URBAN SYSTEMS
planners, engineers, landscape architects

FUNCTIONAL PLAN
DOWNTOWN STREET

WINFIELD TOWN CENTRE

1117912.1
January 1994

TABLE OF CONTENTS

PAGE NO.

In 1993, the Central Okanagan Regional District prepared the Winfield Town Centre Plan. The objective of this plan was to provide direction for the development of a commercial core in the community of Winfield. An important component of this plan was the development of a road system which would establish a downtown character to the core area rather than perpetuating the commercial strip which has developed along Highway No. 97.

The development of a downtown street between Highway No.97 and Vernon Creek was proposed in the plan as the "main street" of Winfield. A preliminary alignment for this road was identified in the Town Centre Plan. A preliminary cross section and other design criteria were also established in the plan for the proposed road.

While the Town Centre Plan established the approximate alignment of the road and identified the relationship of this road to the future road system in the Winfield area, additional analysis was required to more accurately establish the alignment for the road. This became necessary in view of pending applications for rezoning in the southern part of the Winfield Town Centre Plan area. As the proposed road directly affects these properties, it was necessary to further define the horizontal and vertical alignment for the following purposes:

- to define the required right-of-way;
- to define the relationship and orientation of proposed development to the road;
- to identify the potential impacts of the road on Vernon Creek;
- to identify the potential to achieve Ministry of Transportation and Highways standards (particularly in relation to intersections with existing roads) and;
- to provide a basis for preparing cost estimates.

It was also necessary to further define the desired cross section of the road and prepare a capital cost estimate to allow for the allocation of the cost to developers of land within the Winfield Town Centre Plan area.

This report is structured as follows:

Section 2 provides an overview of design criteria and considerations for the proposed road from the perspective of the Winfield Town Centre Plan and from the perspective of the standards and requirements of the Ministry of Transportation and Highways for the design of the road.

Section 3 describes the proposed horizontal and vertical alignment of the road as well as establishing the recommended cross sections.

Section 4 describes the capital costs associated with the development of the road.

Section 5 sets out a broad strategy for constructing and recovering the cost of the road.

Various considerations were taken into account in the functional planning for the proposed road. These included:

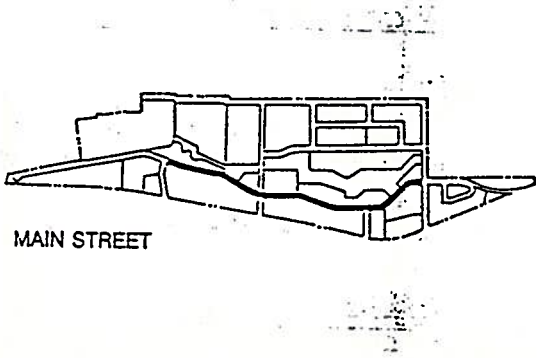
- The objectives and proposed standards for the road as set out in the Winfield Town Centre Plan.
- The design criteria and standards of the Ministry of Transportation and Highways as the Ministry will own and maintain the road when it is constructed.
- Other accepted design standards as set out in the TAC manual.

1. Winfield Town Centre Plan

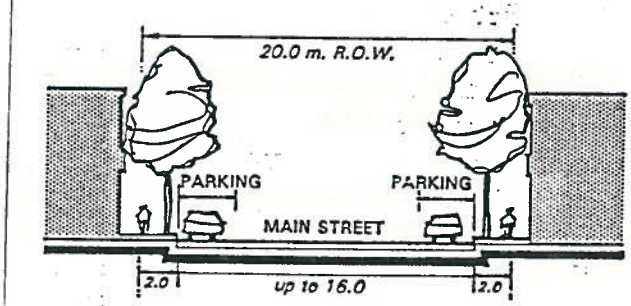
The Winfield Town Centre Plan establishes specific design criteria for the proposed road. These include.

- A preliminary alignment shown in Figure 2.1. The proposed alignment runs parallel to Highway No. 97 and Vernon Creek from Berry Road to Beaver Lake Road.

Figure 2.1



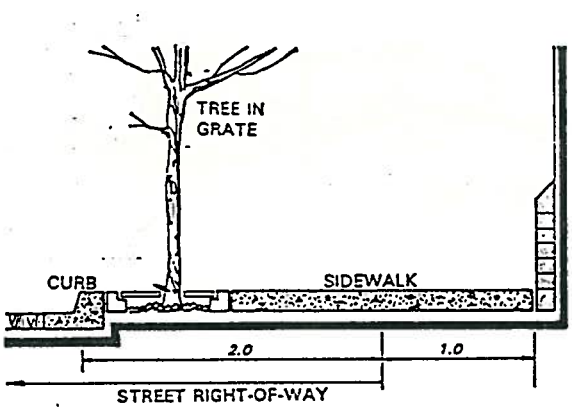
- A preliminary cross section is shown in Figure 2.2. A 20m right-of-way is proposed which will accommodate one travel lane in each direction and parallel parking along both sides of the street. Left turning lanes would be provided at street intersections and at major access drives to parking areas. Curb, gutters and a 2m sidewalk would be provided on each side of the street within the right-of-way.



- A more detailed cross section for sidewalks is set out in Figure 2.3. Sidewalks would provide an urban standard of streetscape development. Beautification works such as planting of street trees, feature plantings, pedestrian scale decorative street lighting and street furniture would also be provided.

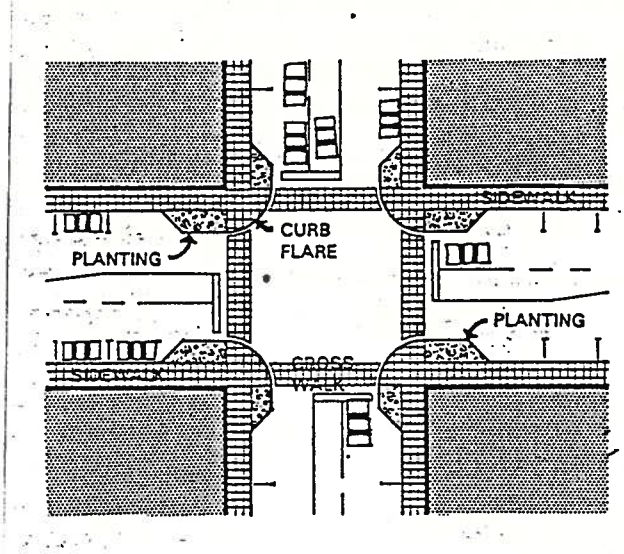
  The surfaces of sidewalks and associated plazas, arcades and cross walks are to be a mixture of coloured concrete pavers and cast-in-place concrete banding.

Figure 2.3



Provision is also made in the plan for curb flares at intersections and mid block crossings to enable the street to be pedestrian friendly. Curb flares are to be landscaped and shall contain bollards, railings or low walls which define the pedestrian area and reflect the streetscape character. Figure 2.4 sets out a typical plan for curb flares at intersections.

Figure 2.4



2. Ministry of Transportation and Highways Design Criteria

.1 Design Standards and Criteria

As Winfield is an unincorporated community, the Ministry of Transportation and Highways will own and maintain the road once it is constructed. In view of the Ministry's ongoing responsibility for the road, it wishes to ensure that the design criteria and standards established for the road are reasonably consistent with its own. Toward this end, Urban Systems Ltd. met with representatives of the Ministry of Transportation and Highways to establish acceptable design standards and parameters.

The following table summarizes the design parameters for the road and compares these with the Ministry's standards:

Design Parameters	MOTH Standard	Used For Plans
Road designation	rural	urban
Posted speed	50 km/hr	50 km/hr
Design speed	50 km/hr	50 km/hr
Maximum superelevation	6 %	4 %
Minimum pavement width	10 m	10 m
Storm Drainage		enclosed
Minimum left turn bay length	30 m	30 m
Left turn bay taper length	54 m	40 m
Left turn lane width	3.3 m	3.6 m
Maximum grades	6 %	5 %
Minimum radius	90 m	110 m
Normal Crown	2 %	2 %
Sidewalk width		2 m
Minimum Right-of-way width		20 m

Meetings with Ministry staff would indicate that the Ministry is in general agreement with the proposed standards.

.2 Major Road Network

In addition to meeting the design standards of the Ministry, efforts were directed to ensuring that the proposed downtown street will function in the overall road network in the Winfield area. The Winfield Town Centre Plan proposed significant changes to the Ministry of Transportation and Highways Major Road Network Plan in the Winfield area. These changes included:

- Eliminating Berry Road as a major grid road by terminating the road at its intersection with the proposed new main street.

- Extending Pollard Road east of Highway No. 97 to intersect with the proposed main street and signalizing the Pollard Road intersection.

- De-emphasizing the use of Beaver Lake Road as a major grid road in view of the grades on the road. The plan recommended an alternate route from Winfield industrial area to Highway No. 97 to the south.

It was recommended that a review of the major road network plan be undertaken by the Ministry of Transportation and Highways to reconcile the differences between the wishes of the community and the present grid road plan. While the Ministry is presently conducting such a review, the review has not been concluded. For this reason the future planning for the proposed main street cannot be as definitive as it might be in certain areas. The following issues could affect the final alignment of the proposed downtown street:

- The location of the intersection of the proposed main street with Beaver Lake Road. The present status of Beaver Lake Road as a major grid road as well as its present alignment limits the options for locating intersections between the main street and Beaver Lake Road. The greatest concern are the poor grades on Beaver Lake Road.

- The intersection of the proposed main street and Berry Road. As the status of Berry Road as a major grid road is unresolved, the intersection configuration and location may change in the future. Also, if Berry Road does not remain a grid road, the Ministry will be looking for alternatives. One alternative may involve using an alignment consisting of Berry Road, the proposed Main Street and the proposed Pollard Road extension to the east. If this occurs, the Ministry may wish to impose standards for that section of Main Street which differ from those established in this report.

- The future intersection between the main street and the extension of Pollard Road.

In view of the uncertainty surrounding the major road network plan, various assumptions have been made concerning the proposed main street in terms of its relationship with the grid roads in the Winfield area. These are discussed below.

Main Street/Beaver Lake Road Intersection

Further design of Beaver Lake Road will be required between Highway #97 and the railway, to ensure that the Main Street intersection is fully integrated with other road features such as turn lanes from the highway, the creek crossing, and adjacent properties. While these issues are expected to be difficult to resolve, they will be important.

The intersection of Main Street and Beaver Lake Road raises some unique concerns, largely due to the steepness of Beaver Lake Road at this location. The difficulties of stopping industrial traffic in the downhill direction will make the installation of traffic signals at this location undesirable, and for this reason they are not recommended. Therefore, a stop condition will be required on Main Street approaching from both the left and the right. A number of suggestions are made to simplify turning movement at the proposed intersection of Beaver Lake Road and the Main Street.

- eliminate the free right turn from the highway onto Beaver Lake Road. This would provide gaps in the eastbound traffic approaching the new intersection, as all traffic accessing Beaver Lake Road eastbound would be controlled by the signals at the highway.

- in addition, this would reduce the number of left turns into Main Street at the intersection.

- the number of vehicular conflict points at this intersection would be greatly reduced.

New Highway Accesses

The trend in highway access policy is to reduce, rather than increase the number of highway access locations, in the interest of smooth and efficient highway traffic flow, and safety concerns. It is suggested that an increased number of accesses and signal locations on the highway are likely to be resisted by MOTH, and should not be assumed without the Ministry's formal agreement at least in principle. In fact, the Ministry may at some time be prepared to reduce the number of accesses to the highway, especially if there is alternative access available from the Main Street. We have assumed that Hill Road will remain as a link between Highway No. 97 and the proposed Main Street. We have also assumed that Pollard Road will be extended across Highway No. 97 to intersect with the Main Street.

PROPOSED HORIZONTAL/VERTICAL ALIGNMENT AND CROSS SECTIONS *SECTION 3*

In keeping with the objectives of this study, preliminary horizontal/vertical alignments and cross sections were prepared. These are described in this section.

.1 Methodology

Preliminary horizontal and vertical alignments were established using the following methodology:

- a topographic survey was undertaken for the Winfield Town Centre area with an emphasis on the area south of Lot A, Plan KAP 49388.
- a legal composite plan was prepared and tied into the topographic survey.
- using EMXS software, various options for the alignment of the road were identified and analyzed.
- options were evaluated on the basis of the following:
    - achieving established design criteria and standards;
    - ensuring that the profile allowed a reasonable relationship between the road and lot frontage elevations and street grades;
    - ensuring that property with development potential would not be adversely impacted by the alignment of the road.

No geotechnical investigations were carried out.

.2 Horizontal/Vertical Alignment

Seven options for the alignment of the main street were identified, reviewed and evaluated. The options which best achieved the objectives and design criteria established for the road are described as follows:

Option 1

The proposed horizontal and vertical alignments under this option are shown in Figures 3.1 and 3.2. From its intersection with Beaver Lake Road to the north, this alignment is characterized by two fairly tight reversing curves of 110 metre radius. This radius requires 4% elevation to achieve a 50 km/hr design speed. (TAC Standard for maximum 4% superelevation) Traffic, in the northerly direction, will be anticipating a stop at the Hill Road intersection and in the southerly direction will be accelerating from a stop. These curves open up to a 400 metre long tangent section. North of the tangent section, the road swings east of the existing IGA Store and then connects to Wood Lake Bottom Road. The profile meets minimum "k" values outlined in the MOTH Design Manual. All crest curbs exceed the minimum value of 11 for object sight distance and all sag curves exceed the minimum value of 6 for comfort control. Headlight control is not required on these sag curves as the street will be lighted. Preliminary cross sections along this alignment are shown in Figure 3.3.

The intersection layout configuration established for Beaver Lake Road includes a 30m left turn bay, which provides a refuge for left-turning traffic, thereby ensuring that downhill traffic will not have to stop at this intersection. This lane is recommended regardless of traffic volume warrants, because of the significance of industrial traffic (trucks) on Beaver Lake Road, coupled with the relatively steep grade. The left turn bay is shown 30m long (which is minimum), with a 40m tapered lane. Right turns in the WB-NB movement are unopposed, so stopping (rather slowing) by through traffic for right-turners is in the uphill direction, and therefore not a problem. There will be no turns to the south as this will be a one-way street, northbound.

Some relocation work will be required for Vernon Creek in the vicinity of the IGA, as there is insufficient room to construct the road in this area between the creek and the wall. The requirements for this relocation (approximately 120 metres) will need to be addressed in detail later with the Ministry of Environment as this is reportedly a spawning and rearing stream. A couple of alternatives to creek relocation include more extensive development of retaining walls, stream bank armouring, or realigning the road completely. This would require the demolition of buildings and rearranging other significant features.

Intersections along the route, particularly north of Hill Road need to be defined.

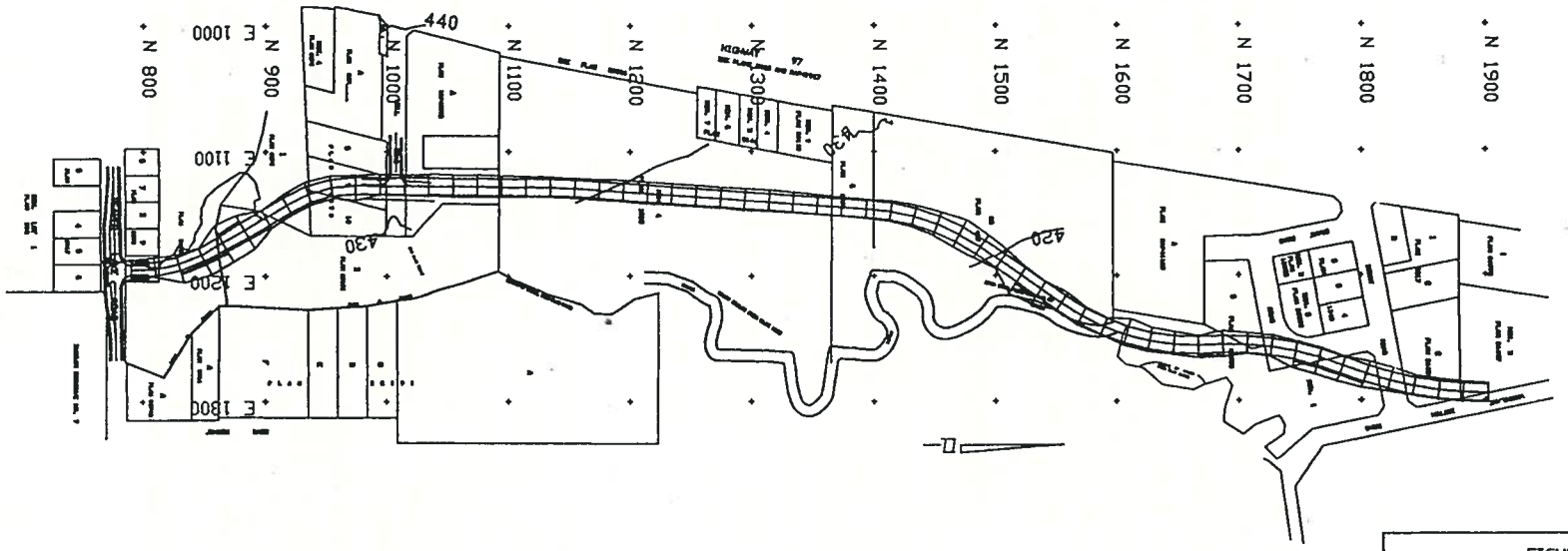


FIGURE 3.1

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
HORIZONTAL ALIGNMENT

OPTION 1

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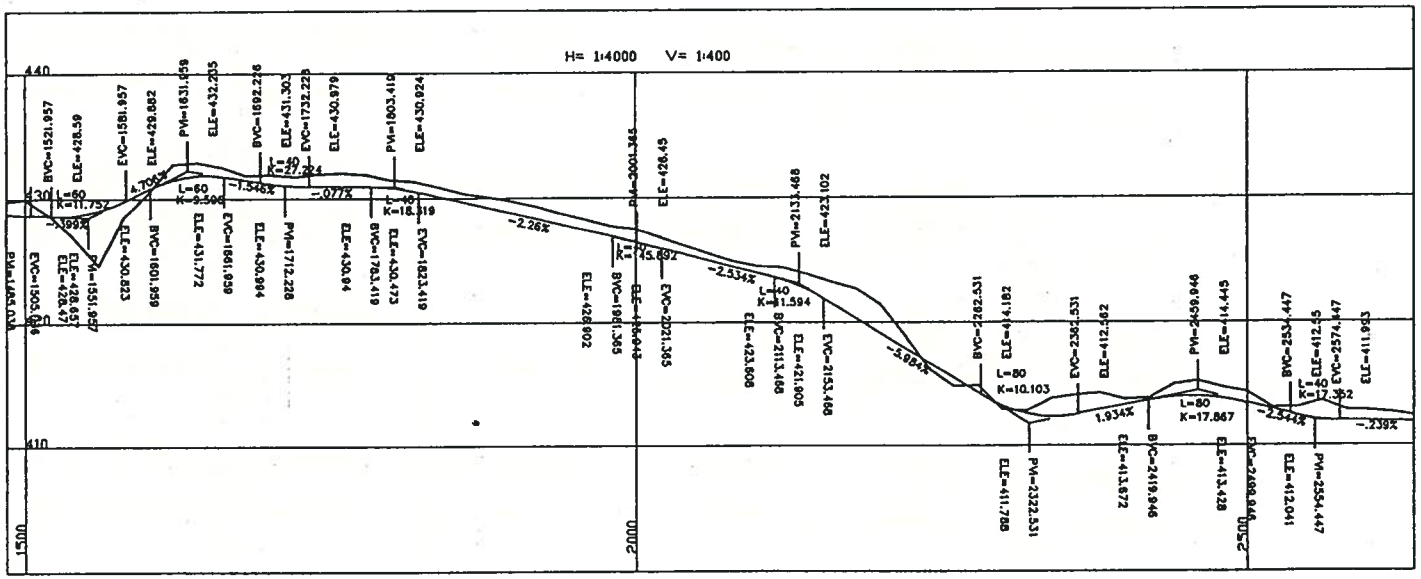

FIGURE 3.2

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
VERTICAL ALIGNMENT

OPTION 1

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FIGURE 3.3

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
CROSS SECTIONS

OPTION 1

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Option 2

Option 2, between Beaver Lake Road and Hill Road follows the same horizontal alignment as Option 1, using the two 110 metre radius curves. The alignment then swings to the east (closer to the creek), then back to the west where it departs radically from Option 1. Here it climbs toward the existing strip mall, which would need to be removed to accommodate this option. The alignment then continues through the existing parking lot of the IGA then joins Wood Lake Bottom Road at the north end of the site.

The proposed horizontal and vertical alignments for this option is shown in Figures 3.4 and 3.5 with preliminary cross sections shown in Figure 3.6.

Proposed Cross Section

Two cross sections are proposed for the main street. One cross section proposes two 3.7m travel lanes, 2.5 metre parking lanes, a 3.6m median and 2 metre wide sidewalks on either side. This cross section would be accommodated in a 20m right-of-way. Figure 3.7 identifies this cross section. Two sub-options are proposed. One includes a raised median and one which includes a painted median. A cross section which does not provide for parking lanes is proposed for the sections of the main street which will not be developed to a commercial or institutional use. These sections are shown in Figure 3.8. The proposed cross section for these sections is shown in Figure 3.9.

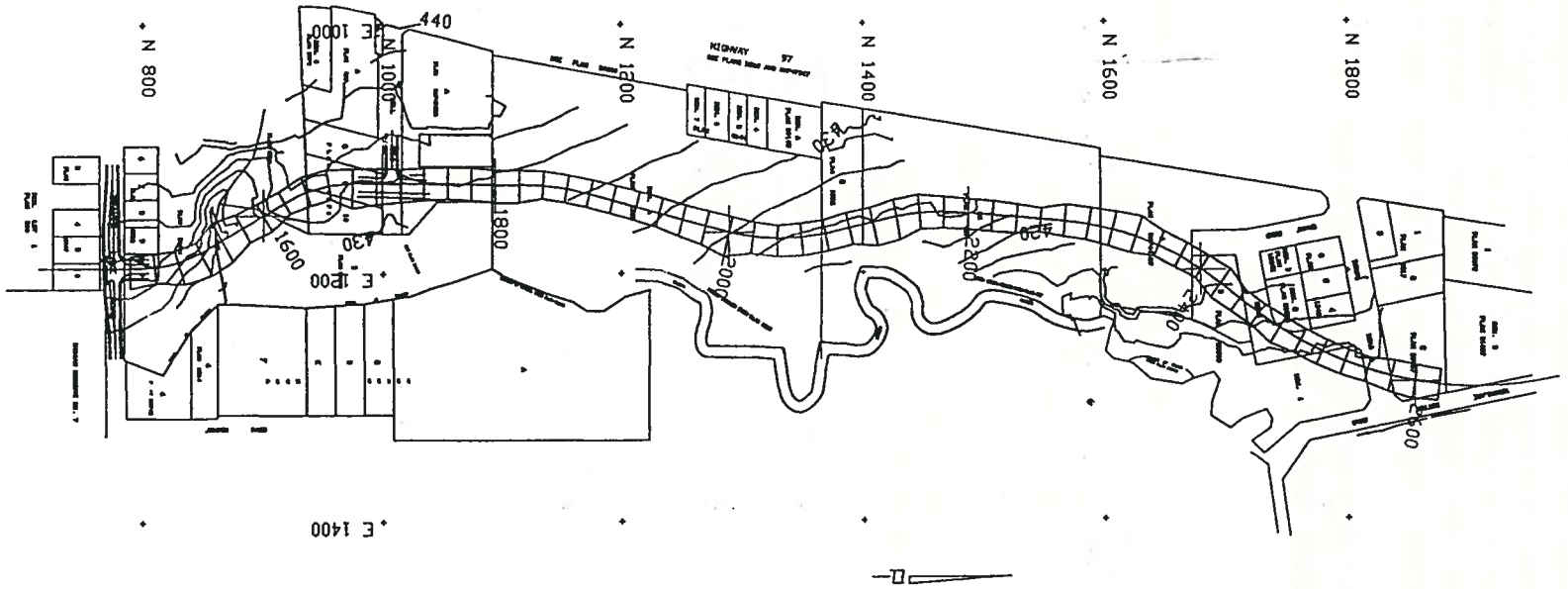

FIGURE 3.4

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
HORIZONTAL ALIGNMENT

OPTION 2

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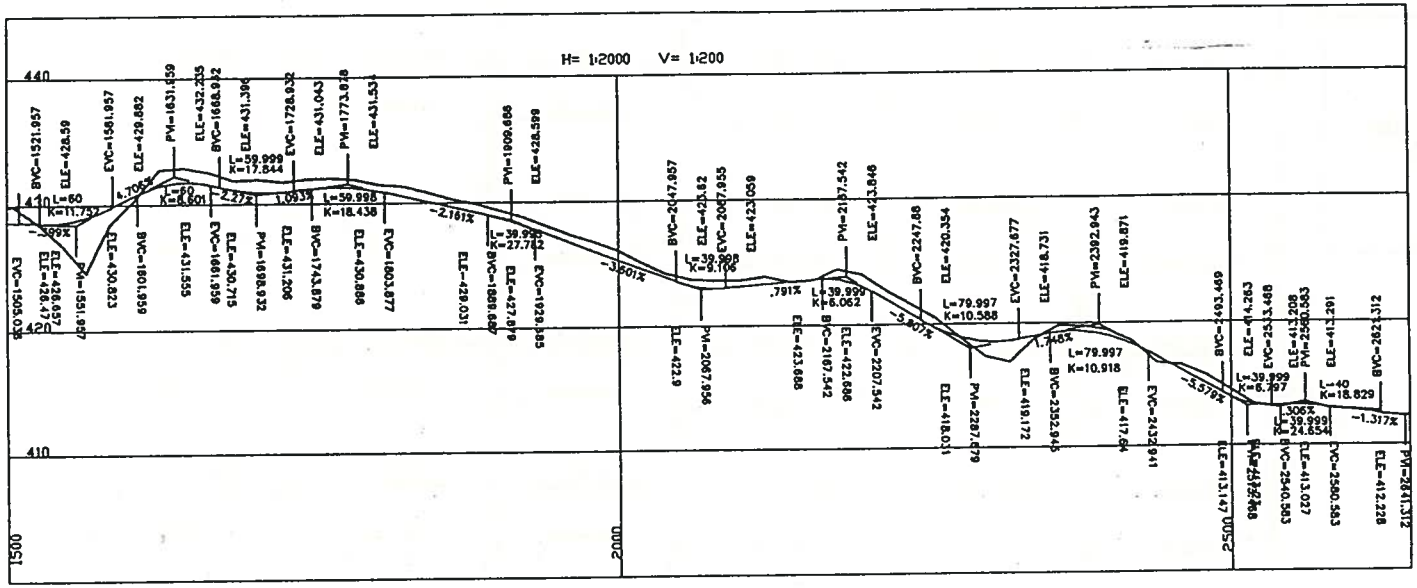

FIGURE 3.5

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
VERTICAL ALIGNMENT

OPTION 2

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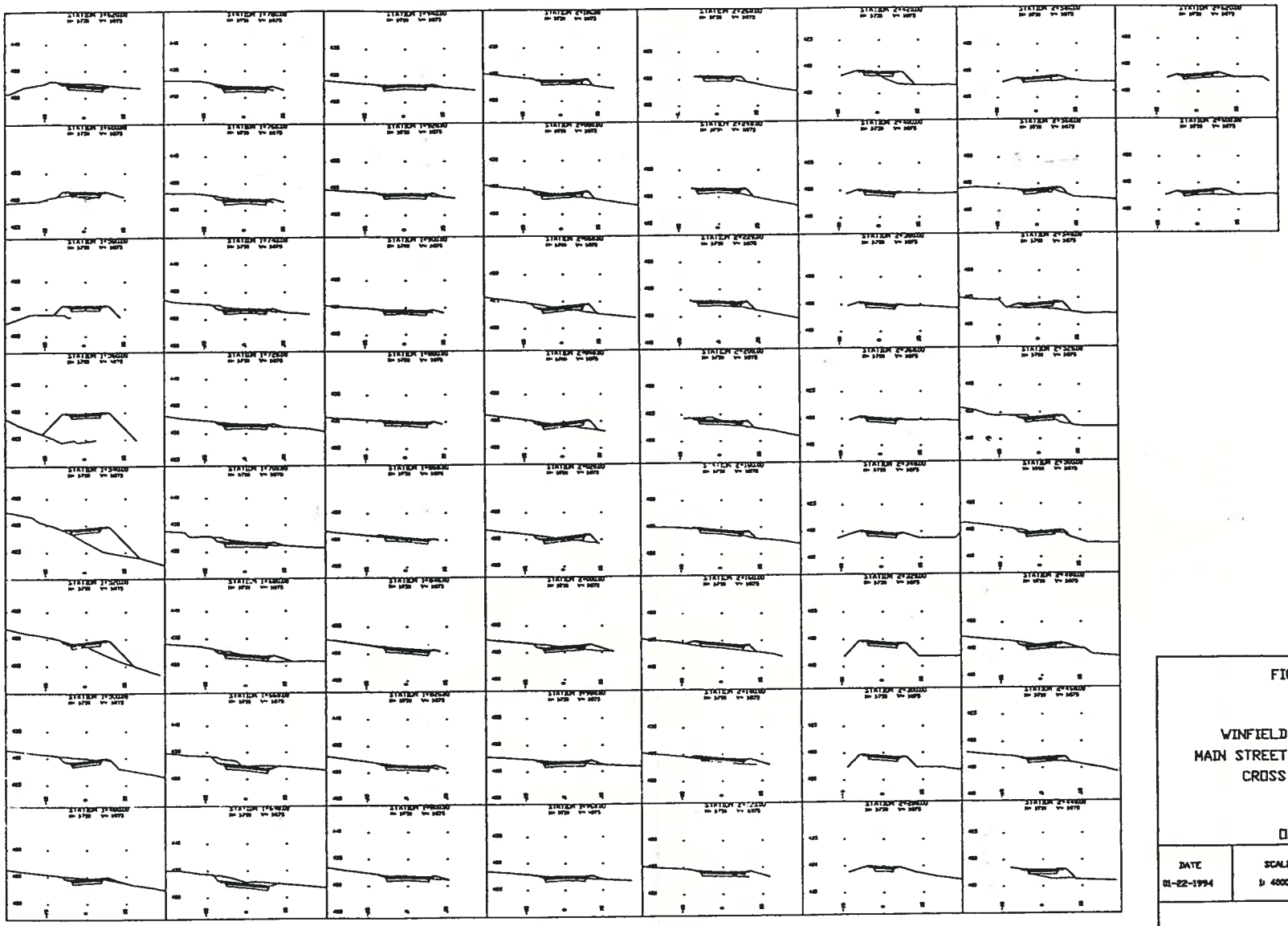

FIGURE 3.6

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
CROSS SECTIONS

OPTION 2

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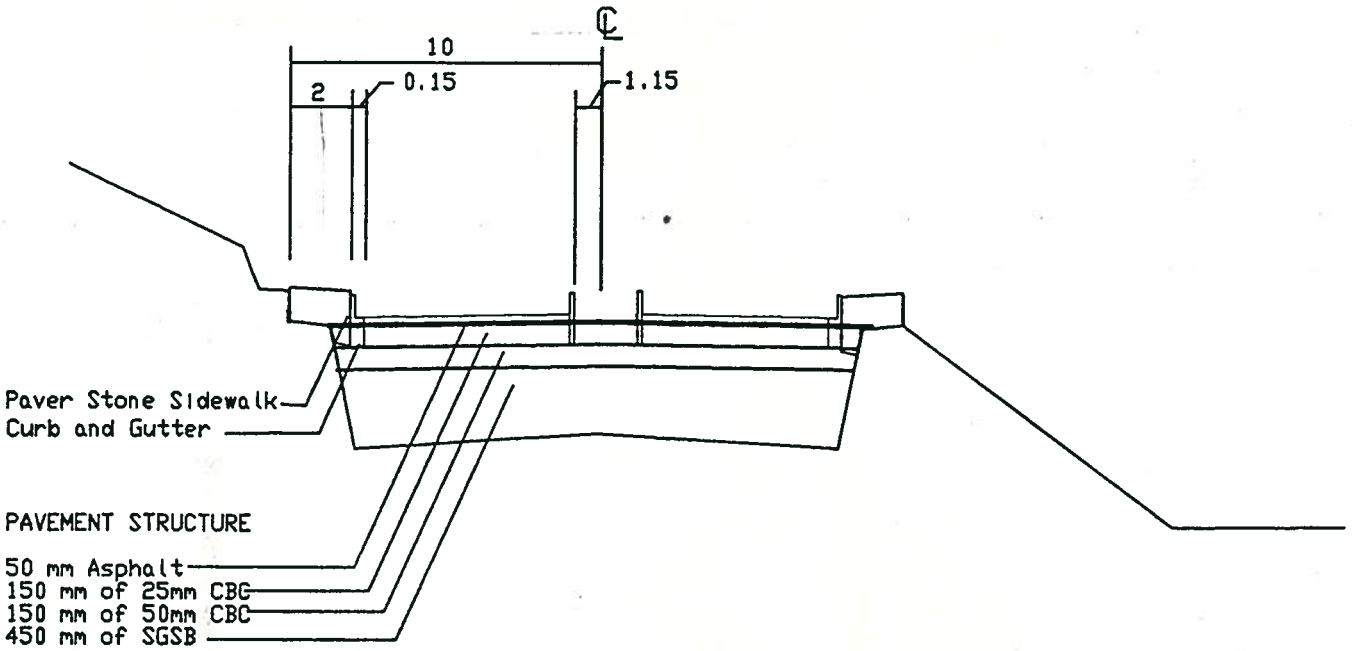

TYPICAL CROSS-SECTION 2

FIGURE 3.7

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
TYPICAL CROSS SECTION 1

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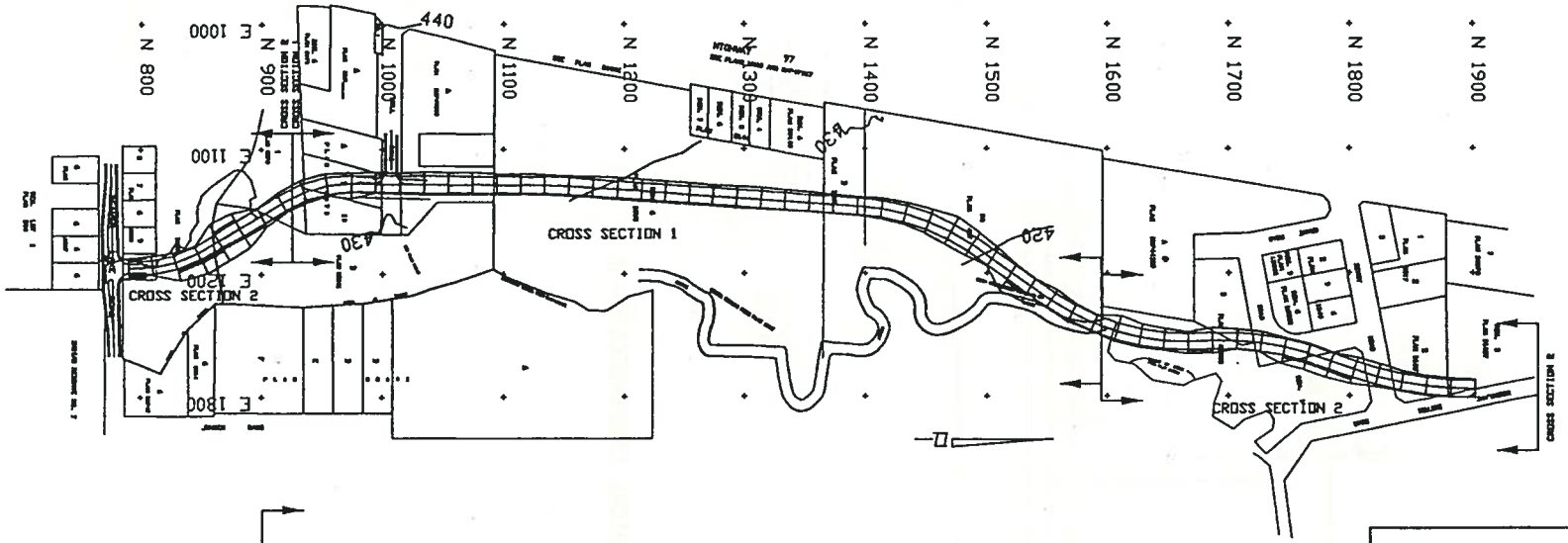

FIGURE 3.8

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
APPLICATION OF CROSS SECTIONS

OPTION 1

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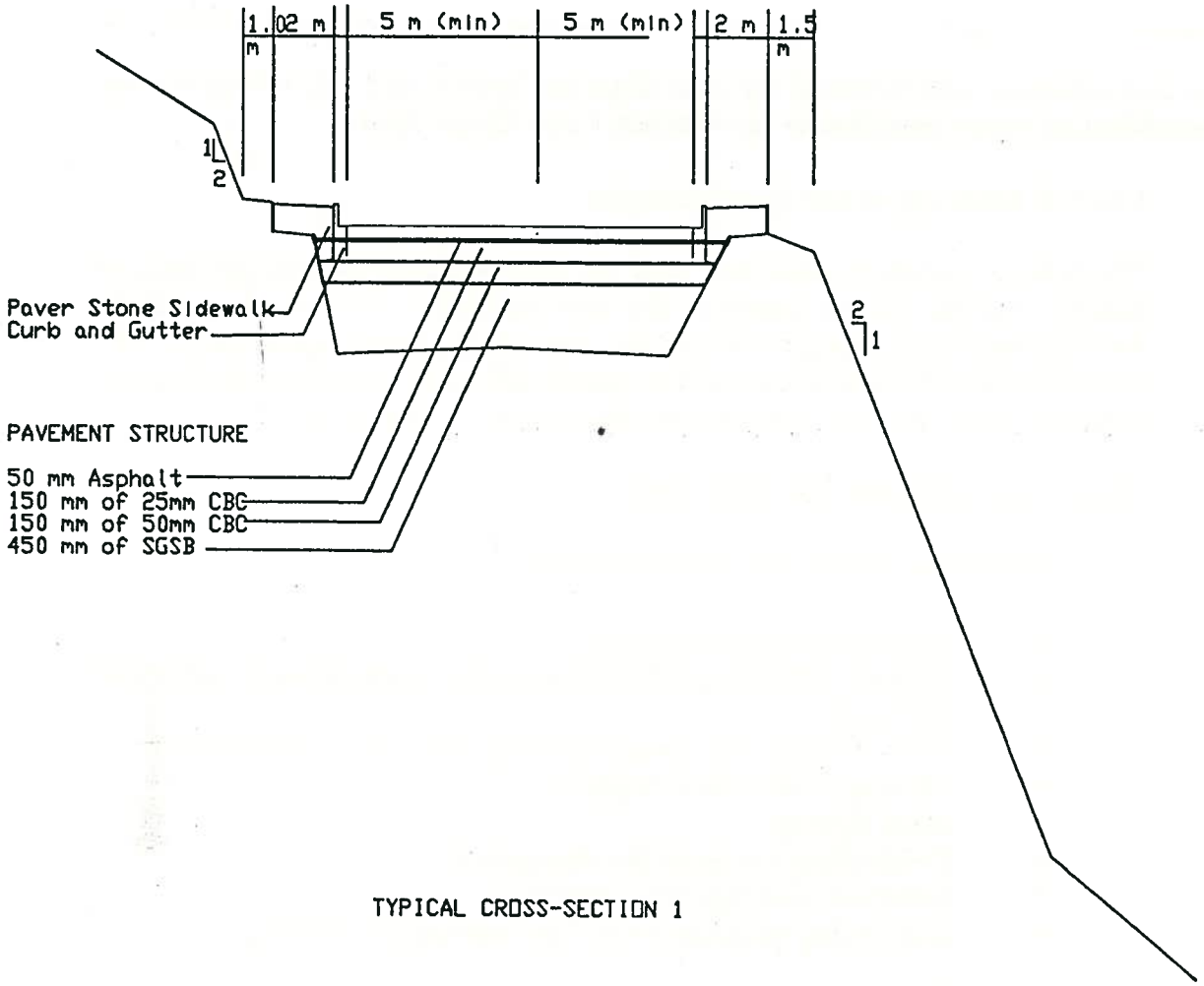

TYPICAL CROSS-SECTION 1

FIGURE 3.9

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
TYPICAL CROSS SECTION 2

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Preliminary cost estimates were prepared for both alignment options and also reflect varying levels of beautification works identified in the Winfield Town Centre Plan.

.1 Level of Accuracy of the Cost Estimates

The level of accuracy associated with the cost estimates reflects the level of analysis carried out to generate the cost estimates. As no geotechnical investigations have been carried out, the costs could change significantly. The cost estimates described in this section must therefore be considered preliminary subject to refinement as more detailed design work is carried out.

.2 Items Included in the Cost Estimates

The cost estimates include the following items:

- site preparation and grading.
- drainage including catchbasin leads, storm sewer mains and outfall structures.
- road surfacing and paving including curb gutter and sidewalk.
- retaining walls where required.
- street lighting.
- Creek relocation (only for one option).
- pavement markings and signage.
- landscaping including street trees and median planting.

Items not included in the cost estimates include:

- land acquisition costs.
- traffic signals.

Land acquisition will be required if certain properties required for the right-of-way are not purchased by developers of adjoining lands. These costs have not been estimated. The cost of signalization of proposed intersections, should this be required, has also not been included in the cost estimates.

.3 Differing Levels of Beautification

The Winfield Town Centre Plan identifies the Main Street as an important component in establishing the character of the Winfield Town Centre. Various beautification elements are proposed including:

- decorative pedestrian lighting as opposed to davit type lighting.
- use of concrete pavers as well as concrete for sidewalks and curb flares.
- provision of street trees and other landscaping.
- provision of street furniture, etc.
- development of a median to accommodate turn bays, etc.

There are significant cost implications for such beautification works. In view of the high cost, the cost estimates are provided on the basis of varying levels of beautification.

Sub Option 1 This option proposes no beautification works. No decorative lighting, raised medians, curb flares, brick paver walks, street trees or other landscaping is provided.

Sub Option 2 This option provides for a reasonably high level of beautification works including decorative pedestrian lighting, curb flares, street trees and other landscaping. This option does not include a raised median.

Sub Option 3 In addition to the beautification elements provided in Option 2, this option includes a raised and landscaped median.

.4 Preliminary Cost Estimates

Preliminary cost estimates for the two alternative alignments are provided in Figures 4.1 to 4.6. The cost estimates are differentiated on the basis of the options for beautification works. Table 4.1 to 4.3 identify the cost estimates for the alignment proposed as Option 1. Table 4.1 sets out the cost for limited beautification works (Sub Option 1), Table 4.2 sets out the costs for Sub Option 2, and Table 4.3 for Sub Option 3. Tables 4.4 to 4.6 describe the cost estimates for the alignment proposed in Option 2. Table 4.4 identifies the costs associated with Sub Option 1, Table 4.5 for Sub Option 2 and Table 4.6 for Sub Option 3.

The costs can be summarized as follows:

	Beautification Options		
Alignments	Sub Option 1 Limited Beautification Works	Sub Option 2 Moderate Level of Beautification Works	Sub Option 3 High Level of Beautification Works
Option 1	1,747,632	2,582,602	2,677,695
Option 2	1,811,662	2,646,632	2,736,579

All costs are expressed in 1994 constant dollars.

WINFIELD MAIN STREET COST ESTIMATES
FIGURE 4.1 - OPTION 1-1

ITEM	UNIT	RATE	QUANT	$
SITE PREP, GRADING & DRAINAGE				
Roadway & Drainage Excavation				
Organic Stripping - On Site Stockpile	cu.m.	3	5,800	17,400
Clearing & Grubbing	Ha.	2,000	1	2,000
Remove Excess Material - Off Site Disposal	cu.m.	3	9,000	27,000
Type "D" Ordinary Material	cu.m.	4	17,500	70,000
Culverts, Catch Basin Leads				
Catchbasins incl. leads	ea.	2,000	12	24,000
Storm Sewer up to ø 600	m.	200	1,200	240,000
Outfall Structure	ea.	5,000	2	10,000
TOTAL SITE PREP, GRADING & DRAINAGE				390,400
ROAD SURFACING & PAVING				
Curb, Gutter & Sidewalk				
Straight Face curb - for median	m	35		0
Curb & Gutter - for paving stones	m	50		0
Paver stone S/W 2m wide	m	120		0
Mono C & G / with 2m sidewalk	m	75	2,320	174,000
Subgrade Preparation - top 0.3m	m^2	1	16,740	16,740
Primer	m^2	1	16,800	16,800
Asphalt Pavement (50 mm)	t	42	2,021	84,882
25 mm C.B.C. (150 mm base)	t	13	5,980	77,740
50 mm C.B.C. (150 mm base)	t	11	5,750	63,250
S.G.S.B. (450 mm sub-base)	t	7	17,160	120,120
TOTAL ROAD SURFACING & PAVING				553,532
MISCELLANEOUS & LANDSCAPING				
Miscellaneous				
Davit Street Lights and conduit	ea.	4,590	20	91,800
Intersection curb flares	ea.	9,500	0	0
Pavement Markings	L.S.			1,200
Signs - post mounted	ea.	200		2,400
Bollards, benches, trash receptacles	L.S.			0
Landscaping				
Street Trees incl. hardware	ea.	2,000	0	0
Median Landscaping - topsoil and sod	m^2	5	0	0
Irrigation	L.S.			
TOTAL MISCELLANEOUS & LANDSCAPING				95,400
Provisional Items				
Retaining walls	sq.m.	350	300	105,000
Remove structures and utilities	L.S.			100,000
Relocate creek	L.S.			100,000
TOTAL PROVISIONAL ITEMS				305,000
SUBTOTAL				1,344,332

CONTINGENCY 30%	403,300
TOTAL COST	1,747,632 [1]
TOTAL LINEAL METRES OF ROAD	1,160
TOTAL COST PER METRE OF ROAD	1,507

Property cost not included in these estimates.

[1] Includes $396,500 of Provisional creek relocation, utility/structure relocation and retaining wall costs which require further refinement in order to provide more detailed cost estimate.

WINFIELD MAIN STREET COST ESTIMATES
FIGURE 4.2 - OPTION 1-2

ITEM	UNIT	RATE	QUANT	$
SITE PREP, GRADING & DRAINAGE				
Roadway & Drainage Excavation				
Organic Stripping	cu.m.	3	5,800	17,400
Clearing & Grubbing	Ha.	2,000	1	2,000
Remove Excess Material	cu.m.	3	9,000	27,000
Type "D" Ordinary Material	cu.m.	4	17,500	70,000
Culverts, Catch Basin Leads				
Catchbasins incl. leads	ea.	2,000	12	24,000
Storm Sewer	m.	200	1,200	240,000
Outfall Structure	ea.	5,000	2	10,000
TOTAL SITE PREP, GRADING & DRAINAGE				390,400
ROAD SURFACING & PAVING				
Curb, Gutter & Sidewalk				
Straight Face curb	m	35	0	0
Curb & Gutter	m	50	2,320	116,000
Paver stone S/W 2m wide	m	120	2,320	278,400
Mono C & G / with 2m sidewalk	m	75	0	0
Subgrade Preparation - top 0.3m	m^2	1	16,740	16,740
Primer	m^2	1	16,800	16,800
Asphalt Pavement (50 mm)	t	42	2,021	84,882
25 mm C.B.C. (150 mm base)	t	13	5,980	77,740
50 mm C.B.C. (150 mm base)	t	11	5,750	63,250
S.G.S.B. (450 mm sub-base)	t	7	17,160	120,120
TOTAL ROAD SURFACING & PAVING				773,932
MISCELLANEOUS & LANDSCAPING				
Miscellaneous				
Decorative Street Lights and Conduit	ea.	5,113	45	230,085
Intersection Curb Flares	ea.	3	9,500	28,500
Pavement Markings	L.S.			1,200
Signs - post mounted	ea.	200	12	2,400
Bollards, benches, trash receptacles	L.S.			53,100
Landscaping				
Street Trees incl. hardware	ea.	2,000	85	170,000
Median Landscaping - topsoil and sod	m^2	5	0	0
Irrigation for trees and planters	L.S.			32,000
TOTAL MISCELLANEOUS & LANDSCAPING				517,285
Provisional Items				
Retaining walls	sq.m	350	300	105,000
Remove structures and utilities	L.S.			100,000
Relocate creek	L.S.			100,000
TOTAL PROVISIONAL ITEMS				305,000
SUBTOTAL				1,986,617

CONTINGENCY 30%	595,985
TOTAL COST	2,582,602 [1]
TOTAL LINEAL METRES OF ROAD	1,160
TOTAL COST PER METRE OF ROAD	2,226

Property cost not included in these estimates.

[1] Includes $396,500 of provisional creek relocation, utility/structure relocation and retaining wall costs which require further refinement in order to provide more detailed cost estimate.

WINFIELD MAIN STREET COST ESTIMATES
FIGURE 4.3 - OPTION 1-3

ITEM	UNIT	RATE	QUANT	$
SITE PREP, GRADING & DRAINAGE				
Roadway & Drainage Excavation				
Organic Stripping-on site stockpile	cu.m.	3	5,800	17,400
Clearing & Grubbing	Ha.	2,000	1	2,000
Remove Excess Material-off Site	cu.m.	3	9,000	27,000
Disposal	cu.m.	4	17,500	70,000
Type "D" Ordinary Material				
Culverts, Catch Basin Leads	ea.	2,000	12	2400
Catchbasins incl. leads	m.	200	1,200	240,000
Storm Sewer up to ø600	ea.	5,000	2	10,000
Outfall Structure				
				390,400
TOTAL SITE PREP, GRADING & DRAINAGE				
ROAD SURFACING & PAVING				
Curb, Gutter & Sidewalk				
Straight Face curb-for median	m	35	1,030	36,050
Curb & Gutter-for paving stones	m	50	2,320	116,000
Paver stone S/W 2m wide	m	120	2,320	278,400
Mono C & G / with 2m sidewalk	m	75		0
Subgrade Preparation - top 0.3m	m^2	1	17,045	17,045
Primer	m^2	1	16,800	16,800
Asphalt Pavement (50 mm)	t	42	1,880	78,960
25 mm C.B.C. (150 mm base)	t	13	6,210	80,730
50 mm C.B.C. (150 mm base)	t	11	5,750	63,250
S.G.S.B. (450 mm sub-base)	t	7	17,160	120,120
TOTAL ROAD SURFACING & PAVING				807,355
MISCELLANEOUS & LANDSCAPING				
Miscellaneous				
Decorative & Conduit	ea.	5,113	45	230,085
Intersection Work	ea.	3	9,500	28,500
Pavement Markings	LS	-	-	1,200
Signs - post mounted	ea.	200	12	2,400
Bollards, Benches, Trash Receptacles	LS			53,100
Landscaping				
Street Trees incl. hardware	ea.	2,000	85	170,000
Median Landscaping (sod)	m^2	5	1,545	7,725
Irrigation	LS			64,000
TOTAL MISCELLANEOUS & LANDSCAPING				557,010
Provincial Items				
• Retaining Walls	sgm	350	300	105,000
• Remove Structures and Utilities	LS			100,000
• Relocate Creek	LS			100,000
Total Provincial Items				305,000
SUBTOTAL				2,059,765

CONTINGENCY 30%	617,930
TOTAL COST	2,677,695[1]
TOTAL METRES	1,160
TOTAL COST PER METRE	2,308

Property cost not included in these estimates.

[1] Includes $396,500 of provisional creek relocation, utility/structure relocation and retaining wall costs which require

WINFIELD MAIN STREET COST ESTIMATES
FIGURE 4.4 - OPTION 2-1

ITEM	UNIT	RATE	QUANT	$
SITE PREP, GRADING & DRAINAGE				
Roadway & Drainage Excavation				
Organic Stripping	cu.m.	3	5,800	17,400
Clearing & Grubbing	Ha.	2,000	1	2,000
Remove Excess Material	cu.m.	3	2,000	6,000
Type "D" Ordinary Material	cu.m.	4	12,000	48,000
Culverts, Catch Basin Leads				
Catchbasins incl. leads	ea.	2,000	12	24,000
Storm Sewer	m.	200	1,000	240,000
Outfall Structure	ea.	5,000	2	10,000
TOTAL SITE PREP, GRADING & DRAINAGE				347,400
ROAD SURFACING & PAVING				
Curb, Gutter & Sidewalk				
Straight Face curb - for median	m	35		0
Curb & Gutter - for pavers	m	50		0
Paver stone S/W 2m wide	m	120		0
Mono C & G / with 2m sidewalk	m	75	2,320	174,000
Subgrade Preparation - top 0.3m	m^2	1	16,500	16,500
Primer & Tack	m^2	1	16,800	16,800
Asphalt Pavement (50 mm)	t	42	1,998	83,916
25 mm C.B.C. (150 mm base)	t	13	5,980	77,740
50 mm C.B.C. (150 mm base)	t	11	5,750	63,250
S.G.S.B. (450 mm sub-base)	t	7	16,940	118,580
TOTAL ROAD SURFACING & PAVING				550,786
MISCELLANEOUS & LANDSCAPING				
Miscellaneous				
Davit Street Lights and conduit	ea.	4,590	20	91,800
Intersection curb flares	ea.	9,500	0	0
Pavement Markings	L.S.	1	1,200	1,200
Signs - post mounted	ea.	200	12	2,400
Bollards, benches, trach receptacles	L.S.			0
Landscaping				
Street Trees incl. hardware	ea.	2,000	0	0
Median Landscaping - topsoil and sod	m^2	5	0	0
Irrigation	L.S.			0
TOTAL MISCELLANEOUS & LANDSCAPING				95,400
Provisional Items				
Rem. Ex. Struct's and utilities				400,000
SUBTOTAL				1,393,586
CONTINGENCY 30%				418,070
TOTAL COST				1,811,662 [1]
TOTAL METRES				1,160
TOTAL COST PER METRE				1,562

[1] Property acquisition not included in these estimates. Provisional sum of $400,000 added for building demolition.

WINFIELD MAIN STREET COST ESTIMATES
FIGURE 4.5 - OPTION 2-2

ITEM	UNIT	RATE	QUANT	$
SITE PREP, GRADING & DRAINAGE				
Roadway & Drainage Excavation				
Organic Stripping	cu.m.	3	5,800	17,400
Clearing & Grubbing	Ha.	2,000	1	2,000
Remove Excess Material	cu.m.	3	2,000	6,000
Type "D" Ordinary Material	cu.m.	4	12,000	48,000
Culverts, Catch Basin Leads				
Catchbasins incl. leads	ea.	2,000	12	24,000
Storm Sewer	m.	200	1,200	240,000
Outfall Structure	ea.	5,000	2	10,000
TOTAL SITE PREP, GRADING & DRAINAGE				347,400
ROAD SURFACING & PAVING				
Curb, Gutter & Sidewalk				
Straight Face curb - for median	m	35		0
Curb & Gutter - for paver	m	50	2,320	116,000
Paver stone S/W 2m wide	m	120	2,320	278,400
Mono C & G / with 2m sidewalk	m	75		0
Subgrade Preparation - top 0.3m	m^2	1	16,500	16,500
Primer & Tack	m^2	1	16,800	16,800
Asphalt Pavement (50 mm)	t	42	1,998	83,916
25 mm C.B.C. (150 mm base)	t	13	5,980	77,740
50 mm C.B.C. (150 mm base)	t	11	5,750	63,250
S.G.S.B. (450 mm sub-base)	t	7	16,940	118,580
TOTAL ROAD SURFACING & PAVING				771,186
MISCELLANEOUS & LANDSCAPING				
Miscellaneous				
Decorative Street Lights and conduit	ea.	5,113	45	230,085
Intersection curb flares	ea.	3	9,500	28,500
Pavement Markings	m.	1	1,200	1,200
Signs - post mounted	ea.	200	12	2,400
Bollards, benches, trash receptacles	L.S.			53,100
Landscaping				
Street Trees incl. hardware	ea.	2,000	85	170,000
Median Landscaping - topsoil and sod	m^2	5		0
Irrigation	L.S.			32,000
TOTAL MISCELLANEOUS & LANDSCAPING				517,285
Provisional Items				
Rem. Ex. struct's and utilities				400,000
SUBTOTAL				2,035,871
CONTINGENCY 30%				610,761
TOTAL COST				2,646,632 [1]
TOTAL METRES				1,160
TOTAL COST PER METRE				2,282

[1] Property acquisition not included in these estimates. Provisional sum of $400,000 added for building demolition.

WINFIELD MAIN STREET COST ESTIMATES
FIGURE 4.6 - OPTION 2-3

ITEM	UNIT	RATE	QUANT	$
SITE PREP, GRADING & DRAINAGE				
Roadway & Drainage Excavation				
Organic Stripping	cu.m.	3	5,800	17,400
Clearing & Grubbing	Ha.	2,000	1	2,000
Remove Excess Material	cu.m.	3	2,000	6,000
Type "D" Ordinary Material	cu.m.	4	12,000	48,000
Culverts, Catch Basin Leads				
Catchbasins incl. leads	ea.	1,200	12	24,000
Storm Sewer	m.	200	1,200	240,000
Outfall Structure	ea.	5,000	2	10,000
TOTAL SITE PREP, GRADING & DRAINAGE				347,400
ROAD SURFACING & PAVING				
Curb, Gutter & Sidewalk				
Straight Face curb-For Median	m	35	1,030	36,050
Curb & Gutter-For Pavers	m	50	2,320	116,000
Paver stone S/W 2m wide	m	120	2,320	278,400
Mono C & G / with 2m sidewalk	m	75		0
Subgrade Preparation - top 0.3m	m^2	1	16,845	16,845
Primer & Tack	m^2	1	16,800	16,800
Asphalt Pavement (50 mm)	t	42	1,833	76,986
25 mm C.B.C. (150 mm base)	t	13	5,980	77,740
50 mm C.B.C. (150 mm base)	t	11	5,750	63,250
S.G.S.B. (450 mm sub-base)	t	7	16,940	118,580
TOTAL ROAD SURFACING & PAVING				800,651
MISCELLANEOUS & LANDSCAPING				
Miscellaneous				
Decorative Street Lights and Conduit	ea.	5113	45	230,085
Intersection Curb Flares	ea.	3	9,500	28,500
Pavement Markings	m.	1	1,200	1,200
Signs - post mounted	ea.	200	12	2,400
Bollards, benches and trash receptacles	L.S.			53,100
Landscaping				
Street Trees incl. hardware	ea.	2,000	85	170,000
Median Landscaping - Top soil and sod	m^2	5	1,545	7,725
Irrigation				64,000
TOTAL MISCELLANEOUS & LANDSCAPING				557,010
Provisional Rem Ex. Struct's & Utilities	LS			400,000
SUBTOTAL				2,105,061

CONTINGENCY 30%	631,518
TOTAL COST	2,736,579[1]
TOTAL METRES	1,160
TOTAL COST PER METRE	2,359

[1] Property acquisition not included in these estimates. Provisional sum of $400,000 added for building demolition.

The construction of the main street in the Winfield Town Centre will require the cooperation of various Government agencies. As the Winfield community is not yet incorporated, responsibility for constructing the street will fall to the Central Okanagan Regional District even though it does not have direct jurisdiction. The Ministry of Transportation and Highways will also be involved. While the Ministry is on record as supporting the construction of this road, it has indicated that it will not contribute financially to the cost of building the road nor will it oversee the design and construction of the road.

In view of the position taken by the Ministry, construction of the main street will require a well conceived implementation strategy. This section describes some of the issues associated with the construction of the road as well as some options for dealing with them.

Six key issues must be addressed. These are:

- Acquisition of the right-of-way;
- Jurisdiction for constructing the road;
- Generating revenue to offset the cost of constructing the road;
- Securing necessary approvals for constructing the road;
- Undertaking necessary improvements on roads presently under the jurisdiction of the Ministry of Transportation and Highways;
- Phasing of road construction.

.1 Acquisition of the Right-of-way

The required right-of-way to accommodate the proposed main street is indicated in detail on Figures 3.1 and 3.4 depending on the option chosen by the Board. The proposed right-of-way is located on properties which have development potential. In other cases the right-of-way is located on lands which either do not have development potential due to physical constraints or the policies of the Winfield Town Centre Plan or they are required in their entirety to accommodate the proposed right-of-way. Sections of the right-of-way affected in this way are shown in Figure 4.1.

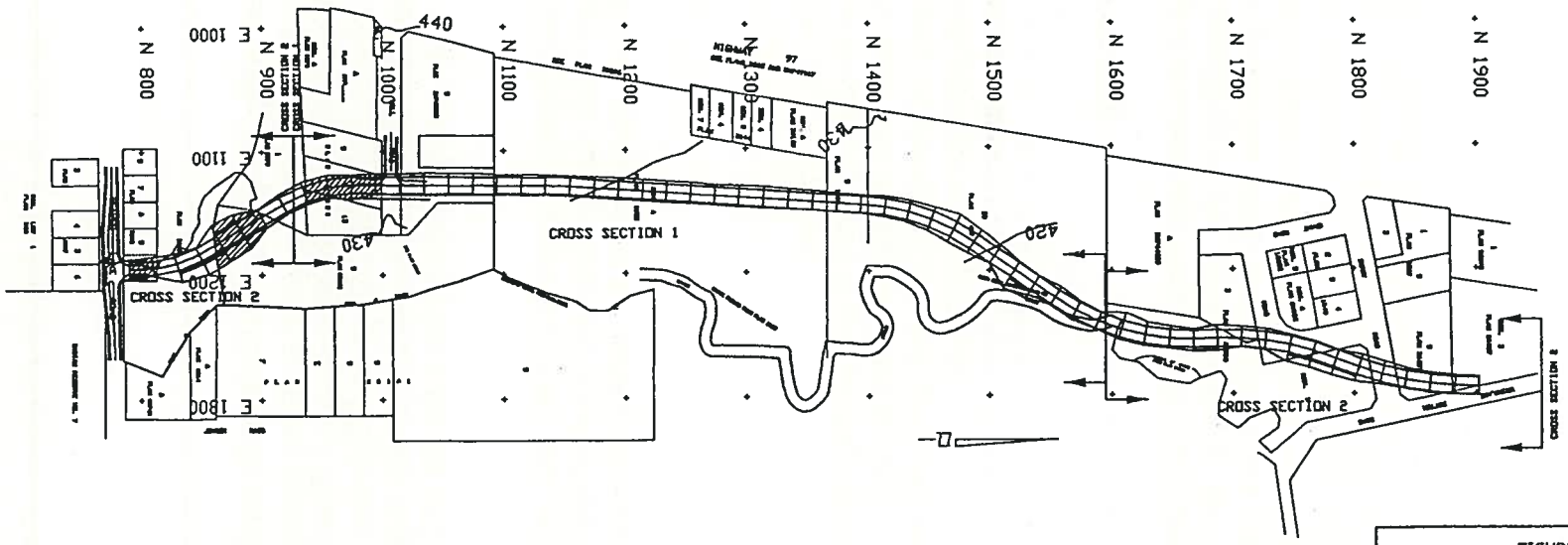

FIGURE 4.1

WINFIELD TOWN CENTRE
MAIN STREET FUNCTIONAL PLAN
PROPERTIES REQUIRED
FOR RIGHT OF WAY

OPTION 1

DATE	SCALE	DRAWN by
01-22-1994	1: 4000	

In the case where the proposed right-of-way is located on lands which have development potential, the right-of-way would be acquired before any rezoning is approved. This would be done through a plan of subdivision. In cases where the right-of-way is located on lands without development potential or where an entire property is required, the Central Okanagan Regional District and the Ministry have two options:

- require owners or developers to obtain such properties for the purpose of dedicating the required right-of-way to provide access to their properties.

- obtain the right-of-way and recover the costs of such acquisitions through voluntary gifting agreements before rezoning of other properties occurs.

The required right-of-way between Hill Road and Beaver Lake Road involve three such properties (shown in Figure 4.1).

A 20m right-of-way will be required except in cut and fill sections where a wider right-of-way will be required. Sections of the road which will require a right-of-way in excess of 20m are shown on the drawings showing the horizontal alignment of the road.

.2 Jurisdiction

Regional districts are not permitted to provide specific services unless approval has been obtained from the Provincial Government for the provision of such services (this is done by issuance of Supplementary Letters Patent). At present, the Central Okanagan Regional District (CORD) does not have the jurisdiction to construct or maintain roads. Whether the Provincial Government would give approval to CORD to provide such a service is also questionable as the construction and maintenance of roads in unincorporated areas is the sole jurisdiction of the Ministry of Transportation and Highways. Such approvals may entail lengthy deliberations involving the Minister of Municipal Affairs and Cabinet. The involvement of regional districts in the provision of roads may also be resisted by agencies requesting local interests in the Province.

There may be an opportunity for the Central Okanagan Regional District and Ministry of Transportation and Highways to enter into an administrative agreement whereby the Central Okanagan Regional District would be the agency receiving the funds from developers or landowners for the construction of the road and turn these funds over to the Ministry of Transportation and Highways for design and construction of the road. The Ministry would have to agree to become involved in the construction of the road. To date, the Ministry has been reluctant to do this. Additional research will be required to determine if the CORD can take funds for road design and construction in the absence of Ministerial approval to do so. Advice may also be required from CORD's solicitor as to how such an agreement may be structured to achieve the objective of CORD and the Ministry given the jurisdictional issues.

.3 Financial Arrangements For Recovery of Road Costs

Regional Districts do not have available to them the same range of options for financing and recovering servicing costs as do municipalities. For example, they cannot use development cost charges for recovering the cost of roads. They also cannot use general tax revenues for such purposes. All capital costs or debt service costs must be recovered on the basis of well defined local service areas using specified area taxes. The only realistic options available to the Central Okanagan Regional District to pay for the cost of the main street are:

- to establish a local service area for either the Winfield area as a whole or the Winfield Town Centre area. Revenue for the construction of the road would be borrowed by issuance of a debenture and recovered by the imposition of a specified area tax on properties within the service area. This would require the assent of the electors in the benefitting area before the Central Okanagan Regional District could initiate this.

- to require developers or landowners to enter into a voluntary gifting agreement before any rezoning of land takes place in the Winfield Town Centre Plan Area. A condition of the gifting agreement would be to either require developers to construct the portion of the road on their properties or to give the Central Okanagan Regional District funds (eg. irrevocable letter of credit) equal to the cost of constructing the road on their lands. This last option would be preferable in most cases in order to allow consistency in the engineering and construction of the road and to construct the road in a staged manner rather than in a haphazard way.

The second option is much more realistic than the first for the construction of the main street. However, due to the high costs of the beautification works, it may be unfair to require developers and landowners to pay for the entire cost of such beautification works as these will benefit the broader Winfield Town Centre area and the community as a whole. As indicated earlier, there are three options for developing various beautification works in conjunction with the main street. These include an option which has very limited beautification works, and two options which provide for increased levels of beautification. Various financing strategies may be considered by the Board including:

- requiring developers to pay for the street and a basic level of beautification as identified in Option 1. If additional beautification works are required these would be paid for by the Winfield community as a whole or by the Winfield Town Centre users on a local service area basis.

- requiring developers to pay for the cost of the road and the total cost of beautification.

- require developers to pay for the cost of the road and a portion of the beautification costs with the remainder being paid for by property owners in a local service area.

.4 Securing Additional Approvals

If the alignment is chosen which involves the relocation of Vernon Creek, approval of the Ministry of Environment will be required. Obtaining such approvals may involve considerable negotiation in view of the importance of Vernon Creek as a fish spawning and rearing stream. This issue may also involve the School District #23 and recreational groups as the relocation of the creek to the east may also enhance the recreational value of proposed park land.

Approvals will also be required from the Provincial Agricultural Land Commission as some of the lands north of Hill Road are still located in the ALR.

.5 Undertaking The Necessary Improvements to MOTH Roads

Improvements will be required to Beaver Lake Road, Hill Road and Berry Road to provide for safe intersections with the proposed main street. The improvements for the Beaver Lake and Hill Road intersections will have to be made when the initial phase of the road is constructed. Discussions with the Ministry should take place to ensure that the Ministry is prepared to undertake the improvements when they are required.

.6 Coordination of Road Construction and Other Services

It is desirable to ensure that construction of the sanitary sewer and any water systems improvements in Winfield Town Centre be coordinated with construction of the road to avoid disruption of the road when it is constructed.