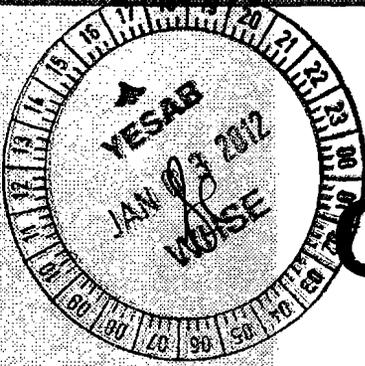


*returned to
Marianne D.*



City of Whitehorse

Report:

Land Use Concept - Copper Area Development Scheme

Prepared by:
UMA Engineering Ltd.
3030 Gilmore Diversion
Burnaby, BC
V5G 3B4

Telephone: (604) 438-5311
Fax: (604) 438-5587
E-mail: umabby@bc.sympatico.ca

June 1999
2501-006-00-01

uma

UMA ENGINEERING LTD.
THIRD PARTY DISCLAIMER

This report has been prepared by UMA Engineering Ltd. ("UMA") for the benefit of the client to whom it is addressed. The information and data contained herein represent UMA's best professional judgement in light of the knowledge and information available to UMA at the time of preparation. Except as required by law, this report and the information and data contained herein are to be treated as confidential and may be used and relied upon only by the client, its officers and employees. UMA denies any liability whatsoever to other parties who may obtain access to this report for any injury, loss or damage suffered by such parties arising from their use of, or reliance upon, this report or any of its contents without the express written consent of UMA and the client.

**LAND USE CONCEPT -
WHITEHORSE COPPER AREA
DEVELOPMENT SCHEME**

for

CITY OF WHITEHORSE

Submitted by:

UMA Engineering Ltd.
3030 Gilmore Diversion
Burnaby, BC
V5G 3B4

Telephone: (604) 438-5311
Fax: (604) 438-5587
E-mail: umabby@bc.sympatico.ca

June 1999

uma

LAND USE CONCEPT - WHITEHORSE COPPER AREA DEVELOPMENT SCHEME

CITY OF WHITEHORSE

Table of Contents

	Page No.
1 INTRODUCTION	1
2 PROJECT PURPOSE	2
3 LAND USE DESCRIPTION AND POLICIES	3
3.1 COUNTRY RESIDENTIAL	4
3.2 COMMERCIAL	5
3.3 SERVICE INDUSTRIAL	7
3.4 HEAVY INDUSTRIAL	8
3.5 BUFFER AREAS AND SEPARATION DISTANCES	9
3.6 ENVIRONMENTAL RESERVE	11
3.7 MCLEAN LAKE WATERSHED AREA	11
3.8 COMMUNITY RESOURCE LANDS	12
3.9 UTILITY SERVICES	13
3.10 RADON	15
3.11 ABANDONED DUMP	15
3.12 LAND USE ALLOCATION	16
4 SERVICING STANDARDS	17
5 IMPLICATIONS FOR OCP AND ZONING	18
5.1 OFFICIAL COMMUNITY PLAN (OCP)	18
5.2 ZONING BYLAW	19

List of Table and Map

Table 1 Land Allocations	16
Map A Land Use Plan	21

1 INTRODUCTION

This report provides an updated land use concept and associated policies for Whitehorse Copper. It reflects comments made at a May 18, 1999 public open house.

The area known as Whitehorse Copper is situated on the west side of the Alaska Highway, and south of the more urban region of the city. The overall study area skirts McLean Lake Road, extends along the Copper Haul Road, and includes the lower reaches of the Mt. Sima Access Road (ski hill access). There is limited development in the area at present, including several titled country residential parcels, gravel pits and quarries along McLean Lake Road, and the tailings pond (almost 50 hectares) associated with the now inactive Copper Mine site. An area of high mineral potential known as the Whitehorse Copper belt extends through the westerly portion of the area. An old military subdivision is situated in the south east of the study area, across the McRae industrial site.

Most of the area consists of Commissioners land, with 14 titled parcels located along the Alaska Highway.

The Copper area is moderately well drained but does include wetlands composed of organic soils. Gravely soils tend to dominate the eastern portion of the study area. Towards the Copper Haul Road soils become thinner and bedrock outcrops are more common. Vegetation is primarily related to the Lodgepole Pine/Feathermoss community with minor softwoods. There is no known critical wildlife habitat, with the wetlands offering habitat for the most diverse range of species.

The intent of the Whitehorse Copper Area Development Scheme (ADS) is to provide an evaluation of site potential leading to a Development Scheme which will guide future land use. The resultant Area Development Scheme is based on a review of physical and environmental attributes of the study area, and recognition that the City desires a mix of land uses in the region including accommodation for future industrial use, taking advantage of the Copper Haul Road, and mineralization in the area. With significant interest in country residential use, every effort has also been made to determine potential country residential areas which would be compatible with already established uses in the region.

Full documentation for the site analysis, the initial land use concept and public consultation on the plan, is documented in the *Whitehorse Copper Area Development Scheme*, Final Report, prepared by Gartner Lee Limited, in associated with UMA Engineering Ltd., Mougeot Geoanalysis, and Aboriginal Relations Consulting Services, issued in June 1998. Subsequent to release of that report, there has been further review of development options by the City which have led to modifications in the land use concept. These modifications are summarized in this report. However the background material, and site assessment carried out and reported in the Gartner Lee report continues to be valid and was used as the foundation for this current site plan.

3 LAND USE DESCRIPTION AND POLICIES

The following sections describe the various types of land uses and related policies. Policies on buffer strips, environmental protection, development servicing, fire protection, and soil gas (Radon) are each addressed in a separate section although it is recognized that these elements apply to all of the land use types. The plan section and policies are reflective of considerable public debate and review, particularly as it relates to the use of buffer areas, and the relative position of country residential uses versus other land uses.

A key element of the Plan is the realignment of the Mt. Sima Access Road with the Alaska Highway. A new intersection is proposed with the Alaska Highway at a site with improved visibility. The current alignment would be dropped, with part of the road alignment retained to serve future country residential development.

The land use scheme as illustrated by Map A at the end of this report, includes an approximate indication of proposed internal roads. These roads have been designed to accommodate parcel sizes approximately as follows:

- a mix of Country Residential lots ranging in size from 0.6 hectares to 1.5 hectares (areas with varied topography will likely see larger sizes in order to accommodate suitable building sites)
- lots varying from 0.4 hectares to about 1 hectare for Commercial
- lots of around 1 – 2 hectares for Service Industrial
- Heavy Industrial lots are expected to be substantial, and will depend entirely on the intended use, generally the minimum size will likely be 4 hectares

The concept plan includes an indication of collector roads and local roads designed to give access to potential development sites. The road locations are based on preliminary analysis only, and will likely require modification once more detailed site truthing can take place.

The sections which follow describe each of the land use elements included in the plan.

3.1 COUNTRY RESIDENTIAL

The land use map defines several possible areas for country residential use. Each of these areas reflect the following characteristics:

- general soil and foundation conditions conducive to country residential use including onsite site water (well) and onsite sewage disposal (septic field)
- existing or potential access to the area
- the ability to provide for a reasonable cluster of development which facilitates road access and potential services
- integration of buffer areas, sized to accommodate adequate separation from major roads, industrial areas and other incompatible land use
- the ability to incorporate or generate access to existing or proposed trail links (e.g. the Trans Canada motorized trail)

A major consideration in assigning country residential areas was the creation of substantial green space, to act as both privacy areas and to reflect the natural and recreational qualities of the area. The amount of land allocated to Country Residential is also reflective of the desire to retain compatible land uses in proximity to each other, and to provide accommodation of the several titled parcels in and near the study area which are already utilized for country residential purposes.

The country residential areas include pockets of steep slope or other features which may inhibit development, however, given the relatively larger lot sizes, suitable building sites should be available through most of the area. A detailed site survey will be required before the road alignment and lot layout can be finalized.

Policies

1. Within the Country Residential designation, properties may be used for a residence and a home-based businesses as defined in the zoning by-law.
2. In planning for country residential settlement the City will give consideration to:
 - careful siting of local roads and maintaining road continuity
 - the potential location of utilities including power and telephone

- wildlife values and green corridors, including recreation links between nodes of country residential development
 - maintenance of recreation and trail links as established in the Whitehorse Trail Plan, including consideration of survey cut lines as trails
 - privacy between residences through use of natural buffers
 - inclusion of a variety of lot sizes, to accommodate more rural lifestyle and a range of economic needs.
3. Where country residential areas are indicated, access to the designated areas shall wherever possible consist of a loop road to facilitate emergency access. Short cul-de-sacs are acceptable for minor roads within country residential areas.
 4. Lot sizes shall be in accordance with the Official Community Plan policies for Rural Residential, but are subject to further consideration pending the current City review of country residential policies. The rural residential policy review (Draft Report on Country Residential Policy Options, Gartner Lee, 1998) suggests that the City allow a mix of country residential lot sizes ranging from 0.5 hectares to 1.5 hectares. The smaller lots would be for strictly residential use while larger lots would allow for a wider range of permitted uses.

3.2 COMMERCIAL

The land use plan provides for a commercial area on the west side of the Alaska Highway across from McRae. Access for this area is provided by an access road off the Alaska Highway at Fraser Road. The Plan Map illustrates land use as being within the general category of Commercial, however in detailed planning for the area it is suggested that through zoning the Alaska Highway access be reserved for highway commercial uses with the southern portion of the area being for service commercial uses. These distinctions are described further in the following paragraphs.

Highway Commercial

Future Highway Commercial type uses are proposed on the west side of the Alaska Highway opposite to Fraser Road (the entrance to McRae). The area comprises an old army subdivision dating back to a time when a military camp

was situated in this area. Some existing land uses occur here, all of a light industrial nature which fit in well with the proposed use. The area comprises a total of about 20 hectares, and would be serviced through an existing access road located almost directly across the Alaska Highway from the main entrance to the McRae subdivision. This existing access road would require upgrading. The site is generally level, but is characterized by a relatively steep bank on the east boundary, with the Alaska Highway at its toe. To the north, bedrock and steep slopes also limit development. Direct access to the Highway is not feasible, due to excessive grades. This however has the benefit of minimizing traffic conflict, since all access will be funnelled through one intersection with the highway. The bench incline also creates a natural green buffer to the highway. Access to individual parcels will be from a road within the commercial area paralleling the Alaska Highway. The proposed access road permits lots to be created on either side of the internal road, which reduces servicing cost.

The area is intended to accommodate services for the travelling public (service stations, motel, tourism commercial development, and food services). Use in this area would have good visibility from the Alaska Highway. Overall land use policies include:

Policies

1. It is proposed that a Highway Commercial area type zoning designation be established parallel to the Alaska Highway across from McRae in the immediate vicinity of the access road off the Alaska Highway.
2. Within this designation, properties may offer highway commercial services relating to the travelling public including service stations, motels, commercial development, and food services.
3. Land uses within this designation shall obtain their primary access from an access road off the Alaska Highway.
4. New development is highly visible from the Alaska Highway and should provide an attractive entrance into the City. The City may establish specific design controls to govern building appearance and siting.
5. Uses within this designation need to be screened carefully from nearby country residential uses, and any exterior storage, other than parking areas, should be limited to fully enclosed structures.

Service Commercial

It is suggested that part of the Commercial area, that is, the southern portion of the commercial area, be allocated primarily to service commercial uses. The area is recommended mainly for retail and auto oriented service commercial uses. Potential development of this site acknowledges the need to accommodate services for the nearby country residential community and to the provision of services for industrial enterprises. Uses are anticipated to be low intensity in nature. Overall land use policies include:

Policies

1. It is proposed that a Service Commercial area (to be specified through future zoning) for the Whitehorse Copper community be established paralleling the Alaska Highway across from McRae, south of the highway commercial area described above.
2. Within this designations, properties may offer retail services, commercial service and repair, and light industrial assembly, repair and manufacture, with no storage yards to be visible from the Alaska Highway. Any repair and manufacturing is to be limited to fully enclosed buildings.
3. Land uses within this designation shall obtain their primary access from a service or secondary road at the rear of parcels facing the Alaska Highway.
4. New development shall wherever visible from the Highway, include buildings which provide an attractive entrance into the City. The City may establish specific design controls to govern building appearance siting.
5. Major storage and parking areas shall be full screened from the Alaska Highway and from property lines where the adjacent use is in a non-commercial designation. Such screening shall take the form of continuous fencing or a solid hedge.
6. In preparation of detailed development plans, adequate consideration shall be given to retention of the toboggan hill which has been developed at the south end of the area.

3.3 SERVICE INDUSTRIAL

If the Whitehorse Copper area is able to attract new industry including mining and mineral processing, a need will arise for supporting industry including vehicle and machinery repair services, equipment storage and similar uses. In addition, this designation is intended to allow for other specialized industries, including technology based firms, manufacture, warehouse and distribution

outlets. To make provision for this, several areas have been designated for such activities. Locations were carefully chosen to minimize conflict with proposed country residential uses and to avoid lands with environmental sensitivity. One Service Industrial area, adjacent to the copper tailings ponds also provides a buffer between the more intensive Heavy Industrial area to the west, and the country residential area paralleling the Alaska Highway further east.

Policies

1. Areas designated as Service Industrial are intended to accommodate support services for major industrial operations in the region and elsewhere and may include machinery repair and storage, vehicle repair, equipment storage buildings, manufacturing, technology based firms, warehousing/distribution and storage yards.
2. A Service Industrial use must not be offensive by reason of smoke, vibration, odour, electrical interference and produces no significant noise which interferes with the use of a contiguous lot. This is particularly important where industrial uses have potential to impact country residential areas.
3. The operation of aggregate quarries in Service Industrial areas with known deposits, particularly those along McLean Lake road may continue, but are expected to be redeveloped over time to other service industrial uses. As such, the sand and gravel quarries are perceived mainly as interim uses.

3.4 HEAVY INDUSTRIAL

For many years it has been recognized that one of the principal mineralization zones in the City of Whitehorse is the Whitehorse Copper Belt, which includes major portions of the study area. This copper mineralization zone roughly parallels the Copper Haul Road. Active mining has occurred for many years, including the major copper mine situated near the Mt. Sima Access Road and the former Arctic Chief Mine at the western extent of the study area. Over the years there continues to be considerable interest in exploring for minerals. Subject to resource potential and market prices, there is every reason to believe that mining activity may occur in the years to come. The plan incorporates specific provision for future mining and the attendant support services by retaining as Heavy Industrial several major areas focused on the Copper Haul Road. This designation is also intended to accommodate other

resource industries, for example those associated with forestry and wood processing. Locations have been selected in relation to soil and environmental conditions and include major buffers from designated other land uses. One small area of Heavy Industrial is simply a reflection of existing development along the Alaska Highway, and is not expected to expand beyond current boundaries.

Policies

1. The Heavy Industrial area is to be preserved for heavy industrial uses including mining and mineral exploration activity and related mining activity and industries associated with other resources, including wood processing, storage and manufacture.
2. The designations in this plan do not supersede other territorial and federal regulatory requirements in relation to approvals and licensing, including applicable impact and environmental assessment requirements.
3. Within the Heavy Industrial classification, rock and sand quarries are also permitted uses, with such uses potentially serving as an interim land use activity pending long term redevelopment to more intensively industrial activity.
4. Access to Heavy Industrial designations is to be primarily from McLean Lake Road/Copper Haul Road, to be upgraded as required. Only secondary access for employees and light service vehicles shall be by way of the Alaska Highway and other internal collector roads.
5. A Heavy Industrial use must not be offensive by reason of smoke, vibration, odour, electrical interference and produces no significant noise which interferes with the use of a contiguous lot. This is of particular importance in the McLean Lake area where there are existing residential uses.

3.5 BUFFER AREAS AND SEPARATION DISTANCES

The Whitehorse Copper Area Development Scheme embraces the concept of providing a sustainable community where it is possible to live, shop, work and play. One challenge in incorporating these different land uses within a community node is provision of adequate separation distances between land uses such that the activities carried out with one land use do not adversely impact the desired use of an adjacent property. One example of this is the interaction between industrial and residential uses. This challenge is addressed

in the ADS through the use of "buffer strips" or mandatory separation distances between various land uses. These buffer strips are described in the policies below. It is recognized that the width of the buffer strip may vary depending on topography, the type of use and the nature of the buffer strip (vegetation). The distances provided in the following policies are based on the planning expertise and experience of the study team. It is also important to note that the buffer strips represent separation distances between actual uses, not necessarily between the different zones. It is intended that the allocation of the buffer strip between the designated land uses (community resource, industrial, residential) be addressed at the detailed site planning and approval stage.

Policies

1. Proposed new country residential sites situated along the Alaska Highway and McLean Lake Road are to be subject to a minimum 50 metre green space buffer which shall be maintained along the road to screen residences from traffic. (Where existing titled parcels exist, a buffer may be omitted in order to maintain common setback areas, subject to preparation of more detailed plans.) The exact location of the buffer strip as it relates to the road right-of-way and the property is to be determined at the detailed site planning stage. A 30 metre green buffer is also suggested at the new entrance of Mt. Sima Road at the Alaska Highway. The buffer areas can either constitute part of a public right of way, or can be protected through enactment of special covenants or similar tools.
2. When detailed planning occurs for Service Industrial areas, adequate separations shall be maintained from any existing or potential country residential areas. This buffer zone shall in no circumstances be less than 200 metres. The buffer may include open space, recreation and conservation areas. These buffer areas, for the most part, are already incorporated into the Community Resource Lands shown on the Land Use Plan.

3. Areas designated as Heavy Industrial shall be buffered from other land uses such as Country Residential, by a zone where no development is to be permitted. This zone is to be in the range of 800 metres or more (with 1000 metres as a preferred average), and within this buffer can include more compatible land uses such as Service Industrial. The exact placement and width of this zone is to be finalized at the detailed site planning stage.
4. Properties designated as Commercial must be buffered from nearby Country Residential by a green belt with a minimum width of 15 metres.

The buffer requirement is not intended to apply to a development which predates this document; the Pely Construction Heavy Industrial site is thus not subject to a buffer designation.

3.6 ENVIRONMENTAL RESERVE

This designation reflects the overall environmental sensitivity of an area. Where areas function as critical habitat or have moderate to high sensitivity, such areas are classified as Environmental Reserves. Two such areas have been identified; the first being McLean Lake and immediate environs and the second being the Crater Lake Wetland. The environmental sensitivity of these two areas was confirmed through other work being carried out for the City of Whitehorse.

Policies

1. Human activity within an Environmental Reserve is to be minimized.
2. Within the Environmental Reserve, a 15m buffer strip within which all uses are restricted shall be maintained along the edge of all waterbodies.
3. Watercourse alterations or crossings shall not be permitted without an environmental assessment and applicable regulatory approvals.

3.7 MCLEAN LAKE WATERSHED AREA

McLean Lake has been identified as a sensitive aquatic ecosystem supporting a population of Rainbow Trout as well as providing a source of drinking water to local residents. McLean Lake drains to Schwatka Lake, a source of drinking water for the City of Whitehorse. The area in the immediate vicinity of McLean Lake proper has been set aside as an Environmental Protection Area.

The upstream watershed area of McLean Lake extends beyond the area set aside for Environmental Protection, however, warrants protection for potential impacts for both water quantity and quality.

Development Guidelines

1. Water quantity protections shall be afforded by ensuring that post development peak runoff flows do not exceed pre-development runoff flows as properties are developed.
2. Every effort should be made to infiltrate water back into the ground water system that would otherwise be intercepted by impermeable surfaces (roof tops and parking lots).
3. Uses within this area shall be "dry" in that there shall be no industrial effluent discharges to the surface or ground waters within the watershed area.
4. Onsite waste disposal systems for human waste may be permitted subject to the results of an environmental study to ensure that the systems will not adversely impact the water quality of McLean Lake.
5. A hydrological/environmental study should be carried out on the "sleeping giant" aggregate reserve to determine the potential impact (if any) on McLean Lake and mitigative measures should the aggregate resource be scheduled for extraction in the future.
6. The City of Whitehorse should enforce the above guidelines by requiring that they be met before issuing a development permit.

3.8 COMMUNITY RESOURCE LANDS

The Community Resource Lands designation includes less sensitive environmental conditions and incorporates lands which may support significant outdoor recreation. Key recreation areas are illustrated on the land use map. Most of the Community Resource designation includes areas with extensive rock outcrops, permafrost, steep slopes and areas which do not lend themselves to development at this time. This designation also includes some of the lower slopes of the Mt. Sima ski hill which is south of the study area.

Policies

1. Community Resource Lands shall be substantially protected from development but may include trail and outdoor recreation links, catering to local and regional population interests.
2. Where survey cut lines are now used as trails, or have the ability to provide trail extensions, the use of cut lines as trails shall be considered in detailed planning and design of future land use areas.
3. Where areas of High Mineralization underlie the Community Resource Lands, use related to mineral exploration and extraction may be permitted subject to other regulatory requirements (Environmental Assessment Legislation, Yukon Water Act, etc.).
4. The Community Resource Areas Designation also includes provision for tourist interpretative areas, with particular consideration of the Arctic Chief Mine site, accessible from the Copper Haul Road. The Arctic Chief mine site has the potential of becoming a more active tourist recreational and is to be designated for this use.

3.9 UTILITY SERVICES AND ROADS

The Whitehorse Copper area is largely to be maintained in relatively low density land uses, with minimal requirements for utility services. Key services would include power and telephone. Home sites are anticipated to be serviced mainly by on-site well water services or hauling of water; mandatory sprinkler systems in new dwellings would be an option. Sewage disposal is to be on-site, although treatment facilities will likely be required for some industrial uses. Provision for water and sewage is to be confirmed during more detailed design.

Options for fire protection require a more detailed evaluation. The need for further engineering study of the fire protection system is based on discussion with the City engineering staff. A variety of water supply and distribution systems have been discussed in the past. Ideas have varied from using the old minesite watermain (condition unknown) from the Yukon River to supplying from nearby lakes that could be gravity fed to the development site. Distribution concepts have varied from permanently filled fire water mains (subject to winter freezing) to "dry" watermains (subject to water hammer when filling or slow fill times if the source is far away). These are complex ideas with a wide range of costs and risks. Consideration will have to be given to:

- Analysis of required development fire flows for the area. Flows should be examined with and without building sprinkler systems.
- Analysis of possible water supply sources. Alternatives should include: the Yukon River, Crater Lake, ground water and any other likely permanent water sources in the area.
- Analysis of possible water supply methods. Alternatives should include gravity pipeline and pumps with pressure pipeline – depending on the source.
- Analysis of possible water distribution methods. Wet and dry systems should be included as concepts to be examined.
- Order of magnitude comparative costing for the most feasible 2 or 3 systems.

This type of expanded work program should be carried as part of a more comprehensive pre-design study for the initial phase of Whitehorse Copper, once a decision on phasing is made.

The Plan does provide for a major road alignment change, by relocating the intersection of Mt. Sima Access Road, to a point further north along the Alaska Highway. This change greatly improves the intersection grade and enhances visibility. The current road alignment would terminate close to the Highway, serving only as local access to country residential uses. Some improvements outside the Copper ADS area, related to McLean Lake Road may also require consideration.

Policies

1. All public roadways in the Whitehorse Copper Area shall be constructed to the standard specified in the City of Whitehorse Servicing Standards for Rural Residential and Industrial roads.
2. The City shall consider the implementation of a mandatory sprinkler program for fire protection in any new residential dwellings. A cost comparison between a requirement for sprinklers and other fire service options should be conducted before the decision is made.
3. The potential for using Crater Lake as a water supply for the heavy industrial area should be investigated.

4. During detailed design for new land uses, adequate testing and research shall be carried out to indicate that the area can accommodate on-site sewage disposal, and that water supply requirements to satisfy the intended use can be met.
5. Over time, new development in the Copper ADS area may affect traffic on McLean Lake Road. In preparation of an Area Development Scheme for McLean Lake, road alignment and intersection improvements require consideration, particularly the intersection of Lobird Road and McLean Lake Road.

3.10 RADON

The Radon investigation carried out as part of the original Gartner Lee study indicated that Radon levels exceed established guidelines. It is possible that radon gas could accumulate in basements and present a potential health hazard to the dwelling inhabitants. In order to address this concern, basements can be constructed with a barrier to Radon infiltration or, a radon pump can be installed to vent any accumulated Radon.

Policies

1. The City shall ensure that any potential building owners in the Whitehorse Copper Area are aware of the Radon concerns.
2. The City shall require that all dwellings be constructed to control soil gas infiltration according to the National Building Code Section 9.13.

3.11 ABANDONED DUMP

The abandoned dump located opposite the McRae area will require removal. The contents of the dump should be collected and moved to the City of Whitehorse landfill for permanent disposal. It is possible that similar (but smaller) dumps are present in the study area. Should any be found, then the contents of these should be moved to the City of Whitehorse landfill as well. An environmental investigation should be carried out at any other dumps in the study area to ascertain if any land use restrictions or remediation is required.

3.12 LAND USE ALLOCATION

The land use concept provides an indication of how land use is to be apportioned. With respect to designations having development potential, the following table has been prepared which summarizes the amount of land allocated to each of the major land use categories, with a rough estimate of potential lots.

Table 1 Land Allocations

LAND USE	TOTAL AREA (HA)	ASSUMED AV. SIZE	ESTIMATED LOT YIELD
Country Residential	458	1.5 ha	305
Commercial	22	0.75 ha	29
Service Industrial	95	1.5 ha	63
Heavy Industrial	130	6 ha	22
TOTAL	926.2 ha		

NOTE: Indicated areas exclude the principal proposed access roads as illustrated on the plan (generally reflecting a 25m right of way). Designations intended to be kept largely free from development are not included in the table. Average lot size assumes that some land will be lost to necessary road right of way, etc. The Service Industrial area is actually about 316 hectares, but it is assumed that much of the area will be retained for gravel extraction for the foreseeable future, with only 30% of the overall site area assumed to become available for new Service Industrial development.

4 SERVICING STANDARDS

The degree of servicing to be made available will be determined in part by determination of the various phases of development. As part of the initial review of the area some assumptions have been made as to the type of services that should be contemplated.

One service requirement involves fire protection for the main industrial area near the Copper Mine site. One option includes use of a reservoir and a skeleton protection system, to reduce costs. As a water source it may also be feasible to use Crater Lake.

In all cases, supply of potable water and disposal of sanitary sewage is assumed to be the responsibility of individual owners. Testing for water supply and water quality is desirable prior to finalization of the subdivision.

The following are assumed to be reasonable design parameters for the Copper area:

- country residential local road; 8 m width, 25 m ROW, with roadside ditches and 400 mm culverts, 100 mm gravel and BST surface
- country residential collector road; 9 m width, 25 m ROW, with roadside ditches and 400 mm culverts, 100 mm gravel and no BST surface.
- commercial/industrial collector road; 10 m width, 30 m ROW, with roadside ditches and 400 mm culverts, 100 mm gravel and no BST surface.
- streetlighting, similar standards to McRae Subdivision
- Telephone Servicing (Norwest Tel)
- fire protection will be required for the commercial and industrial development areas. A water source suitable for fire supply volumes will need to be found offsite. The Yukon River or a nearby lake may be suitable. A supply and distribution system to the lots will require analysis. Consideration of a fire protection system for the Whitehorse Copper requires a more detailed engineering assessment.

5 IMPLICATIONS FOR OCP AND ZONING

5.1 OFFICIAL COMMUNITY PLAN (OCP)

Some possible changes to be considered in the drafting of a new Official Community Plan (OCP) based on land use recommendations in the Whitehorse Copper Area Development Scheme are summarized here. Comments made here relate only to country residential use in the context of the Whitehorse Copper area, and are not necessarily intended to apply to a more broad based city review of country residential use.

The OCP objective (p.23) related to the provision for future commercial development in nodal areas along the Alaska Highway, clearly anticipated the need to establish some land use proposals for the Whitehorse Copper Area. Policy 3.2.1 (1) stipulates that "Municipal services and transportation should be provided to facilitate such (commercial) development". While this statement offers positive suggestions, it fails to acknowledge the fact that different areas and area characteristics may need to be reflected in different levels of services. For example, the proposed Commercial designated area in Whitehorse Copper is more of a peripheral, non-urban form of development which for economic reasons is more likely to require a reduced level of services. The Rural Commercial Area policies also do not acknowledge this point, although mention is made that commercial uses in rural areas may be permitted subject to an Area Development Scheme. **It is suggested that the OCP be reviewed to acknowledge the need for servicing standards which reflect the ultimate purpose of the area.**

The OCP also makes mention on several occasions of the need to complete an overall **Alaska Highway Corridor Study**. **The Whitehorse Copper Plan certainly considers a major portion of the corridor, but does not replace the need to complete an overall Highway Corridor Study.**

Policy 5.3 (1) indicates that new industrial development along and visible from the Alaska Highway is to be discouraged. The Whitehorse Copper Plan provides for significant greenbelt buffers, acknowledging this concern. The Whitehorse Copper Area Development Scheme also is compatible with Policy 5.3 (4), providing for industrial subdivisions where preceded by an ADS. No OCP policy changes are suggested.

The Country Residential policies in the OCP suggest a density of one dwelling per hectare. The Whitehorse Copper ADS suggests a range of country residential lot sizes from 0.6 ha to 1.6 ha dependant on the exact layout that will result from the detailed subdivision survey. It is proposed that the OCP be amended to include a policy to the effect that where biophysical and foundation conditions are suitable, that densities of two dwellings per hectare will be considered. **The reader is referred to the Draft Report on Country Residential Policy Options (Gartner Lee, April 1998).**

5.2 ZONING BYLAW

The uses contemplated for the Commercial designation in the ADS are likely to be of a local service nature, and can conceivably include tourist accommodation and ancillary uses. However, development will likely be of a lower intensity than what might occur in urban areas of Whitehorse, as a result of more limited available utility services. Thus the current zones such as CS-Service Commercial, or CH-Highway Commercial would accommodate most of the contemplated uses, but require minimum lot sizes too small for the type of environment and conditions encountered in the Whitehorse Copper ADS. For example, the CH zone is the zone most closely associated with the intended use, but the lot size minimum of 1,350 square metres would not be adequate for on-site sewage disposal. **A zone similar to the CH zone may be appropriate, with a lot minimum of 2,000 square metres or larger.**

For the light industrial designation in the ADS, the MS-Service Industrial zone most closely reflects the intent contemplated in the plan. **Similar to the comments made about the Commercial designation, the minimum lot size of 450 square metres is substantially below what can effectively be supported in this area. It is suggested that when a redraft of the zoning bylaw is considered that a larger minimum lot size, at least 0.75 hectares, be provided for.** In addition, the zone should provide for mandatory screening along any property lines that abut any Residential type zone. While the ADS incorporates green strips, the added internal landscape areas provide an additional measure of protection to nearby residents.

The CR1-Country Residential Zone is the applicable zone for country residential use. No change is suggested. In accord with earlier comments related to the OCP, some consideration should be given to allowing smaller

lot sizes as described in the Draft Report on Country Residential Policy Options, for example as is currently provided for in the CR2-Modified Country Residential Zone, which allows for 0.5 hectare lots. Whether this, or a slightly larger minimum is practical, depends very much on the ultimate use in the area (no urban type uses are contemplated in the Whitehorse Copper ADS), or specific site and terrain conditions. A parcel size between 0.5 hectares and 1 hectare, where no future re-subdivision is contemplated, would appear reasonable.

WHITEHORSE COPPER
 AREA DEVELOPMENT SCHEME
 LAND USE PLAN

 Watershed Boundaries	 Country Residential	 Heavy Industrial
 Mineralization Area	 Commercial	 Environmental Reserve
 Land Claim	 Service Industrial	 Community Resource Lands

 14 April 1999 

