

Weaving a Solution



Web Technologies and Capital Projects

Presented by:

Bill MacLeod, GIS Analyst, City of Abbotsford

May 26, 2004

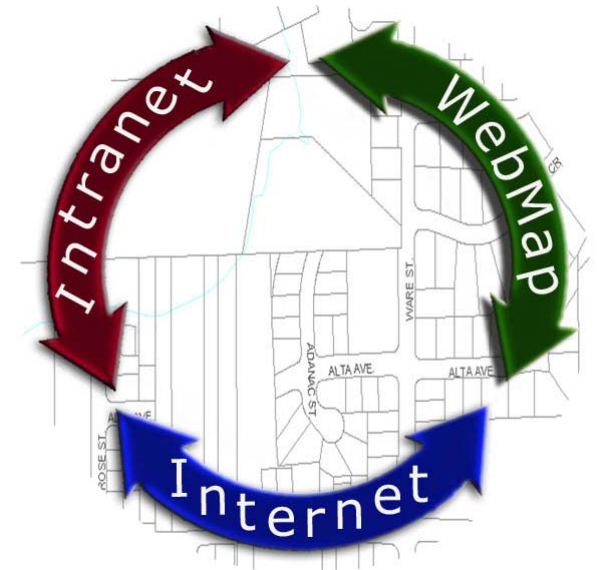
Introduction



Web based Solutions to Infrastructure and Asset Management

● Task

- To improve data management of Major Capital Investment for Abbotsford
- To improve use of resources by streamlining the gathering and sharing of information, internally and externally
- Four components
 - GIS
 - spatial data entry point
 - WebMap
 - web based mapping tool
 - Intranet
 - in-house website
 - Internet
 - world wide access to Abbotsford data



Goals



BRITISH COLUMBIA CHAPTER

Web based Solutions to Infrastructure and Asset Management

- To develop user-friendly applications
- Multi-user editing capability
- Single database
- Selection of reports
- Limit maintenance required
- Expandable

Former Workflow



Web based Solutions to Infrastructure and Asset Management

- Convert Excel spreadsheet to static HTML document
- Use attributes on GIS database to link to HTML
- Multiple data sources
- Relied on co-ordination between departments
- Not user friendly and labour intensive
- Inflexible – compounded mistakes, hard to trace

PROJECTS 2004 - Microsoft Internet Explorer

Address: http://webmap.city.abbotsford.ca

CITY OF ABBOTSFORD CAPITAL PROJECTS FOR 2004

Asphalt Resurfacing, Drainage, Intersections, Parks, Roads, Sanitary Mains, Shoulders, Sidewalk, Signals, Water Mains

Project Number	Location	Project Description
AK401	Washford, Washford to Guilford	50 mm overlay
AK402	Washford, Gray to River	50 mm overlay
AK403	Boulder/Kranke	50 mm overlay
AK404	Campton Ct.	50 mm overlay
AK405	Campbell, Cole East 800 m	50 mm overlay
AK406	Cartha/Beach/Glenwood/Kelly	50 mm overlay
AK407	Cole, Campbell to S. Parallel	50 mm overlay
AK408	Emerald/Blair	50 mm overlay
AK409	Galt/4th/Carnegie	50 mm overlay
AK410	Gleasons, Mackenzie to Dorness	50 mm overlay
AK411	Harris, Gladwin to Glenora	50 mm overlay
AK412	Larch/Strickton	50 mm overlay
AK413	Meadburn, South of Fraser	50 mm overlay
AK414	N. Parallel, Interchange to Lower Sumas	50 mm overlay
AK415	Old Yale - East of Vye	50 mm overlay
AK416	Old Yale, South Fraser Way to Ware	50 mm overlay
AK417	Oriskany and Prospect	50 mm overlay
AK418	River Road, 20266 to East End	50 mm overlay
AK419	Robson/Hunt/Walker/Garmin	50 mm overlay
AK420	South Fraser Way, McCullum to McDougall	50 mm overlay
AK421	Southdale/Kran/Westerly/Imperial	50 mm overlay
AK422	Spruce/Idarview/Alwoodidge	50 mm overlay
AK423	Stewartson/Kyle/Anderson/Alwood	50 mm overlay
AK424	Woolburne/Sheffield	50 mm overlay
AK425	Anderson, Walters	65 mm asphalt on reconstructed roadbase

Old Capital Projects Listing Screen



Web based Solutions to Infrastructure and Asset Management

PROJECTS 2004 - Microsoft Internet Explorer

Address: <http://webmap.city.abbotsford>

CITY OF ABBOTSFORD CAPITAL PROJECTS FOR 2004

Asphalt Resurfacing, Drainage, Intersections, Parks, Roads, Sanitary Mains, Shoulders, Sidewalks, Signals, Water Mains

Project Number	Location	Project Description
AR401	Blatchford, McMillan to Guilford	50 mm overlay
AR402	Bradner, Gray to River	50 mm overlay
AR403	Boulder/Granite	50 mm overlay
AR404	Cameron Cr.	50 mm overlay
AR405	Campbell, Cole East 800 m	50 mm overlay
AR406	Centre/Beech/Glenwood/Holly	50 mm overlay
AR407	Cole, Campbell to S. Parallel	50 mm overlay
AR408	Evergreen/Palm	50 mm overlay
AR409	Galahad/Camelot	50 mm overlay
AR410	Gladwin, Maclure to Downes	50 mm overlay
AR411	Harris, Gladwin to Glenmore	50 mm overlay
AR412	Larch/Stockton	50 mm overlay
AR413	Mendham, South of Hazel	50 mm overlay
AR414	N. Parallel, Whatcom to Lower Sumas	50 mm overlay
AR415	Old Yale, East of Vye	50 mm overlay
AR416	Old Yale, South Fraser Way to Ware	50 mm overlay
AR417	Oriole and Prospect	50 mm overlay
AR418	River Road, 29266 to East End	50 mm overlay
AR419	Robson/Hurst/Walden/Serlin	50 mm overlay
AR420	South Fraser Way, McCallum to McDougall	50 mm overlay
AR421	Southdale/Grant/Westerly/Imperial	50 mm overlay
AR422	Spruce/Alderview/Woodridge	50 mm overlay
AR423	Stevenson/Kay/Wilrose/Wildwood	50 mm overlay
AR424	Woodbine/Sheffield	50 mm overlay
AR425	Anderson, Walters	65 mm asphalt on reconstructed roadbase

Internet 5:22 PM

Possible Solutions



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Web based Solutions to Infrastructure and Asset Management

- Two solutions considered
 - Microsoft Access Runtime
 - Intranet accessing a database

Possible Solution - 1



BRITISH COLUMBIA CHAPTER

Web based Solutions to Infrastructure and Asset Management

- Access
 - Develop application
 - load
 - maintain
 - Limited access
 - No existing forms, queries etc.
 - Develop from scratch

Possible Solution - 2



BRITISH COLUMBIA CHAPTER

Web based Solutions to Infrastructure and Asset Management

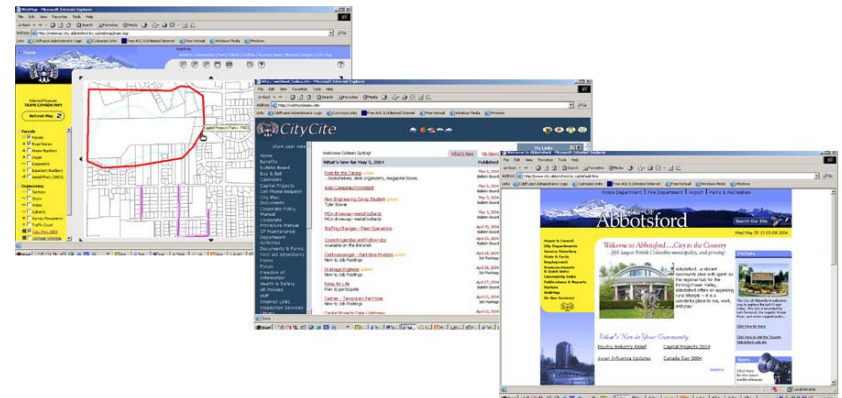
- Web-based
 - Existing forms in ASP for webmap
 - Some in-house expertise
 - Unlimited access by public and staff

Solution – Option Two



Web based Solutions to Infrastructure and Asset Management

- Web-based
 - Existing forms in ASP for webmap
 - Some in-house expertise
 - Develop code to maintain access database
 - Access for public and staff
 - Future potential



To get it done...



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Web based Solutions to Infrastructure and Asset Management

- Components
 - GIS
 - Webmap
 - Intranet
 - Internet

GIS



Web based Solutions to Infrastructure and Asset Management

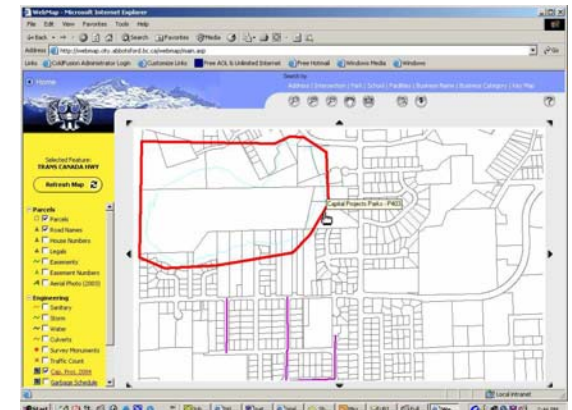
- Spatial data
- Maintained in ArcInfo by drafting department
- Download to WebMap already developed

WebMap



Web based Solutions to Infrastructure and Asset Management

- Intergraph product
- Linked to ArcInfo GIS database
- Attributes already assigned (project number link)
- Link to Access database by project number
- Point and click for reports



Intranet



Web based Solutions to Infrastructure and Asset Management

- Intranet Connections product
- Integration capabilities with other applications
- Develop user-friendly forms and reports
- In-house development relatively easy



Internet



Web based Solutions to Infrastructure and Asset Management

- City website – www.city.abbotsford.bc.ca
- Provide access for the public to view reports
- Simple point and click interface with search function
- Link back to WebMap site, displaying capital project
- Much code already written



Application ...



Web based Solutions to Infrastructure and Asset Management

- Application designed and developed utilizing in-house expertise, including input forms, searchable lists, internal/external reports
- Secure access provided through Intranet software
- Connectivity to other servers to access additional information

City of Abbotsford Capital Projects - Microsoft Internet Explorer

City of Abbotsford

Search For:

Street / Location:

Select Project Type

ID	Click Buttons to Go to Top	PROJECT	DESCRIPTION	PROJECT TYPE	START DATE	END DATE
Details	JAP1401	Blanchford, Hadden to Guilford	50 mm overlay	Asphalt		
Details	JAP1402	Bradner, Gray to River Road	50 mm overlay	Asphalt		
Details	JAP1403	Builder Granite	50 mm overlay	Asphalt		
Details	JAP1404	Cameron Cr.	50 mm overlay	Asphalt		
Details	JAP1405	Campbell, Cole East 800 m	50 mm overlay	Asphalt		
Details	JAP1407	Cole, Campbell to S. Parallel	50 mm overlay	Asphalt		
Details	JAP1408	Energizer/Palm	50 mm overlay	Asphalt		
Details	JAP1409	Galahad/Cornellist	50 mm overlay	Asphalt		
Details	JAP1410	Gladwin, MacLure to Dismore	50 mm overlay	Asphalt		
Details	JAP1411	Harris, Gladwin to Clarence	50 mm overlay	Asphalt		
Details	JAP1413	Handman, South of Hazel	50 mm overlay	Asphalt		
Details	JAP1415	Old Vale, East of Yve	50 mm overlay	Asphalt		
Details	JAP1416	Old Vale, South Fraser Way to Ware	50 mm overlay	Asphalt		

Start | | 5:20 PM

Application ...



Web based Solutions to Infrastructure and Asset Management

- Spatial data entered in ArcInfo
- Uploaded to Webmap
- Access database edited via intranet
- Link established between database and map
- Internal reports generated from database
- External reports generated from database
 - Internet
 - Webmap

Application ...



Web based Solutions to Infrastructure and Asset Management

- Maintenance in hands of users
- Password protected
- Contact information derived from other Intranet database
- ASP used to run
 - data entry
 - editing
 - map

Intranet default screen



Web based Solutions to Infrastructure and Asset Management

http://webhost/index.cfm - Microsoft Internet Explorer

File Edit View Favorites Tools Links Abbotsford ESRI Google Address http://webhost/index.cfm Go

Back Search Favorites Media

CityCite

show user view

Home
Benefits
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Buy & Sell
Calendars
Capital Projects
Cell Phone Request
City Plan
Documents
Corporate Policy Manual
Corporate Procedure Manual
CP Maintenance
Department Activities
Documents & Forms
First Aid
Attendants
Forms
Forum
Freedom of Information
Health & Safety
HR Policies
HUP
Internet Links
Inspection Services
Library
Inspection Services

Welcome Bill MacLeod! [What's New](#) [My News](#)

What's New for April 21, 2004

	Published on
REMINDER - Jeans Day for BC Childrens Hospital is Thursday, April 22, 2004.	April 21, 2004 Bulletin Board
Capital Works Construction Projects update! The What, Where, When, and Who of Capital Works Construction Projects	April 21, 2004 Bulletin Board
Heart and Stroke Foundation Last day for pledges is April 30, 2004	April 21, 2004 Bulletin Board
Capital Projects Data / Webmap Updated Capital Project data available	April 20, 2004 Bulletin Board
Dan Bottrill - Out of Office - April 19-21 Judy Lewis is Acting Director of Corporate Services	April 20, 2004 Bulletin Board
Please check mail room for your dishes from Cheryl! update!	April 20, 2004 Bulletin Board
Utility Person (Roads)/ Operator update! New to Job Postings	April 20, 2004 Job Postings
John Reimer Funeral Services	April 19, 2004 Bulletin Board
Aubrey Burton Memorial Scholarship available to CUPE members and family	April 19, 2004 Bulletin Board
Traffic Control for Supervisors May 19, 2004: 8:30AM - 4:30PM	April 19, 2004 Training
Traffic Control for Supervisors update!	April 19, 2004

My Links
Nothing to show you!

Quick Search
Employee Search
 go!
Search for Content
 go!

Web Map
News
Click here for the latest media releases.

Thought of the Day
Idealism is fine, but as it approaches reality the cost becomes prohibitive.
- William F. Buckley, Jr.

Done Local intranet

Start U. U. W. C. F. h. 5:10 PM

Capital Project Maintenance



Web based Solutions to Infrastructure and Asset Management

http://webhost/index.cfm - Microsoft Internet Explorer

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CP Maintenance

Site Search go!

Capital Projects [Add](#) | [Search](#) | [Up One Level](#)

Title	Short Description	Created	Revised	
Create New Record in Database		December 9, 2003	May 12, 2004	Edit Delete
Data Edit / Delete		December 9, 2003	May 11, 2004	Edit Delete
Last Update Report		February 2, 2004	April 20, 2004	Edit Delete

http://webmap.city.abbotsford.bc.ca/webmap/cityintranetfiles/intracaprojectlist.asp

Local intranet

Start 10:16 AM

Intranet Data Editing Screen



Web based Solutions to Infrastructure and Asset Management

http://webhost/index.cfm - Microsoft Internet Explorer

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Corporate Procedure Manual
CP Maintenance
Department Activities
Documents & Forms
First Aid
Attendants
Forms
Forum
Freedom of Information
Health & Safety
HR Policies
HUP
Internet Links
Inspection Services
Library
Inspection Services

Capital Projects List - Public Information

Search For:
Street / Location: Find Project Number: Find Select Project Type Find

ID	NUMBER	PROJECT	DESCRIPTION	PROJECT TYPE	START DATE	END DATE
<input type="button" value="Update"/>	AR401	Blatchford, McMillan to Guilford	50 mm overlay	Asphalt Resurfacing	07/12/2004	
<input type="button" value="Update"/>	AR402	Bradner, Gray to River Road	50 mm overlay	Asphalt Resurfacing	06/01/2004	
<input type="button" value="Update"/>	AR403	Boulder/Granite	50 mm overlay	Asphalt Resurfacing	08/16/2004	
<input type="button" value="Update"/>	AR404	Cameron Cr.	50 mm overlay	Asphalt Resurfacing	07/12/2004	
<input type="button" value="Update"/>	AR405	Campbell, Cole East 800 m	50 mm overlay	Asphalt Resurfacing	03/31/2004	
<input type="button" value="Update"/>	AR407	Cole, Campbell to S. Parallel	50 mm overlay	Asphalt Resurfacing	04/28/2004	
<input type="button" value="Update"/>	AR408	Evergreen/Palm	50 mm overlay	Asphalt Resurfacing	08/16/2004	
<input type="button" value="Update"/>	AR409	Galahad/Camelot	50 mm overlay	Asphalt Resurfacing	06/07/2004	
<input type="button" value="Update"/>	AR410	Gladwin, Maclure to Downes	50 mm overlay	Asphalt Resurfacing	08/03/2004	
<input type="button" value="Update"/>	AR411	Harris, Gladwin to Glenmore	50 mm overlay	Asphalt Resurfacing	06/07/2004	

Done Local intranet

Start U U W C F h. 5:18 PM

Data Entry Form



Web based Solutions to Infrastructure and Asset Management

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Corporate Policy Manual
Corporate Procedure Manual
CP Maintenance
Department Activities
Documents & Forms
First Aid Attendants
Forms
Forum
Freedom of Information
Health & Safety
HR Policies
HUP
Internet Links
Inspection Services
Library
Inspection Services

Update or Delete Record

ID	<input type="text" value="265"/>	Project Number	<input type="text" value="AR401"/>
Project	<input type="text" value="Blatchford, McMillan to Guilford"/>	Project Type	<input type="text" value="Asphalt Resurfacing"/>
Project Description	<input type="text" value="50 mm overlay"/>	Project Sponsor	<input type="text" value="City of Abbotsford"/>
Project Notes	<input type="text"/>	Map Grid	<input type="text" value="C10"/>
Project Status	<input type="text"/>	Project Manager	<input type="text" value="Cross, Greg"/>
Project Inspector	<input type="text" value="To be determined"/>	Development Tech.	<input type="text" value="N/A"/>
Construction Start Date	<input type="text" value="07/12/2004"/> <input type="button" value="Select Date"/>	Anticipated Completion Date	<input type="text"/> <input type="button" value="Select Date"/>
Contractor	<input type="text"/>	Contractor's Telephone	<input type="text"/>
Project Budget \$	<input type="text" value="68045"/>	Last Updated	<input type="text" value="5/12/2004"/>
Public Notification Letter	<input type="text" value="07/05/2004"/> <input type="button" value="Select Date"/>	Public Consultation Date	<input type="text"/> <input type="button" value="Select Date"/>
Tender Close	<input type="text"/> <input type="button" value="Select Date"/>	Contract Award	<input type="text"/> <input type="button" value="Select Date"/>
Public Contract Notification Letter	<input type="text"/> <input type="button" value="Select Date"/>	Updated By	<input type="text"/>
Design % Done	<input type="text"/>	Construction % Done	<input type="text"/>
Comments	<input type="text"/>		

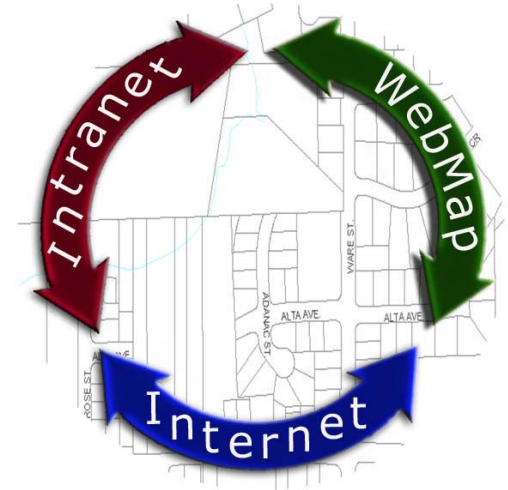
Local intranet 10:15 AM

Conclusion



Web based Solutions to Infrastructure and Asset Management

- Integrated approach to data management using GIS, Intranet, Internet and WebMap technologies
- Real time data update
- Reduces redundant data
- Intranet gives access to all City departments
- Internet and WebMap for public
- A model for future applications sharing technology




WebMap Project Listing



Web based Solutions to Infrastructure and Asset Management


City of Abbotsford Capital Projects - Microsoft Internet Explorer

File Edit View Favorites Tools Help

 CITY OF Abbotsford Close Window

Search For:
Street / Location: Find Select Project Type Find

ID	Click Button to Go to Map	PROJECT	DESCRIPTION	PROJECT TYPE	START DATE	END DATE
	Details	AR401	Blatchford, McMillan to Guilford	50 mm overlay	Asphalt Resurfacing	
	Details	AR402	Bradner, Gray to River Road	50 mm overlay	Asphalt Resurfacing	
	Details	AR403	Boulder/Granite	50 mm overlay	Asphalt Resurfacing	
	Details	AR404	Cameron Cr.	50 mm overlay	Asphalt Resurfacing	
	Details	AR405	Campbell, Cole East 800 m	50 mm overlay	Asphalt Resurfacing	
	Details	AR407	Cole, Campbell to S. Parallel	50 mm overlay	Asphalt Resurfacing	
	Details	AR408	Evergreen/Palm	50 mm overlay	Asphalt Resurfacing	
	Details	AR409	Galahad/Camelot	50 mm overlay	Asphalt Resurfacing	
	Details	AR410	Gladwin, Maclure to Downes	50 mm overlay	Asphalt Resurfacing	
	Details	AR411	Harris, Gladwin to Glenmore	50 mm overlay	Asphalt Resurfacing	
	Details	AR413	Mendham, South of Hazel	50 mm overlay	Asphalt Resurfacing	
	Details	AR415	Old Yale , East of Vye	50 mm overlay	Asphalt Resurfacing	
	Details	AR416	Old Yale, South Fraser Way to Ware	50 mm overlay	Asphalt	

Start  5:20 PM

Contact Information



Web based Solutions to Infrastructure and Asset Management

- Bill MacLeod
- GIS Analyst, City of Abbotsford
- 604-853-2281
- bmacleod@city.abbotsford.bc.ca
- www.city.abbotsford.bc.ca


WebMap Report



Web based Solutions to Infrastructure and Asset Management

City of Abbotsford Capital Projects - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Go to Project List
Close Window

Project Number:	R189	Map Grid:	D5
Project:	South Fraser Way, East of Mt. Lehman Road		
Project Type:	Roads		
Description of Work Elements:	A new alignment of South Fraser Way will be constructed east of Mt. Lehman Road that will connect with the existing South Fraser Way. The road is to be constructed to an interim 10 metre wide rural standard. This will allow for two through traffic lanes and a two-way left turn lane for industrial property access. A one way north-south road connection between the new and existing South Fraser Way alignments is also to be constructed.		
Special Notes:	When completed, a portion of the existing South Fraser Way alignment east of Mt. Lehman will be closed to through traffic. Road works to be coordinated with the installation of a new water main and with the Mt. Lehman Interchange project.		
Project Sponsor:	City of Abbotsford		
Project Status:	Tendering and Award Phase		
Contractor:	Marv 's Excavating Ltd.		
Contact Name:	604-855-4214		
Budget:	\$ 1,322,000		

City Hall Contact(s):	Project Manager: Jan Loots	Phone: 604-864-5514	Email: jlroots@city.abbotsford.bc.ca
	Development Technician: N/A	Phone:	Email:
	City Inspector: Wayne Sawkins	Phone: 604-864-5514	Email: wsawkins@city.abbotsford.bc.ca

WebMap Screen



Web based Solutions to Infrastructure and Asset Management

WebMap - Microsoft Internet Explorer

File Edit View Favorites Tools » Links Abbotsford ESRI Google » Address http://webmapdeva.city.abby.b... Go

Search by:
Address | Intersection | Park | School | Facilities | Business Name | Business Category | Key Map

Home

Selected Feature:
PARKVIEW ST

Refresh Map

- Parcels
 - Parcels
 - Road Names
 - House Numbers
 - Legals
 - Easements
 - Easement Numbers
 - Aerial Photo (2003)
- Engineering
- Development
- Parks & Schools
- Environment

Done Local intranet

5:43 PM