new residents expected to reside in the surrounding Clayton community within the following 30 years.

Additionally, each individual neighbourhood is to have a neighbourhood commercial area that provides a working and shopping place for people within walking distance of their residence. Urban landmarks and neighbourhood gateway features will announce entries into different neighbourhoods, create a civic focal point, and enhance wayfinding throughout the community.

A mixed-use commercial core. A mix of uses (i.e., commercial-residential; live/work and work/live; ground-oriented town homes), street-oriented buildings, and human-scaled detailing will contribute to the creation of pedestrian-friendly and economically vibrant community nodes.



This perspective sketch shows a diversity of dwelling types and sizes on the same street, a diversity that is masked by the similarity in massing, height, and quality of detail of all the structures. Common touches (such as covered porches, deep overhangs, front-yard fences and hedges, and the amount of window space on the front of buildings), contribute to a powerful sense of unity – a unity that includes a diversity of people within a cohesive community.

Principle No. 2

Provide different dwelling types (a mix of housing types, including a broad range of densities from single-family homes to apartment buildings) in the same neighbourhood and even on the same street.

The plan accommodates a wide variety of household types and tenures. A diverse and socially cohesive neighbourhood for the community population of approximately 13,000 persons is the intended result. The plan promotes integration and symbiosis between different family types and ages as a way of strengthening the larger community. Creative and economic housing options will be encouraged, such as single-family homes with a second dwelling unit available to provide a "mortgage-aid" to young families, while also serving those individuals and families in need of affordable housing.

The types of housing offered by this plan include multiple-unit residential in the form of apartments and fee-simple ground-oriented townhouses, single-family homes on small- to medium-sized lots, live/work, and mixed-use commercial/residential housing. The diversity of housing tenures and types that the plan proposes ensures that a proportion of units are affordable rental suites capable of adequately serving Surrey citizens, whose earned income places them in the bottom one-third of earners regionwide.

Small front setbacks ensure more "eyes on the street" and create a larger back-yard area for private outdoor space. Low front-yard fences clearly distinguish between private and public space. Street trees, boulevard infiltration strips and on-street parking create a pleasant envelope for pedestrians and buffer the effects of passing traffic.

Principle No. 3

Communities are designed for people; therefore, all dwellings should present a friendly face to the street in order to promote social interaction.

Blocks are to be proportioned to create a fine-grained, interconnected network of streets; to reduce congestion; and to allow as many homes as possible to front directly onto public streets. The image below (on the right) shows how dwellings are situated closer to streets, thereby ensuring more "eyes on the street" and creating a larger backyard area for private outdoor space. Front yards will have buffers that ensure privacy and clearly distinguish between private and public space. Street trees, boulevard infiltration devices, and on-street parking will create a pleasant envelope for pedestrians and provide a buffer from passing traffic.

The image at the near right depicts a residential street dominated by garage doors.

The image at the far right shows a streetscape of similar-sized lots but with garages located off rear lanes, thereby allowing homes to directly address the street.

Principle No. 4

Ensure that car storage and services are handled at the rear of dwellings.

The existing site conditions (i.e., topography, vegetation, road network, and parcel configuration) determined the proposed community structure and lot sizes for East Clayton. Narrow lots demand lanes so as to prevent building fronts from being consumed by garages, front yards from being consumed by concrete, and residents from being closed off from contact with activities on the street by the barrier of the garage (as shown in the image above left). Lanes allow cars to gain access to units from behind, resulting in a reduction of the required frontyard setback and an increase in useable backyard space. A small portion of the plan includes shallower blocks that have wider lots with no lanes. However, on these wider parcels, the lot dimension allows garages to be placed beside and behind the principal façade rather than in front of the dwelling, thereby maintaining direct front-door access to the street and reducing the negative effect of garages on streets.

Principle No. 5

Provide an interconnected street network, in a grid or modified grid pattern, to ensure a variety of itineraries and to disperse traffic congestion; and provide public transit to connect East Clayton with the surrounding region.

The organization of roads, blocks, parks, parkways and riparian areas responds to the site's topography and the location of its sub-watersheds, which are found in the southern portion of the site around Cloverdale Creek, McLellan Creek, and Horner Creek (see ***Figure 2.2***). The street network is organized around a four-part hierarchy of streets, which includes arterials, collectors, local streets, and lanes. This is unlike conventional developments, wherein traffic is routed along an exclusive and dendritic (i.e., branching like a tree) hierarchy of roads — from an arterial, to a collector, to a local, and finally to a cul de sac. The plan's integrated system proposes that traffic be dispersed across the interconnected and modified grid, thereby reducing the need for arterials and large intersections. Major and local through-traffic is accom-

modated on a system of major and minor arterials, which is to be furnished according to specific requirements for servicing, utilities, drainage, pedestrian amenities, and urban forestry. Through-traffic occurs on the north-south routes of 188th, 192nd, and 196th Streets, and along 68th, 70th, and 72nd Avenues, with the Main Street mixed-use commercial street occurring along 72nd Avenue. This system, in concert with sufficient provision of mixed-use services and access to transit, can produce major reductions in auto dependence. Areas similar to East Clayton show up to 40 percent reduction in trip generation per capita. The plan assumes a 25 percent reduction as the basis for designing the transportation network that will serve the wider area.

Principle No. 6
Provide narrow streets shaded by rows of trees in order to save costs and to provide a greener, friendlier environment.

Paved street widths for local and collector streets range from 6 metres to 11.3 metres. Rights-of-way for these streets range from between 17 metres (56 feet) and 22 metres (72 feet), depending on the specific infrastructure and servicing and amenity requirements (i.e., drainage, traffic volume, and urban forestry) of each individual corridor. The image below shows a narrow, curbless residential street. Its curbless profile allows water to infiltrate directly into the infiltration zone, and street trees are closely spaced to provide ample shade for pedestrians.

Narrow, curbless streets save money, cause fewer ecological impacts and are more easily shaded by street trees.

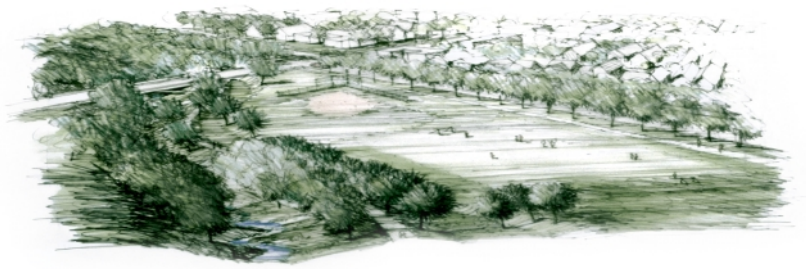
Principle No. 7
Preserve the natural environment and promote natural drainage systems (in which storm water is held on the surface and permitted to seep naturally into the ground).

The backbone of the plan's ecological infrastructure is its linked system of streets and open spaces, which includes local streets, major and minor parks, schools, riparian protection areas, tree preservation areas, neighbourhood parks, and buffers. This system will have many beneficial functions. It will simultaneously satisfy social, recreational, and educational demands while meeting important ecological goals (such as stream protection, stormwater management, and habitat preservation). As a result of the increased permeability of road and yard surfaces, it is anticipated that at least 80 percent of all annual rainfall will be absorbed by the soil in yards and roadway boulevards.

3.1.1 Performance Objectives

The plan includes two major park/school sites, which are to function as retention ponds/artificial wetlands during unusually heavy rains and as useable green areas for the surrounding residents and school facilities during normal periods (image below). In addition, a series of shallow ponds are to serve as detention/

Large parks and school grounds are integral components of the site's ecological infrastrucutre. They provide on-site bioremediation and infilatration for large storms, and they become shallow retention basins during 20 to 100 year storm events.



infiltration areas for more frequent major rains, holding it until it too can seep naturally back into the soil; be transpirated by aquatic plants; or be released gradually into the stream. Designed as natural components of two of the three major parks, these ponds are to provide a permanent habitat for avian and aquatic species while also making a positive contribution to the aesthetic quality of the landscape.

The above seven principles provide the general parameters for sustainable planning and design in East Clayton. The following are feasible targets for performance in the areas of ecology, economy, and equity. These performance targets informed the design brief for the charrette (see Appendix 3) and are derived from key local, regional and provincial policies relating to sustainable development over the past decade.[2]

ECOLOGY

To improve air quality by reducing auto use:

- Ensure that commercial and transit services are to be within a 400-metre walkable radius of all residents.
- Ensure a 25 percent reduction in travel-related CO^2 emissions generated per capita and corresponding increase in air quality.

To maintain stream health and to enhance habitat:

- Maintain or enhance ecological performance of native aquatic habitats.
- Ensure that 60 percent of parks, riparian areas, and greenways have significant habitat value.
- Maintain existing base flow level in all on-site and off-site stream channels.
- Maintain stream temperature.
- Eliminate storm surge.
- Eliminate water pollution.

EQUITY

- Provide one job per 2.8 community residents.
- Provide a wide variety of unit types appropriate to citizens of all ages and family types.

[1] British Columbia Energy Council, *Planning Today for Tomorrow's Energy* (Vancouver, British Columbia: British Columbia Energy Council, 1994); BC Hydro, *Bringing Electricity to the Liveable Region* (Vancouver, British Columbia: BC Hydro Corporation, 1994); BC Transit, *Transit and Long Range Planning* (Surrey, British Columbia: BC Transit Long Range Planning, 1994); CORE, F*inding Common Ground: A Shared Vision for Land-use in British Columbia* (Vancouver, British Columbia: Commission of Resources and Environment, 1994); City of Surrey Planning and Development Services, "Suburban Lands Review Study" (Surrey, British Columbia: City of Surrey,1992); City of Surrey Planning and Development Services, *Official Community Plan* (Surrey, British Columbia: City of Surrey, 1996); City of Surrey Planning and Development Services, "Corporate Report" (Surrey, British Columbia: City of Surrey, Dec. 7, 1998). City of Surrey Planning and Development Services, "Official Community Plan Background Report: Existing Policies" (Surrey, British Columbia: City of Surrey, 1994); City of Vancouver Planning Department, *Clouds of Change: Final Report of the City of Vancouver Task Force on Atmospheric Change* (Vancouver, British Columbia: City of Vancouver, 1990); Greater Vancouver Regional District, *Livable Region Strategy: Proposals* (Burnaby, British Columbia: Greater Vancouver Regional District, 1993); Greater Vancouver Regional District, *Livable Region Strategic Plan:* (Burnaby, British Columbia: Greater Vancouver Regional District, 1995); Province of British Columbia Legislative Assembly and Minister of Municipal Affairs, *Bill 11 – 1995, Growth Strategies Statues Amendment Act* (Victoria, British Columbia: Province of British Columbia Ministry of Municipal Affairs, 1995).

- Provide at least 20 percent of affordable rental housing relative to income distribution and family size of the surrounding communities – with an emphasis on affordable family housing – throughout the community.

ECONOMY

- Orient all residential units so that they maximize passive solar heating.
- Reduce cost of infrastructure by 20 percent.
- Increase efficiency of land by 30 percent.
- Incorporate imaginative financing devices (i.e., mortgage helpers in the form of secondary suites and live/work).
- Reduce base cost of housing by 25 percent per square foot.

3.2 Land-Use Types

The following section provides a brief description of each land-use type and its designated land allocation. ***Table 3.1*** identifies proposed building and population densities for each of the land-use types and shows low, average, and high density targets for each land-use.

3.2.1 Residential Areas

Including the existing one-acre lot subdivision at Aloha Estates, approximately 119.3 hectares (294.9 acres) of East Clayton's land area is proposed for future residential use. The proposed residential land uses offer a wide variety of forms and tenures within walkable neighbourhoods, as per the sustainable planning principles including:

Aloha Estates Future Half-acre Residential
Single-family homes with and without ancillary and/or coach house units on half-acre lots up to a maximum density of 4 units per acre. (Rezoning and subdivision of existing one-acre lots will require a high level of cooperation from residents and hinge upon the timing of road infrastructure and servicing.)

Low Density
Single-family homes (with and without ancillary and/or coach house units) and duplexes on lots of an approximate area of 372 m^2 to 414m^2 (4,000 to 4,500 sq. ft.) up to a maximum of 557.4 m^2 (6,000 sq. ft.) with and without lanes at densities between 6 and 10 units per acre.

Medium Density
Single-family homes (with and without ancillary and/or coach house units) on narrow lots of an approximate area of 270m^2 to 360m^2 (3,000 to 4,000 sq. ft.) with lanes at densities between 10 and 15 units per acre.

Medium-High Density
Row houses, duplexes, stacked townhouses, or single-family houses with a coach house at densities between 15 and 25 units per acre.

High Density
Fee-simple row houses on lots between 185.8m^2 360m^2 (2,000 and 3,000 sq. ft.), stacked

townhomes and apartments at densities between 25 and 45 units per acre.

Mixed-Use/"Main Street" Residential
Residential units above ground floor commercial uses (see also *Mixed-Use Commercial*)

3.2.2 Commercial Areas

A total of 7.61 hectares (19.08 acres) of the site area is designated for three types of commercial use.

Mixed-Use /"Main Street" Commercial
The Main Street commercial centre is located at the corner of 72nd Avenue and 188th Street. Located at a key entry point to the neighbourhood, the Main Street commercial centre is to serve as the heart of the community and will connect East Clayton to the wider Clayton area. This area is to be pedestrian-oriented in terms of street design as well as building massing and orientation, and is to have a "village-centre" character. A smaller mixed-use commercial/residential area is to be located at the opposite end of the neighbourhood at the corner of 196th Street and Fraser Highway. (see also *Mixed-Use/"Main Street" Residential*)

Neighbourhood Commercial
Smaller-scale commercial areas are proposed at five additional locations, which are situated so that every residential unit is within a five-minute walk of at least one commercial location. These smaller commercial areas may also incorporate residential use above the street-oriented commercial units.

Specialty Commercial
A specialty community-oriented commercial area, geared towards both local residents as well as those from the wider community, is proposed along Fraser Highway. It is imagined that this area could be similar to the commercial area at Panorama Village (No.10 Highway and 152nd Street) and would be a particularly good location for restaurants and shops.

Development within the three commercial areas will conform to the relevant commercial zones contained in the Surrey Zoning By-law. However, where allowable uses and regulatory standards contained in the related By-laws are inconsistent with the performance objectives outlined in the NCP (i.e., parking, building coverage, and setbacks), these alternative standards will be incorporated in the Zoning By-law by way of consequential By-law amendments.

3.2.3 Live/Work, Work/Live Areas

Adjacent to the business park, along 68th Avenue between 188th and 192nd Streets, 26.32 acres are proposed for Live/Work, Work/Live uses. At densities between 15 dwelling units per acre and 25 dwelling units per acre these forms of mixed-use accommodation allow for home-based work and for certain types of craft, office, retail, and selected wholesale uses as well as consultant businesses. The distinction between Work/Live and Live/Work use resides in the proportion of the building area given over to office- or work-related use versus residential use. In addition, the live/work area differs from the mixed-use commercial areas in that the residential component of the building is tied in tenure to the business component. The intent is for the Work/Live area to provide a transition from

the Techno-business park area to the Live/Work area. The Live/Work area will provide a transition to residential uses north of 68th Avenue. A type of housing unique to Surrey, this type of land-use fulfils a need for affordable housing and provides home-based work opportunities within a complete community.

The City of Surrey Zoning By-law does not currently include work/live, live/work zones. It is anticipated that further refinement to this concept is required before development of the live/work area proceeds. This notwithstanding, the development guidelines presented in Section 4.3 provide direction with regard to lot coverage, possible uses, building integration, and architectural character for these areas.

3.2.4 Techno-Business Park

In keeping with the Clayton Land-Use Plan, the East Clayton NCP designates approximately 11.9 hectares (33 acres) of the south-central portion of the site (between 192nd Street and 188th Street) a business park area. Uses within this area will be oriented towards industry of a high-tech and/or light manufacturing and service nature. The development of the Techno-business park zone will generally conform with the existing IB "Business Park" Zone of the Zoning By-law.

3.2.5 Public and Natural Areas

A total of 37.67 hectares (93.1 acres) of the site is allocated for an integrated system of public and natural areas consisting of but not limited to: two school/park sites, a system of neighbourhood, and riparian parks, greenways, and landscaped buffers. These components are considered part of the green infrastructure system, and thus will perform multiple functions, including recreation, habitat, and surface drainage. See Section 5 "Green Infrastructure..." and Section 6 "Engineering Servicing" for more detailed performance requirements related to natural drainage, environmental enhancement, and circulation.

3.2.5.1 School/Park Sites

The size and location of the two school/park sites conforms to the policy "Site Layout and Design Guidelines for the Planning of School/Neighbourhood Park Sites Jointly Operated by the City of Surrey and School District No. 36." This policy indicates that school/park sites should have an area of between 13 and 20 net acres and be located to serve a minimum of 750 and maximum of 1,500 family-oriented housing units. The two sites are centrally located within walking distance of the surrounding residential communities and are both aligned with the 70th Avenue collector street (also designated as a greenway). Section 5.0 of this report provides general performance objectives for the school/park sites within the context of the green infrastructure system. However, in order to achieve compatibility with related City and Provincial policies, in addition to meeting the performance objectives of the NCP, specifically with respect to drainage and urban forestry, more detailed standards and design guidelines will be required as development proceeds.

Table 3.1 East Clayton Land Use Statistics

LAND-USE	Area in hectares/acres		FAR	Average No. of Units per Ha./Acre		Total No.Units (low range)	Total No.Units (mid range)	Total No.Units (high range)	% of Total Net Area	Estimated Population (average of 2.8 people per unit)	
Residential											
Future half-acre residential (4 upa max.)	16.74	41.36	0.50	5	2	41	84	165	9%		234
Low density (6 - 10 upa)	36.31	89.72	0.55	20	8	538	717	897	19%		2,009
Medium Density (10 - 15 upa)	16.42	40.58	0.60	31	12.5	406	507	609	16%		1,420
Medium-High Density (15 - 25 upa)	27.80	68.68	0.90	49	20	1,030	1,373	1,717	15%		3,845
High Density (25 - 45 upa)	19.28	47.65	0.90	86	35	1,191	1,667	2,144	10%		4,667
Mixed-Use (25 - 45 upa)	2.79	6.90	2.50	86	35	172.5	241	311	1.5%		675
Total Residential	**119.3**	**294.9**				**3,379**	**4,589**	**5,843**	**70%**		**12,616**
Live /Work Work / Live										**Est. # Jobs Created**	**Population (average 2 people per unit)**
Live / Work	7.79	19.26	.9-1.5	50	20	289	392	481.50	4%	392	785
Work /Live	2.86	7.06	.9-1.5	50	20	106	141	176.50	2%	282	282
Total Live /Work Work / Live	**10.65**	**26.32**				**395**	**534**	**658.00**	**6%**	**675**	**1067**
Commercial								**Total m2 (Square ft.)**			
Mixed-Use Commercial	2.79	6.90	1.80					4,079 (43,889)	1.5%	41	
Neighbourhood Commercial	1.58	3.91	0.4 (commercial only)					12,643.7 (13,6047)	0.8%	129	
Specialty Community-Oriented Commercial	3.24	8.27	0.80					33,360 (358,959)	2%	1,074	
Total Commercial	**7.61**	**19.08**						**50,082.7 (538,895)**	**4%**	**1,244**	
Total Business Park	**11.97**	**29.58**	**0.75**					**95,891 (1,031,789)**	**0.6%**	**3,093**	
Total Institutional	**0.60**	**1.48**		**existing church**				**approx. 3,015.7 (32,450)**	**0.3%**		
Schools, Parks, Greenways and Riparian Areas											
School/Park Sites	9.53	23.54							**5%**		
Storm Water Pond (Public property)	4.48	11.05							**2%**		
Storm Water Pond (Private property)	1.14	2.81							**1%**		
Riparian Protection Area	6.70	16.55							**4%**		
Parks and Linear Open Space	14.45	35.71							**3%**		
Buffers (landscaped private property along arterials)	0.86	2.12							**0.5%**		
Natural Area (adjacent to Riparian Greenway)	1.84	4.54							**0.7%**		
Utility Open Space	0.64	1.58							**0.3%**		
Total Schools, Parks, Greenways and Riparian Areas	**39.64**	**97.90**							**16%**		
Total net area (hectares/acres)	**190**	**469**									