Appendix E – Conceptual Cost Estimates

Assumptions for Conceptual Cost Estimate:

Airport Drive Improvements - Route 2 to White Street
Segment Length = 1200m

- Widen 60m length of approach to Route 2 by 3.6m
  - Curbing on both sides of the street will be removed and reset to compensate for the street widening
  - Modifications are required to the existing signal at Route 2
- Excavate and remove sidewalk on the west side of the street
- Add 2.5m (8') greenspace to the west side of the street with a 3m (10') shared use path
- Add new sidewalk to the east side of the street from the Airport Entrance to Route 2
- Narrow street to 9m (30') wide with 1.2m (4') shoulders and 3.3m (11') lanes by removing concrete curbing to the west and resetting as new granite curb 0.6m (2') in from existing location
- Drainage on the west side will be moved 0.6m (2') in to narrow the road
- Add signal at Airport Road
- Add signal at Airport Exit
- New Lighting will be attached to existing utility poles approximately every 60m
- New overlay for the entire segment
- All trees in the greenbelt will be removed and replaced

New Road Connector Alignment, Airport Parkway
Segment Length = 850m

- Existing pavement will be excavated and removed
- Clearing and grubbing for entire segment (limits + 3m or 10')
- new granite curbing along both sides of road
- New catch basins 90m apart on both sides of the road
- New drainage treatment area required, location TBD
- New signal at Old Airport Parkway
- New lighting poles every 60m

New Path Along Airport Parkway
Segment Length = 2550m

- New shared use path, 3m (10') wide with a 2.5m (8') green belt
- Fill and grading will be necessary
- 150m x 1.5m retaining wall required gust east of Waste Water Treatment Plant with 150m fence

- New lighting along this entire segment
- No new road work is required along this roadway segment

Kirby Road Intersection: Old Airport Parkway - BUILD
Segment Length = 170m

- Existing pavement will be excavated and removed
- Widen street by 3.6m to add a new left turning lane, 70 m long
- New road for some of the segment
- Curbing on both sides of the street will be removed and replaced
- New signal and loops at White Street
- Add new sidewalk to this segment, 170m long
- Two new lighting poles at this location
- New catch basins 90m apart on both sides of the road

Kirby Road: Old Airport Parkway - NO BUILD
Segment Length = N/A

- New signal and loops at White Street
- New signal and loops at Kirby Street
- New pavement overlay at these intersections

Ethan Allen Parkway / Shamrock - Signal
Segment Length = 830m

- Existing pavement will be excavated and removed
- New road to realign this segment
- New granite curbing along both sides of road
- New catch basins 90m apart on both sides of the road
- New signal and loops at Ethan Allen
- New lighting poles approximately every 60m

Ethan Allen Parkway / Shamrock - Roundabout
Segment Length = 830m

- Existing pavement will be excavated and removed
- New roundabout intersection
- New road to realign this segment
- New granite curbing along both sides of road
- New catch basins 90m apart on both sides of the road
- New lighting poles every 60m

CCMPO - Airport Drive Conceptual Cost Estimate - S. Burlington 11/30/2004
DH 6320020.01
Calc'd by: SRZ
Checked by: GAE

Cost Summary for each Alternative

Alternative A

Segment 1	Improved Corridor on Airport Parkway	$2,400,000
Segment 2A	Signals at White & Kirby	$600,000
Shared Path	Shared Path from Kirby to Ethan Allen	$2,800,000
Segment 3	Signalized Int.	$1,300,000
TOTAL:		**$7,100,000**

Alternative B

Segment 1	Improved Corridor on Airport Parkway	$2,400,000
Segment 2B	New Road Connector	$2,400,000
Segment 2B @ Kirby	New Int. at Kirby w/ signals at White & Kirby	$1,000,000
Shared Path	Shared Path from Kirby to Ethan Allen	$2,800,000
Segment 3	Signalized Int.	$1,300,000
TOTAL:		**$9,900,000**

Note: Alternative cost estimates above include a signal at Ethan Allen / Shamrock and not a roundabout.

CCMPO - Airport Drive & Parkway
Conceptual Cost Estimate
DH 6320020.01

11/30/04

AIRPORT DRIVE IMPROVEMENTS - ROUTE 2 to WHITE STREET
Segment #1
Segment Length = 1200m

	ITEM of WORK	UNIT	UNIT COST	QUANTITY	ITEM COST	SOME ASSUMPTIONS
60m approach	remove and reset new granite curbing in new location	meter	$ 80	120	$ 9,600	60m*2
	widen road (excavate, gravel base + pavement)	s.m.	$ 60	240	$ 14,400	4m*60
	existing signal upgrading/redesign	l.s.	$ 50,000	1	$ 50,000	each
	overlay - emulsified asphalt over existing roadway	mton	$ 75	85	$ 6,399	(area=900m^2)*0.0948=mtons
	coldplane pavement before placing overlay on existing roadway	s.m.	$ 2	900	$ 1,800	15m*60m
	drainage (adjust catchbasin locations as needed on both sides)	meter	$ 40	120	$ 4,800	every 90 m, assume cost/m for both sides
	new 5' PC SW on east side to Airport Entrance (PC+gravel+excav)	meter	$ 50	60	$ 3,000	60m distance
	shared use path	meter	$ 400	60	$ 24,000	distance
road segment	light, with no pole (located on existing power poles)	each	$ 2,200	40	$ 88,000	every 30 m, one side
	remove and reset new granite curbing in new location on west side	meter	$ 80	1140	$ 91,200	1200-60
	excavate and remove 1m wide pavement strip on the west side	c.m.	$ 10	684	$ 6,840	3m*(1200-60)*0.2
	excavate and remove 1.5m SW to the west	c.m.	$ 12	270	$ 3,240	1.5m*1200m*0.15m
	overlay - emulsified asphalt	mton	$ 75	1024	$ 76,788	9m*1200m*0.0948
	coldplane pavement before placing overlay on existing roadway	s.m.	$ 2	10800	$ 21,600	9m*1200m
	remove and replace trees	each	$ 850	30	$ 25,500	count
	new 1.5m PC SW on east side to Airport Entrance (PC+gravel+excav)	meter	$ 50	440	$ 22,000	500-60m distance
	shared use path	meter	$ 400	1140	$ 456,000	distance
	signal at Airport Road	each	$ 150,000	1	$ 150,000	count
	signal at Airport Exit	each	$ 150,000	1	$ 150,000	count
	drainage (replce catchbatch basins and drainge on west side)	meter	$ 60	1140	$ 68,400	every 50 m, assume cost/m for 1 side
	topsoil (100 mm), seed and mulch	m.s.m.	$ 15,000	4.2	$ 63,000	1200m*3.5m
	landscaping	l.s.	$ 20,000	1	$ 20,000	approximate
	new pavement markings, stop bars and symbols	meter	$ 15	1200	$ 18,000	length
	new signs	l.s.	$ 5,000	1	$ 5,000	approximate

subtotal	$ 1,379,567
Erosion control (10%)	$ 137,957
Traffic and Safety (15%)	$ 206,935
Mobilization (8%)	$ 110,365
Prel. & Construction engineering (25%)	$ 344,892
Contingency (15%)	$ 206,935
TOTAL (2004 construction)	$ 2,386,651
TOTAL (2004 construction)	$ 2,400,000

NEW ROAD ALIGNMENT, AIRPORT PARKWAY
Segment #2B
Segment Length = 850m

$2310 per meter cost for new rd xsection

therefore
850*2310=$1963500+path

ITEM of WORK	UNIT	UNIT COST	QUANTITY	ITEM COST	
clear and grub	hectare	$ 7,000	4.4	$ 30,800	800m*55m
excavate and dispose of pavement at Kirby Road	c.m.	$ 10	860	$ 8,600	area*0.2m
new road (excavate, gravel base + pavement)	s.m.	$ 55	5900	$ 324,500	area ($382 a linear meter)
cut and grading	l.s.	$ 200,000	1	$ 200,000	estimate
remove and replace trees	each	$ 850	5	$ 4,250	count
new granite curbing and excavation	meter	$ 100	1700	$ 170,000	850*2
new catch basins and drainge on both sides of road	meter	$ 60	1140	$ 68,400	every 90 m, assume cost/m for both sides
drainage treatment area	l.s.	$ 50,000	1	$ 50,000	count
shared use path	meter	$ 400	850	$ 340,000	distance of new segment
single light pole and electric service	each	$ 4,000	30	$ 120,000	every 30m, one side
topsoil (100 mm), seed and mulch	m.s.m.	$ 15,000	2.125	$ 31,875	850m*2.5m
landscaping	l.s.	$ 10,000	1	$ 10,000	approximate
new pavement markings, stop bars and symbols	meter	$ 15	850	$ 12,750	length
new signs	l.s.	$ 3,000	1	$ 3,000	approximate

subtotal	$ 1,374,175
Erosion control (10%)	$ 137,418
Traffic and Safety (15%)	$ 206,126
Mobilization (8%)	$ 109,934
Prel. & Construction engineering (25%)	$ 343,544
Contingency (15%)	$ 206,126
TOTAL (2004 construction)	$ 2,377,323
TOTAL (2004 construction)	$ 2,400,000

NEW PATH ALONG AIRPORT PARKWAY FROM KIRBY TO ETHAN ALLEN
Segment #2 A & B
Segment Length = 2550m

ITEM of WORK	UNIT	UNIT COST	QUANTITY	ITEM COST	
shared use path	meter	$ 400	2550	$ 1,020,000	length
fill volume assumed (meters cubed) (20 cm m/m says MCS)	c.m.	$ 10	4000	$ 40,000	assumed volume
retaining wall (150m by 1.5m tall)	s.m.	$ 100	225	$ 22,500	area
fence (150m long)	meter	$ 20	225	$ 4,500	length
single light pole and electric service	each	$ 4,000	85	$ 340,000	every 30m, one side
topsoil (100 mm), seed and mulch	m.s.m.	$ 15,000	6.375	$ 95,625	2550m*2.5m
landscaping	l.s.	$ 20,000	1	$ 20,000	approximate
new pavement markings, stop bars and symbols	meter	$ 15	2550	$ 38,250	length
new signs	l.s.	$ 3,000	1	$ 3,000	approximate

subtotal	$ 1,583,875
Erosion control (10%)	$ 158,388
Traffic and Safety (15%)	$ 237,581
Mobilization (8%)	$ 126,710
Prel. & Construction engineering (25%)	$ 395,969
Contingency (15%)	$ 237,581
TOTAL (2004 construction)	$ 2,740,104
TOTAL (2004 construction)	$ 2,800,000

KIRBY ROAD: OLD AIRPORT PARKWAY - BUILD
Segment #2B
Segment Length = 170m

	ITEM of WORK	UNIT	UNIT COST	QUANTITY	ITEM COST	
realign Int.	excavate and dispose of pavement at Kirby & Airport Pkwy	c.m.	$ 10	1220	$ 12,200	area*0.2m
	new road (excavate, gravel base + pavement)	s.m.	$ 55	1900	$ 104,500	area
	coldplane pavement before placing overlay	s.m.	$ 2	180	$ 360	9m*170m*0.0949
	signal at White Street	each	$ 150,000	1	$ 150,000	each
	signal at Kirby and Old Airport Parkway (where new rd meets)	each	$ 150,000	1	$ 150,000	count
	new 5' PC sidewalk	meter	$ 50	170	$ 8,500	length
	remove and reset new granite curbing in new location on both sides	meter	$ 80	340	$ 27,200	170*2
	topsoil (100 mm), seed and mulch	m.s.m.	$ 15,000	1.9	$ 28,500	to fill old road area
	landscaping	l.s.	$ 5,000	1	$ 5,000	approximate
	new pavement markings, stop bars and symbols	meter	$ 15	170	$ 2,550	length
	new signs	l.s.	$ 2,000	1	$ 2,000	approximate
	single light pole and electric service	each	$ 4,000	4	$ 16,000	every 30m, one side
	drainage (adjust catchbasin locations as needed on both sides)	meter	$ 60	340	$ 20,400	every 90 m, assume cost/m for both sides

subtotal	$ 527,210
Erosion control (10%)	$ 52,721
Traffic and Safety (15%)	$ 79,082
Mobilization (8%)	$ 42,177
Prel. & Construction engineering (25%)	$ 131,803
Contingency (15%)	$ 79,082
TOTAL (2004 construction)	$ 912,073
TOTAL (2004 construction)	$ 1,000,000

KIRBY ROAD: OLD AIRPORT PARKWAY - NO BUILD
Segment #2A
Segment Length = N/A

ITEM of WORK	UNIT	UNIT COST	QUANTITY	ITEM COST	
signal at White Street	each	$ 150,000	1	$ 150,000	each
signal at Kirby Street	each	$ 150,000	1	$ 150,000	each
single light pole	each	$ 2,200	4	$ 8,800	every 60m, one side
overlay - emulsified asphalt (at the signals only)	mton	$ 75	180	$ 13,500	area*0.0948
coldplane pavement before placing overlay	s.m.	$ 5	180	$ 900	9m*170m*0.0949
new pavement markings, stop bars and symbols	l.s.	$ 1,500	1	$ 1,500	length

subtotal	$ 323,200
Erosion control (10%)	$ 32,320
Traffic and Safety (15%)	$ 48,480
Mobilization (8%)	$ 25,856
Prel. & Construction engineering (25%)	$ 80,800
Contingency (15%)	$ 48,480
TOTAL (2004 construction)	$ 559,136
TOTAL (2004 construction)	$ 600,000

ETHAN ALLEN PARKWAY / SHAMROCK - SIGNAL
Segment Length = 830m

ITEM of WORK	UNIT	UNIT COST	QUANTITY	ITEM COST	
new road (excavate, gravel base + pavement)	s.m.	$ 55	5900	$ 324,500	area
new granite curbing and excavation	meter	$ 100	1660	$ 166,000	length*2
excavate and dispose of pavement at Ethan Allen/Shamrock	c.m	$ 10	920	$ 9,200	area*0.2m
signal at Ethan Allen/Shamrock Road	each	$ 150,000	1	$ 150,000	each
topsoil (100 mm), seed and mulch	m.s.m.	$ 15,000	2.116	$ 31,740	830m*1.2m + 8m*70m
landscaping	l.s.	$ 5,000	1	$ 5,000	approximate
new pavement markings, stop bars and symbols	meter	$ 15	830	$ 12,450	length
new signs	l.s.	$ 2,000	1	$ 2,000	approximate

subtotal	$	700,890
Erosion control (10%)	$	70,089
Traffic and Safety (15%)	$	105,134
Mobilization (8%)	$	56,071
Prel. & Construction engineering (25%)	$	175,223
Contingiency (15%)	$	105,134
TOTAL (2004 construction)	$	1,212,540
TOTAL (2004 construction)	$	1,300,000

ETHAN ALLEN PARKWAY / SHAMROCK - ROUNDABOUT
Segment Length = 830m

ITEM of WORK	UNIT	UNIT COST	QUANTITY	ITEM COST	
Roundabout Intersection	l.s.	$ 500,000	1	$ 500,000	each
new road (excavate, gravel base + pavement) * (0.667 from above)	s.m.	$ 55	3935	$ 216,442	2/3 new rd area included in cost
overlay - emulsified asphalt	mton	$ 75	373	$ 27,980	(area)*0.0948=mtons
coldplane pavement before placing overlay	s.m.	$ 2	373	$ 746	9m*830m*0.0949
new granite curbing and excavation	meter	$ 100	1660	$ 166,000	length*2
excavate and dispose of pavement at Ethan Allen/Shamrock	c.m	$ 12	860	$ 10,320	area*0.2m
single light pole and electric service	each	$ 4,000	4	$ 16,000	every 60m, one side

subtotal	$	937,488
Erosion control (10%)	$	93,749
Traffic and Safety (15%)	$	140,623
Mobilization (8%)	$	74,999
Prel. & Construction engineering (25%)	$	234,372
Contingiency (15%)	$	140,623
TOTAL (2004 construction)	$	1,621,854
TOTAL (2004 construction)	$	1,700,000

ASSUME NOT INCLUDED:
ROW, permits, wetland impacts and mitigation, and overhead utility relocation. It is assumed the cost of house aquisitition, removal and relocation will be done by the Airport.

NOTE:
The Lime Kiln Bridge Project needs to update their SW to a shared use path. This path segment is not included in these cost estimates.