



Corporate Report

NO: R254

COUNCIL DATE: DECEMBER 3, 2007

REGULAR COUNCIL

TO: **Mayor & Council** DATE: **November 29, 2007**

FROM: **General Manager, Planning and Development** FILE: **6520-20 (East Clayton)**
General Manager, Engineering
General Manager, Parks, Recreation & Culture

SUBJECT: **Progress Report – Implementation of the East Clayton
Neighbourhood Concept Plan**

RECOMMENDATION

It is recommended that Council receive this report as information.

INTENT

The purpose of this report is to advise Council of the progress, to date, in achieving the land use and sustainability objectives set out in the East Clayton Neighbourhood Concept Plan ("NCP").

BACKGROUND

At the September 10, 2007, public hearing, related to a rezoning application in East Clayton, Council heard concerns from property owners in the area south of 64 Avenue with regard to the rapid pace of development in East Clayton, the lack of amenities such as sidewalks, walkways, parks, schools and transit and concerns over traffic congestion, tree removal, and flooding experienced earlier this year. In response to these concerns, Council requested that staff report back on the status of development in East Clayton and with respect to how well the implementation is achieving the objectives articulated in the East Clayton NCP.

DISCUSSION

Principles of Sustainable Planning for East Clayton

Council approved the East Clayton NCP in March 2003, following an extensive and collaborative planning and public consultation process. The Land Use Plan approved in March 2003 is shown in Appendix I and the Plan, as amended in June 2007, is shown in Appendix II.

East Clayton is envisioned as a complete, mixed-use and walkable community, designed to be integrated and socially cohesive, providing local commercial, employment and recreation opportunities and environmental stewardship. In the context of this vision, seven sustainable planning principles were adopted to guide the formation of the Land Use Plan and NCP document. This report reviews these planning principles for the development of East Clayton, and the progress, to date, in meeting these principles.

Principle #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 all homes. This includes:

- **A network of fine-grained interconnected streets with small blocks, walkways and multi-use pathways connecting neighbourhoods and destinations.**

This has been and is being implemented, for the most part, in East Clayton. Some minor exceptions have occurred where the developer was unable to assemble the adjacent properties as was envisioned in the Plan (e.g., 69A Avenue/193 Street), or where keeping a site intact for a multi-residential land use. (e.g., townhouse developments at 72 Avenue/189 Street and at 70 Avenue/192 Street, and apartment development at 64 Avenue/194 Street).

Some of the roads, sidewalks and walkways are either under construction or will be constructed when servicing agreements are executed and implemented for those developments currently in process. Further, a greenway system is being implemented throughout the East Clayton, as described below.

- **Amenities such as schools, parks and local commercial services located within about a 400-metre radius of homes.**

Parks and Open Spaces

Parks, greenways and linear open space have been planned within a 400 metre radius to encourage walking and cycling, instead of driving, to access local parks and amenities. This standard exceeds the Official Community Plan targets for parks, which are also reflected in the current Parks, Recreation & Culture Master Plan. The East Clayton NCP requires a combination of small pocket parks, plus two neighbourhood parks on combined school/park sites.

- The construction of the first neighbourhood park, northeast of 70 Avenue and 190 Street, will commence after the completion of negotiations to acquire/exchange portions of lands with Metro Vancouver . This park will focus on active recreation and sport fields.
- The second neighbourhood park will be located to the northwest of 68 Avenue and 194 Street. Its design and development will emphasize environmental preservation, stewardship and education outreach. Design has been completed and construction is expected to begin in 2008-2009.
- Four smaller parks (pocket parks) provide local neighbourhood greenspace and function as park amenity space in the denser small lot single family areas. Three of these four pocket parks, north of 68 Avenue and west of 192 Street, were developed in the initial phase with trees, shrubs and lawn. The Parks, Recreation & Culture Department is further evaluating local amenity needs for possible enhancement for two or three pocket parks.
- The fourth pocket park is to be located at the corner of 67 Avenue and 193 Street. Staff is presently in the design phase and currently undergoing a community consultation process. The completed concept plan will be brought to Council in January 2008, with the intent to develop the park in 2008-2009. This park has been identified to meet the need for family amenities, with increased demand anticipated with the development of the southeast area of East Clayton. The community consultation process, to date, has expressed strong support for amenities for young children and young adults, and for paths and open green space.

In addition to these six parks, East Clayton is planned around two major linear park/walkway corridors: one running generally in the east-west direction, which is part of the Clayton Greenway, and the other located in the east and south portions of the NCP area, as shown on the attached plans. When the City is able to finalize acquisition of the land, this greenway will merge into the pathway system within the future open space to the west of 194 Street and along the riparian area of the McLellan Creek. The linear park to the east of 194 Street will connect to small park areas at two locations to the north of 70 Avenue and to the south of 66 Avenue. Some sections of these linear parks are still in the process of consolidation.

These are part of a larger park and greenway system important to the greater Clayton area, such as the Clayton Greenway, and Clayton Park on 70 Avenue. Clayton Park will be this area's community park and will address many senior, sports, youth, early childhood and informal sport needs. A portion of Clayton Park has also recently been approved by Council as the site for the new Cloverdale Dog Off-leash Park. South of Clayton Park is a "pond-park", which will be integrated into the Clayton Greenway and will be enhanced through native vegetation and pathways.

Schools

East Clayton has been served, to date, by the Latimer Road Elementary School at 192 Street and 60 Avenue, which has significant surplus and growth capacity, and East Clayton Elementary School at 72 Avenue, west of 188 Street.

The School District advises that one of the two new elementary schools planned for East Clayton, Clayton Centre School at 70 Avenue and 190 Street, is scheduled to open in 2009-2010. The construction date for the second school has not yet been announced.

The School District is in the process of completing the purchase of an additional secondary school site to relieve the Clayton Heights Secondary School, which is currently over the nominal capacity of 1,000 students by 215 students. Construction is not anticipated for several more years.

Commercial Services

The East Clayton NCP anticipates that the commercial services for the local residential population will be provided from the commercial developments located in seven nodes within the area. These nodes are located throughout the area, such that each home will be within about a five minute walking distance of one of the commercial nodes. The NCP provides for:

- **Two neighbourhood commercial nodes** at 68 Avenue/194 Street and at 72 Avenue/192 Street;
- **Two mixed-use commercial/residential nodes** in the future Clayton Village Centre and at 64 Avenue/196 Street;
- **Two Special Residential nodes** at 72 Avenue/195 Street and on 68 Avenue, west of 192 Street. The Special Residential allows low impact, small-scale commercial as an optional land use within the residential units; and
- **One Specialty Commercial node** on Fraser Highway between the existing 192 Street and future relocated 192 Street.

Additionally, a neighbourhood/community-oriented commercial area is proposed on the east side of 188 Street from Fraser Highway to 68 Avenue. This node would also provide commercial services to part of the area covered by the Special Residential node on 68 Avenue. The plan in Appendix III shows the areas that would be within 400 metres (five minute walking distance) of these nodes.

A number of development applications within the Special Residential nodes have been approved and most of the units have been built. To date, however, except for one sign for a tailor shop in one of these units and a recent chiropractor clinic, the owners of these Special Residential units are not exercising their option to provide commercial services for the neighbourhood. Additionally, the easterly part of the mixed-use commercial/residential designation, at the 72 Avenue/188 Street location,

was amended to allow a townhouse development with Special Residential use permitted in the units facing 72 Avenue. To date, there is no evidence of any commercial services being provided from these units. To date, the City has not been particularly successful in establishing true live/work areas.

Two applications have been received for mixed-use commercial/residential, one on 188 Street at 72 Avenue, which is currently inactive, and the other at 64 Avenue and 196 Street, with recently submitted plans for some commercial in conjunction with a seniors independent living facility. Two applications have also been received for neighbourhood commercial, one at 68 Avenue and 194 Street, which is currently inactive, and the other, a recent application, at 72 Avenue and 192 Street. There has been no interest, to date, in developing the area designated on the Plan for Specialty Commercial on Fraser Highway at 192 Street.

- **Providing for live/work developments, mixed-use developments and employment areas within the neighbourhood.**

The Special Residential designation, as discussed above, provides for the live/work opportunities.

The East Clayton Plan shows a **Business Park** designation on Fraser Highway to provide employment opportunities for the local population within a short distance of the homes. The recent NCP Amendments has reduced the area designated for Business Park from what was originally approved in 2003 under the NCP. The properties under this designation remain undeveloped.

- **Pedestrian priority through sidewalks on each side of all roads, wider than standard boulevards between sidewalks and curbs, curb-bulges at intersections and traffic calming designs at key crossings.**

In keeping with the NCP, these features have been incorporated where roads have been constructed, and will be implemented in the future roadworks. Further, on November 5, 2007, Council authorized staff to undertake a number of improvements at the intersections of 188 Street at Fraser Highway, 68 Avenue and 70 Avenue in order to provide safe road crossings for a visually impaired resident student in East Clayton (Corporate Report No. R230). This will also enhance the safety for other pedestrians at these crossings.

- **Encouraging small to medium sized lots including some lots with coach houses or secondary units and compact housing forms such as rowhouses, townhouses and apartments to achieve at least the recommended "base density" within each development site in order to achieve the net overall residential density of 36.47 units per hectare/14.7 units per acre within the neighbourhood.**

East Clayton's development, to date, contains, or will contain, a variety of residential densities and single family lots under a number of small lot zones. It also contains townhouses and four storey apartments. The overall net density, based on the projects already constructed, or under construction or application, is approximately 39.53 units per hectare/16 units per acre), which is slightly above the base density of

36.47 units per hectare/14.7 units per acre proposed in the NCP. To date, 2,160 dwelling units are built or under construction. Additionally, 2,128 dwelling units are in the development application approval process. The East Clayton NCP anticipates a total of 4,370 to 6,038 units at build-out, generating a build-out population of 12,236 to 16,906 at 2.8 persons per unit.

Principle #2

Provide different dwelling unit 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.

East Clayton, to date, contains a variety of single family lots, townhouses and apartments. The housing mix envisioned in the Plan is largely being achieved, including single family lots containing coach houses at the rear of the lots, accessed from the rear lanes. The current development may fall somewhat short of the true housing mix and diversity of housing form in the following areas:

- A mix of lot types and housing types on the same street and in the same blocks has not been fully achieved;
- Fee-simple lots containing rowhousing units have not materialized to date.

Principle #3

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

This principle has been achieved, to a large extent, through the promotion of rear lanes, and housing forms that include front porches that face onto local parks and local streets.

Principle # 4

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

This principle has been achieved, to a large extent, through the promotion of rear lanes to provide access and service to the adjacent lots.

Principle #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 convenient public transit to connect East Clayton with the surrounding region, through:

- **A modified grid system consisting of interconnected local and minor collector roads with short blocks averaging 160 metres long by 65 metres wide and rear lanes providing vehicle access to at least 60% of the residential lots;**

- **A system of walkways, bike routes and multi-use pathways to enhance the interconnectedness of the neighbourhood; and**
- **Traffic calming to moderate the impact of the vehicle speed within the neighbourhood and enhance pedestrian safety.**

Much of the grid road and rear lane system with short blocks and the system of the walkways, bike routes and multi-use pathways has been implemented as envisioned in the approved Plan, with some exceptions where vehicle access was permitted from the fronting streets rather than from the rear lanes. The walkway and bikeway connections are being implemented as part of the servicing agreement requirements when the projects are approved.

A bus service has just recently been introduced to serve the East Clayton neighbourhood. Bus #C70 operates on a 30-minute frequency to connect Cloverdale, via East Clayton, to the Willowbrook Centre in Langley. On the basis of a survey by TransLink of the East Clayton residents and consultation with the City staff, the bus route in East Clayton is located along 192 Street, 72 Avenue and 188 Street. Most of the homes built, to date, in East Clayton are within 400 metres (five minute walk) of this route. Unfortunately, due to the slow implementation of transit service, East Clayton is currently a car-dependent community.

The curb extensions or bulges at the road intersections and plateaus/raised pedestrian crossings at the intersections and at the walkway/multi-use pathway connections to roads have been implemented to provide traffic calming.

Principle #6

Provide narrow streets shaded by rows of trees in order to save costs and to provide a greener, friendlier environment.

Throughout East Clayton, this principle is being implemented through tree planting on the many boulevard areas adjacent to extended sidewalks and green edges. A challenge has been to successfully plant trees with significant root requirements, between the swales and underground services. Another challenge has been the moisture build-up from the swale design, which has caused root rot of the newly planted trees. To mitigate this problem, Urban Forestry has been re-planting with more water tolerant tree species, and re-planting trees on the edge, farthest away from the swale and the servicing, as opposed to centring the trees in the boulevard areas.

When all of the planned parks and greenway sections in the East Clayton NCP are developed, there will be an integrated matrix of green open space, active amenities and walkways throughout the area, in keeping with the sustainability principles of the East Clayton NCP.

Principle #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*).

Stormwater management in East Clayton is being achieved through a combination of traditional servicing and newly developed stormwater management practices. Features incorporated into the development include:

- Storm sewer pipes and trunks to service all lots.
- Detention ponds to attenuate the peak flow resulting from an increase in impervious areas.
- Infiltration measures along the streets to reduce road storm run-off.
- Increased topsoil depths on all lots to provide increased absorption of rainfall.
- Disconnected roof leaders to direct impervious area drainage to the grassed absorption areas.

Traditional storm sewers provide servicing to the area homes for the 5 Year and 100 Year storms. These sewers convey the flows to a series of detention ponds that are designed to minimize inconveniences and damages associated with flooding. They also protect receiving water courses and fish habitat for all areas of East Clayton. The detention ponds provide flow rate control and water quality benefits.

To date, three of five ponds have been completed. While the NCP requires developers to finance and build most DCC eligible infrastructure, the City of Surrey Engineering Department advanced the construction of the second largest pond in the NCP to facilitate development. The fourth pond, near 68 Avenue and 195 Street, is currently under construction as part of a development. The fifth and final small pond identified near 192 Street at Fraser Highway, is the only outstanding pond and it will be constructed as part of the future business park development. The ponds provide an opportunity for flow attenuation and water quality treatment as well as a natural system for infiltration and evaporation of water by holding the water on the surface and allowing it to seep into the ground.

All the trunk storm sewers required to service the NCP will be completed by the end of November 2007, including an additional length of sewer required to protect the open reach of McLellan Creek, south of 64 Avenue. The trunk sewers will provide safe conveyance for flows up to the 100-year event for all of East Clayton.

In addition to the traditional approach to stormwater servicing for infrequent storms, East Clayton includes promotion of natural drainage through the use of absorptive landscaping to deal with typical frequent winter showers. Absorptive landscaping approaches used in East Clayton include thicker growing medium, exfiltration pits, exfiltration trenches, roadside swales and pervious pavements. Simply put, these features help reduce the overall impervious area of the neighbourhood.

All developers have agreed to provide landscaped areas with a minimum of 450 mm of absorbent topsoil. This topsoil provides an opportunity for water to be stored in the top layer of the soil giving water an opportunity to infiltrate into the underlying clays. As with all new technologies, this measure requires some additional care on behalf of the developers to provide topsoil that is free draining and encourages plant growth. By directing all on-site drainage to the landscaped areas, the topsoil provides well over 25% of the required storage and infiltration.

To address the impact of the road pavement, many areas in East Clayton provide roadside swales. The objective of the swale is to accept road surface drainage so that it can be absorbed into the boulevard topsoil and to underlying gravel infiltration systems. The swales have been the most obvious change to the drainage system visible to the residents. The swales have challenges in both perception and performance that have been addressed by subsequent design refinements. Although it is too early to determine if some of the early swale concepts will work over the long term, it has been determined that the configuration needs to be changed to a more traditional look. Performance issues with the initial swales are being addressed.

Some of the developers within the neighbourhood have initiated the use of pervious pavement. Structures such as paving stones, turf-stones, and pervious asphalt have all been implemented to various levels within the single family and multi-family sites.

A jointly funded Federal-Provincial grant of nearly \$1.3 million has been instrumental in developing criteria and designs for low-impact development in East Clayton. The grant is being used to construct and monitor new facilities, to develop design standards and to undertake an education program covering the key aspects of sustainability in East Clayton and throughout Surrey.

The lessons learned in the East Clayton NCP, with regard to storm water management have been invaluable in the advancement of the City of Surrey's sustainability standards. East Clayton has received international recognition for the innovative approaches that have been pioneered in residential areas. With ongoing experience and efforts the lessons learned from East Clayton will move us closer to full achievement of the seventh sustainability principle. Low Impact Development approaches have been built into our most recent neighbourhood concept and land use plans (Highway 99 Corridor, Grandview Heights NCP #1 and #2, Campbell Heights Area 1) in order to meet the high standard of environmental protection currently expected by Surrey residents and demanded by senior agencies.

Although the significant advances made in reducing the impact of developments on receiving waters is encouraging, more changes are required to meet all the sustainability principles proposed. The principles of higher density and increased mobility are in conflict with the principle of natural drainage patterns due to the increased impervious area associated with the new land uses and more numerous and wider sidewalks. In order to meet the natural runoff targets, a minimum amount of pervious (or green) space is required on developed sites as well as at key locations within a watershed.

Preservation and Replacement of Trees

East Clayton has seen higher density development through a mix of housing form ranging from apartments to row houses and single family detached homes with coach houses. That type of development and subdivision, with nine metre wide lots, does not allow for significant tree retention due to the limited lot area outside of the building foot print. Furthermore, in the East Clayton area, through the home construction process, the good native top soil needed to be scraped from the subdivisions, stored on site, then once the streets, homes and driveways were completed, the native top soil was re-installed, which resulted in a much deeper and better growing medium than found in typical subdivisions where the top soil is mixed with material excavated from properties where homes are built. The deeper layer of topsoil is part of the sustainable stormwater management plan for East Clayton.

As a result, trees were replanted at a minimum of two trees per lot in a very good growing medium, which is resulting in a faster rate of growth than usual without irrigation. Urban forest conditions will be re-established relatively quickly in the area in a manner that will allow the individual trees to remain healthy over the long term.

The riparian areas in East Clayton have allowed retention of native trees. These linear treed corridors connect the open space network and are allowing opportunities for wildlife movement through the neighbourhood. Special care of the fringe areas has been taken to minimize tree failures in riparian zones.

Status of Other Engineering Services

The engineering infrastructure necessary to support development in the East Clayton NCP is identified in the 2002 East Clayton Engineering Servicing Plan. This Plan was supplemented in 2005 with an expanded East Clayton Engineering Servicing Plan to service the East Clayton North Extension NCP. The development within East Clayton has proceeded much quicker than anticipated, which has created opportunities for developers and challenges for the City to keep pace with new infrastructure required to sustain the rapid build out of the area.

Listed by asset area is a summary of the major servicing issues resolved in recent years, as well as an assessment of the key outstanding infrastructure.

Transportation

One of the key sustainability principles of the East Clayton NCP is the interconnected grid street network to disperse traffic and to connect East Clayton with the surrounding area region. However, unlike the utility servicing plans that had clearly defined trigger points for major infrastructure upgrades, the neighbourhood road network is left to develop, as development proceeds throughout the NCP. This has resulted in a variety of transportation issues and challenges as major road network elements remain incomplete while a substantial proportion of the NCP has built out. The City has upgraded a number of key elements in the area road network; namely, Fraser Highway, west of 190 Street, and 196 Street, between 64 and 60 Avenue. Nevertheless, there is a growing resident concern related to the ability of the road system to accommodate the additional growth-

related traffic. Elements of the road network that are yet to be completed or upgraded are:

- Fraser Highway;
- Completion of 68 Avenue collector road;
- Realignment of 192 Street arterial road south of 68 Avenue to the Fraser Highway; and
- Upgrading of 64 Avenue, 72 Avenue, and 196 Street arterial roads.

The roads, together with anticipated completion timeframes, are shown in Appendix IV and outlined in more detail below.

Fraser Highway

Fraser Highway is being widened throughout the Clayton area, with the section from 190 Street to 193 Street still to be constructed to four lane divided cross-section.

Upgrading of Fraser Highway from 190 Street to 193 Street, including intersection widening of 64 Avenue (Appendix V) will commence construction in 2008. This work will provide significant traffic flow improvement for East Clayton.

68 Avenue Completion

At present, there is no east/west road link spanning across East Clayton other than 72 Avenue, which is along the north edge of the NCP, away from most of the new development. It does not currently align with the dominant origins and destinations of East Clayton traffic, which are to the south of the neighbourhood. The 68 Avenue collector road proposed through the centre of the NCP is the only other continuous east/west link; however, the eastern three blocks are not yet complete. 68 Avenue, from 194 Street to 196 Street, will be constructed in the short term by the BFW development, which will only leave the 19300 block, fronting the proposed City Park unopened. As noted in the traffic strategy below, the City will include in its 2008 program the construction of this final missing block of 68 Avenue along the park frontage.

192 Street Realignment

192 Street is the primary north/south arterial road through the centre of the East Clayton neighbourhood. At present, the southern link of 192 Street at 64 Avenue functions poorly as it is an unsignalized intersection in close proximity to the Fraser Highway intersection and experiences heavy congestion. The level of service at the 192 Street/64 Avenue intersection is deteriorating with each new residence occupied in East Clayton. This in turn is restricting access to and from the neighbourhood, as well as disrupting traffic flow on 64 Avenue. Ultimately, 192 Street will be realigned such that it intersects with the Fraser Highway to the west of 64 Avenue to provide a high capacity access to Fraser Highway for East Clayton, and the existing intersection of 192 Street at 64 Avenue will be closed. However, the realigned section of 192 Street is through the proposed East Clayton Business Park & Live/Work zones, which have not yet developed and, as such, it may be sometime before the realigned link is completed. In the interim, there are a number of initiatives the Engineering Department is considering to alleviate this issue, as

noted in the traffic strategy below.

64 Avenue, 72 Avenue, and 196 Street Arterial Upgrading

There have been many competing needs and budget challenges to the City's arterial road capital program in recent years and, accordingly, priorities have been directed towards upgrading works in established neighbourhoods rather than emerging neighbourhoods. As a result the 64 Avenue, 72 Avenue and the further 196 Street arterial upgrades are all listed as medium term priority (5 Year timeline) in the 2006-2015 Servicing Plan. The rapidly rising construction prices are further straining the road budget and ability to meet the timelines planned in the 10-Year Plan.

However, the widening of 64 Avenue at the intersection with Fraser Highway, will be constructed in 2008 will alleviate, to a significant extent, the congestion along 64 Avenue.

East Clayton Traffic Strategy – Proposed Phasing of Works

Based on the above assessment, the following road improvements are being considered by the Engineering Department for the short to medium term to resolve some of the traffic issues resulting from the rapid build-out of East Clayton. They are listed in order of priority.

1. Construct a half road along the north side of 68 Avenue fronting the City Park, immediately west of 194 Street which, when combined with the portion of 68 Avenue currently being constructed by developers, will complete the 68 Avenue link between Fraser Highway and 196 Street, which continues on in Langley to 200 Street;
2. Signalize the 68 Avenue/Fraser Highway intersection;
3. Upgrade and signalize the 194 Street/64 Avenue intersection to function as the primary left-turn access (eastbound traffic) and egress (southbound traffic) for East Clayton traffic and transit vehicles until the realigned 192 Street is in place;
4. Liaise with Langley to widen and signalize 64 Avenue at the intersection of 196 Street;
5. Assess the priority for the arterial widening/upgrade of 64 Avenue between Fraser Highway and 196 Street; and
6. Prohibit the eastbound and southbound left turns at the 192 Street/64 Avenue intersection, effectively converting it to right-in/right-out only intersection and greatly improving the operation of the intersection.

Water

Prior to adoption of the NCP, existing rural properties in East Clayton were serviced with small diameter water mains fed by a City pump station, which in turn was supplied by

Metro Vancouver's transmission main and reservoir on 72 Avenue. The Clayton reservoir and transmission mains are adequately sized to accommodate the projected growth in the next 10 years; however, a new booster station is required to meet pressure demand, and a network of large diameter feeder mains are required to deliver water throughout the area.

As a result of the rapid growth in this NCP, the Clayton booster station upgrade has been triggered about three to five years earlier than anticipated, and will be completed in 2008 by the City's Engineering Department, at a cost of about \$6 million. Grid water mains are being extended throughout East Clayton by developers who receive Water DCC reimbursements in return to recover the related upsizing costs.

With the completion of the booster pump station in 2008, there will be no remaining major water servicing issues in East Clayton.

Sanitary Sewer

Other than the Aloha Estates development, which was serviced via the City of Langley sewer system, there was no City sewer system in place in East Clayton, prior to adoption of the NCP, and properties were serviced by septic fields. East Clayton lies upland of Cloverdale, so the NCP sanitary servicing concept was to extend existing sanitary trunk sewers to the area, and undertake the necessary system upgrades downstream to convey the additional flows through Cloverdale to the GVS & DD regional trunk main south of Highway No. 10.

Again, as a result of the rapid growth in this NCP, a variety of downstream sanitary sewer system upgrades were triggered earlier than anticipated, and completed by the City and a consortium of "front-ending" developers:

- Langley Bypass Trunk Upgrade Phase 1 by the City in 2002 \$1.5 million
- North Cloverdale Pump Station Upgrade by the City in 2006 \$0.3 million
- Langley By-pass Trunk Upgrade Phase 2 by Developers in 2007 \$3.0 million

Developers also received Sewer DCC reimbursements in return for extending upsized collector sewers throughout East Clayton.

There are no remaining major sewer servicing issues in East Clayton.

Drainage

Through a combination of traditional servicing and innovative "green" best management practices, storm water management in East Clayton has provided appropriate City drainage services with an emphasis on sustainability and to preserve the natural creek system environment and promote natural drainage. Features incorporated into the development (Appendix VI) include:

- Storm sewer pipes and trunks to service all lots.
- Five detention ponds to attenuate the peak flows resulting from an increase in impervious areas.
- Infiltration measures along the streets to reduce road runoff.

- Increased topsoil depths on all lots to provide increased absorption of rainfall.
- Disconnected roof leaders to direct impervious area drainage to the grassed absorption areas.

Traditional System for Infrequent Events

Traditional storm sewers service the area for the 5 Year and 100 Year storms. They convey the flows to five detention ponds and minimize inconveniences and damages associated with flooding. The detention ponds provide flow rate control and water quality benefits.

Three of five detention ponds have been completed. The fourth pond, near 68 Avenue and 195 Street, is currently under construction as part of a development. The fifth and final small pond, identified near 192 Street at Fraser Highway, will be constructed as part of the future business park development.

All the trunk storm sewers required to service the NCP will be completed by the end of November 2007, including an additional length of sewer required to protect the open reach of McLellan Creek, south of 64 Avenue.

Innovative Low Impact System for Frequent Events

East Clayton includes absorptive landscaping to deal with typical frequent winter showers. Absorptive landscaping include thicker (450 mm) growing medium, exfiltration pits, exfiltration trenches, road side swales and pervious pavements. These features help reduce the overall impervious area of the neighbourhood.

Topsoil provides an opportunity for water to be stored and infiltrate into the underlying clays.

By directing all on-site drainage to the landscaped areas, the topsoil provides over 25% of the required storage and infiltration. The road pavement in many areas of East Clayton drain to roadside swales. The swale accepts road surface drainage to direct it to underlying gravel infiltration systems. The swales have been the most obvious change to the traditional drainage system. The swales have challenges in both perception and performance that have been addressed by subsequent design refinements.

Lessons from East Clayton

The East Clayton NCP has received wide recognition as a ground-breaking plan and has been the subject of seminars and presentations at professional and real estate conferences, as well as the focus of urban studies and papers. It brought Surrey to the forefront of the community planning initiatives in that the City made consciously decided to make sustainable planning principles the basis of a neighbourhood plan.

For the most part, the principles of the NCP are being achieved. As is generally the case with new or unconventional concepts and plans, the rapidly improving market conditions and the resulting pressures to develop the lands soon after the Plan was adopted meant

that sometimes there was a reluctance in the development community to embrace the new concepts. Also, in the process of implementing the Plan, some performance targets were found to be somewhat ambitious. Based on the experience with the East Clayton NCP, the following are some of the areas/issues that could be considered in the implementation of the other existing NCPs in the City and the preparation of future NCPs:

- The need to revise Building Code requirements and to determine if further regulations are required to provide better take-up of employment uses in the Special Residential (Live/Work) land use in lieu of Commercial land use;
- The need to address the impact from the increased density and land coverage on the stormwater drainage through infiltration. To an extent, this is being accomplished currently through the process of preparing the Integrated Stormwater Management Plans (ISMP) for watersheds in advance of or in conjunction with the preparation of new NCPs;
- The need to address the impact of small lots and front driveways on on-street parking in the face of continuing reliance on cars where transit service has not yet been extended, and to ensure the road designs incorporate on-street parking, and policies discourage lots with front driveways on these roads or alternatively to consider innovative means by which transit service may be introduced into new development areas sooner in the development of neighbourhoods;
- The need to develop and implement processes and procedures to ensure the developers, consultants, builders and new residents of the neighbourhood are aware of the NCP's vision and expectations, and their post-construction obligations to minimize post-construction damage;
- The need to consider the impact of the roadside swales, if they are being considered in the NCP, on tree planting and on their performance due to soil compaction over time; and
- The need to monitor development and road construction to serve the needs of the area and the need to press upon TransLink the importance of providing adequate transit service to newly developing neighbourhoods to provide service before the culture of auto dependency becomes entrenched.

CONCLUSION

Council requested staff to advise Council on how well the Clayton development is achieving the objectives articulated in the East Clayton NCP. The land use planning principles contained in the East Clayton NCP document were unconventional at the time the NCP was in preparation, some of which have since been adopted or are being considered in other municipalities. The East Clayton NCP contains land use strategies and development policies and guidelines to direct development of the East Clayton in keeping with these principles. For the most part, East Clayton has been developed based on these strategies, policies and guidelines. In some cases, the challenges posed by the rapid pace of development and the unconventional concepts contained in the NCP have required adjustments and amendments. City staff is applying the lessons learned and experience of the East Clayton NCP to other areas where NCPs are now in the planning stage.

Jean Lamontagne
General Manager
Planning and Development

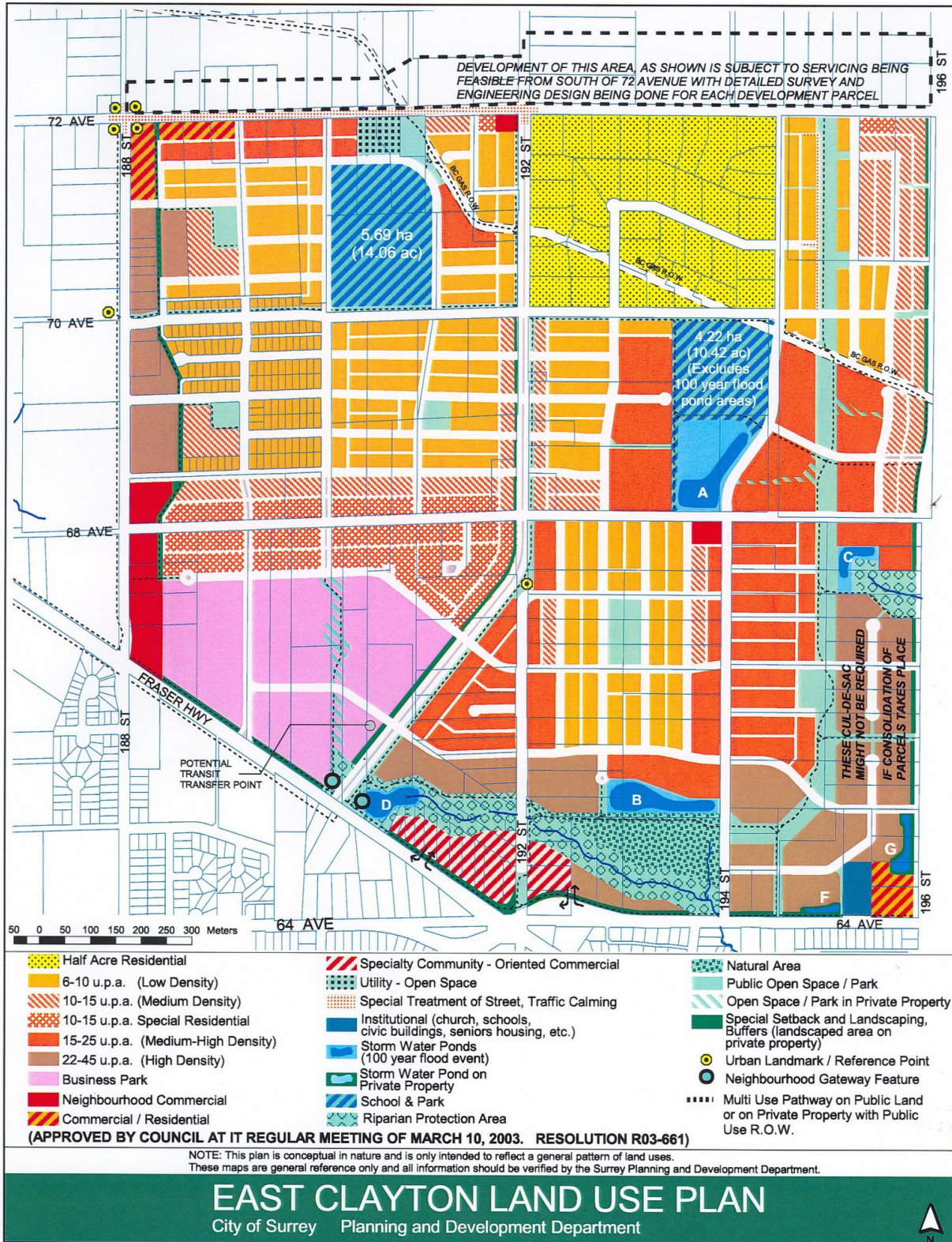
Paul Ham, P. Eng.
General Manager, Engineering

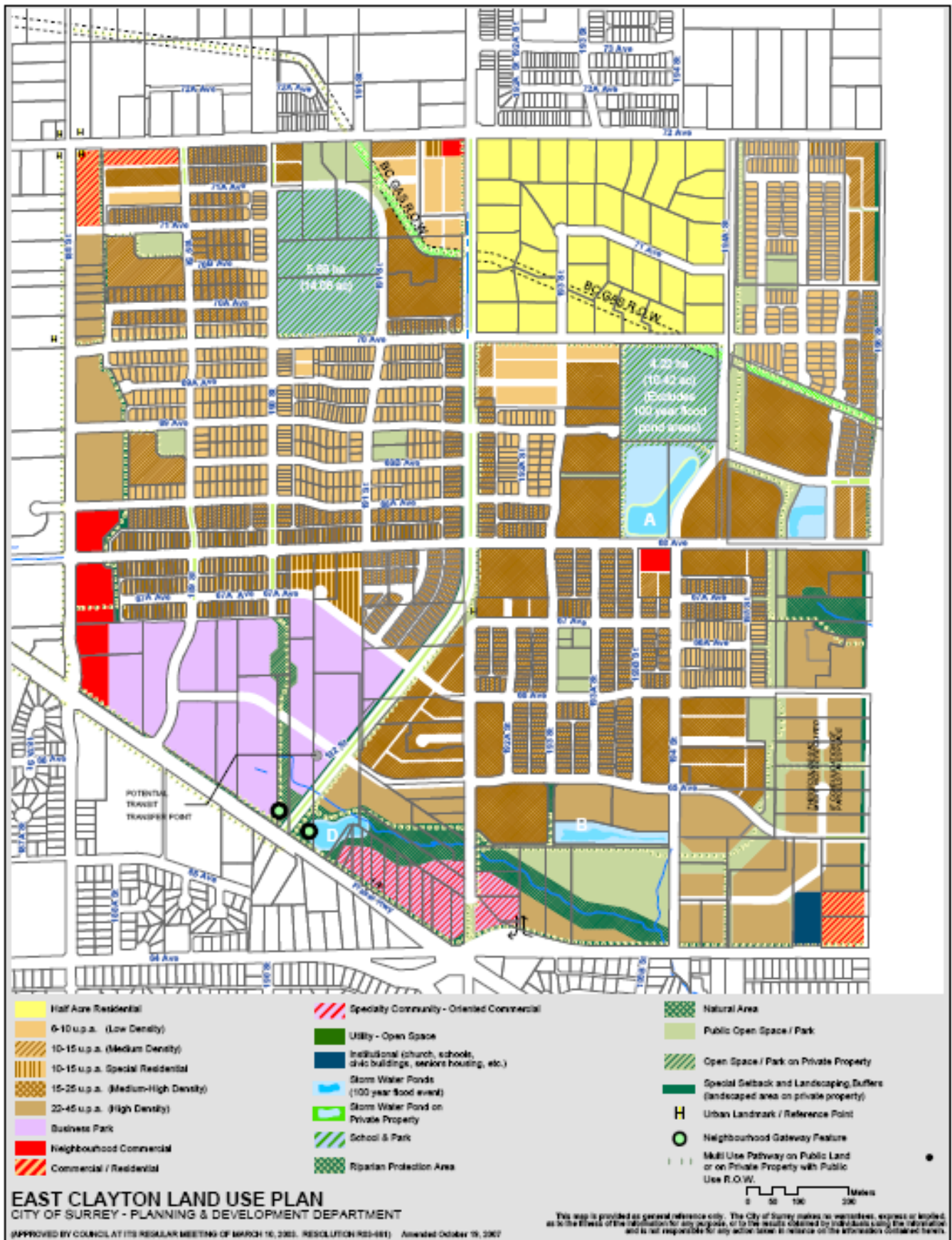
Laurie Cavan
General Manager
Parks, Recreation & Culture

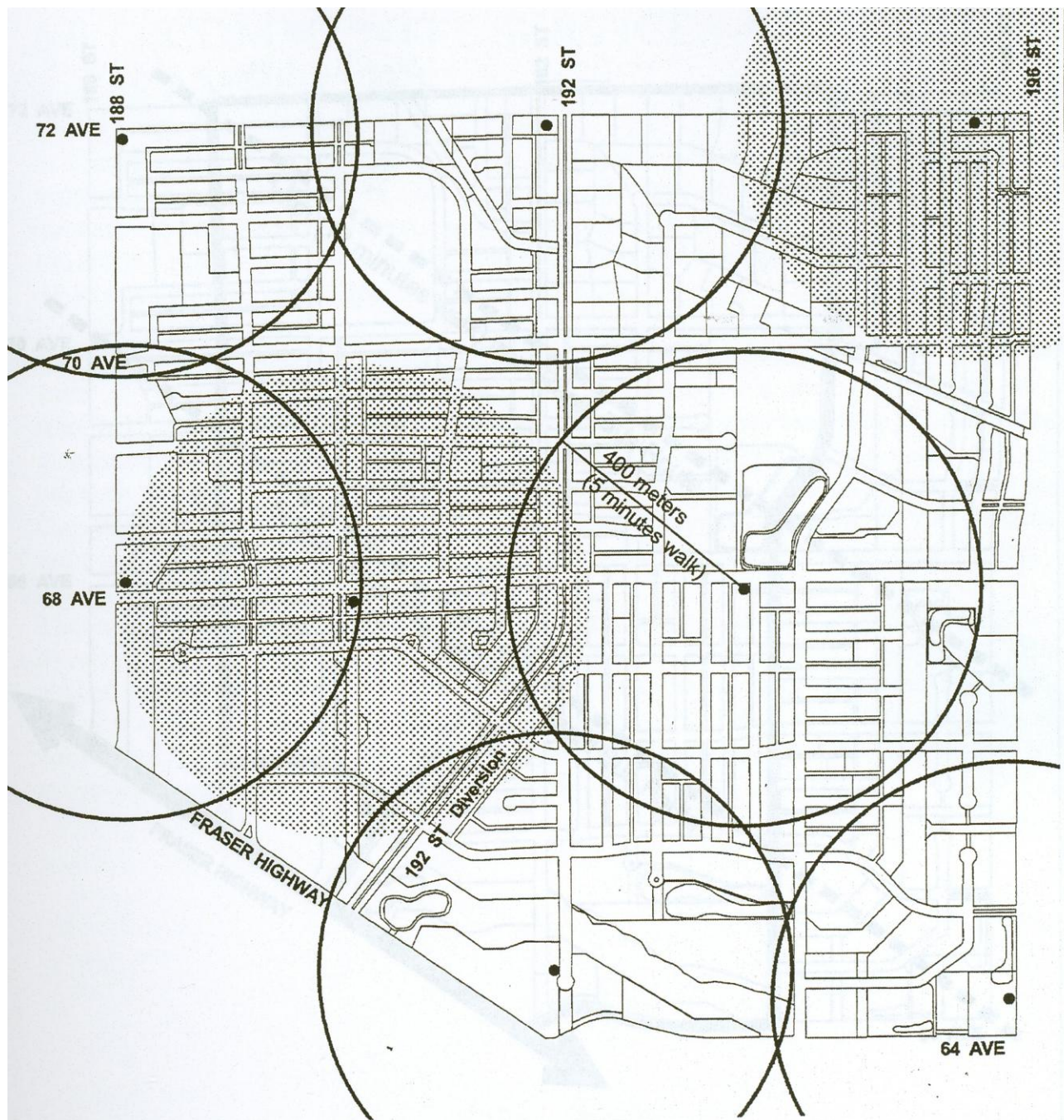
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Attachments:


- Appendix I East Clayton Land Use Plan – Approved March 10, 2003
- Appendix II East Clayton Land Use Plan – Amended October 2007
- Appendix III Map – Service Radius of Neighbourhood Commercial Nodes
- Appendix IV East Clayton Road Projects
- Appendix V Intersection of Fraser Highway & 64 Avenue
- Appendix VI East Clayton Water-Sanitary-Storm Projects







**SERVICE RADIUS OF NEIGHBOURHOOD COMMERCIAL NODES
(400m / 5 MINUTES WALK)**

-  Special Residential Node (400 m / 5 Minutes Walk)
(Potential commercial / business node)

