

Frisco ISD

Camera Health Check Application



SCAU

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OVERVIEW

- BACKGROUND
- DEVELOPMENT
- CHALLENGES
- RESULTS
- FUTURE

This presentation will review a custom application developed using ESRI's WAB Developer. Using the the Launchpad Theme, this app contains some out-of-the-box widgets and two custom JavaScript 3.x widgets. We will review the app, custom widgets, development challenges, results and what's next!



BACKGROUND

Me

City of Frisco

City of Fort Worth

Denton County

University of North Texas





BACKGROUND

City & ISD

- **WHO**

- Frisco PD Officers who are FISD Student Resource Officers

- **WHAT**

- SOP – SAFER team recognized need for a formal process to verify camera video feeds

- **WHY**

- Reliability – Vendor can miss broken cameras and fail to communicate changes to existing & new





72

SCHOOLS

- 12 High Schools
- 17 Middle Schools
- 43 Elementary Schools



35

SROs

- 1 x High School
- 1 x Middle School + Elementary feeder
- +Extra Rovers for Elementary Schools

4,000+

SECURITY CAMERAS



240

OFFICERS

- 300+ Daily CFS
- 227,000+ Residents
- 70+ Square Miles of City



FISD

72

City of Frisco
Town of Little Elm
City of McKinney
City of Plano
The Colony

Elementary

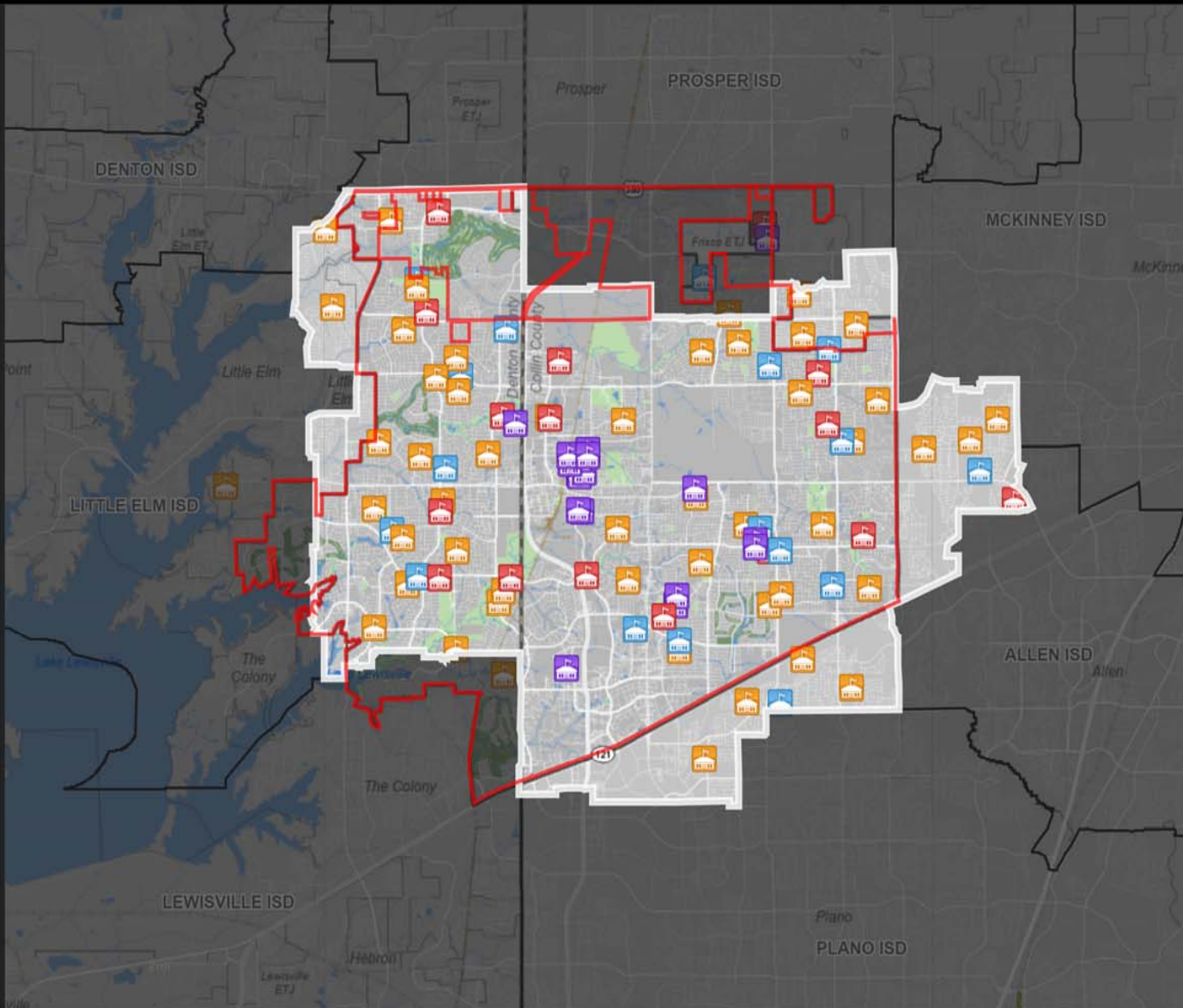
43

Middle

17

High

12



FRISCO

80

Frisco ISD
Lewisville ISD
Prosper ISD

Elementary

47

Middle

18

High

15



DEVELOPMENT

- **References**
- **Data**
- **Platform**
- **WAB**
- **App**
- **Widgets**

DEVELOPMENT



References

- ESRI API for JavaScript 3.43
 - <https://developers.arcgis.com/javascript/3/jsapi/>
- ESRI API JavaScript 3.43 Samples
 - <https://developers.arcgis.com/javascript/3/jssamples/>
- ESRI Community
 - <https://community.esri.com/>
- ESRI Widget Manifest
 - <https://developers.arcgis.com/web-appbuilder/guide/widget-manifest.htm>
- GitHub
 - <http://esri-es.github.io/Web-AppBuilder-Custom-Widgets/>
- W3 Schools
 - <https://www.w3schools.com/>
- People!

DEVELOPMENT



Data

• SOURCE

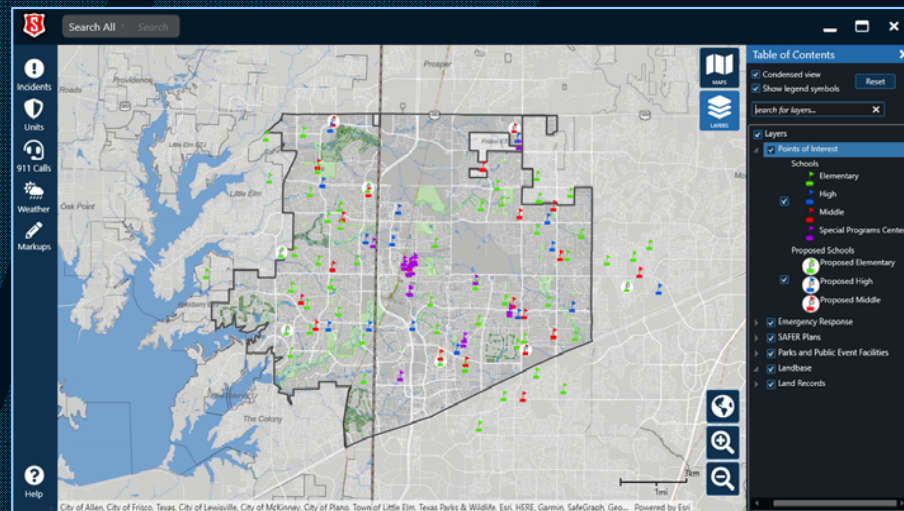
- 1 Service Vendor (2 Camera Vendors)
 - Currently in process of transitioning between camera vendors: SALIENT → WAVE
 - Code has been temporarily added to the widget to differentiate between the unique vendor URL's

• ACCESS

- Readily available thanks to the SAFER Program

• FORMAT

- Map Service (Editable)
- SQL views for tracking progress




DEVELOPMENT

Platform



GIS

SRO

-  ArcGIS API for JavaScript 3.43
-  ArcGIS Web AppBuilder 2.26
-  ArcGIS Enterprise 10.7.1



DEVELOPMENT

Web AppBuilder

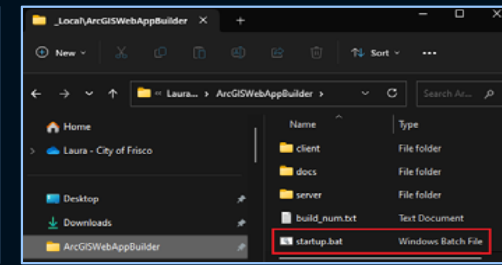
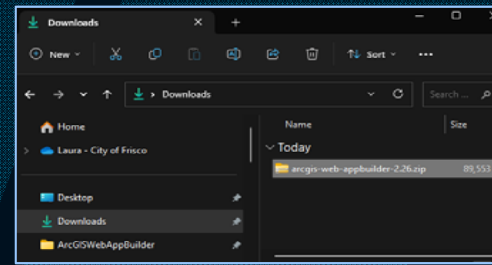


The screenshot shows the ArcGIS Developers website. The main heading is "ArcGIS Web AppBuilder" with the latest release "v2.27 - March 15, 2023". Below this, there are two tables of previous releases. The first table lists "v2.26 - November 30, 2022" with a download size of 87.4 MB and a SHA256 checksum. The second table lists "v2.25 - July 20, 2022" with a download size of 82.8 MB and a SHA256 checksum. Each table entry includes a download link.

Type	Size	SHA256 checksum
Download	87.4 MB	000fc802339fe4465e4d96c39c06cb06455b02e4e8bf81121bd5b020f7ee2f36

Type	Size	SHA256 checksum
Download	87.4 MB	9e5fa8f44b6d9dabc5b56a0e8ad0198c55633be27f512951ea7059911ab06478

Type	Size	SHA256 checksum
Download	82.8 MB	a90d01e547b6d4993b79e502f662b432163920f6837b933b05489c8d7ed4565



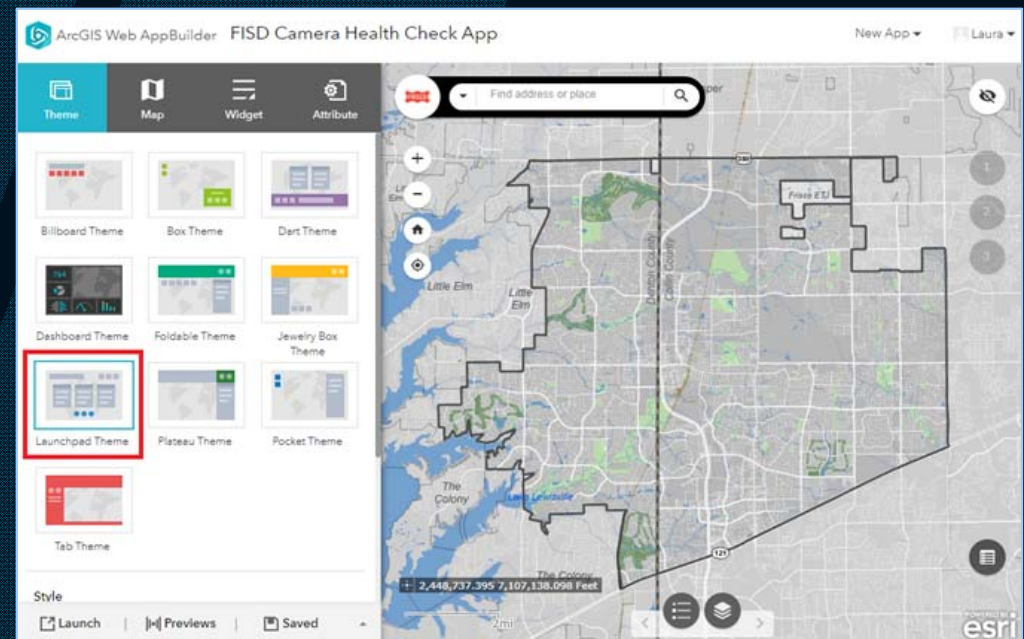
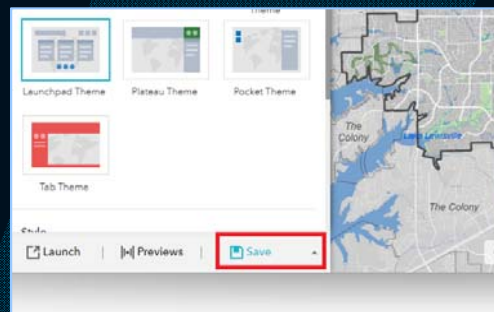
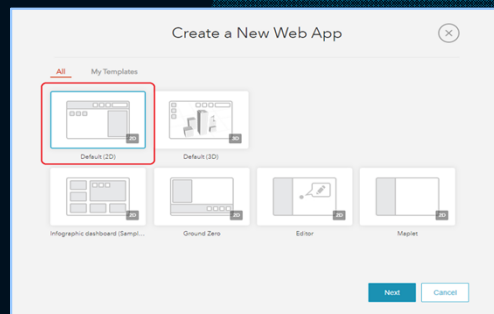
```
Web AppBuilder for ArcGIS
Press any key to continue . . . Server listening tcp connection on port 3344 in development mode
[2023-04-18T13:38:15.374] [INFO] repo - Read repository items: C:\ArcGISWebAppBuilder\client\stemapp\widgets
Server listening http connection on port 3345 in development mode
Server listening https connection on port 3346 in development mode

[2023-04-18T13:38:39.336] [INFO] repo - Read repository items: C:\ArcGISWebAppBuilder\client\stemapp\themes
[2023-04-18T13:38:42.003] [INFO] repo - Read repository items: C:\ArcGISWebAppBuilder\client\stemapp3d\widgets
[2023-04-18T13:38:07.108] [INFO] repo - Read repository items: C:\ArcGISWebAppBuilder\client\stemapp3d\themes
.....Repository items refreshed.....
```




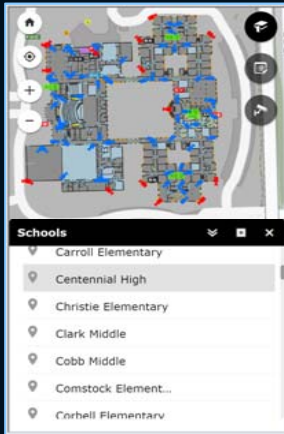
DEVELOPMENT

Application

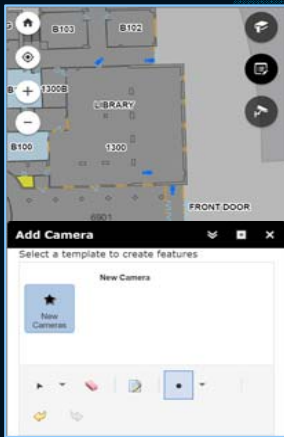


OOTB Widgets

 **Bookmark**

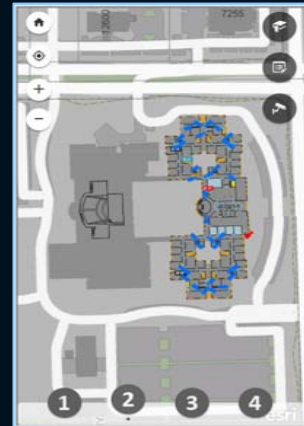



 **Edit**

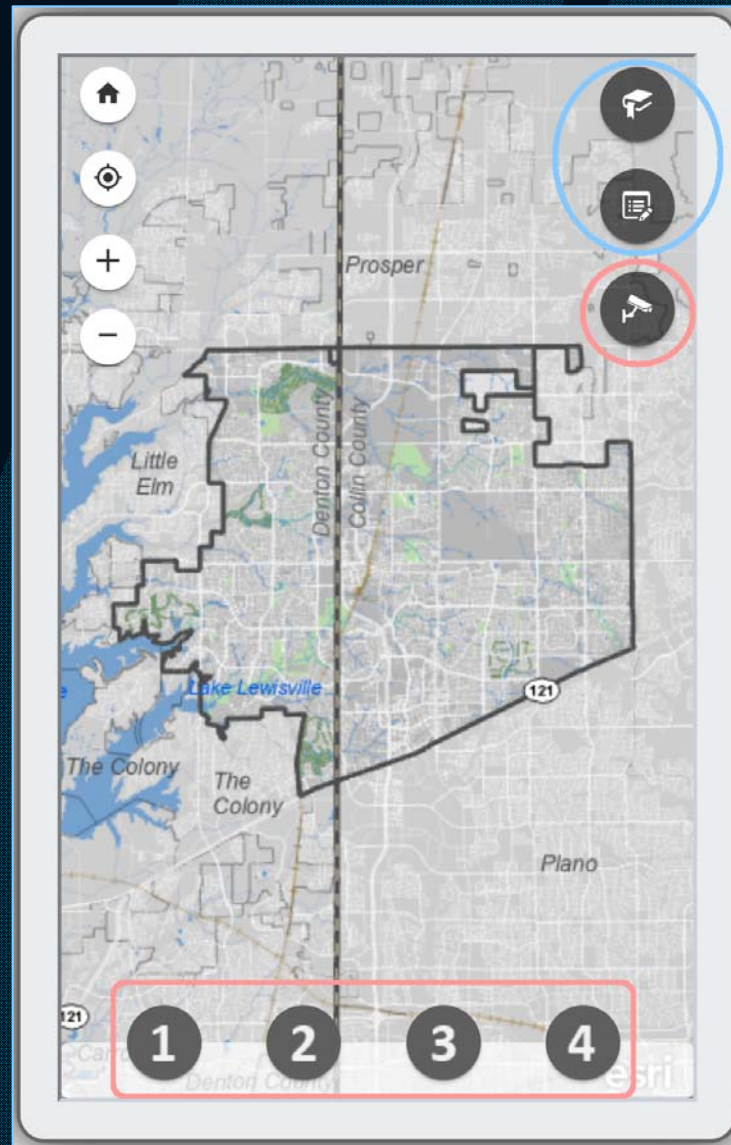


Custom Widgets

 **Floor Filter**



 **Video Verify**



DEVELOPMENT

Custom Widget: Video Verify



(1) Query & Select Camera

```

var selectQueryAll = new Query();
selectQueryAll.geometry = graphic.Circle.geometry;
selectQueryAll.returnGeometry = true;
selectQueryAll.returnFields = ['*'];
this.cameraFeatureLayer.selectFeatures(selectQueryAll, FeatureLayer.SELECTION_NEW, lang.hitch(this, function (features) {
    if (features.length > 0) {
        this.videoFrameNode.innerHTML += features[0].attributes['camera_name'];
        this.verifyFrameNode.innerHTML += features[0].attributes['camera_name'];

        graphic.SelectCamera.setSelectionFeatures([0].geometry);
        this.map.graphics.add(graphic.SelectCamera);

        this.popupAttributes(features[0]);
        this.popupVideo(features[0]);
    } else {
        this.mcClearAll();
        this.videoFrameNode.innerHTML = "No camera, try again.";
        this.verifyFrameNode.innerHTML = "No camera, try again.";
    }
}));
    
```

(2) Populate Verify Tab



https://developers.arcgis.com/javascript/3/jssamples/ed_attribute_inspector.html

(3) Populate Video Tab

```

//check video url status and readState -----
var http = new XMLHttpRequest();
http.open('GET', cURL, false);
http.send(json);

//set video feed -----
if (http.status == 200) {
    if (cameraVendor == 'Wave') {
        this.videoRefreshSignal = setInterval(lang.hitch(this, function () {
            var imageSrc = VIDEO URL BASE FOR WAVE + http.responseText;
            this.videoNode.src = imageSrc;
        }, 1000));
    } else {
        this.videoRefreshSignal = setInterval(lang.hitch(this, function () {
            var imageSrc = VIDEO USE BASE FOR SALIENT + http.responseText;
            this.videoNode.src = imageSrc;
        }, 1000));
    }
}
    
```



CHALLENGES

OLD

- Me
 - Not familiar with WAB Developer & JavaScript 3.x
- Security
 - Video feed encryption
 - Solution: C# web service that takes camera parameters and encrypts. Decryption happens when camera feeds are accessed (like a JSON REST web service)
- Internet
 - Spotty/none in some schools

NEW

- Service Vendor
 - FISD service vendor (McKinney Securities) currently in the process of switching camera software vendors (SALIENT to WAVE)

FUTURE

- ESRI
 - Experience Builder and JavaScript 4.x



RESULTS

- **Empowerment**
 - SROs can provide vital input to ensure this resource is always available
- **Confidence**
 - SROs are more confident and can focus on other tasks
- **Collaboration**
 - Encourages communication and information sharing between departments and entities
- **Everyone's SAFER** 😊



FUTURE

- Portal Upgrade 10.7.1 → 10.8.1
- Experience Builder
- JavaScript 4.x
- Downloadable App?



END

Thank You!

Brian Macke – IT/GIS Team

Tony Contreras – IT/GIS Team

Mike Crook – IT/Dev Team

David Schuster – IT/SAFER Team

Susan Olsen – IT/SAFER Team

Bob Ayensu – IT/GIS Team

David Jacobs - ESRI Software Developer

Random people I emailed for help (iykyk)

Online GIS community

and anyone else!



**Questions, ideas or want to brainstorm?
Contact me!**

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