

Washington Location Finder

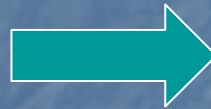
Partners:

Washington Department of Ecology
Washington Department of Health
Environmental Information Exchange Network
(US Environmental Protection Agency &
Environmental Council of the States)

Environmental Information Symposium
December 11, 2008

Background

AGENCY USE ONLY			
Agency Reference #:	Date Received:		
Circulated by: (local, gov., or agency)			
JOINT AQUATIC RESOURCES PERMIT APPLICATION FORM (JARPA) (for use in Washington State) PLEASE TYPE OR PRINT IN BLACK INK			
<input type="checkbox"/> Application for a Fish Habitat Enhancement Project per requirements of RCW 77.65.290. You must submit a copy of this completed JARPA application form and the (Fish Habitat Enhancement JARPA Addition) to your local Government Planning Department and Washington Department of Fish & Wildlife Area Habitat Biologist on the same day. NOTE: LOCAL GOVERNMENTS – You must submit any comments on these projects to WDFW within 15 working days.			
Based on the instructions provided, I am sending copies of this application to the following: (check all that apply)			
<input checked="" type="checkbox"/> Local Government for shoreline: <input checked="" type="checkbox"/> Substantial Development <input type="checkbox"/> Conditional Use <input type="checkbox"/> Variance <input type="checkbox"/> Exemption <input type="checkbox"/> Revision <input type="checkbox"/> Floodplain Management <input type="checkbox"/> Critical Areas Ordinance			
<input checked="" type="checkbox"/> Washington Department of Fish and Wildlife for HPA (Submit 3 copies to WDFW Region)			
<input checked="" type="checkbox"/> Washington Department of Ecology for 401 Water Quality Certification (to Regional Office-Federal Permit Unit)			
<input checked="" type="checkbox"/> Washington Department of Natural Resources for Aquatic Resources Use Authorization Notification			
<input type="checkbox"/> Corps of Engineers for: <input type="checkbox"/> Section 404 <input type="checkbox"/> Section 10 permit			
<input type="checkbox"/> Coast Guard for General Bridge Act Permit			
<input type="checkbox"/> For Department of Transportation projects only. This project will be designed to meet conditions of the most current Ecology/Department of Transportation Water Quality Implementing Agreement.			
SECTION A - Use for all permits covered by this application. Be sure to ALSO complete Section C (Signature Block) for all permit applications.			
1. APPLICANT			
Fort of Seattle, Attn: George Blomberg (Environmental Services) and Michael McLaughlin (Project Manager)			
MAILING ADDRESS			
Fort of Seattle PO Box 1209 Seattle, WA 98111			
WORK PHONE	E-MAIL ADDRESS	HOME PHONE	FAX #
(206) 728-3194	Blomberg_g@portseattle.org		(206) 728-3188
(206) 728-3453	mclaughlin_m@portseattle.org		(206) 728-3280
2. IF AN AGENT IS ACTING FOR THE APPLICANT DURING THE PERMIT PROCESS, COMPLETE #2. Be sure agent signs Section C (Signature Block) for all permit applications.			
3. AUTHORIZED AGENT			
MAILING ADDRESS			
WORK PHONE	E-MAIL ADDRESS	HOME PHONE	FAX #
4. RELATIONSHIP OF APPLICANT TO PROPERTY: <input type="checkbox"/> OWNER <input type="checkbox"/> PURCHASER <input type="checkbox"/> LESSEE <input type="checkbox"/> OTHER			
The Fort of Seattle is the fee owner of the upland area. Washington Department of Natural Resources is owner and manager of adjacent aquatic area and tideland. The Port and WDNR implement a joint management agreement for aquatic area adjacent to Port-owned marine terminal facilities. (Please refer to the attached property description including legal description for Terminal 37, 42, 46. A list of King County tax lots comprising the Terminal 37, 42, 46 marine/industrial cargo facility is found below in Section 5).			
5. NAME, ADDRESS, AND PHONE NUMBER OF PROPERTY OWNER(S), IF OTHER THAN APPLICANT: Not applicable.			
JARPA, Revised 7/02 Contact the State of Washington Office of Permit Assistance for latest version, 360/407-7037 or 800/917-0043			



One-Stop E-Permitting Service - Microsoft Internet Explorer provided by Dept of Ecology

File Edit View Favorites Tools Help

Address http://eppermitting.org/site/index_resourcecenter/9903/default.aspx

Access Washington Official State Government Web Site

One-Stop E-Permitting Service Environmental Permitting Services

Today is Tuesday, April 10, 2007 Sign In Site Map Enter search text here

Welcome JARPA Resources Contact Us Transportation Pilots

JARPA Process

This is your one-stop for information to help you with the Joint Aquatic Resource Permits Application (JARPA) process.

Introduction
Learn what JARPA is and what permits you can use it to apply for.

Process Overview
Important information to consider when filling out your JARPA form and moving through the regulatory process.

JARPA Form
Download an electronic version of the JARPA form with on-line assistance information available on a question-by-question basis. Additionally access other helpful handouts to help you fill out your JARPA.

Examples of Completed JARPA Forms
See samples of completed JARPA forms.

JARPA Contacts
Contact information for the agencies who can help you.

Feedback

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Joint Aquatic Resources Permit Application (JARPA)

Project Objectives

- Increase the accuracy of data submitted for environmental review
- Make online applications easier to use
- Standardize data entry methods for capturing location information

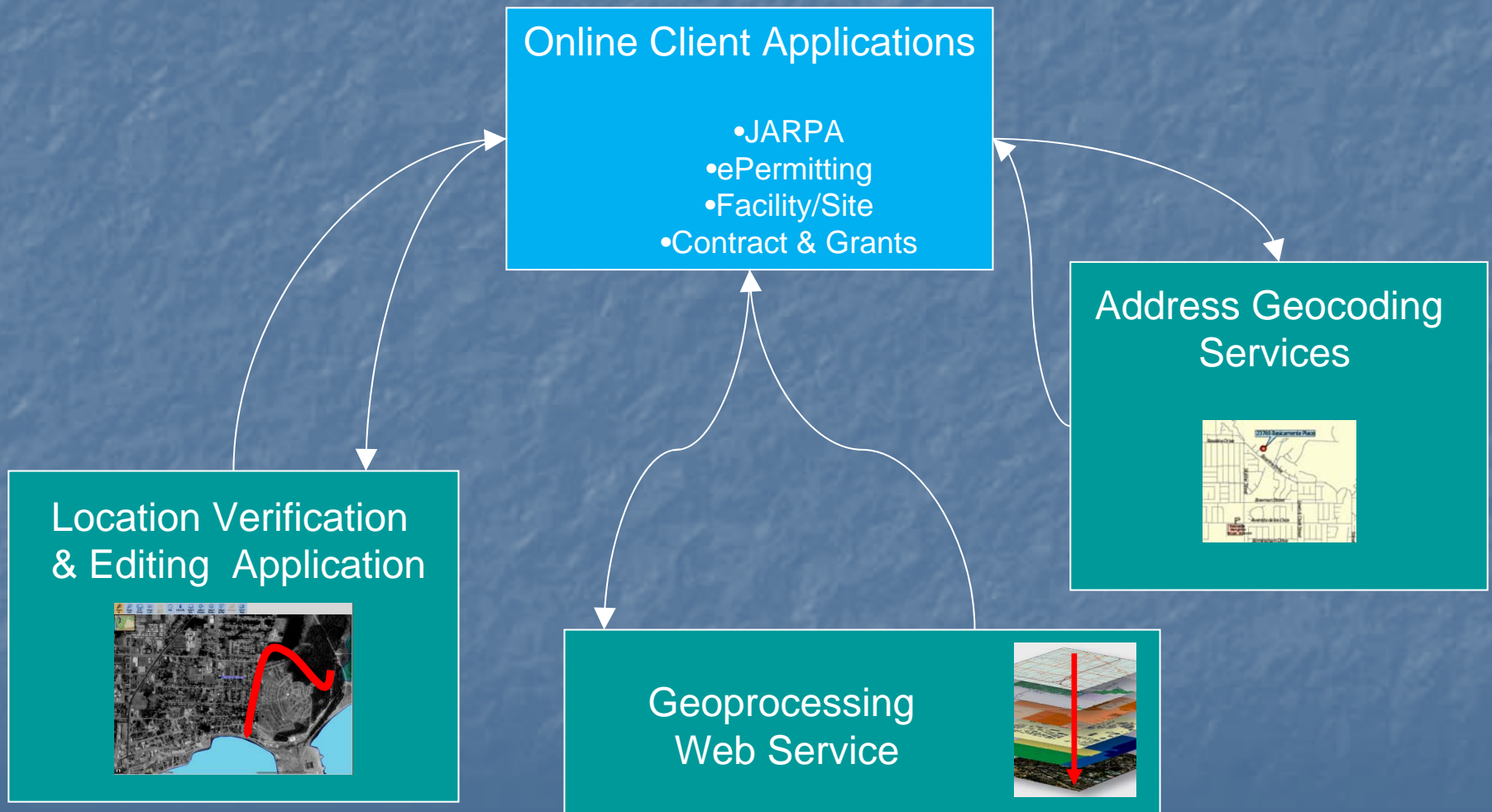
Project Scope

- Develop an interactive Map-Based Location Editor
- Develop Geoprocessing services
- Develop Address Standardization & Geocoding services
- Publish these services to the Exchange Network
- Interface these services with select Permitting and Reporting applications

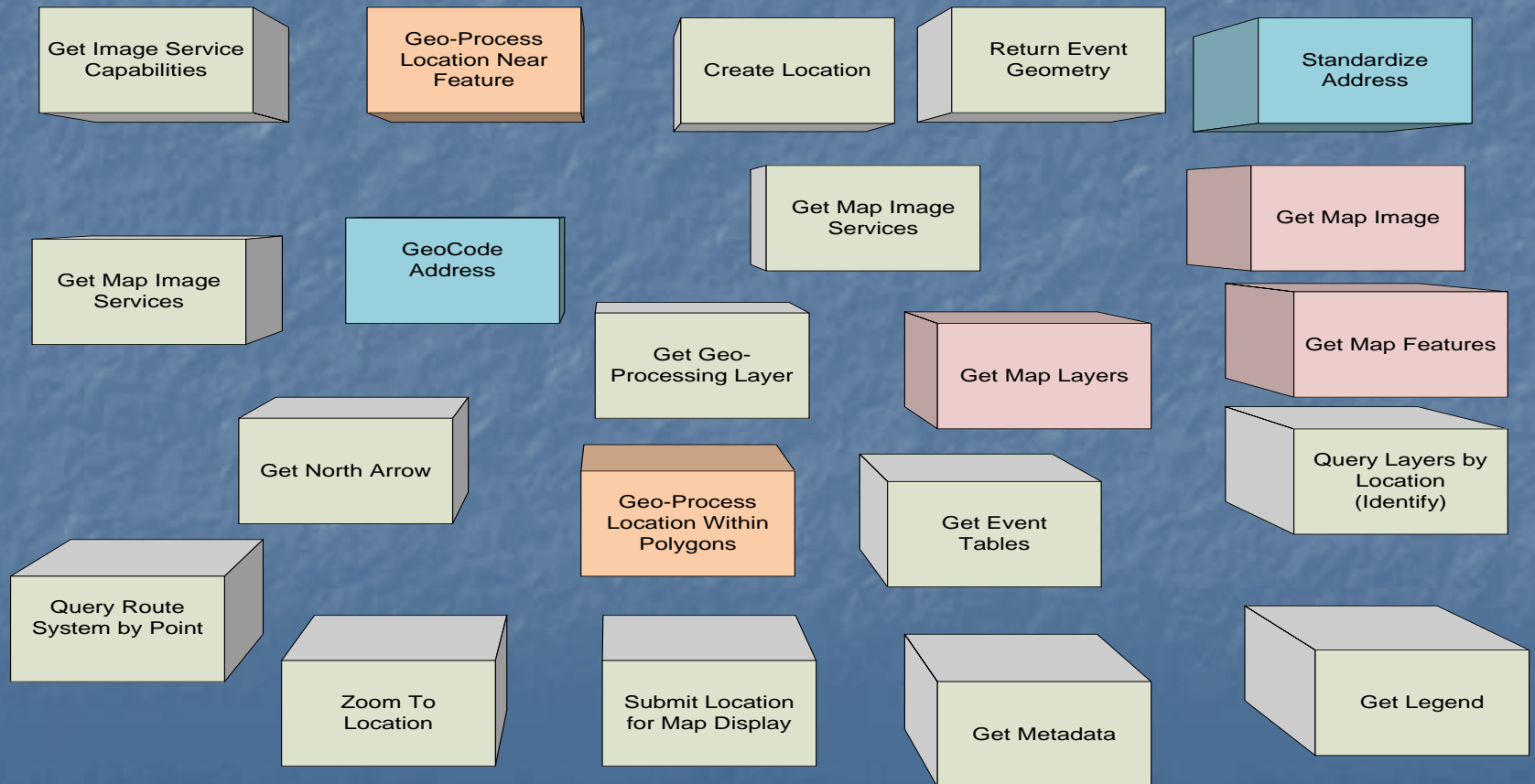
Hidden Technical Agenda

- Develop the expertise to flow geospatial data using XML
- Advance the Exchange Network's ability to transfer geospatial data
- Adopt SOA principles to GIS applications, replacing legacy proprietary GIS technologies

Location Finder Services

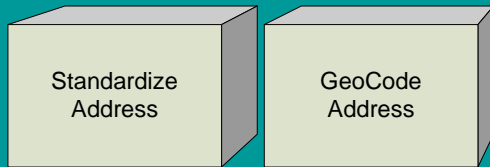


Develop Elemental GIS Web Services As Building Blocks

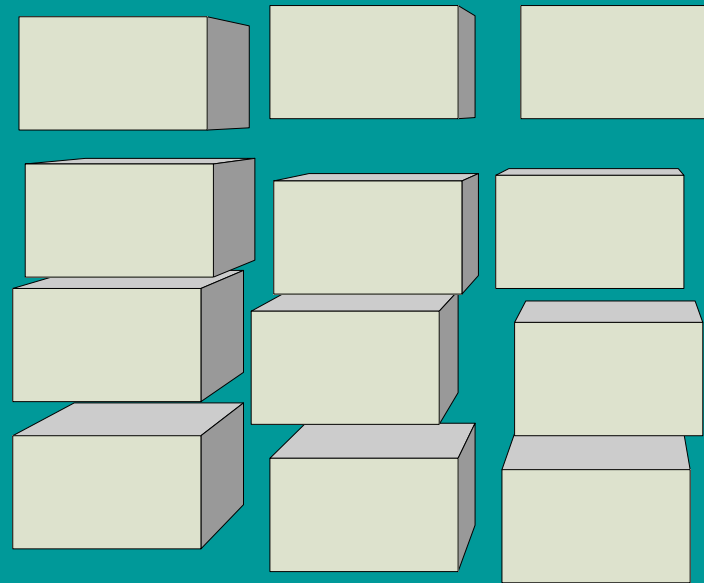


Services Are Loosely Connected; Can Be Coupled To Meet Specific Needs

Address Services



Map Services



Geo-Process
Location Near
Feature

Geo-Process
Location Within
Polygons

Get Geo-
Processing Layers

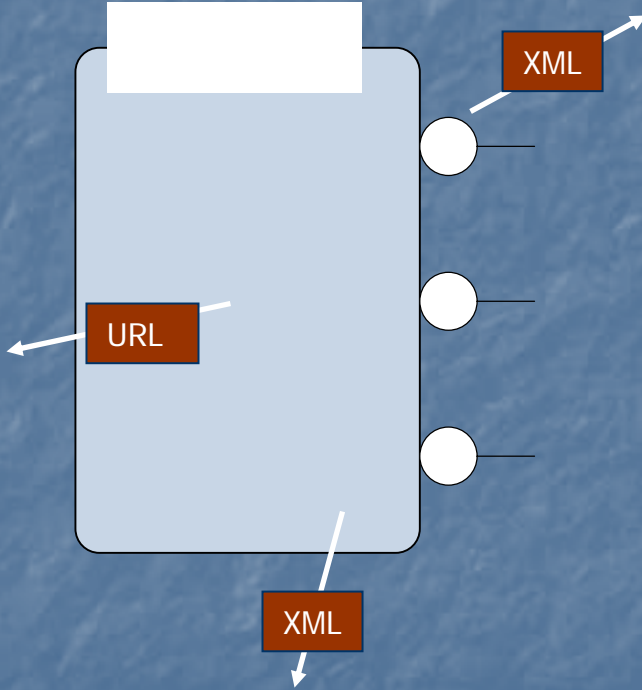
Geo-Processing Services

Map Image Service

(map reference for location capture & location display)



URL with parameters



Layers

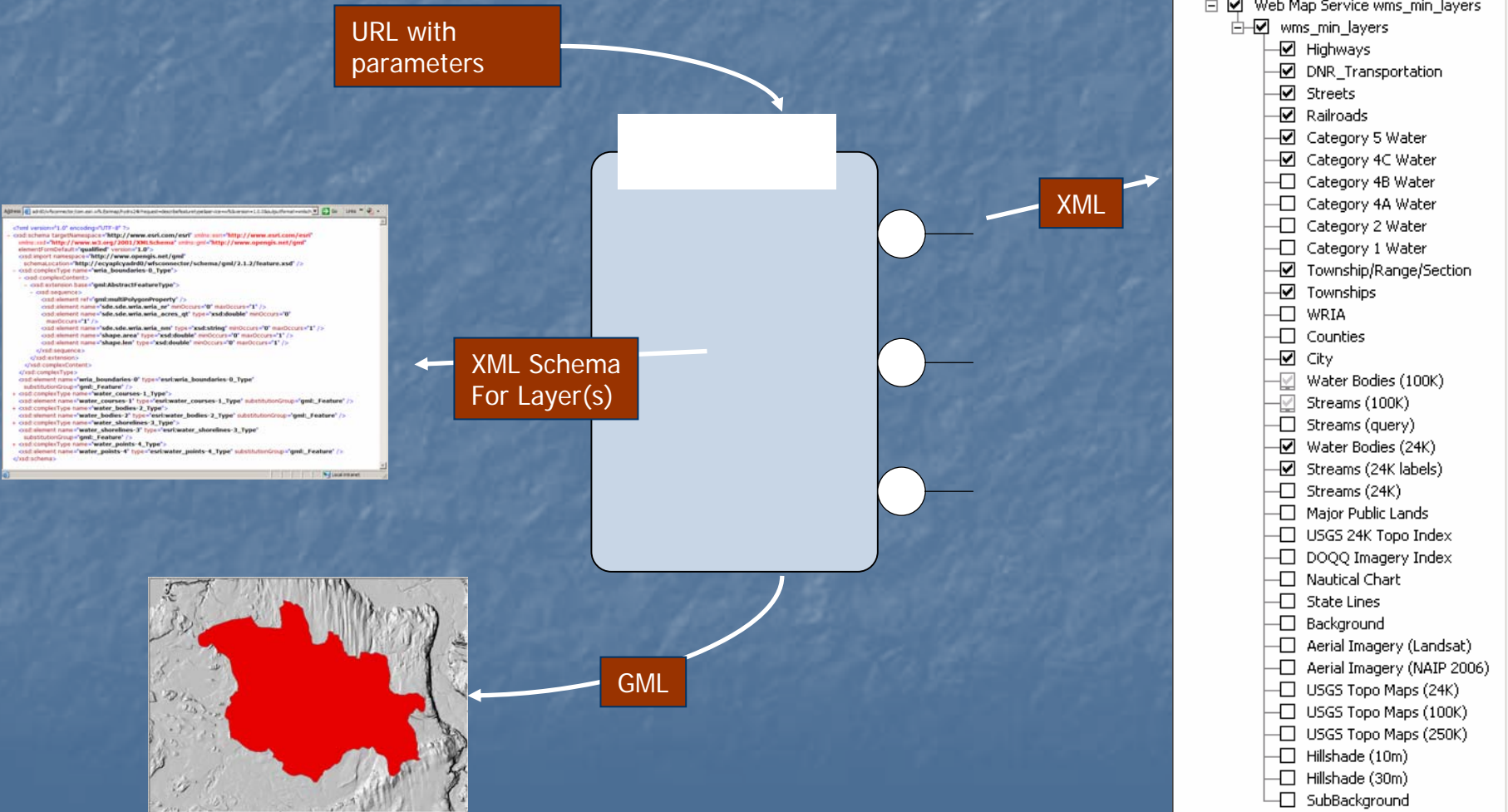
- Web Map Service wms_min_layers
 - wms_min_layers
 - Highways
 - DNR_Transportation
 - Streets
 - Railroads
 - Category 5 Water
 - Category 4C Water
 - Category 4B Water
 - Category 4A Water
 - Category 2 Water
 - Category 1 Water
 - Townships/Range/Section
 - Townships
 - WRIA
 - Counties
 - City
 - Water Bodies (100K)
 - Streams (100K)
 - Streams (query)
 - Water Bodies (24K)
 - Streams (24K labels)
 - Streams (24K)
 - Major Public Lands
 - USGS 24K Topo Index
 - DOQQ Imagery Index
 - Nautical Chart
 - State Lines
 - Background
 - Aerial Imagery (Landsat)
 - Aerial Imagery (NAIP 2006)
 - USGS Topo Maps (24K)
 - USGS Topo Maps (100K)
 - USGS Topo Maps (250K)
 - Hillshade (10m)
 - Hillshade (30m)
 - SubBackground

Category 5: Polluted Waters/303(d) List

Rec	Listing ID	Name	Parameter	Medium	Listed in 98	Listed in 96	Waterbody ID
1	5862	Puget Sound	Dissolved oxygen	Water	Y	N	47122A9G0

Map Feature Service

(zoom-to, display selected feature location, transaction)

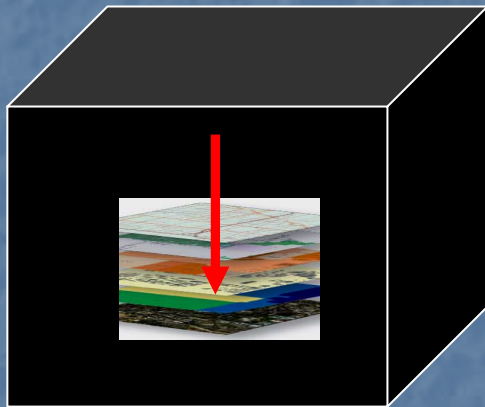


Layers

- Web Map Service wms_min_layers
 - wms_min_layers
 - Highways
 - DNR_Transportation
 - Streets
 - Railroads
 - Category 5 Water
 - Category 4C Water
 - Category 4B Water
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 - Hillshade (10m)
 - Hillshade (30m)
 - SubBackground

Geoprocessing Service

GeoRSS GML feature
+ Layer List + Buffer Distance List



XML
Response
With
Intersected
Layer
Attributes
Reported

```
<?xml version="1.0" encoding="UTF-8" ?>
- <GeoprocessingResults>
- <Layer LayerName="City">
- <IntersectedFeature>
  <CITY_NM>Auburn</CITY_NM>
</IntersectedFeature>
</Layer>
- <Layer LayerName="County">
- <IntersectedFeature>
  <COUNTY_NM>King</COUNTY_NM>
</IntersectedFeature>
</Layer>
+ <Layer LayerName="Tribal_Lands">
+ <Layer LayerName="Parcels2006">
+ <Layer LayerName="dnr_arc">
- <Layer LayerName="HUC_6th_field">
- <IntersectedFeature>
  <SUBWAT_NM>LOWER GREEN RIVER</SUBWAT_NM>
  <CATCHMENT>171100130399XX</CATCHMENT>
</IntersectedFeature>
- <IntersectedFeature>
  <SUBWAT_NM>WHITE RIVER/BOISE CREEK</SUBWAT_NM>
  <CATCHMENT>171100140204XX</CATCHMENT>
</IntersectedFeature>
</Layer>
+ <Layer LayerName="sections">
- <Layer LayerName="wq_303d_2004">
- <IntersectedFeature>
  <WB_GNIS_NM />
  <ECOLOGY_ID>LY34GL12.450</ECOLOGY_ID>
</IntersectedFeature>
</Layer>
- <Layer LayerName="WRIA">
- <IntersectedFeature>
  <WRIA_NR>9</WRIA_NR>
</IntersectedFeature>
- <IntersectedFeature>
  <WRIA_NR>10</WRIA_NR>
</IntersectedFeature>
</Layer>
</GeoprocessingResults>
```

Geoprocessing Service

What Is GML?

- Geographic Markup Language
- XML specification for geospatial data
- Non-proprietary standard developed by the Open Geospatial Consortium ([OGC](#))
- Offers several levels Of 'Profiles' with a range of complexity (GML Point, GeoRSS GML, GML Simple Feature, GML 3.1.1)

GeoRSS GML Polygon Example

```
<gml:Polygon>  
  <gml:exterior>  
    <gml:LinearRing>  
      <gml:posList>  
        45.256 -110.45 46.46 -109.48 43.84 -109.86 45.256 -110.45  
      </gml:posList>  
    </gml:LinearRing>  
  </gml:exterior>  
</gml:Polygon>
```

Demonstration Of Services

Open Layers / GIS Web Services Demo - Microsoft Internet Explorer provided by Dept of Ecology

File Edit View Favorites Tools Help

Address <http://ecyaplcyadrd0/OpenLayersDemo/Default.aspx> Go Links

WASHINGTON STATE
Department of Ecology
Intranet

Open Layers / GIS Web Services Demo TEST

Home BERS

Map Controls: Web Services:

View GML TOC Search Map Tool Settings

Base Layer: Orthophoto Hillshade

Data Layers:

- Political Boundaries
 - Cities
 - Counties
- Hydrographic Features
 - Water Bodies
 - Streams
- Anthropogenic Features
 - Facilities
- Cartographic Elements

2398322 45455, 1294778 54545

Intranet Home | Home | Help | Report a Bug

Open Layers Demo - Version 1.00.

Local intranet

Navigate to Area of Interest

Open Layers / GIS Web Services Demo - Microsoft Internet Explorer provided by Dept of Ecology

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail Stop X Close Help

Address <http://ecyaplcyadrd0/OpenLayersDemo/Default.aspx> Go Links

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 - Facilities
- Cartographic Elements

Done Local intranet

Delineate Project Area

Open Layers / GIS Web Services Demo - Microsoft Internet Explorer provided by Dept of Ecology

File Edit View Favorites Tools Help

Address <http://ecyaplcyadrd0/OpenLayersDemo/Default.aspx> Go Links

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Department of Ecology
Intranet

Open Layers / GIS Web Services Demo TEST

Home BERS

Map Controls: Web Services:

View GML TOC Search Map Tool Settings

GeoRSS GML:

```
<georss:where xmlns:georss="http://www.georss.org/georss" xmlns:gml="http://www.opengis.net/gml" >
  <gml:Polygon xmlns:gml="http://www.opengis.net/gml" >
    <gml:exterior >
      <gml:LinearRing >
        <gml:posList>6332
        </gml:LinearRing >
      </gml:exterior >
    </gml:Polygon >
  </georss:where >
```

Results:

Done Local intranet

GeoRSS
GML

Capture GeoRSS GML

```
<georss:where xmlns:georss="http://www.georss.org/georss">
  <gml:Polygon xmlns:gml="http://www.opengis.net/gml" srsName="EPSG:2927">
    <gml:exterior>
      <gml:LinearRing>
        <gml:posList>
          1173869.4545454546 1077867.9090909091 976596.7272727273
          1065140.6363636362 922505.8181818182 1287867.9090909091
          992505.8181818181 1370595.1818181818 1126142.1818181818
          1243322.4545454546 1215233.0909090908 1205140.6363636362
          1180233.0909090908 1166958.8181818181 1173869.4545454546
          1077867.9090909091
        </gml:posList>
      </gml:LinearRing>
    </gml:exterior>
  </gml:Polygon>
</georss:where>
```

Capture Location Metadata

Open Layers / GIS Web Services Demo - Microsoft Internet Explorer provided by Dept of Ecology

File Edit View Favorites Tools Help

Address <http://ecyaplcyadr0/OpenLayersDemo/Default.aspx>

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Department of Ecology
Intranet

Open Layers / GIS Web Services Demo TEST

Home BERS

Map Controls: [Icons] Web Services: [Icons]

View GML TOC Search Map Tool Settings

GeoRSS GML:

```
<feed xmlns="http://www.w3.
  <entry>
    <title/>
    <id/>
    <updated/>
    <georss:where xmlns:geo
      <gml:Polygon xmlns:gml
        <gml:exterior>
```

Results:

```
<CoordinateReferencingSyst
<HorizontalCoordinateRefer
<HorizontalCoordinateRefer
<HorizontalAccuracyMeasure
<HorizontalAccuracyMeasure
<HorizontalCollectionMetho
<SourceMapScaleNumeric>1:8
/MetadataColumns>
apMetadata>
```

EDSC Location Metadata

Local intranet

Geoprocess Using GeoRSS GML

The screenshot shows a Microsoft Internet Explorer browser window displaying a web application titled "Open Layers / GIS Web Services Demo - Microsoft Internet Explorer provided by Dept of Ecology". The browser's address bar shows the URL "http://ecyaplcyaddr0/OpenLayersDemo/Default.aspx". The application interface includes a "Map Controls" section with navigation tools and a "Web Services" section. A map of a coastal area is displayed, with a yellow rectangle highlighting a specific region. To the right of the map, there are two panels: "GeoRSS GML:" and "Results:". The "GeoRSS GML:" panel shows XML data for a GeoRSS entry, including a title, ID, update date, and a GML Polygon geometry. The "Results:" panel shows XML data for a Geoprocessing service result, including a unique identifier, object ID, and various attributes like WTRBDY_NR, WG_CELL_NR, WB_LLID_NR, WG_LAT_QT, WG_LON_QT, and ECOLOGY_ID. A teal arrow points from the text "XML returned from Geoprocessing service" to the "Results:" panel.

Open Layers / GIS Web Services Demo - Microsoft Internet Explorer provided by Dept of Ecology

File Edit View Favorites Tools Help

Address http://ecyaplcyaddr0/OpenLayersDemo/Default.aspx

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Open Layers / GIS Web Services Demo TEST

Home BERS

Map Controls: Web Services:

View GML TOC Search Map Tool Settings

GeoRSS GML:

```
<feed xmlns="http://www.w3.
  <entry>
    <title/>
    <id/>
    <updated/>
    <georss:where xmlns:geo
      <gml:Polygon xmlns:gm
        <gml:exterior>
```

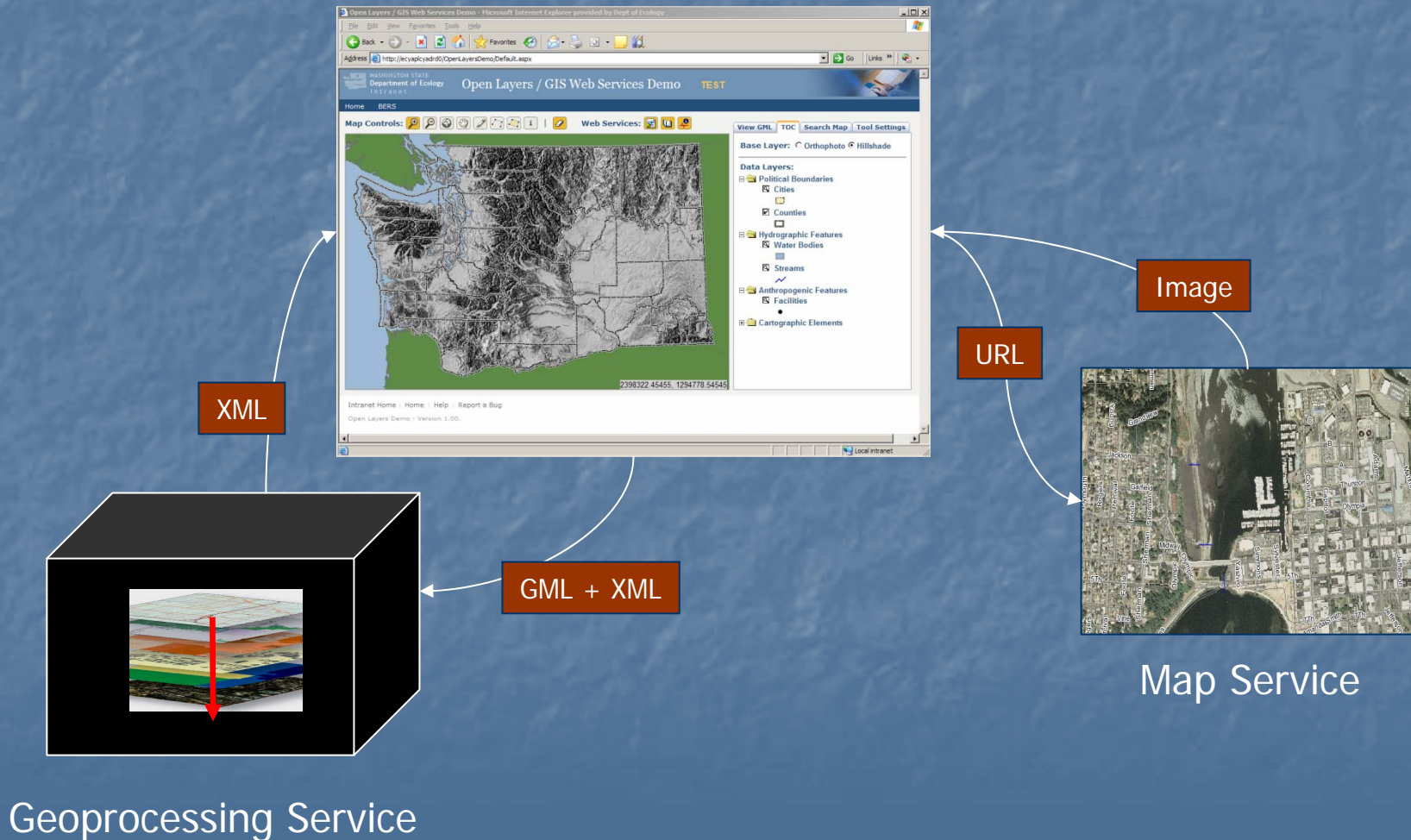
Results:

```
<GPRResults>
  <wg_303d_2004>
    <OBJECTID>5138</OBJECTI
    <WTRBDY_NR>390KRD</WTRB
    <WG_CELL_NR>47122A9E0</
    <WB_LLID_NR xml:space="
    <WG_LAT_QT>47.04500000<
    <WG_LON_QT>122.90500000
    <ECOLOGY_ID>47122A9E0</
```

Done Local intranet

XML returned from Geoprocessing service

What Just Happened?



GeoRSS GML & ESRI

GeoRSS GML entered by user

```
<feed xmlns="http://www.w3.org/2005/Atom">
  <entry>
    <title/>
    <id/>
    <updated/>
    <georss:where xmlns:georss="http://www.georss.org/georss">
      <gml:Polygon xmlns:gml="http://www.opengis.net/gml"
        srsName="EPSG:2927">
        <gml:exterior>
          <gml:LinearRing>
            <gml:posList>1173869.4545454546 1077867.9090909091
              976596.7272727273 1065140.6363636362
              922505.8181818182
              1287867.9090909091 992505.8181818181
              1370595.1818181818
            </gml:posList>
          </gml:LinearRing>
        </gml:exterior>
      </gml:Polygon>
    </georss:where>
  </entry>
</feed>
```



ESRI Geodatabase

- Add row to Geodatabase Feature Class
- Create object based on feature type defined in the GML
- Read coordinate pairs from GML into feature
- Define Coordinate Reference System (CRS) based on coordinate system defined in GML



Integration with the Exchange Network

- Requires Node 2.0
- The Execute operation can invoke the Location Finder services
- Windsor Solutions has tested invoking the Location Finder services with a custom client and verified it is operational
- Ecology is planning to develop our own .Net client to independently verify invoking the Location Finder services through our 2.0 node

Questions?

Contact info:

- Dan Saul
- WA Department of Ecology
- 360-407-6419
- dsau461@ecy.wa.gov