

GeoSpatial Information Mobility

Francois Valois, MBA, Director of Product Management



Summary

- GeoSpatial Mobility is rapidly driven by consumer economic trends
- Now is the time to adopt it
- Bentley offers state of the art
 - mobile applications such as Bentley Map Mobile
 - servers such as Bentley Geo Web Publisher
- Bentley offers third party development SDK for quickly building custom applications



Windows

GeoSpatial Information Mobility

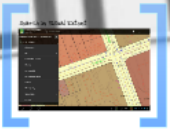
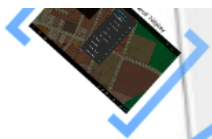
Francois Valois, MBA, Director of Product Management



#32 in new category
• User interface needs to be designed for mobile work
• Full Internet connectivity
• Tablets performance compared to desktop computer
• We work with Big Data

An App for Infrastructure Professionals

Mobile Mobility Strategy



Mobile Mobility Strategy

Mobile Mobility Strategy

Why is GeoSpatial Mobility Growing?

Before

- Tablet PC used to be expensive
- Geospatial data used to be secret or protected
- People were not used to mobility
- Database used to be server based only
- Costly server infrastructure was required

Now

- Powerful tablets are available at low cost
- More geospatial data is available freely or low cost
- People expect mobility due to non-professional life
- Light weight databases now exist
- Cloud-based services now exist

Why is GeoSpatial Mobility Growing

Before

- Tablet PC used to be expensive
- Geospatial data used to be secret or protected
- People were not used to mobility
- Database used to be server based only
- Costly server infrastructure was required

Now

- Powerful tablets are available at low
- Geospatial data is available freely

- People were not used to mobility
- Database used to be server based only
- Costly server infrastructure was required

Now

- Powerful tablets are available at low cost
- More geospatial data is available freely or low cost
- People expect mobility due to non-professional life
- Light weight databases now exist
- Cloud-based services now exist

Mobile Apps for Infrastructure Professionals

Design



Site Inspections
Site Meeting
Design Reviews
Punch List
and more...

Construction



Safety Inspections
Constructability Reviews
Material Management
Progress Monitoring
Quality Inspection
Commissioning
and more...

Operations



Operational Safety
Maintenance Inspection
Performance Monitoring
Quality Inspection
Compliance Checking
and more...



Many Use Cases for Field Apps



Still we have challenges

- User interface needs to be designed for mobile workers
- Field Internet Connectivity
- Tablets performance compared to desktop computer
- We work with Big Data!

Tablets performance compared
to desktop computer

We work with Big Data!

Bentley mobile i-models



ID	Element	Type	Level	Model	Owner
1		Wall	Walls	3d Floor	
2		Door	Openings	Entry Structure	
3		Beam	Concrete	RoofZone 1	


```
SELECT Id FROM Element WHERE Type='Wall' AND Model='3d Floor'
```



- A single file
- All data "normalized" into relational tables
- Every DGN element = row in database
- All "application" properties in relational tables
- Query-able from SQL via SQLite interfaces
- Visualization tools for DGN views, drawings, sheets, etc.



ID	Element	Type	Level	Model	Owner
1		Wall	Walls	3d Floor	
2		Door	Openings	Entry Structure	
3		Beam	Concrete	RoofZone 1	



```
SELECT Id FROM Element WHERE Type='Wall' AND  
Model="3d Floor"
```

SQLite

- A single file
- All data “normalized” into relational tables
- Every DGN element = row in database
- All “application” properties in relational tables
- Query-able from SQL via SQLite interfaces
- Visualization tools for DGN views, drawings, sheets, etc.

Model	Owner
floor	
structure	
Zone	

AND

Mobility Services: Transforming Data for Field Apps



 = Not available in first release

OR

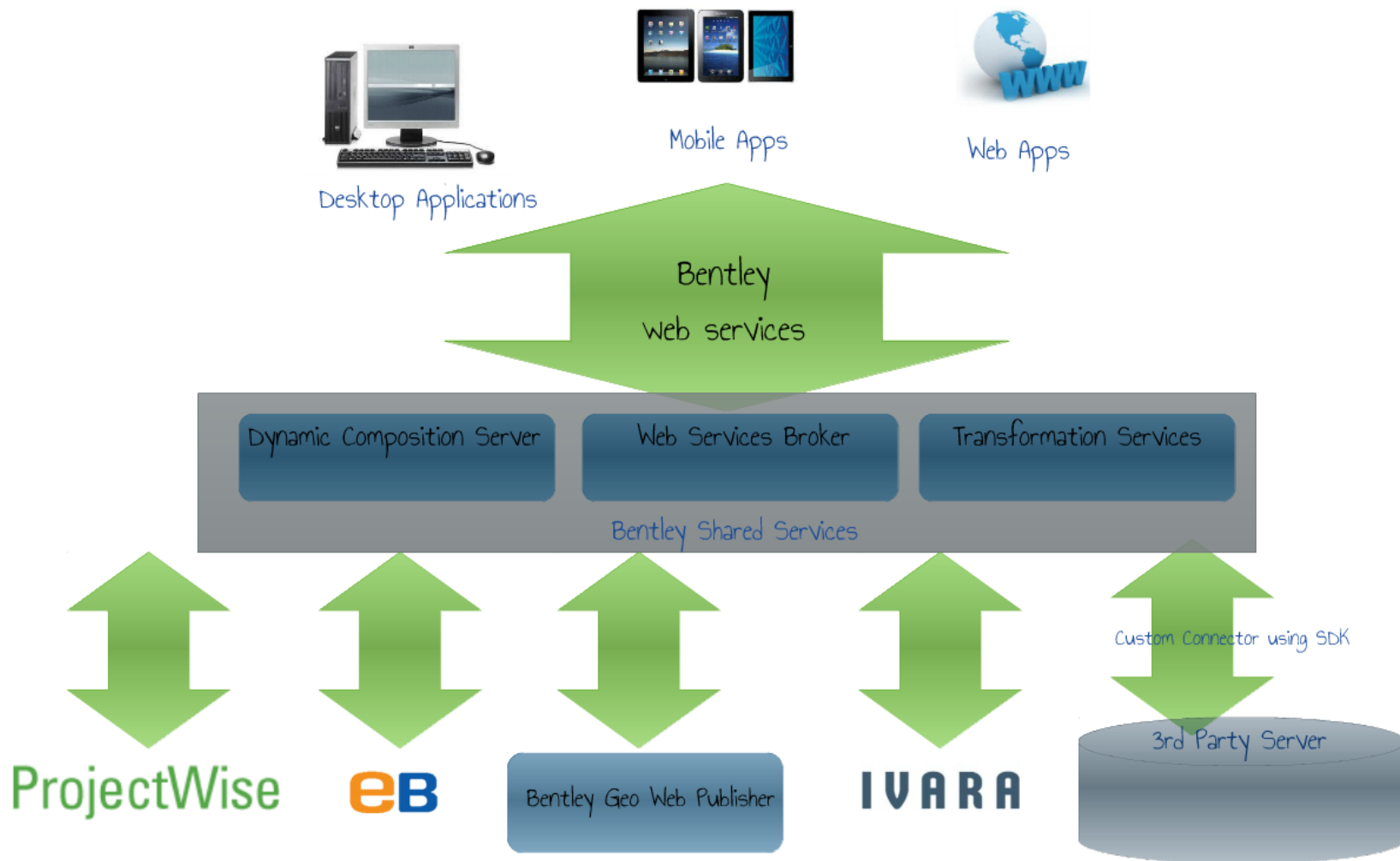
Bentley Map Enterprise



Mobile

i-model

Bentley "Mobility Services" for Mobile Apps





Bentley Map Mobile



Why Bentley Map Mobile?

- Need easy access to up-to-date seamless engineering accurate information and documentation to support:
 - Inspections
 - Base mapping verification
 - Disaster response
 - Installing new services
 - Maintenance and repair operations
- Need a Mobile application running on Android tablet
- Need GPS enabled Mobile application
- Need a Mobile application working disconnected from the Internet

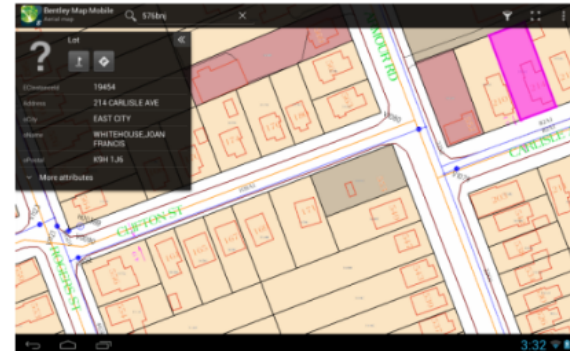
Bentley Map Mobile - Target Users

- Installation and Maintenance Field Technicians
- Construction and Engineering Field Technicians
- Contractors and Cable Locators
- Inspections Crews
- First Responders
- Mapping technicians
- Military personnel
- GIS professionals

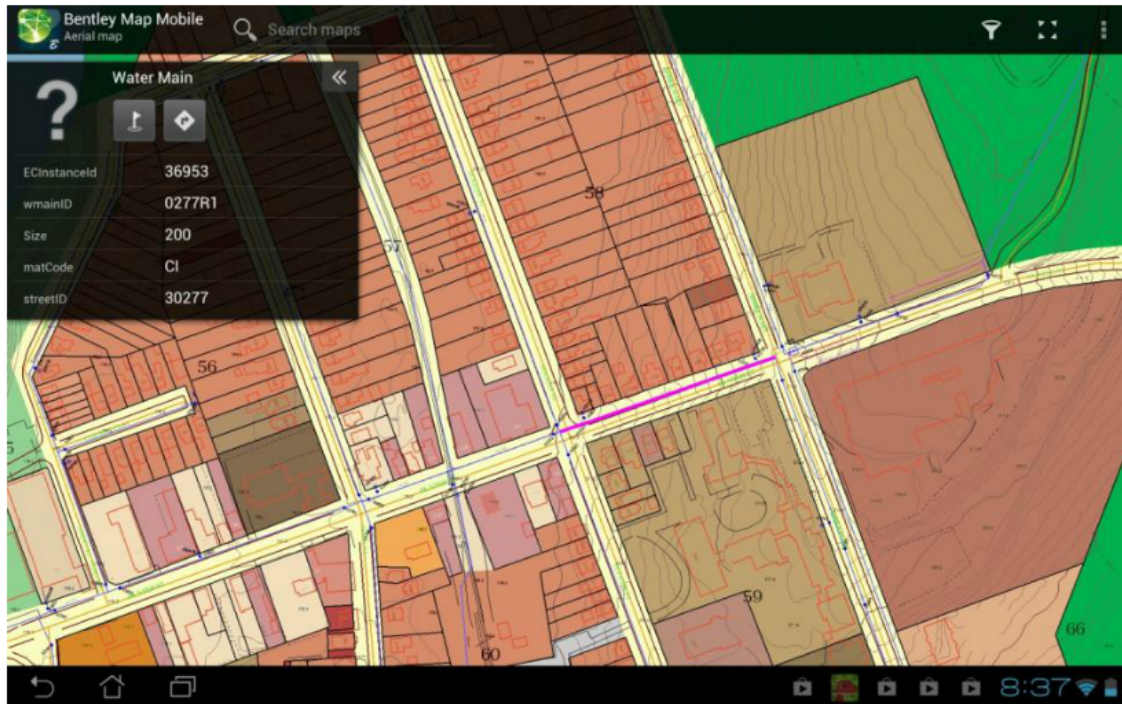


Bentley Map Mobile

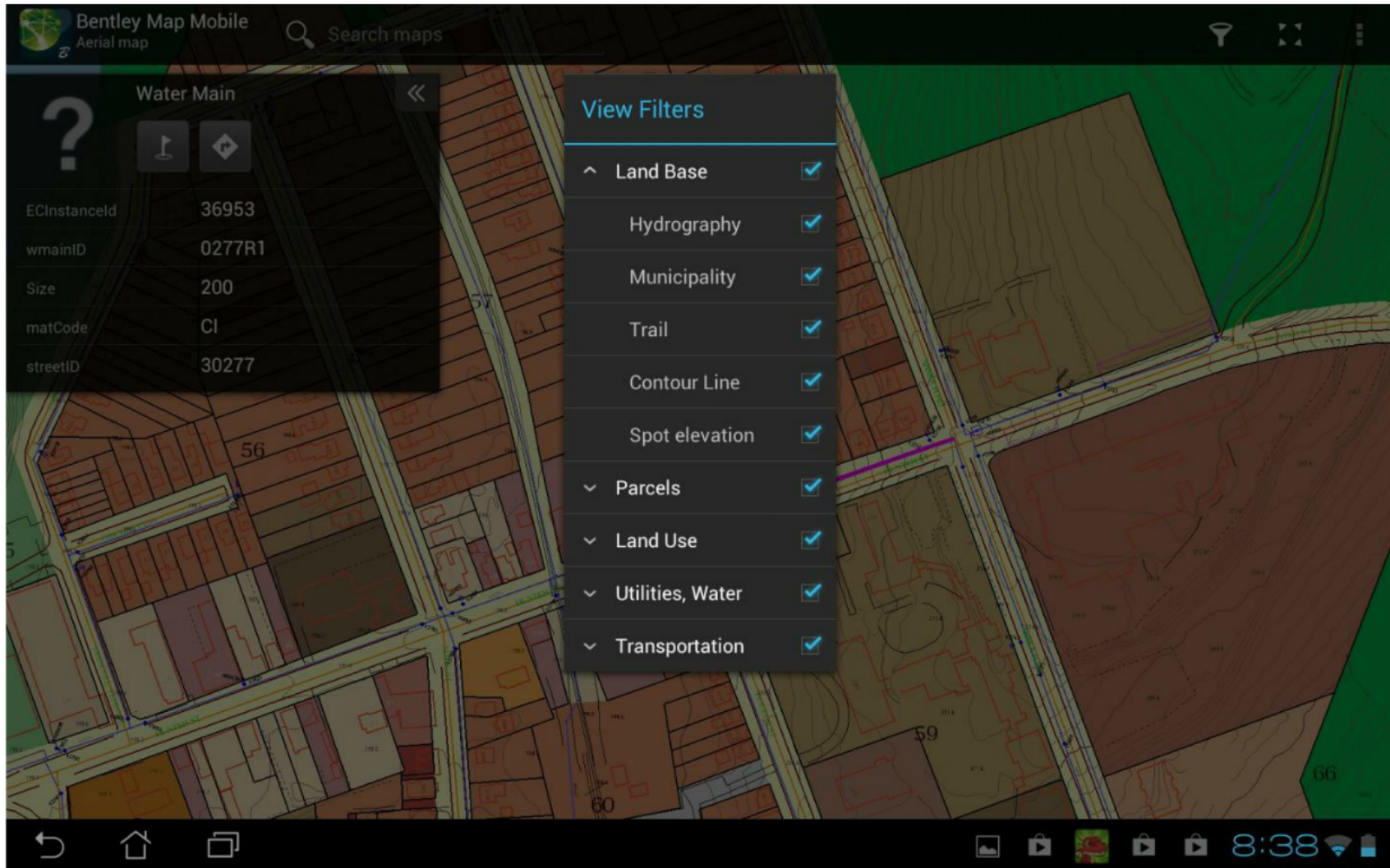
- Fast access to geospatial data in the field
- Locate assets based on query or GPS location
- Disconnected mode for standalone operation
- Full query and review of geospatial data



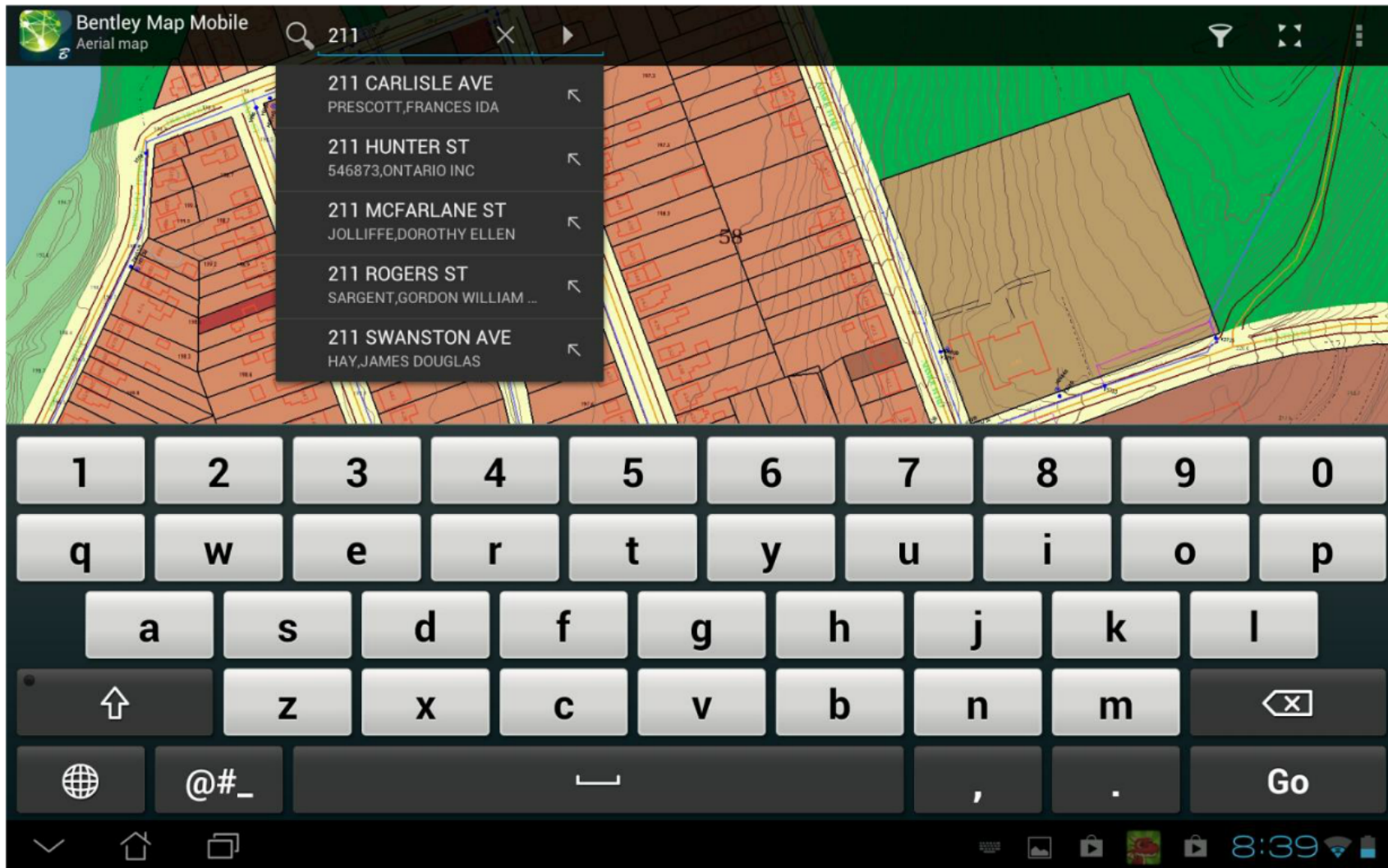
Viewing Intelligent GeoSpatial Data



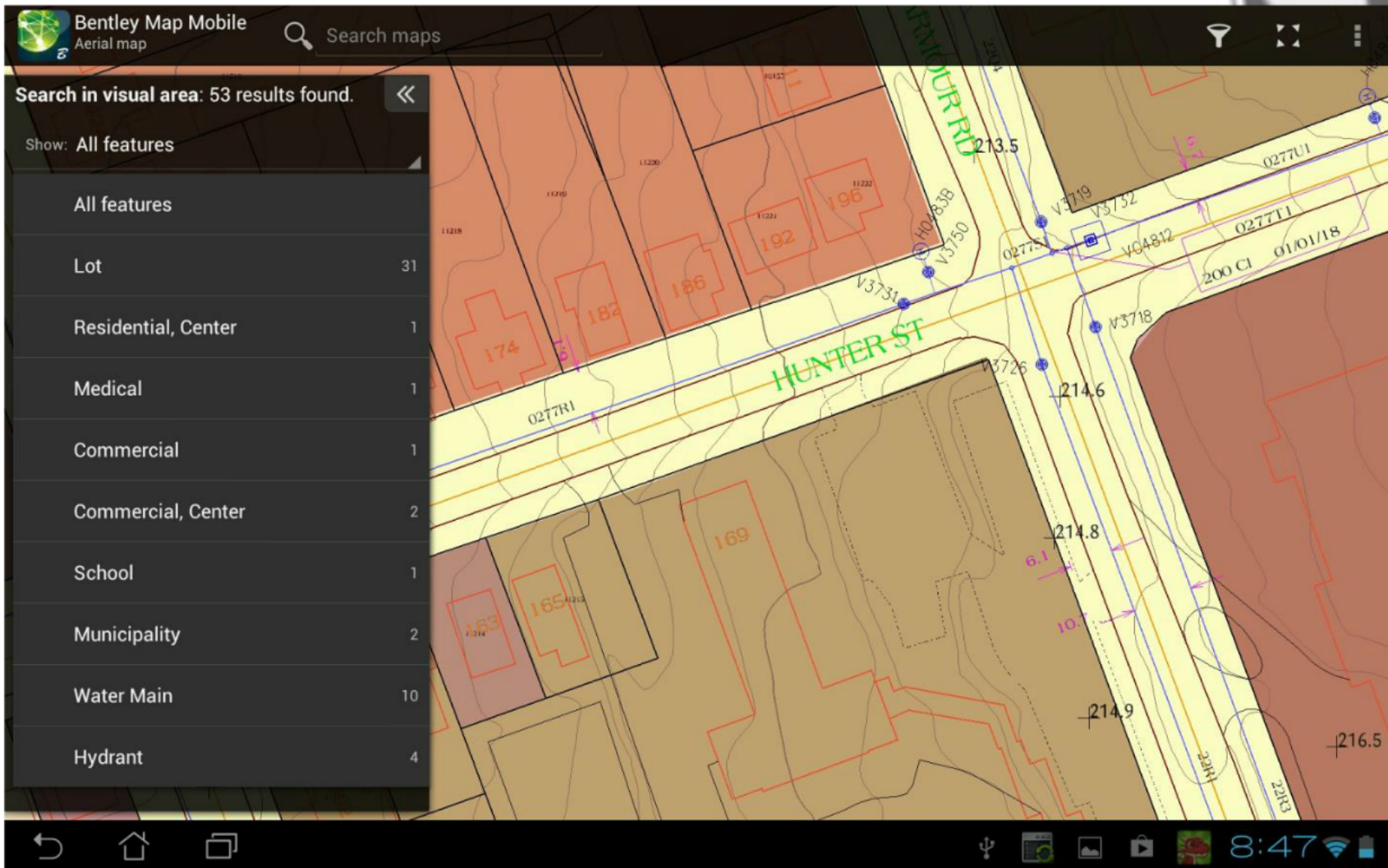
Control GeoSpatial Features Display



Free Text Search and Locate GeoSpatial Features



Search in Visual Extent



Bentley Map Mobile

- True native mobile App
 - Free extension to Bentley Map Enterprise for simple Desktop to Mobile publishing
- Android
- Freely available on Google Play Store (end of Q1 2013)
- Bentley Geo Web Publisher mobile publishing upcoming in 2013
- Windows 8 and iPad support (not in the initial release) – based on user demand



Bentley Map Mobile: Field Data Access

The screenshot displays the Bentley Map Mobile application interface. At the top, the app name "Bentley Map Mobile" and "Aerial map" are visible, along with a search bar containing "CVD2". A dark overlay on the left side shows a "Hydrant" data popup with the following details:

Hydrant	
ID	36890
Capacity Code	B
Hydrant ID	H0005
Manufacturer	CVD2
Spin Direction	L
More attributes	

The background map shows a street layout with several hydrant locations marked by blue squares and purple circles. One hydrant is highlighted with a blue square and labeled "V1082". Other hydrants are labeled "V1082" and "V1058". The map also shows property boundaries with addresses such as "595", "604", "592", and "591". A street name "MCFARLANE" is visible in green text. The bottom of the screen shows the Android navigation bar with the time "8:12" and various status icons.

Windows 8

D



Need to build a custom application? - Bentley Mobile Development Tools

- Available through the Bentley Developer Network
- Develop on multiple platforms
- Use industry standards
- Provide access to the right servers for the right content
- Reference code examples to create graphically rich apps

i-model SDK



Bentley Web Services





درب



Summary

- Geospatial Mobility is rapidly driven by consumer economic trends
- Now is the time to adopt it
- Bentley offers state of the art:
 - mobile applications such as Bentley Map Mobile
 - servers such as Bentley Geo Web Publisher
- Bentley offers third party development SDK for quickly building custom applications

