



The Application of GIS to Hospitality Industry Operations

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ESRI Business GeoInfo Summit



Presentation Goal

To assist hospitality industry executives determine if GIS technologies can benefit their organizations at the unit, operational level.



Purposes

- Why
- Where
- How
- When





What Will Be Presented

1. Hospitality Industry and Tourism GIS Operational Map.
 2. Resort Case Study.
 3. Hospitality Industry and Tourism GIS Decision-tree.
- 




Hospitality Industry Segments

1. **Lodging** – hotels, motels, inns, lodges, suite only, extended stay, bed and breakfast;
2. **Foodservice** – elegant, casual, family and quick-serve;
3. **Institutional Foodservice** – health care, industrial, and plant;
4. **Catering** – business and social;
5. **Clubs** – golf, tennis, social, business, country and city;
6. **Cruise Lines** – inland waterway, coastal, island and ocean;
7. **Travel Agencies** – group, commercial, leisure and focus;
8. **Convention and Conference Centers** – commercial and municipal;
9. **Arenas** – sports, music, special event and multi-purpose;
10. **Parks** – amusement, activity, theme, and recreation;
11. **Tourism Based Transportation** – ground, air, water;
12. **Attractions** – cultural, historic, agricultural, museums, aquariums, and other destination attractions
13. **Vendor** – food and beverage dispensed by machines or portable units;
14. **Gaming** - river casinos, hotel casinos, and stand alone; and,
15. **Resorts** – leisure, group, convention and theme.



Resort Industry: Categorized by Activity

- Recreational and sport activity resorts;
 - Health or spa resorts;
 - Water and mountain resorts;
 - Eco-centered resorts;
 - Convention and meeting resorts;
 - Gaming resorts; and,
 - All-purpose, mega-resorts. Year
- 



Resort Industry: Categorized by Location/Ownership

- Year-round resorts;
 - Seasonal resorts;
 - Private sector resorts;
 - Public sector resorts;
 - Public/private partnership resorts; and,
 - Timeshare resorts
- 



Driving Imperatives

- Location
- Perishability





Hospitality Industry GIS Use: Strategic Level

- Site Selection
 - Marketing
 - Distribution
 - Competition Analysis
 - Customer Analysis
- 



Part I

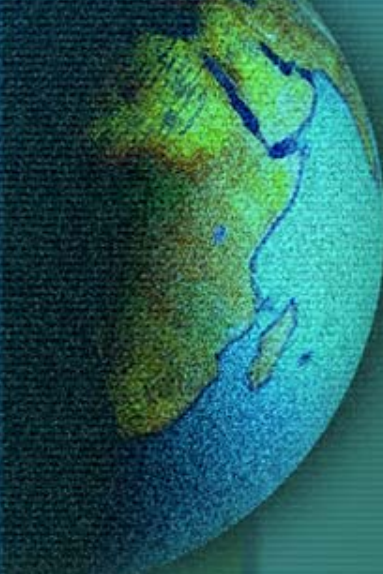
Hospitality Industry and Tourism GIS Operational Map.





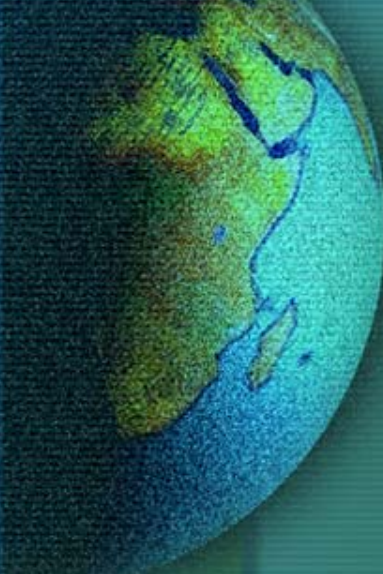
Hospitality Industry GIS Use: Tactical, Operational Level

- Revenue Generating
Departments
- Non-revenue Generating
Departments



Tactical/Operational Level - Resort Property Example: 500 Rooms		
Revenue Producing Centers	Spatially Relevant	
	Yes	No
Revenue Producing Centers		
Rooms Division	10	
Reservations	✓	
Front Office Check-in/Check-out	✓	
Uniformed Services	✓	
Bell	✓	
Concierge	✓	
Valet	✓	
Drivers	✓	
Housekeeping	✓	
Room Inspectors	✓	
Housekeepers	✓	
Laundry		✓
Lost and Found	✓	
Telephone		✓
Security	✓	
Food and Beverage	9	
Restaurants	✓	
Tavern/Bar	✓	
Room Service	✓	
Banquet/Catering	✓	
Guest Services and Activities	9	
Golf Club	✓	
Pool	✓	
Fitness Center	✓	
Spa	✓	
Gift Shop/Retail Outlets	✓	
Entertainment	✓	



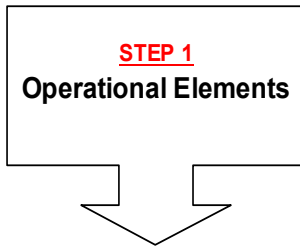


Tactical/Operational Level - Resort Property Example: 500 Rooms		
Non-Revenue Producing Centers	Spatially Relevant	
	Yes	No
Non-Revenue Producing Centers	✓	
Sales and Marketing	10	
Sales	✓	
Tour/Travel	✓	
National Accounts	✓	
Individual Accounts	✓	
Advertising/Public Relations	✓	
Convention/Meeting Services	✓	
Human Resources	9	
Personnel	✓	
Training	✓	
Accounting	7	
Accounts Payable	✓	
Accounts Receivable	✓	
Cashiers		✓
Night Audit		✓
Payroll	✓	
Purchasing	✓	
Ordering	✓	
Receiving	✓	
Storage and Issuing	✓	



HOSPITALITY INDUSTRY AND TOURISM GIS OPERATIONAL MAP

Example Map: **Banquets, Catering, and Special Events**



EXAMPLE: OPERATIONAL ELEMENTS - DEPARTMENT BASED

Banquet Sales

Developing Marketing Plan

Evaluating Existing Business

Evaluating Potential Business

Evaluating Competition

Establishing Sales Goals

Space Utilization

Develop Function Space Utilization Plan

Develop Storage Space Plan

Develop Facility Yield Management Plan

EXAMPLE: OPERATIONAL ELEMENTS - FUNCTION BASED

Staffing

Part-time Staffing Plan

Full-time Staffing Plan


Room Set-up

Signage

Service Zones/Schedules

HOSPITALITY INDUSTRY AND TOURISM GIS OPERATIONAL MAP

Example Map: **Banquets, Catering, and Special Events**

<p>STEP 2 Decision Elements Scoring: (-) 1 to 10 (+)</p> 	<p>1. Degree of Spatial Relevancy</p>	<p>2. Availability of Attribute Data</p>	<p>3. Need for Better Planning</p>	<p>4. Need for Better Organizing</p>	<p>5. Need for Better Control (Resources)</p>	<p>6. Need for Better Directing (Human Resources)</p>	<p>7. Need to Reduce Cost</p>	<p>8. Need to Increase Guest Satisfaction</p>	<p>9. Need to Improve Response Time</p>	<p>10. Degree of Improvement Urgency</p>
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Part II
Operational Case Study:
170 Room Ski Resort





Property: Stein Eriksen Lodge

A five-star ski resort catering to high-end, quality conscious patrons.





Targeted Operational Area: Ski Locker





Specific Elements and Challenges

- Improve customer service.
 - Improve handling of guests.
 - Improve data entry.
 - Improve multiple queries.
 - Better respond to equipment requests.
 - Improve interface with other systems.
 - Improve interface with delivery and shipment of equipment.
 - Improve security.
 - Improve the ease of employee training.
- 




Operational Elements: Ski Locker
Ski and Equipment Handling - Third Parties
Transfer From/To Uniform Services
Transfer From/To External Services (UPS/FedEx/Other)
Assignment of Lockers
Priority Ranking
Other Ranking
Ski and Equipment Handling - Guest Direct
Individual Guest
Multi-guest
Ski School
Staff Training
Initial
Follow-up
Software Interface
Property Management System
Ski Shop
Other





Targeted Goals

- **Improve guest satisfaction.**
 - **Improve the definition of operational variables and parameters.**
 - **Increase the accuracy and allocation of estimated resources.**
 - **Improve forecasting.**
 - **Reduce confusion.**
 - **Improve responsiveness.**
 - **Improved record keeping and reporting.**
 - **Improve employee training.**
 - **Enhance facility use and capacity.**
- 



Stein Eriksen Lodge





PRIVATE







26

EXIT

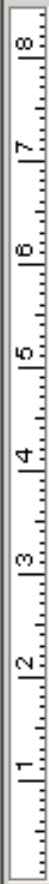
27

28

29

30

31



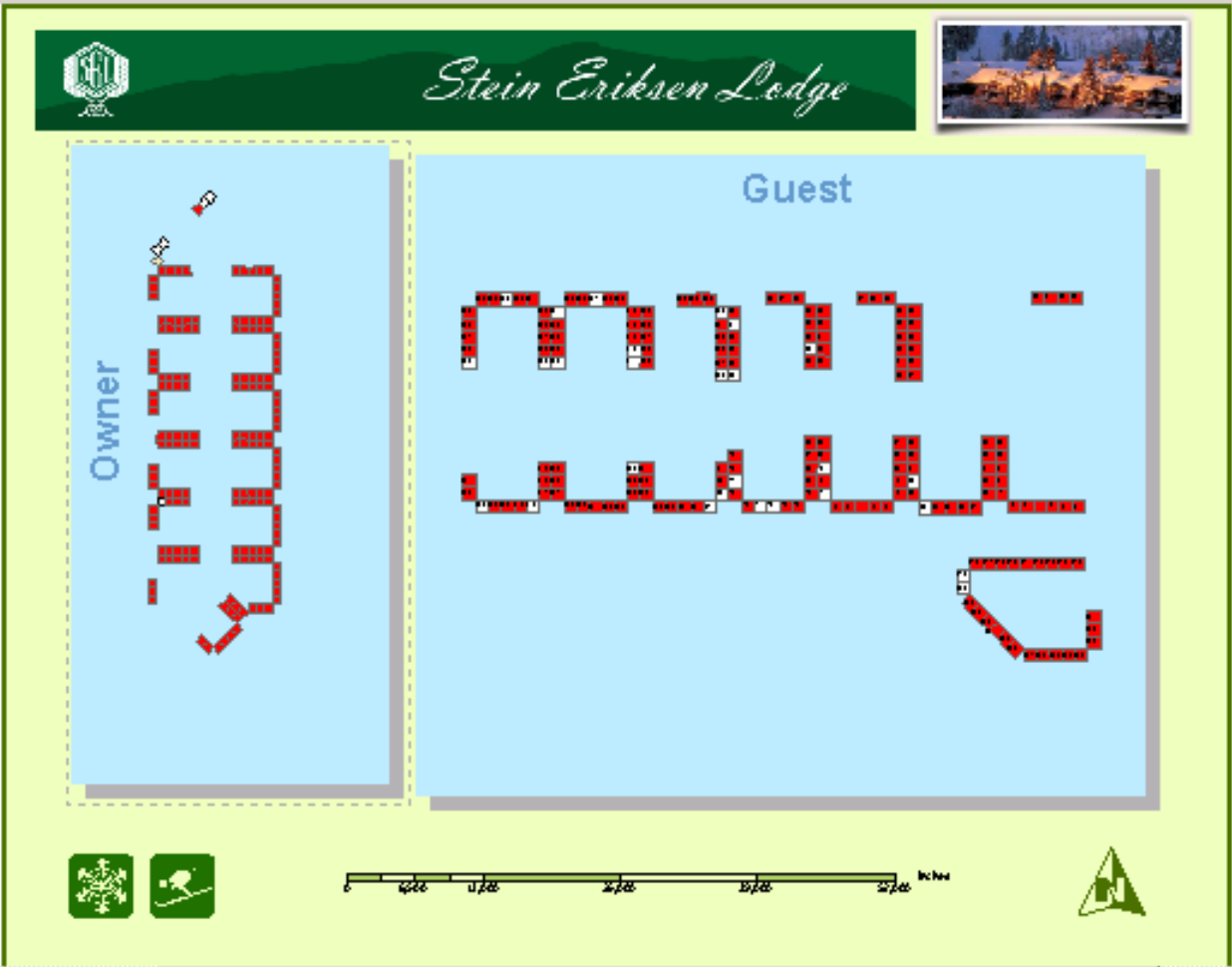
Owners

- OwnersR

Guest

- GUEST

Display Source





EXIT

26

GIS - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

Editor

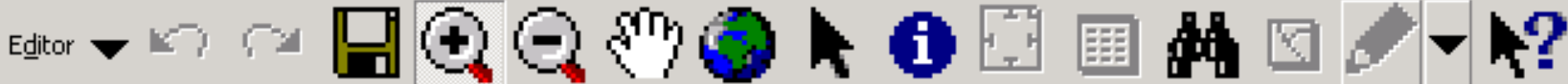
Owners
Guest

138 139 110 111 112 86 87 88 57 58 59 140 109 113 85 89 56 60 32 141 108 114 84 90 55 61 31 142 107 115 83 91 54 62 30 143 106 116 82 92 53 63 29 144 105 117 81 93 52 64 28 118 80 65 27 79 66 51 37 26 119 104 94 78 67 50 38 25 120 103 95 77 68 49 39 24 121 102 96 76 69 48 40 23 145 158 122 101 100 99 98 97 75 74 73 72 71 46 45 44 43 42 21 20 19 18 17 167 130 149 153

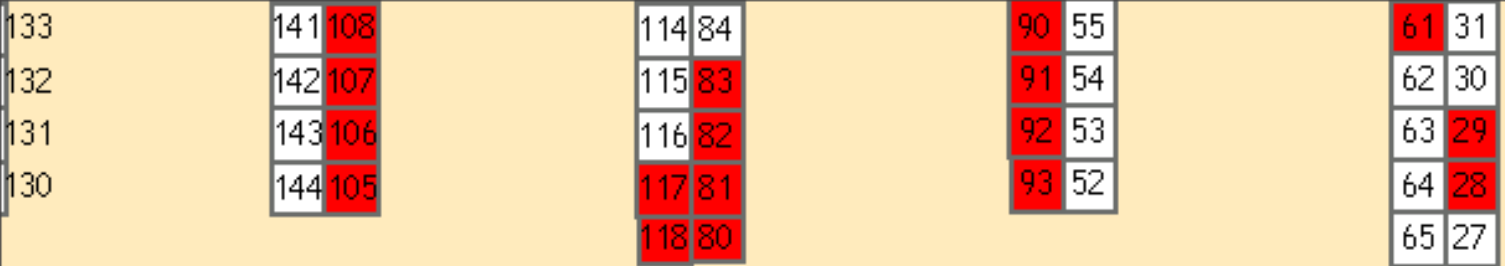
Display Source

1708389.17 318923.50 Feet

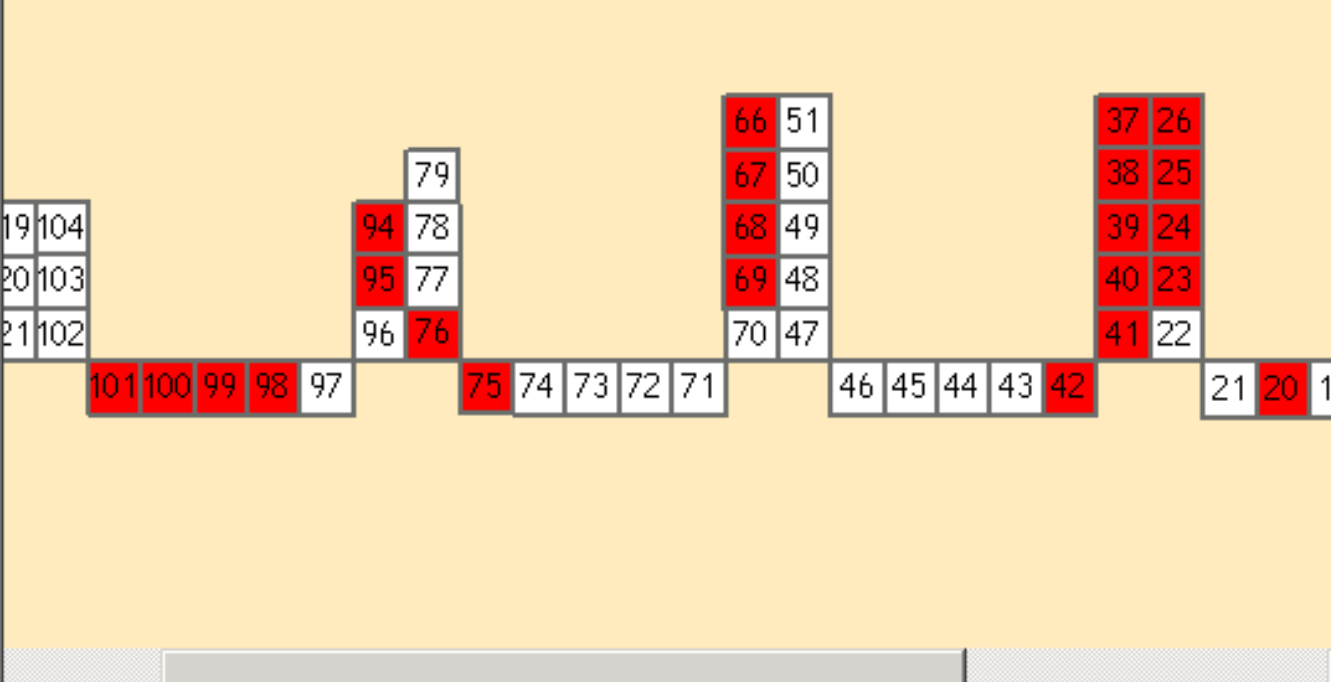
Start GIS - ArcMap - ArcV... weather.com - Ski - Fo... C:\Century\TinyTERM\... EN 28° 8:20 AM



Owners
 OwnersF
 Guest
 GUEST



ID	CHK_IN	CHK_OUT	INT
1092	4/9/2004	4/12/2004	FA
1092	4/9/2004	4/12/2004	FA
2191	4/9/2004	4/12/2004	FN
2392	4/9/2004	4/13/2004	FN
1021	4/9/2004	4/11/2004	FN
2171	4/7/2004	4/11/2004	FN
1121	4/8/2004	4/11/2004	FA
>	<Null>	<Null>	
>	<Null>	<Null>	
>	<Null>	<Null>	
>	<Null>	<Null>	
1721	4/7/2004	4/12/2004	FN
>	<Null>	<Null>	

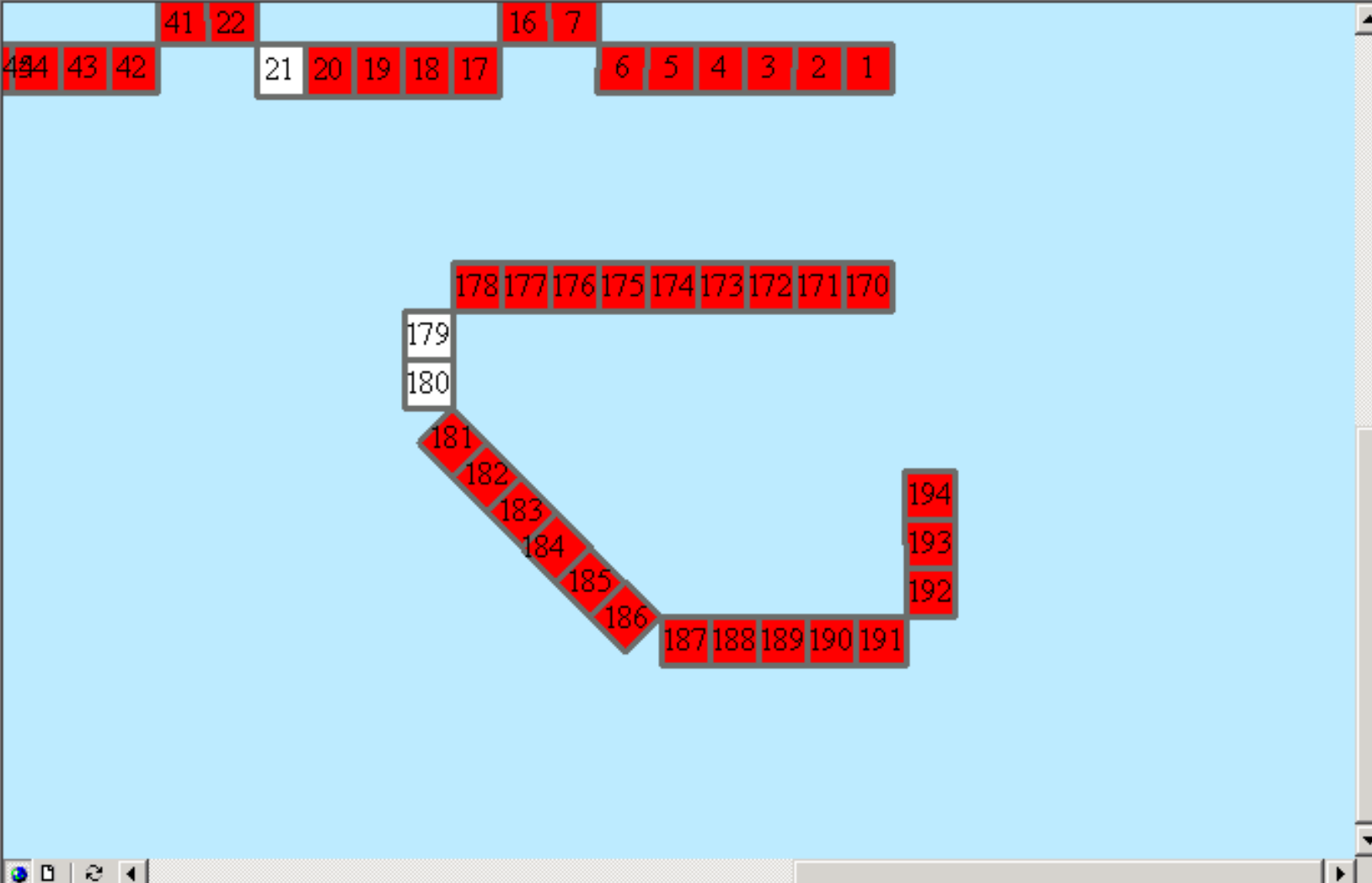




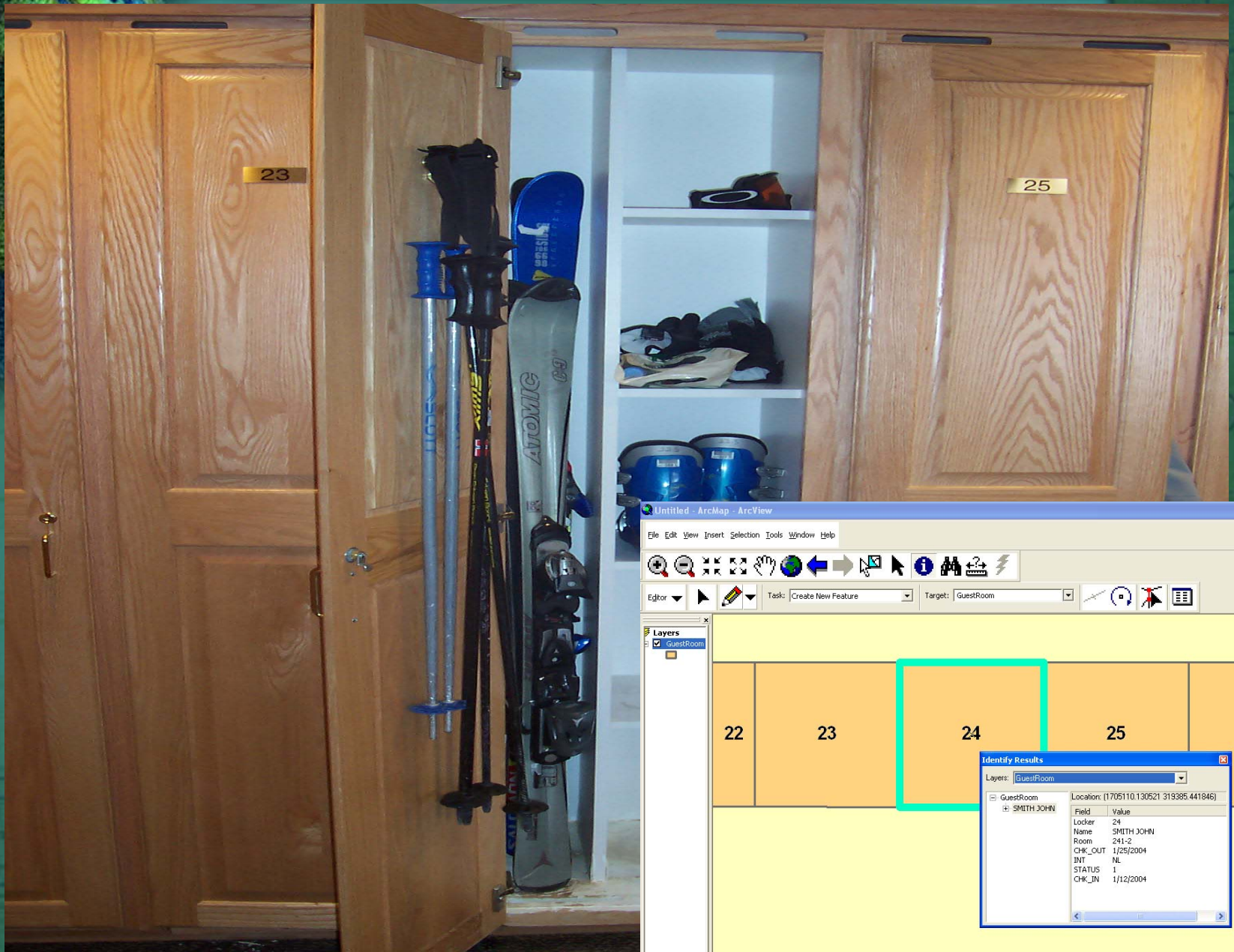
Owners
 Owners

Guest
 GUEST

Display Source



1710451.15 317567.22 Feet



Untitled - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

Editor Task: Create New Feature Target: GuestRoom

Layers

- GuestRoom

Identify Results

Layers: GuestRoom

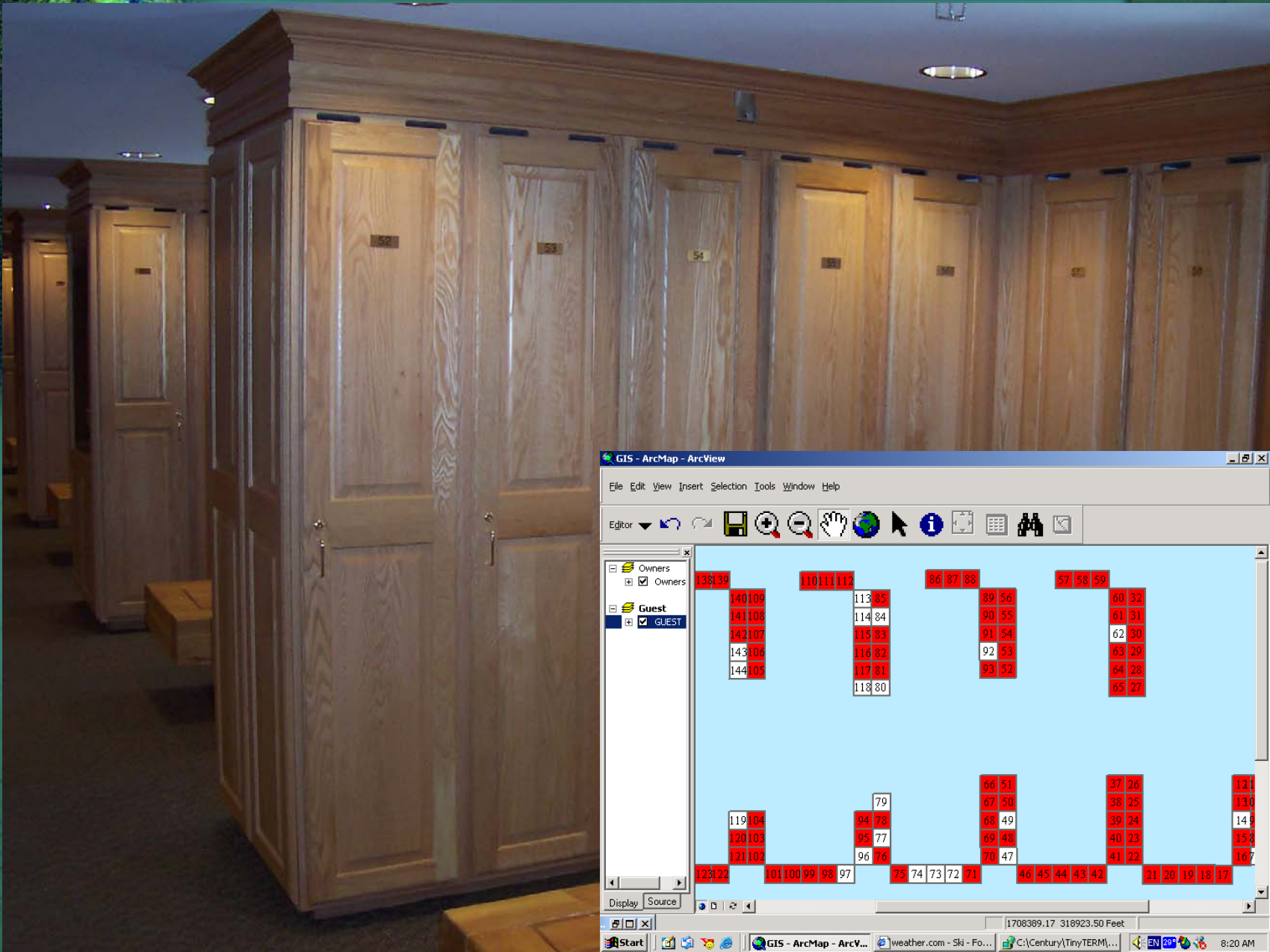
Location: (1705110.130521 319395.441846)

Field	Value
Locker	24
Name	SMITH JOHN
Room	241-2
CHK_OUT	1/25/2004
INT	NL
STATUS	1
CHK_IN	1/12/2004

Display Source

1705284.62 319298.90 Feet

start Microsoft PowerPoint ... Untitled - ArcMap - Ar... 12:13 AM





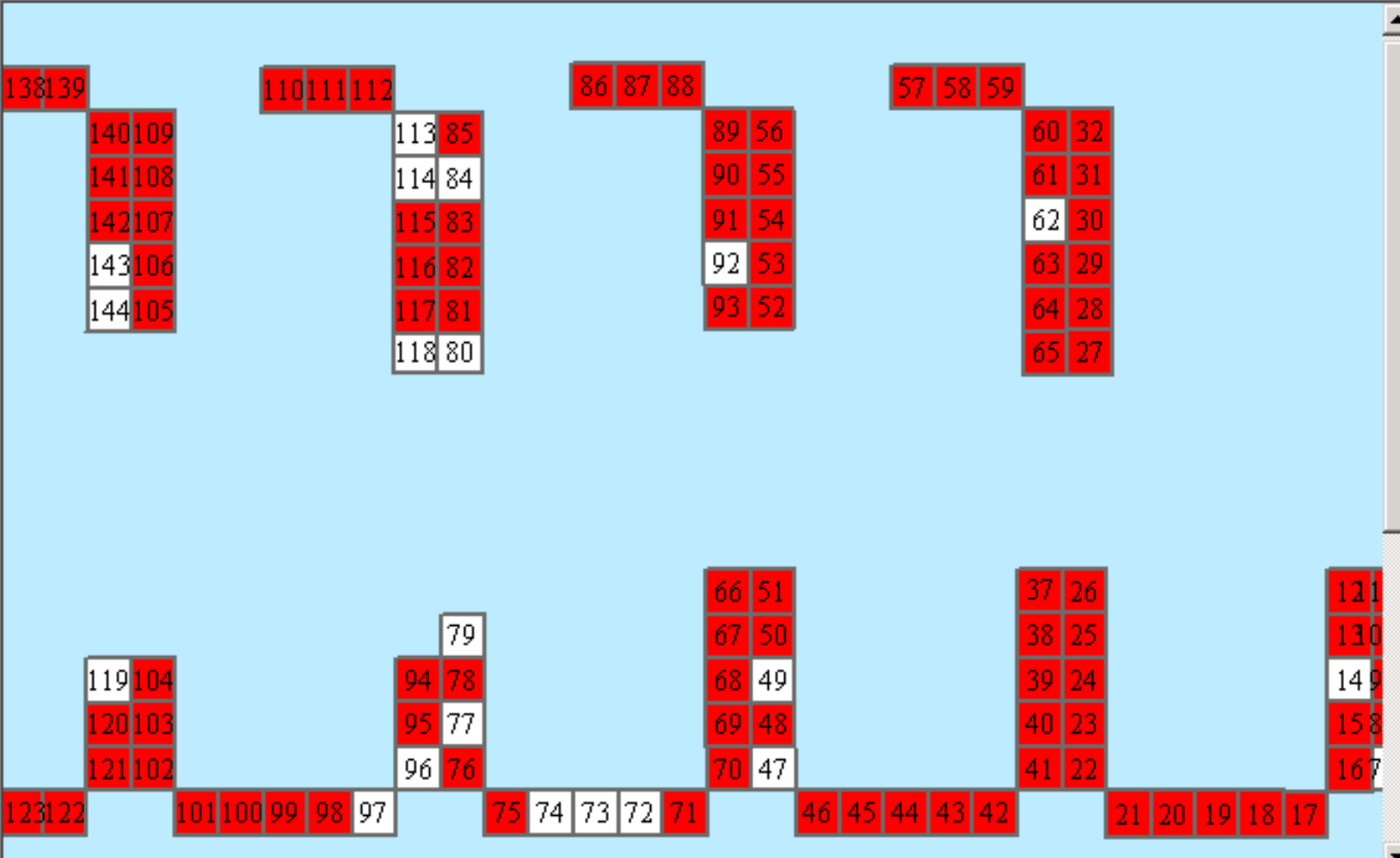
Owners

- Owners

Guest

- GUEST

Display Source





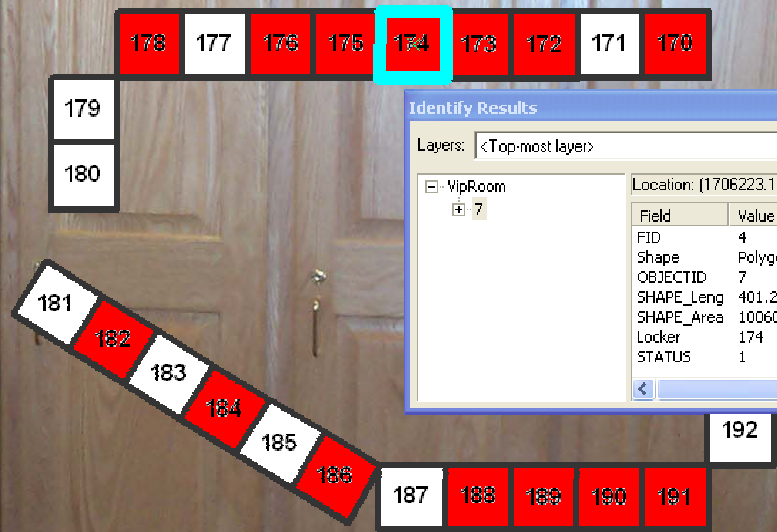
Layers

- GuestRoom

New Data Frame

- VipRoom
 - <all other STATUS
 - 0
 - 1

Display Source



Identify Results

Layers: <Top-most layer>

Field	Value
FID	4
Shape	Polygon
OBJECTID	7
SHAPE_Leng	401.219789
SHAPE_Area	10060.778645
Locker	174
STATUS	1



RUNS

WEATHER

NEW

Partly cloudy (POSSIBLE THUNDER STORM)

Packed powder

BETS 3/24
MR. KING





EXIT

Do Not
Climb On
and Empty
and Return

DRY SYSTEMS

VERANO

AMB

ALPINE
X-MIX

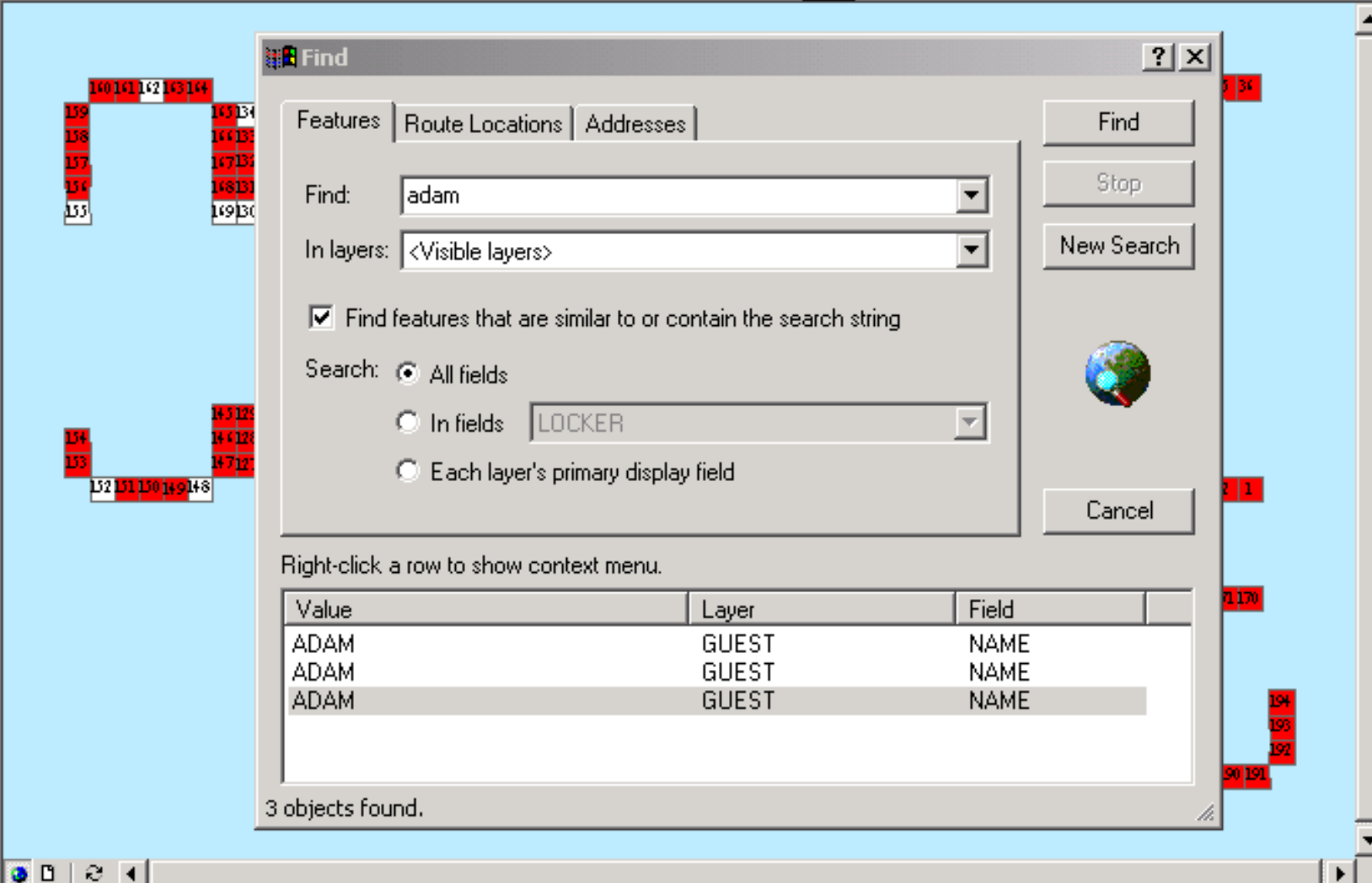




Owners
 Owners

Guest
 GUEST

Display Source



Find

Features: Route Locations | Addresses

Find:

In layers:

Find features that are similar to or contain the search string

Search: All fields
 In fields:
 Each layer's primary display field

Buttons: Find, Stop, New Search, Cancel

Right-click a row to show context menu.

Value	Layer	Field
ADAM	GUEST	NAME
ADAM	GUEST	NAME
ADAM	GUEST	NAME

3 objects found.

04-11-04
8:09 A.M.

STEIN ERIKSEN LODGE
DISPLAY GUESTS BY NAME

TERMINAL: T71

Name	Booking	Folio	Arrival	Days	Type	Rms	Gsts	Rate
------	---------	-------	---------	------	------	-----	------	------

Available Functions

1. Look-Up <F6>	12. Graph	23. In-Hse
2. Guests <F7>	13. Currncy	24. Events
3. Spread <F8>	14. Intfcs	25. Rm Blks
4. H/Count <F9>	15. Departs	26. PlnAvl
5. GstMsgs <F10>	16. Arrivls	27. PrpInfo
6. Help	17. E-Mail	28. MulAvl
7. KeyDisp	18. Wake-Up	29. BrRqst
8. Calc	19. Rates	30. ResDisp
9. Photo	20. SpAsst	31. AltFol#
10. Drawer	21. RmDisp	32. RmStat
11. Avail	22. AudStat	

ENTER SELECTION <F4>=EXIT:

ENTER LAST NAME:

- F5-Library
- F6-Look-Up
- F7-Guests
- F8-Spread
- F9-H/Count
- F10-GstMsgs

04-11-04
8:09 A.M.

Name Booking

Available Functions

1. Look-Up <F6>
2. Guests <F7>
3. Spread <F8>
4. H/Count <F9>
5. GstMsgs <F10>

ROOM	CHK_IN	CHK_OUT	INT
1092	4/9/2004	4/12/2004	FA
1092	4/9/2004	4/12/2004	FA
2191	4/9/2004	4/12/2004	FN
2392	4/9/2004	4/13/2004	FN
1021	4/9/2004	4/11/2004	FN
2171	4/7/2004	4/11/2004	FN
1121	4/8/2004	4/11/2004	FA
>	<Null>	<Null>	
>	<Null>	<Null>	
>	<Null>	<Null>	
>	<Null>	<Null>	
1721	4/7/2004	4/12/2004	FN
>	<Null>	<Null>	

STEIN ERIKSEN LODGE

GIS.mxd - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

Editor

Legend:

- Owners
 - OwnersF
- Guest
 - GUEST

Map Coordinates: 1706439.53 319113.96 Feet

ON <F

Up **F7-Guests** **F8-Spread** **F9-H/Count** **F10-GstMsgs**

how: All Selected Records (0 out of 194)

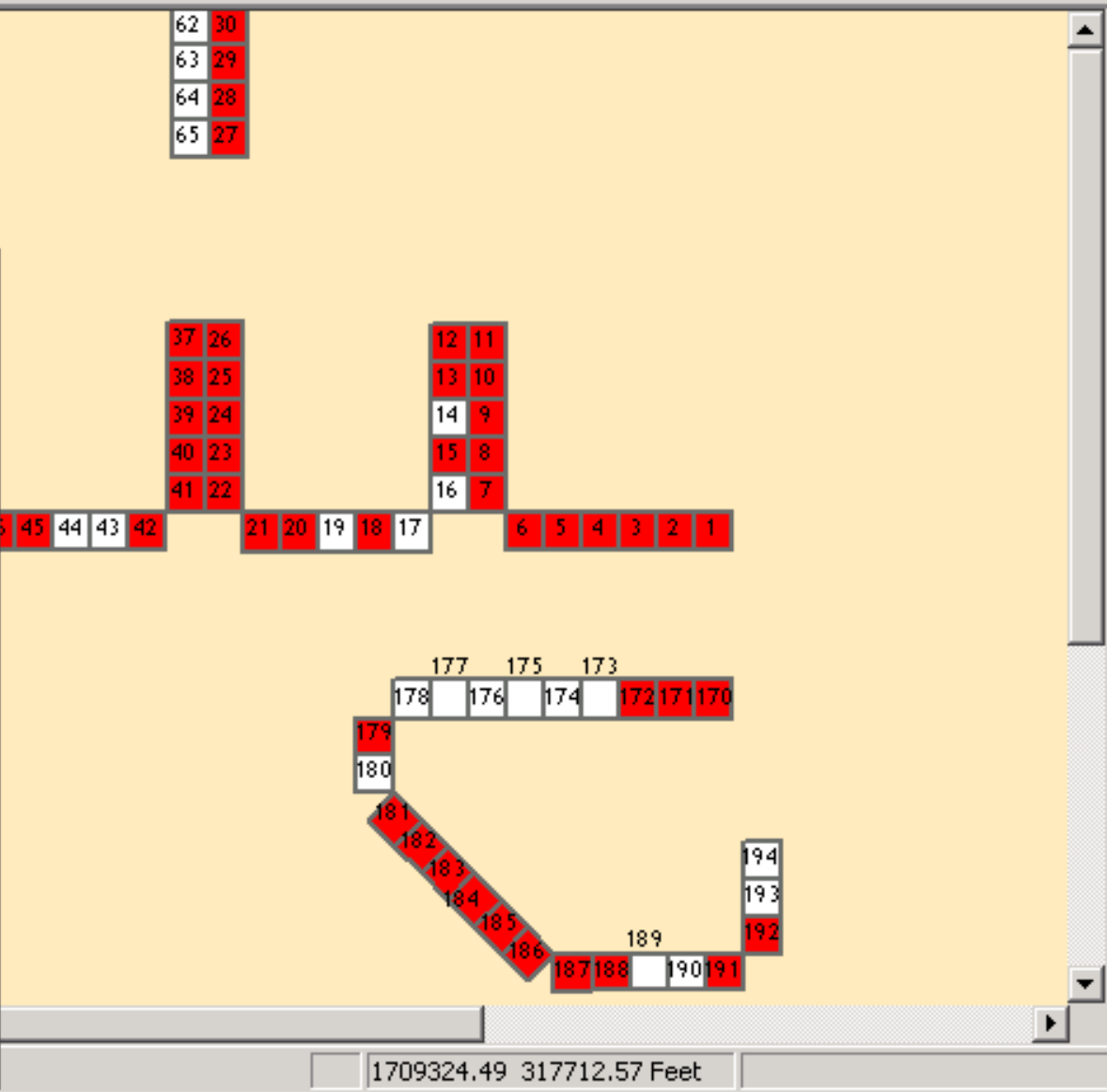


Edit View Insert Selection Tools Window Help

Owners
 OwnersF
 Guest
 GUEST

115	83	91	54	62	30
116	82	92	53	63	29
117	81	93	52	64	28
118	80			65	27

OUT	INT_	VIP	STATUS
004	FN		1
004	FN		1
004	FN		1
004	FA		1
004	FA		1
004	FA		1
004	FN		1
004	FA		1
004	FN		1
004	NL	<Null>	1
			0
004	FN		1
			0
			0
	NL		1
			0
004	FN		1





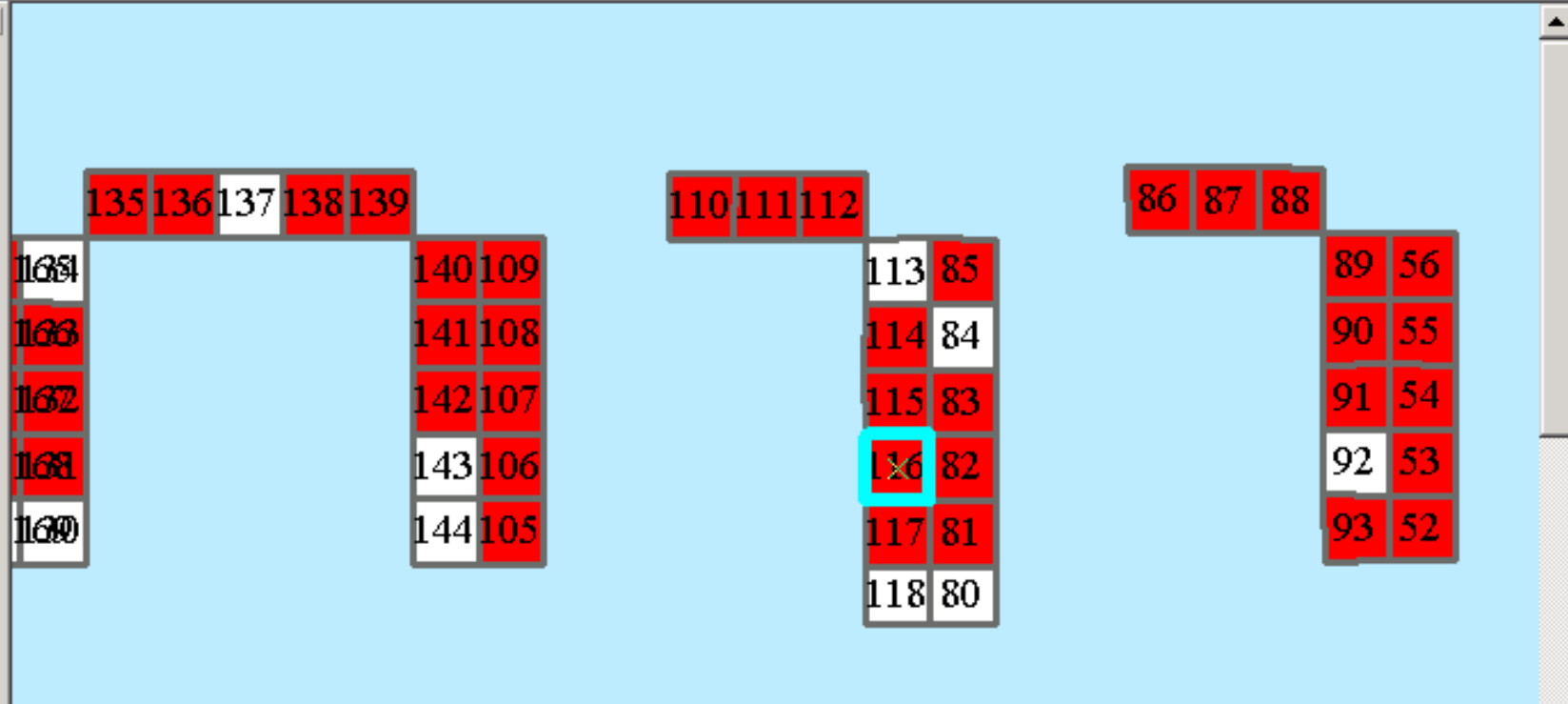
Owners

- OwnersRoom

Guest

- GUEST

Display Source



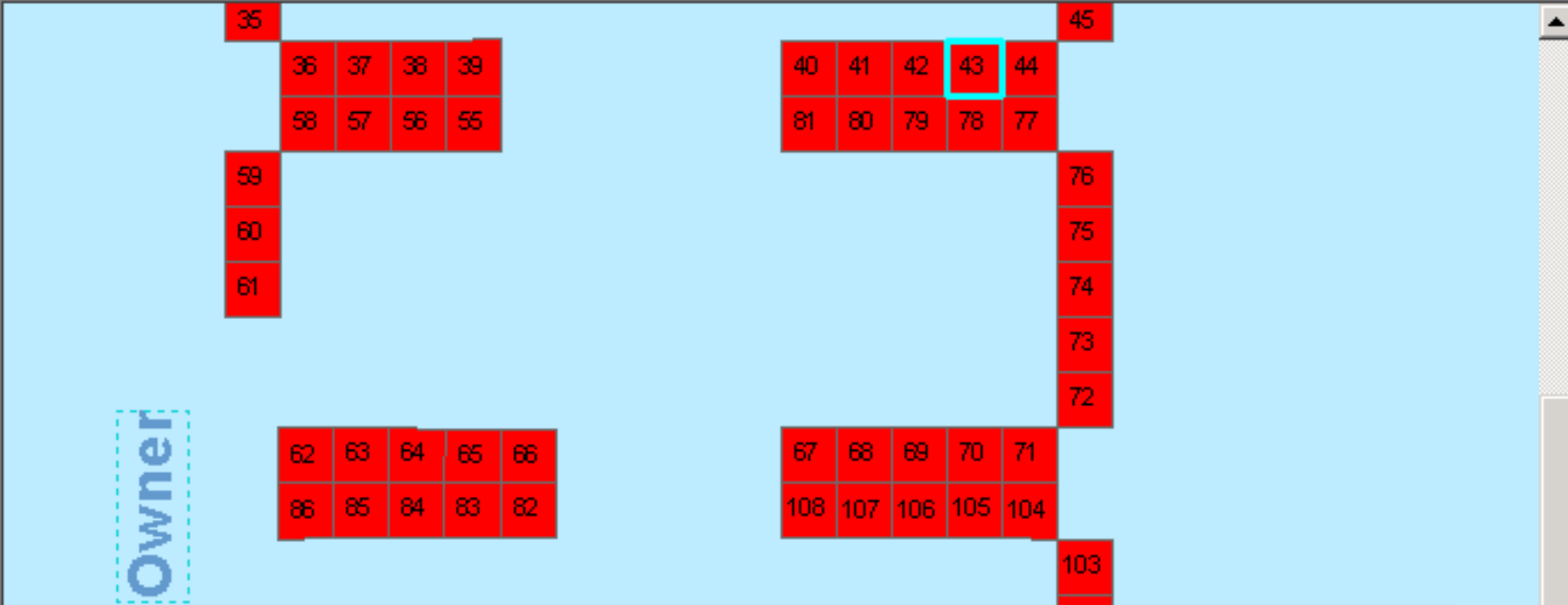
Attributes of GUEST

LOCKER	NAME	ROOM	CHK_IN	CHK_OUT	INT_	VIP	STATUS
114	MILTON	1161	3/12/2004	3/16/2004	HM		1
115	CHIPMAN	2184	3/13/2004	3/15/2004	RG		1
116	CHIPMAN	2184	3/13/2004	3/15/2004	RG		1
117	GRIES	2343	3/14/2004	3/17/2004	RG		1
118		<Null>	<Null>	<Null>			0
119		<Null>	<Null>	<Null>			0



Owners

- OwnersR
- Guest
- GUEST



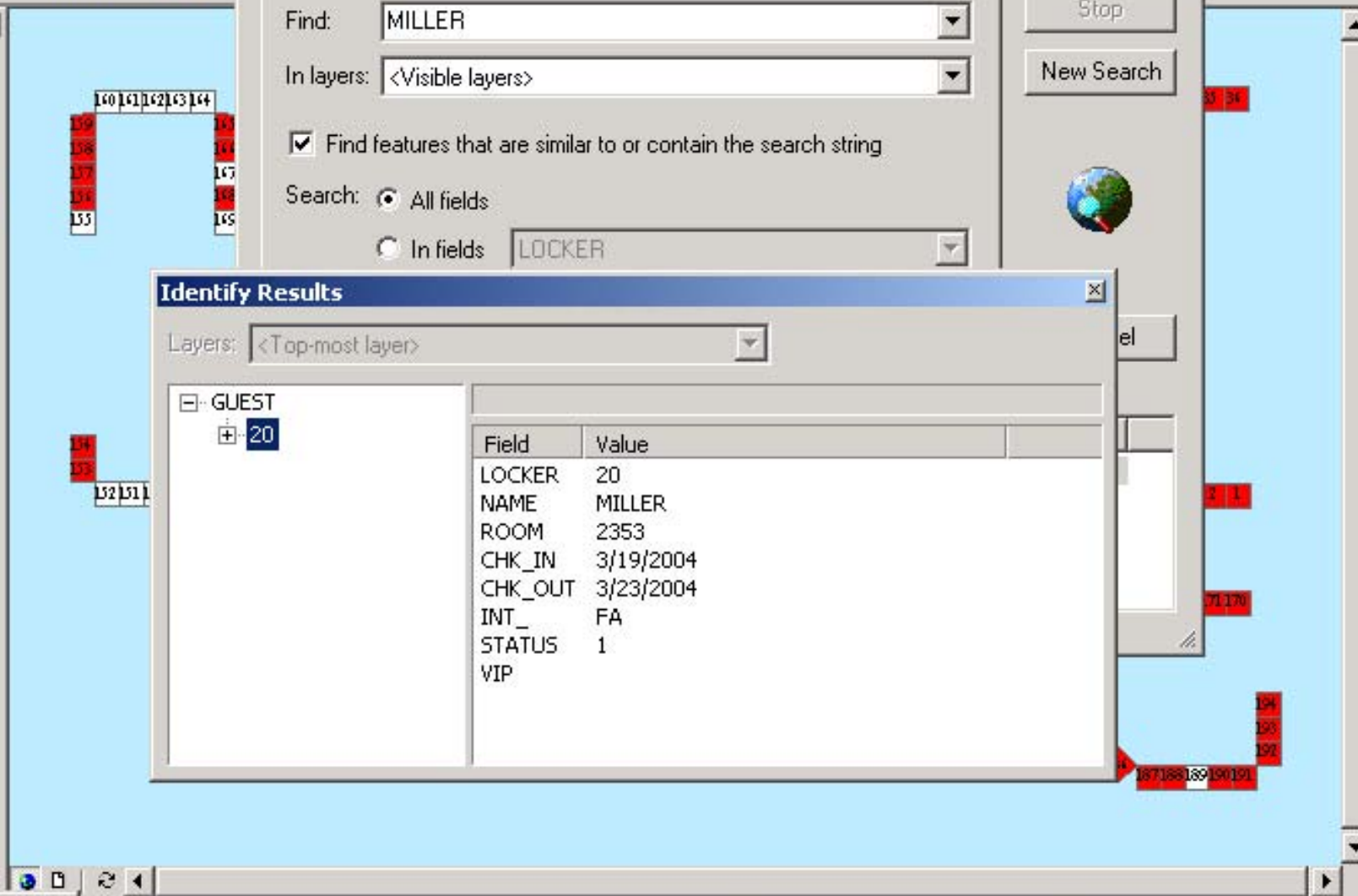
Attributes of OwnersRoom

Locker	NAME	ROOM	CHK_IN	CHK_OUT	INT_	STATUS
43	ANDERSON. T	232	<Null>	<Null>	FA	1
44	ANDERSON. T	232	<Null>	<Null>	FA	1
45	ANDERSON. T	232	<Null>	<Null>	FA	1
46	WILSON	138	<Null>	<Null>	FA	1
47	WILSON	138	<Null>	<Null>	FA	1
48	WILSON	138	<Null>	<Null>	FA	1
49	ROGERS	235	<Null>	<Null>	FA	1
50	ROGERS	235	<Null>	<Null>	FA	1
51	ROGERS	235	<Null>	<Null>	FA	1

Layers:

- Owners
 - OwnersRc
- Guest
 - GUEST

Display Source



Find

Features: Route Locations | Addresses

Find:

In layers:

Find features that are similar to or contain the search string

Search: All fields In fields

Buttons: Find, Stop, New Search

Identify Results

Layers:

- GUEST
 - 20

Field	Value
LOCKER	20
NAME	MILLER
ROOM	2353
CHK_IN	3/19/2004
CHK_OUT	3/23/2004
INT_	FA
STATUS	1
VIP	

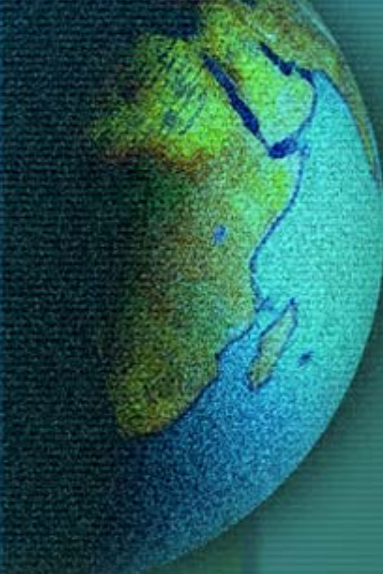


Part III



Hospitality Industry and Tourism

GIS Decision-tree

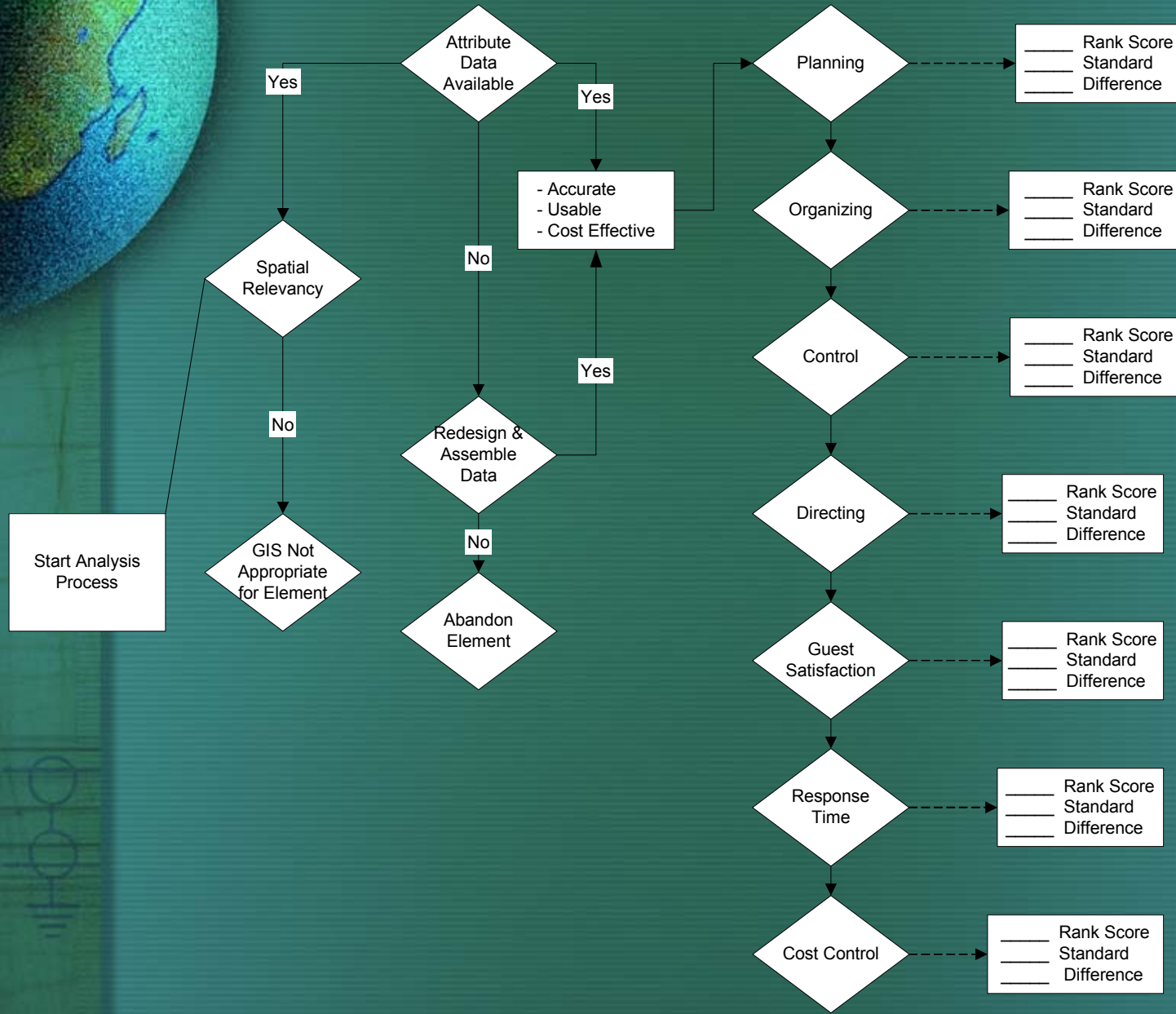




Operational Elements Decision Factors

- Degree of competency of person completing the decision tree.
 - Level of individual, department, and property levels of buy-in to process.
 - Willingness and ability to distinguish indirect and direct costs and benefits.
- 
- 

Hospitality Industry and Tourism GIS Decision Tree: Unit Level





The Application of GIS to Hospitality Industry Operations

Thank you.

Wayne C. Guyette, Ph.D. Tennessee State University

Nicolas Labombarda, Stein Eriksen Lodge

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