

2004 Facilities and Asset Management Conference

Maximo/GIS Interface on Linear Structures



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John S. Anevski, PE

May 05, 2004

Irrigation Projects

- Linear facilities (similar to roads) VS. Buildings & grounds.
- Can have 100's of structures per mile of canal

•PROBLEM:

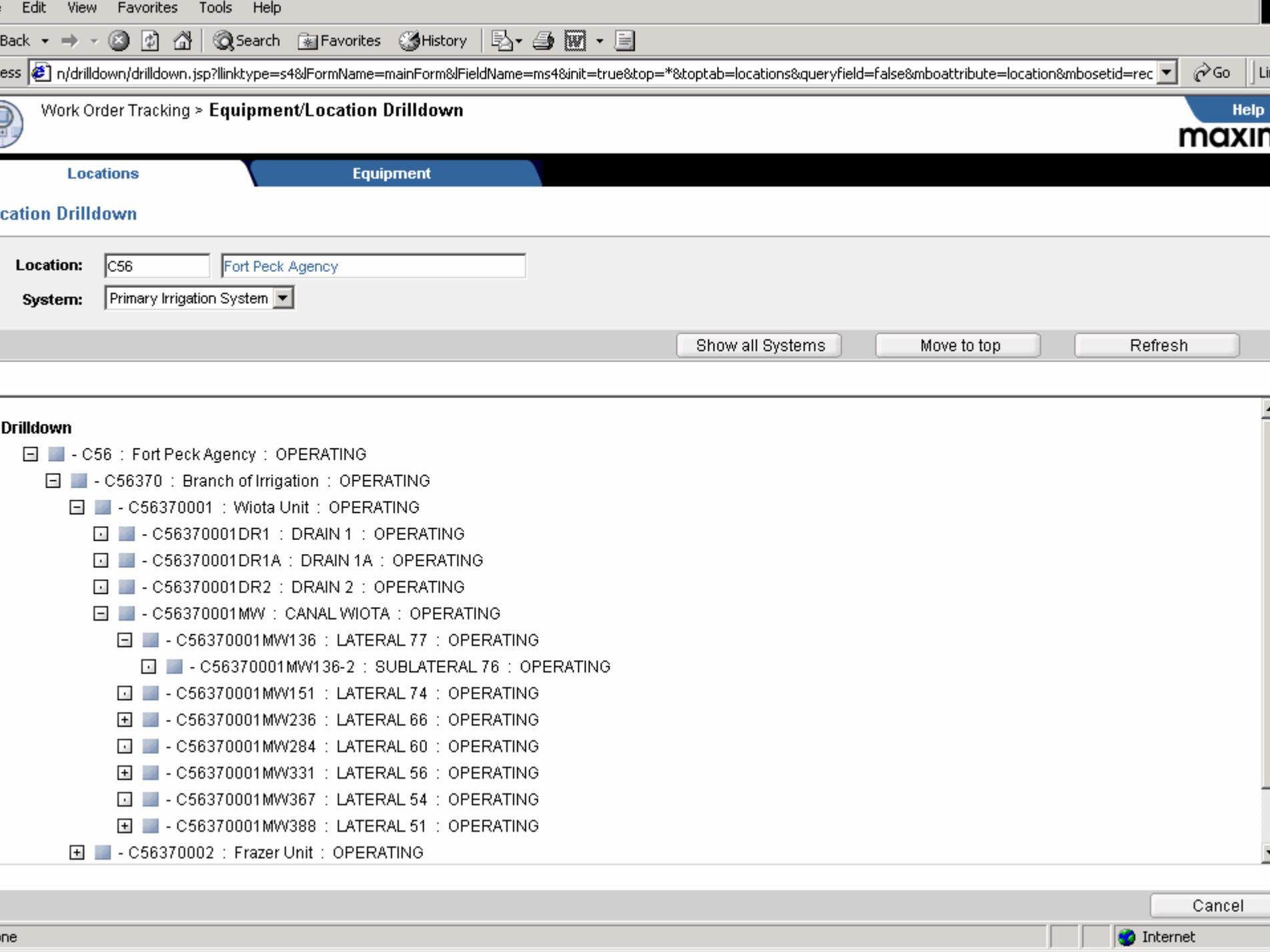
•How do you find that one turnout that you need!



How Many Structures??

PROJECT	ACRES	DITCH MILES	STRUCTURES
Fort Peck	22,000	153	2,391
Wind River	55,000	414	7,592
Uintah	60,000	648	9,011
Wapato	150,000	769	10,279





Locations

Equipment

Location Drilldown

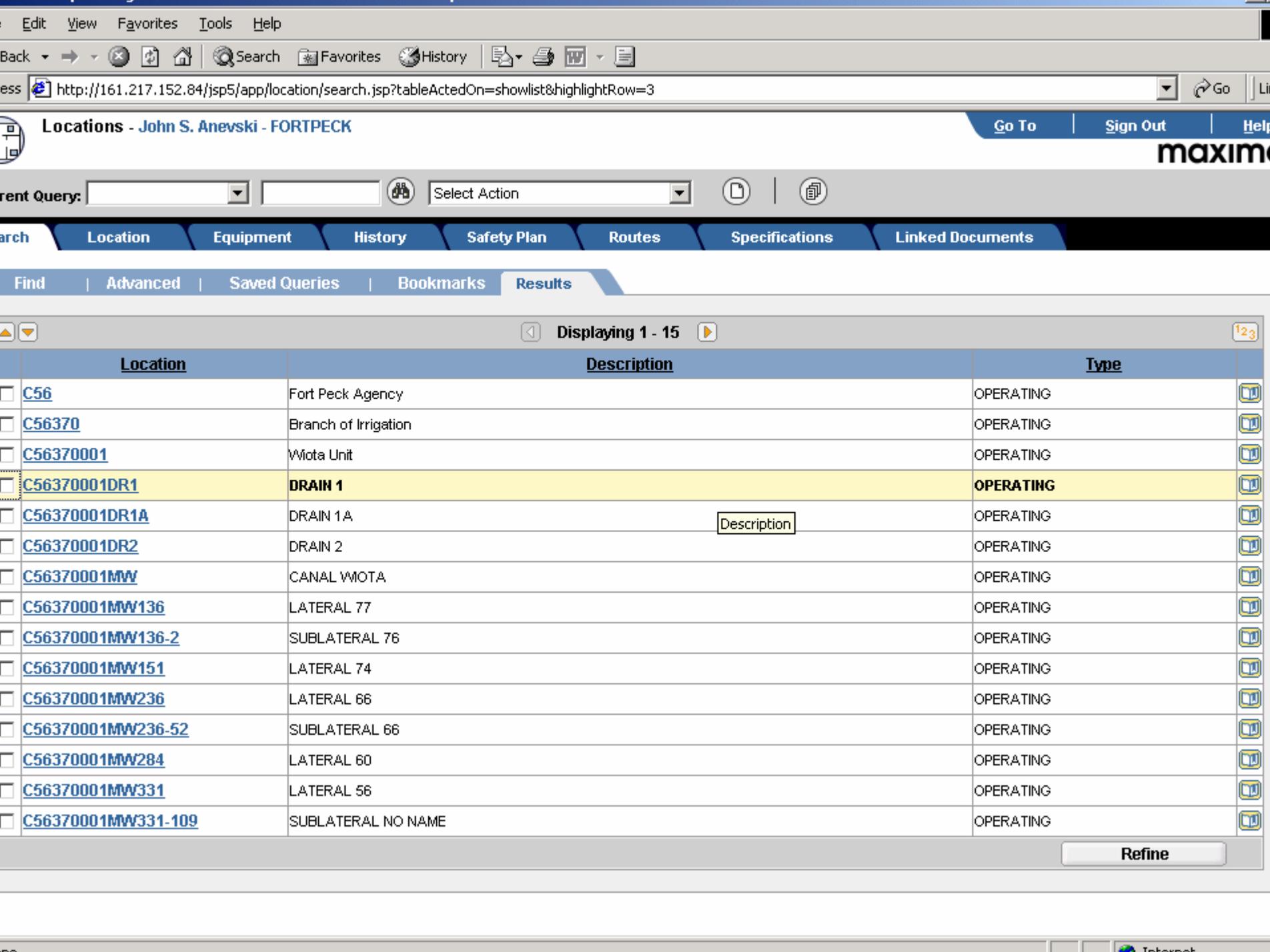
Location: C56 Fort Peck Agency
System: Primary Irrigation System

Show all Systems Move to top Refresh

Drilldown

- C56 : Fort Peck Agency : OPERATING
- C56370 : Branch of Irrigation : OPERATING
- C56370001 : Wiota Unit : OPERATING
- C56370001DR1 : DRAIN 1 : OPERATING
- C56370001DR1A : DRAIN 1A : OPERATING
- C56370001DR2 : DRAIN 2 : OPERATING
- C56370001MW : CANAL WIOTA : OPERATING
- C56370001MW136 : LATERAL 77 : OPERATING
- C56370001MW136-2 : SUBLATERAL 76 : OPERATING
- C56370001MW151 : LATERAL 74 : OPERATING
- C56370001MW236 : LATERAL 66 : OPERATING
- C56370001MW284 : LATERAL 60 : OPERATING
- C56370001MW331 : LATERAL 56 : OPERATING
- C56370001MW367 : LATERAL 54 : OPERATING
- C56370001MW388 : LATERAL 51 : OPERATING
- C56370002 : Frazer Unit : OPERATING

Cancel



Current Query: [] [] [Select Action] [] []

Search | Location | Equipment | History | Safety Plan | Routes | Specifications | Linked Documents

Find | Advanced | Saved Queries | Bookmarks | Results

Displaying 1 - 15

123

	Location	Description	Type	
<input type="checkbox"/>	C56	Fort Peck Agency	OPERATING	
<input type="checkbox"/>	C56370	Branch of Irrigation	OPERATING	
<input type="checkbox"/>	C56370001	Wlota Unit	OPERATING	
<input type="checkbox"/>	C56370001DR1	DRAIN 1	OPERATING	
<input type="checkbox"/>	C56370001DR1A	DRAIN 1A	OPERATING	
<input type="checkbox"/>	C56370001DR2	DRAIN 2	OPERATING	
<input type="checkbox"/>	C56370001MW	CANAL WLOTA	OPERATING	
<input type="checkbox"/>	C56370001MW136	LATERAL 77	OPERATING	
<input type="checkbox"/>	C56370001MW136-2	SUBLATERAL 76	OPERATING	
<input type="checkbox"/>	C56370001MW151	LATERAL 74	OPERATING	
<input type="checkbox"/>	C56370001MW236	LATERAL 66	OPERATING	
<input type="checkbox"/>	C56370001MW236-52	SUBLATERAL 66	OPERATING	
<input type="checkbox"/>	C56370001MW284	LATERAL 60	OPERATING	
<input type="checkbox"/>	C56370001MW331	LATERAL 56	OPERATING	
<input type="checkbox"/>	C56370001MW331-109	SUBLATERAL NO NAME	OPERATING	

Refine

Work Order Tracking > **Select Equipment**

Search For: 🔍

Search Results

⏪ **Displaying 1 - 20** ⏩

123

<u>Equipment</u>	<u>Description</u>	<u>Location</u>
C56370001DR1:12580	ROAD CROSS-IN	C56370001DR1
C56370001DR1:12615	ROAD CROSS-OUT	C56370001DR1
C56370001DR1:19379	ROAD CROSS-IN	C56370001DR1
C56370001DR1:19430	ROAD CROSS-OUT	C56370001DR1
C56370001DR1:33	ROAD CROSS-IN	C56370001DR1
C56370001DR1:6936	ROAD CROSS-IN	C56370001DR1
C56370001DR1:6973	ROAD CROSS-OUT	C56370001DR1
C56370001DR1:85	ROAD CROSS-OUT	C56370001DR1
C56370001DR1A:6708	ROAD CROSS-IN	C56370001DR1A
C56370001DR1A:6767	ROAD CROSS-OUT	C56370001DR1A
C56370001DR2:0	ROAD CROSS-IN	C56370001DR2
C56370001DR2:16233	ROAD CROSS-IN	C56370001DR2
C56370001DR2:16278	ROAD CROSS-OUT	C56370001DR2
C56370001DR2:59	ROAD CROSS-OUT	C56370001DR2
C56370001MVV:33027	DRAIN INLET	C56370001MVV
C56370001MVV:33090	LTURNOUT	C56370001MVV
C56370001MVV:33221	CHECK	C56370001MVV
C56370001MVV:33748	LTURNOUT	C56370001MVV
C56370001MVV:36	MISCELLANEOUS	C56370001MVV
C56370001MVV:36532	UNDERDRAIN	C56370001MVV

Cancel

Work Order Tracking > Select Equipment

Search For:

Search Results

Displaying 1 - 20

Equipment	Description	Location
C56370001DR1:12580	ROAD CROSS-IN	C56370001DR1
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C56370001DR1:19379	ROAD CROSS-IN	C56370001DR1
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C56370001MVV:36	MISCELLANEOUS	C56370001MVV
C56370001MVV:36532	UNDERDRAIN	C56370001MVV

Microsoft Internet Explorer

1,867 rows found.

OK

Cancel

Background

- **BIA's Immediate Needs**
 - ◆ 18 unique and independently managed irrigation projects
 - ◆ No markers to identify sections of irrigation ditches at regular intervals (mile markers, etc.)
 - ◆ Many access roads unmarked
 - ◆ No physical identification in most irrigation structures
- **Favorable Conditions**
 - ◆ GIS mapping and condition assessment being performed
 - ◆ Defined standards for naming irrigation ditches and structures
 - ◆ Unique identifiers for irrigation structures stored as GIS attributes
 - ◆ GIS records served as basis for MAXIMO[®] locations and equipment

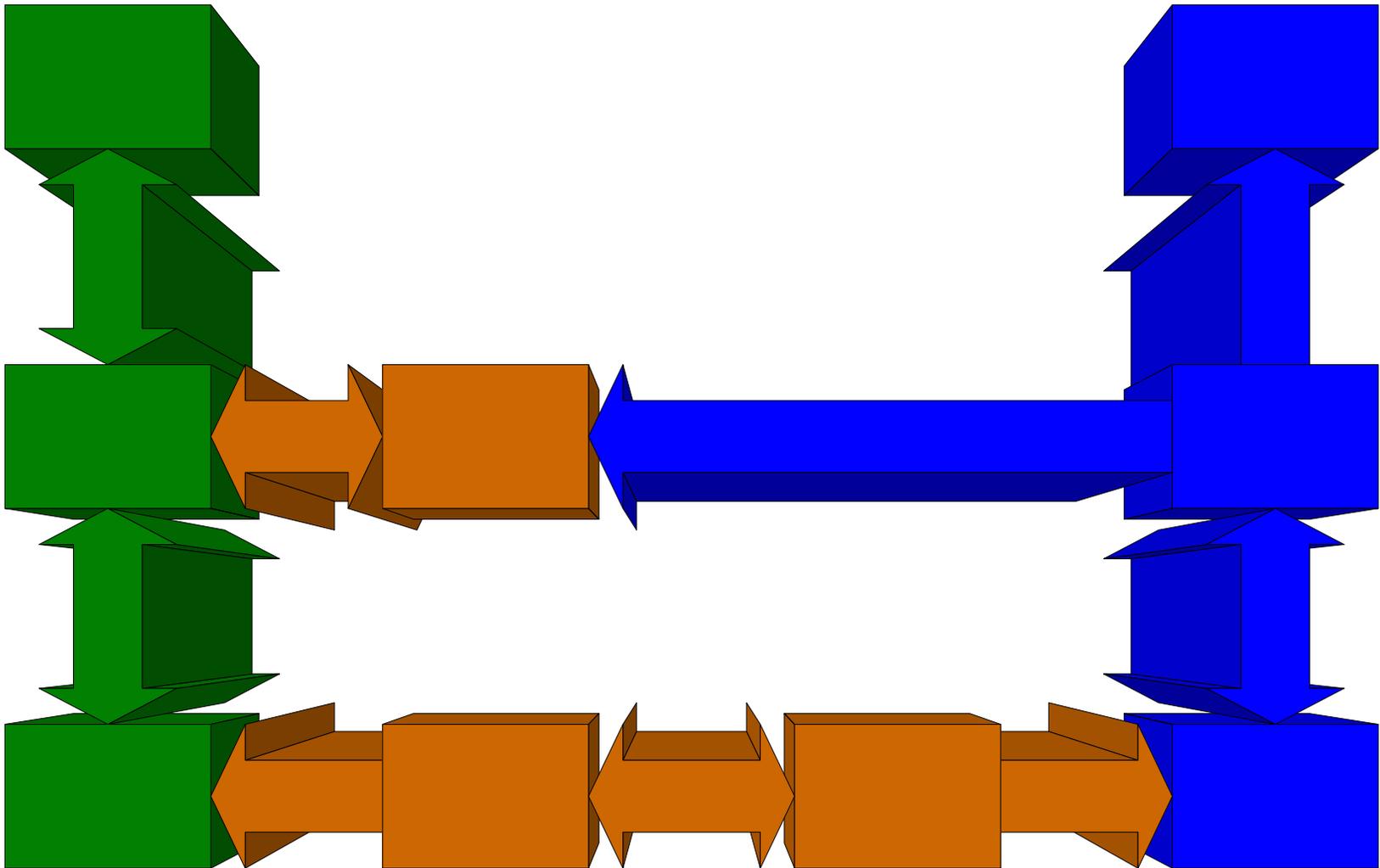
Interface Requirements

- Web-based application
- Fully integrated with MAXIMO®
- Intuitive process
 - ◆ Create work orders from map screen
 - ◆ Locate MAXIMO® records on the map
- Printing maps with work orders
- Create work orders from multiple selections from the map
- Create work orders for a dynamically selected section of an irrigation ditch

Integration Requirements

- Two-way data sharing between MAXIMO® and GIS
 - ◆ New records
 - ◆ Removed records
 - ◆ Record updates
- Ability to approve and/or override changes
- Audit trail

MapManager[®] 2.0



How We Did it

- Web-based application
- Fully integrated with MAXIMO®

Welcome Assad B. Reichdan, you are logged into site: BLCKFEET.

maximo™

Start Center



[My Workflow Assignments](#)



[Work](#)

- Work Order Tracking
- Quick Reporting
- Work Requests
- Map Manager



[PM](#)



[Inventory](#)



[Equipment](#)



[Purchasing](#)



[Plans](#)



[Resources](#)



[Reports](#)

Displaying 0 - 0

Description	Process Type	Record #	Site	Priority	Due Date
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No Inbox Assignments found for Assad B. Reichdan.

[Refresh](#)

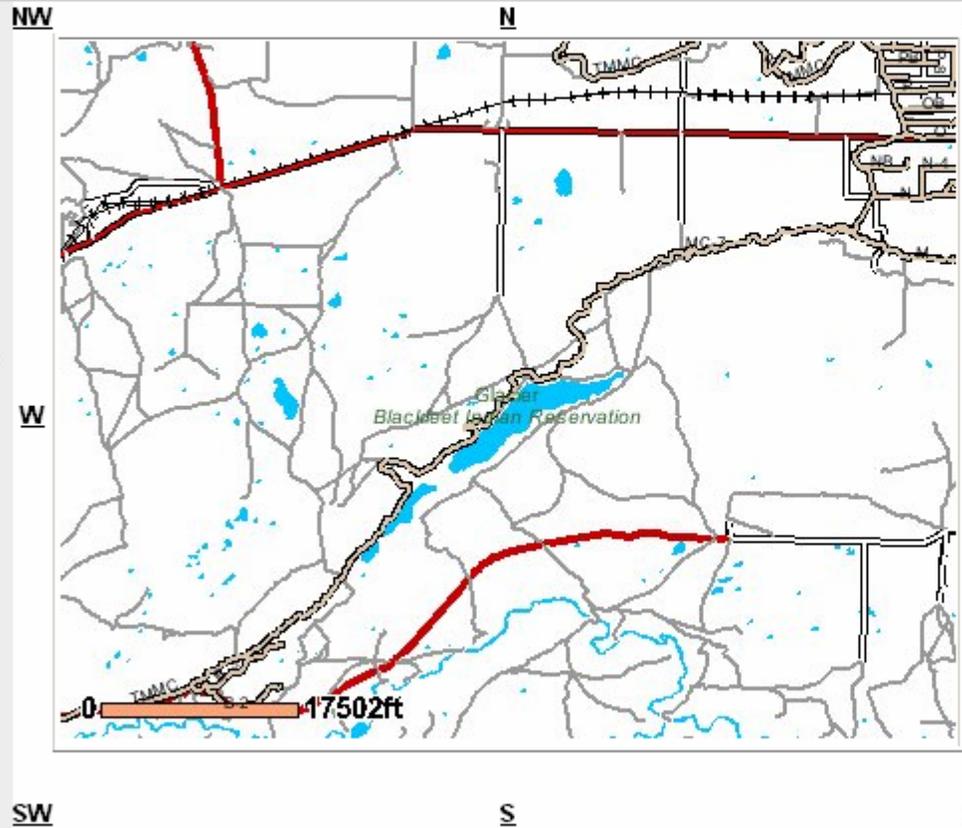


Map Size: Small Select Action



Blackfeet Indian Irrigation Project

- Legend**
- Reservation Boundary
 - Administrative Boundaries
 - lakes
 - large streams
 - roads
 - Railroad
 - Light Duty Road
 - Primary Hard Surface
 - Secondary Hard Surface
 - Unimproved Road
 - ditches
 - BADGER FISHER
 - BIRCH CREEK
 - TWO MEDICINE



- Map Layers**
- Reservation Boundary
 - Administrative Boundaries
 - public land survey
 - lakes
 - large streams
 - streams
 - roads
 - ditches
 - structures
 - USGS Topo
 - Aerial Photo - North
 - Aerial Photo - South

[Click on map to center](#)

- Select map action:
- Identify Ditch
 - Identify Structure

Refresh

How We Did it

- Intuitive process
 - ◆ Create work orders from map screen
 - ◆ Locate MAXIMO® records on the map
- Printing maps with work orders



Map Size: Small Select Action



Blackfeet Indian Irrigation Project

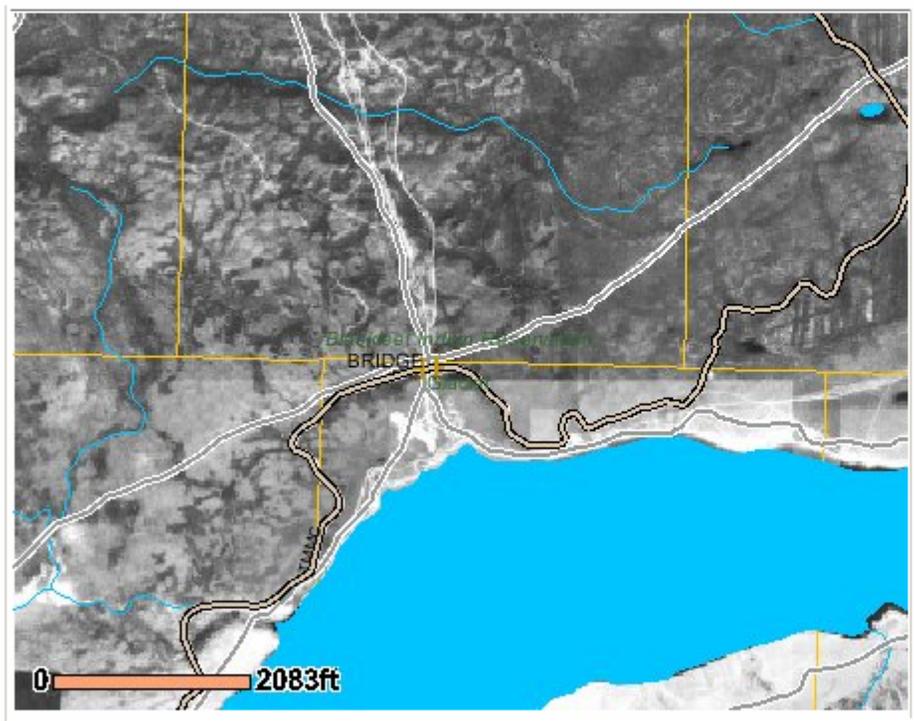
Legend
Aerial Photo - North

- Reservation Boundary
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- Secondary Hard Surface
- Unimproved Road
- ditches
- BADGER FISHER
- BIRCH CREEK
- TWO MEDICINE
- structures
- BRIDGE
- CHECK
- CHECK/CROSS
- CHECK/DROP
- CHECK/DROP/CROSS
- CHUTE

NW

N

NE



Map Layers

- Reservation Boundary
- Administrative Boundaries
- public land survey
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[Click on map to center](#)

Select map action:

- Identify Ditch
- Identify Structure

W

E

-  Light Duty Road
-  Primary Hard Surface
-  Secondary Hard Surface
-  Unimproved Road
-  ditches
-  BADGER FISHER
-  BIRCH CREEK
-  TWO MEDICINE
-  structures
-  BRIDGE
-  CHECK
-  CHECK/CROSS
-  CHECK/DROP
-  CHECK/DROP/CROSS
-  CHUTE
-  DAM DIVERSION
-  DROP
-  HEADGATE
-  LTURNOUT
-  MEASURING DEVICE
-  MISCELLANEOUS
-  ROAD CROSS
-  RTURNOUT
-  SIPHON
-  SPILLWAY
-  UNDERDRAIN
-  WASTEWAY



- USGS Topo
- Aerial Photo - North
- Aerial Photo - South
- [Click on map to center](#)
- Select map action:
 - Identify Ditch
 - Identify Structure

W

E

SW

S

SE

Refresh

Structure ID	Description
C51370003MC:92083	BRIDGE



Failure Reporting | **Linked Documents**

<input type="text"/>	<input type="checkbox"/>	In Workflow?	<input type="checkbox"/>	Work Type:	<input type="text"/>
<input type="text"/>	<input type="checkbox"/>	WO Priority:	<input type="text"/>	GL Account:	<input type="text"/>
<input type="text"/>	<input type="checkbox"/>	Loc/Eq Priority:	<input type="text" value="0"/>	Warranty:	<input type="text"/>
	<input checked="" type="checkbox"/>	Equipment Up?	<input checked="" type="checkbox"/>	Work Phone:	<input type="text" value="303-231-5224"/>
	<input type="checkbox"/>	Charge To Store?	<input type="checkbox"/>		
	<input checked="" type="checkbox"/>	Change Status on Child Work Orders?	<input checked="" type="checkbox"/>		

Problem

Failure Class:

Problem Code:

Follow-up Work

Originating WO:

Has Follow-up Work?

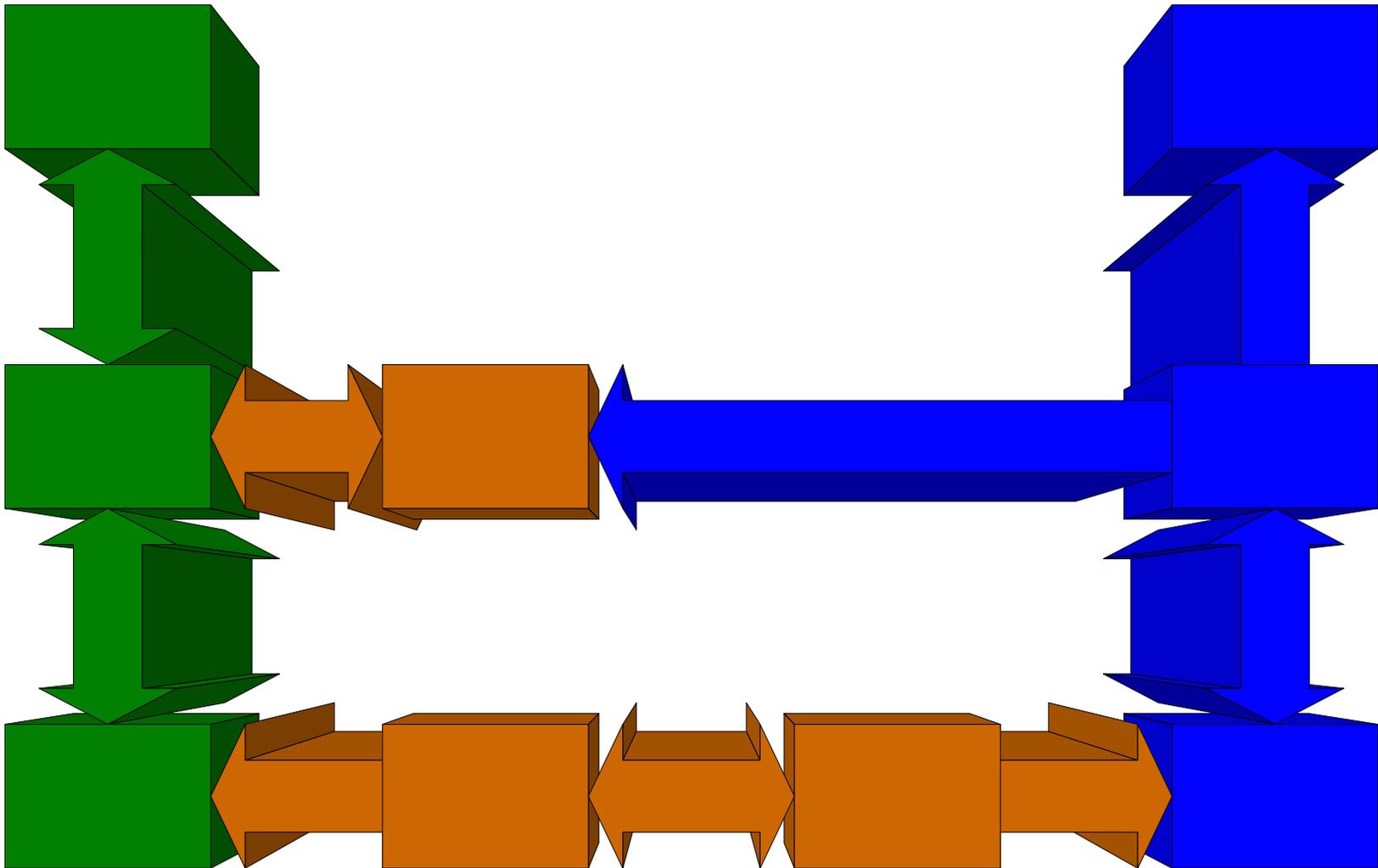
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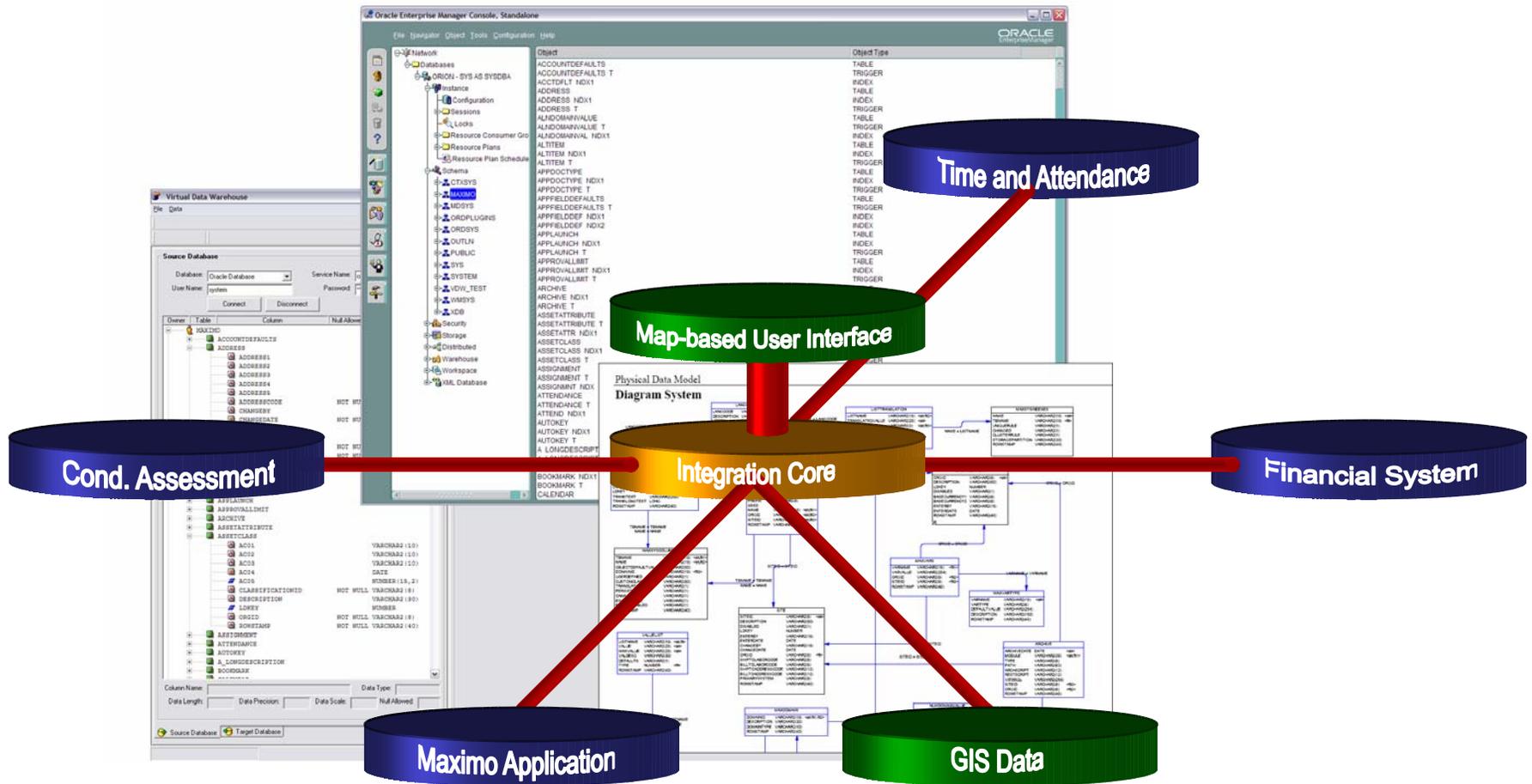
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MapManager[®] Architecture



Data Integration



GIS and MAXIMO® for Project Planning, Design and Construction

- **Using a GIS/MAXIMO® Interface**
- **Session 9c (2nd speaker)**
- **Wednesday, May 5 (today)**
- **2:00 – 3:30 pm**
- **Salon 6**