



ArcGIS Runtime: Building Adaptive Maps

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Agenda

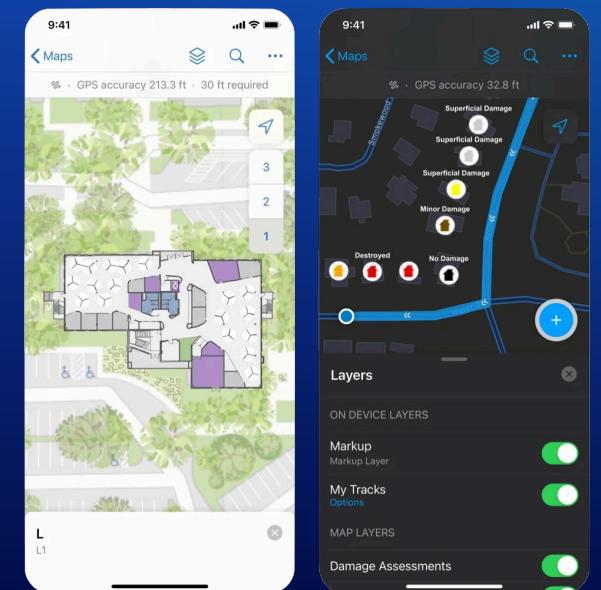
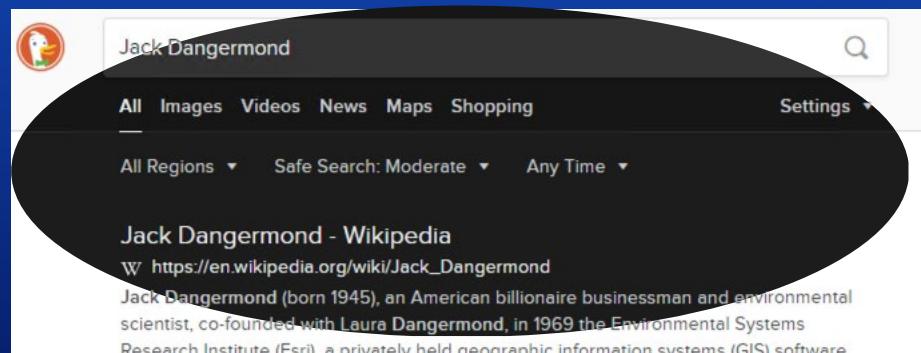
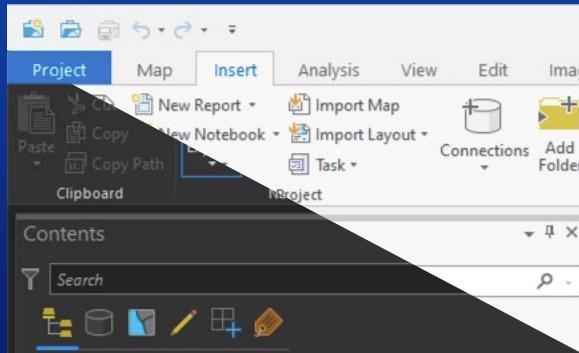
- **Background: dark theme & high contrast modes**
- **The need for theme support in maps**
- **Other patterns in ArcGIS**
- **The Theme-Aware Map pattern**
- **Demos: create & use theme-aware maps & apps**
- **Resources, feedback, conclusion**

Background info

Why do I need theme-aware maps?

Background: Dark Mode

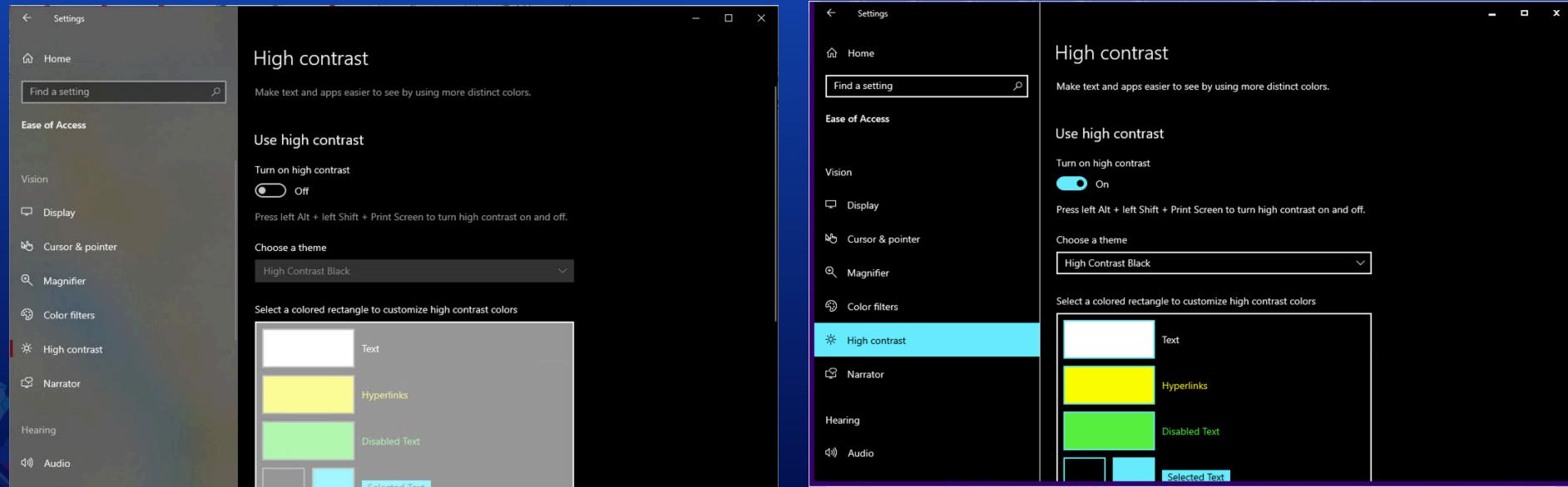
- **System-level support**
- **iOS, Android, macOS, Windows, Linux DEs**
- **Supported on web through Edge, Firefox, Safari, Chrome**



Theme-aware maps

Background: High Contrast

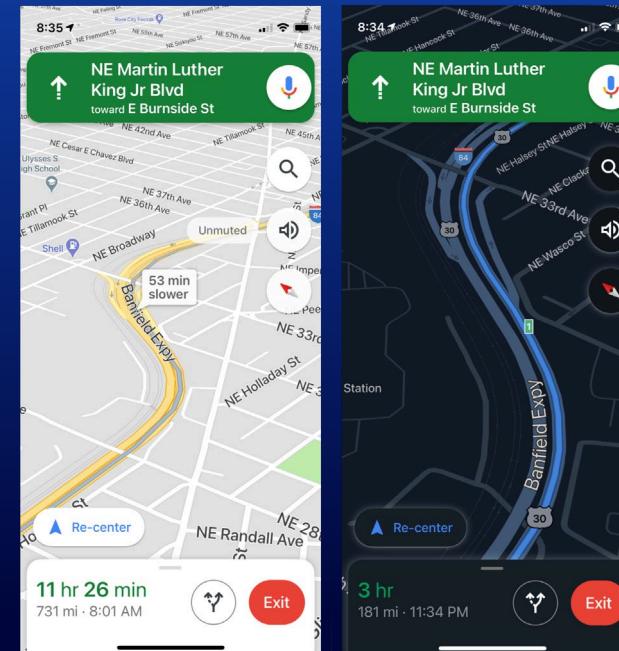
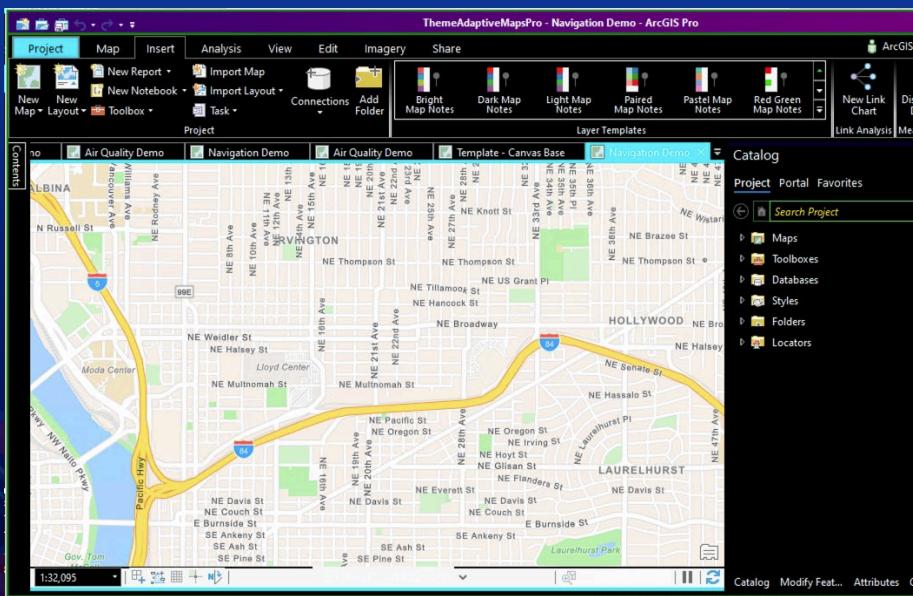
- Long-time accessibility feature on Windows
- Limited web support (improvements coming soon)



Theme-aware maps

The need for theme-aware maps & map views

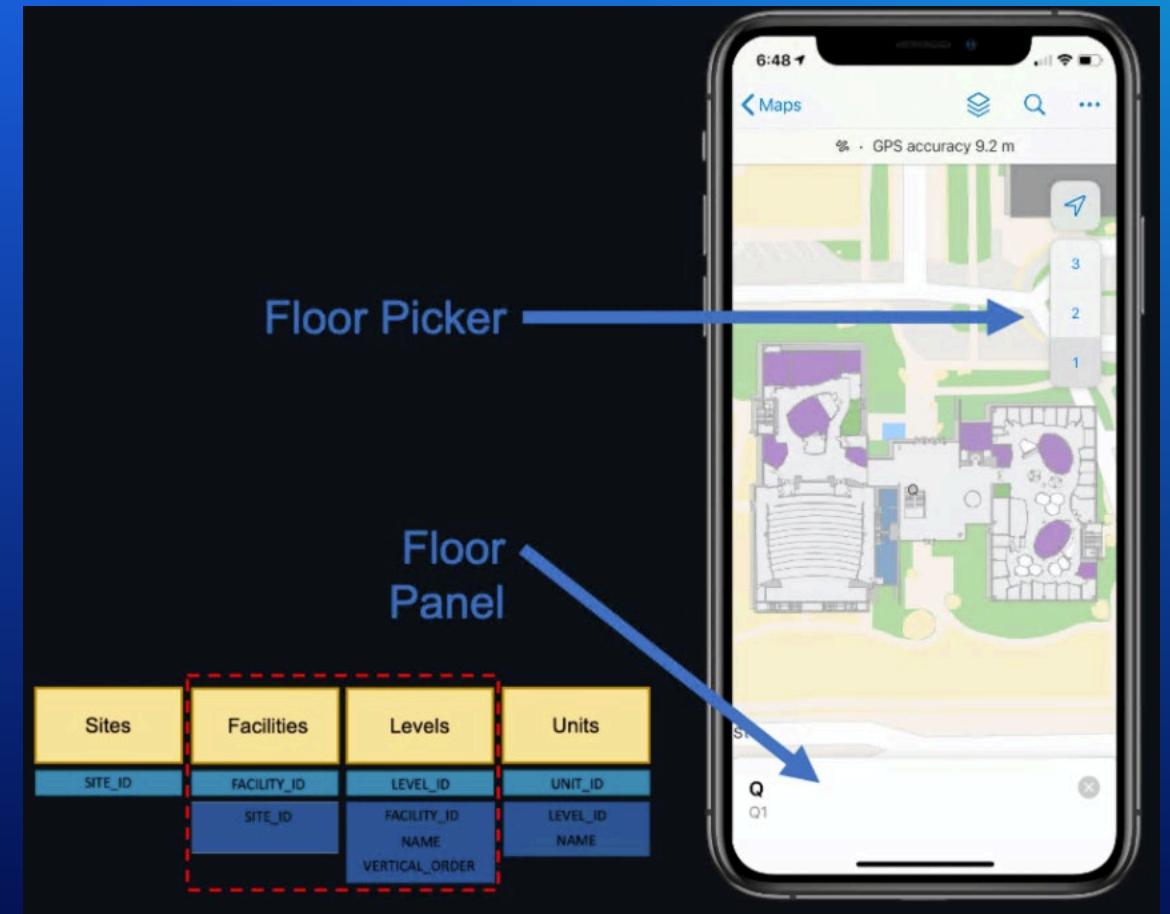
- System doesn't render map, so system can't re-skin map automatically
- Maps often fill most of the screen; if the map clashes, the app clashes
- Consumer maps are theme aware
- High Contrast is an important accessibility feature



Theme-aware maps

Patterns in ArcGIS

- ArcGIS web maps are feature-rich and flexible already
- Consistent use of existing features can avoid the need for a one-off feature
- Example: floor pickers
 - Uses feature layer definition expressions with defined schema



Theme-aware maps

Theme-aware maps

Introducing the theme-aware map pattern

Disclaimers

- **This is a proof-of-concept pattern; not an officially-supported product**
- **Demo map content is not for production use**
- **There may be performance issues with complex maps**

- **This is a proposed pattern; your feedback is wanted!**

Theme-aware map pattern

Map:

- Use group layers to contain each theme
- Group layers are named by theme
- Default set of themes is “Light”, “Dark”, and “High Contrast”
- By default, only one theme group layer is selected for display

Map View:

- The map viewer looks for top-level group layers starting with “Theme: ”
- The map viewer allows user choice of theme, or can match system theme

Theme-aware map pattern – pro/con

Pros:

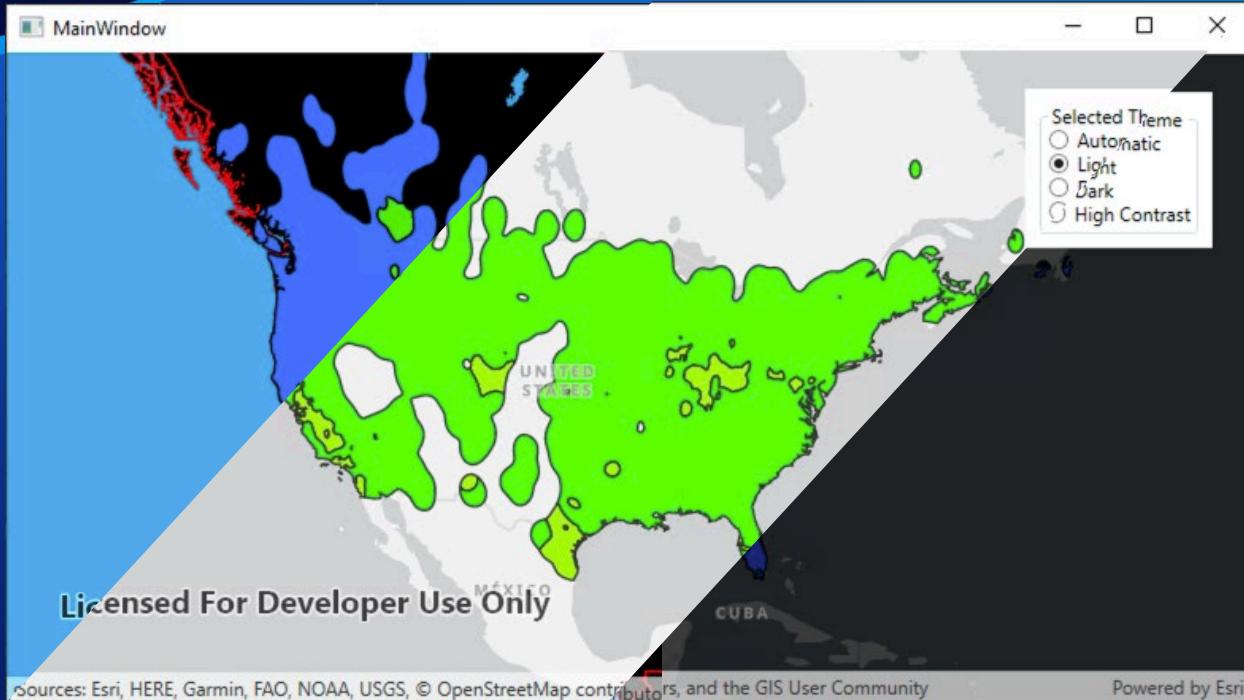
- **Compatible with ArcGIS today**
- **Easy to author online, on desktop, or in code**

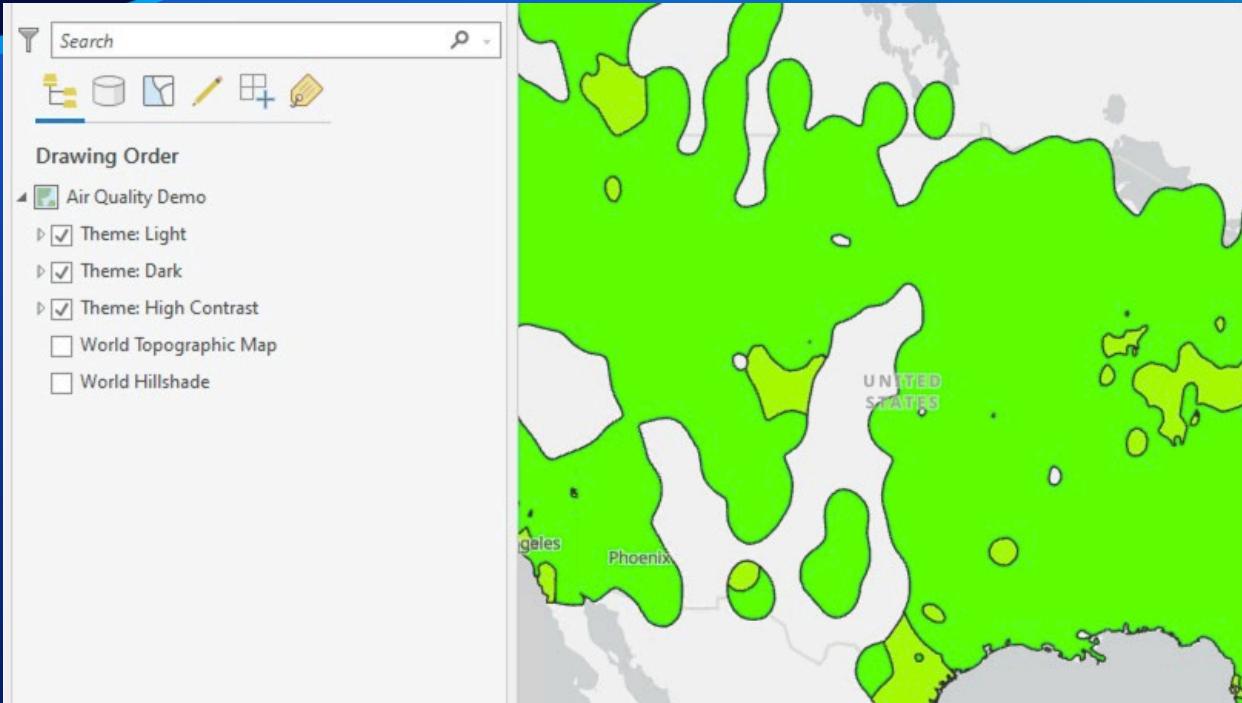
Cons:

- **May have performance implications**
- **Clunky in non-theme-aware applications**

Use a Theme-Aware Map

Demo



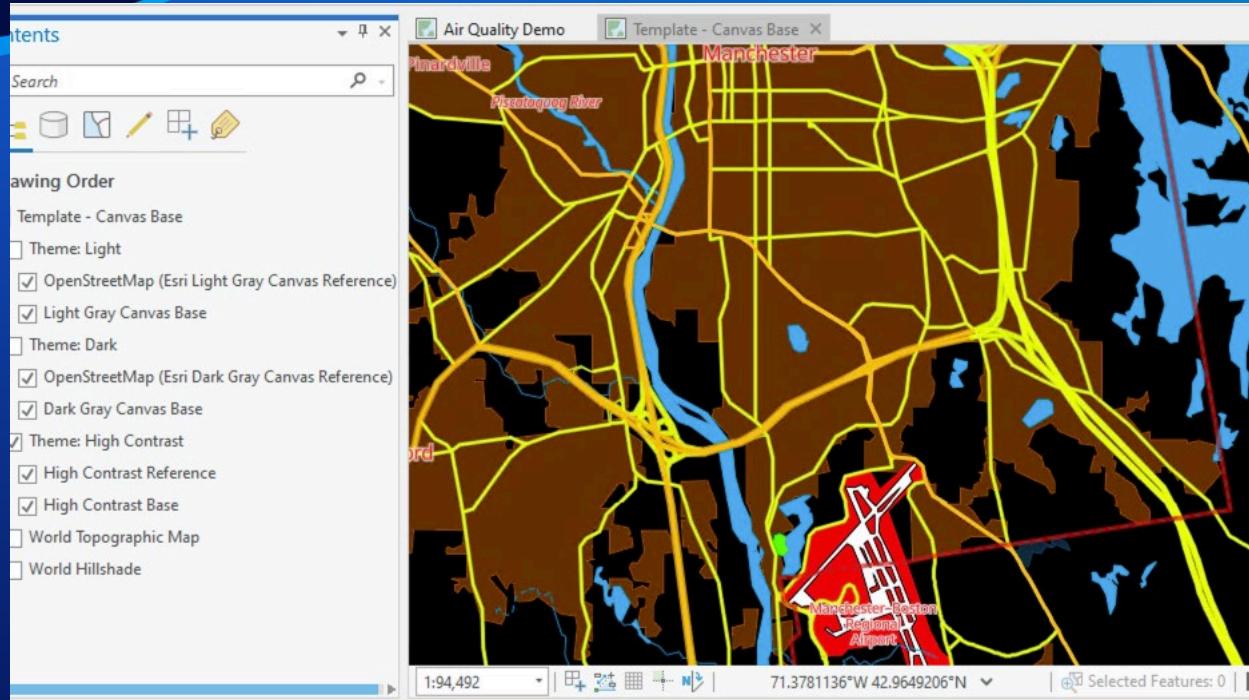


Create a Theme-Aware Map

Demo

Pre-built templates

Demo



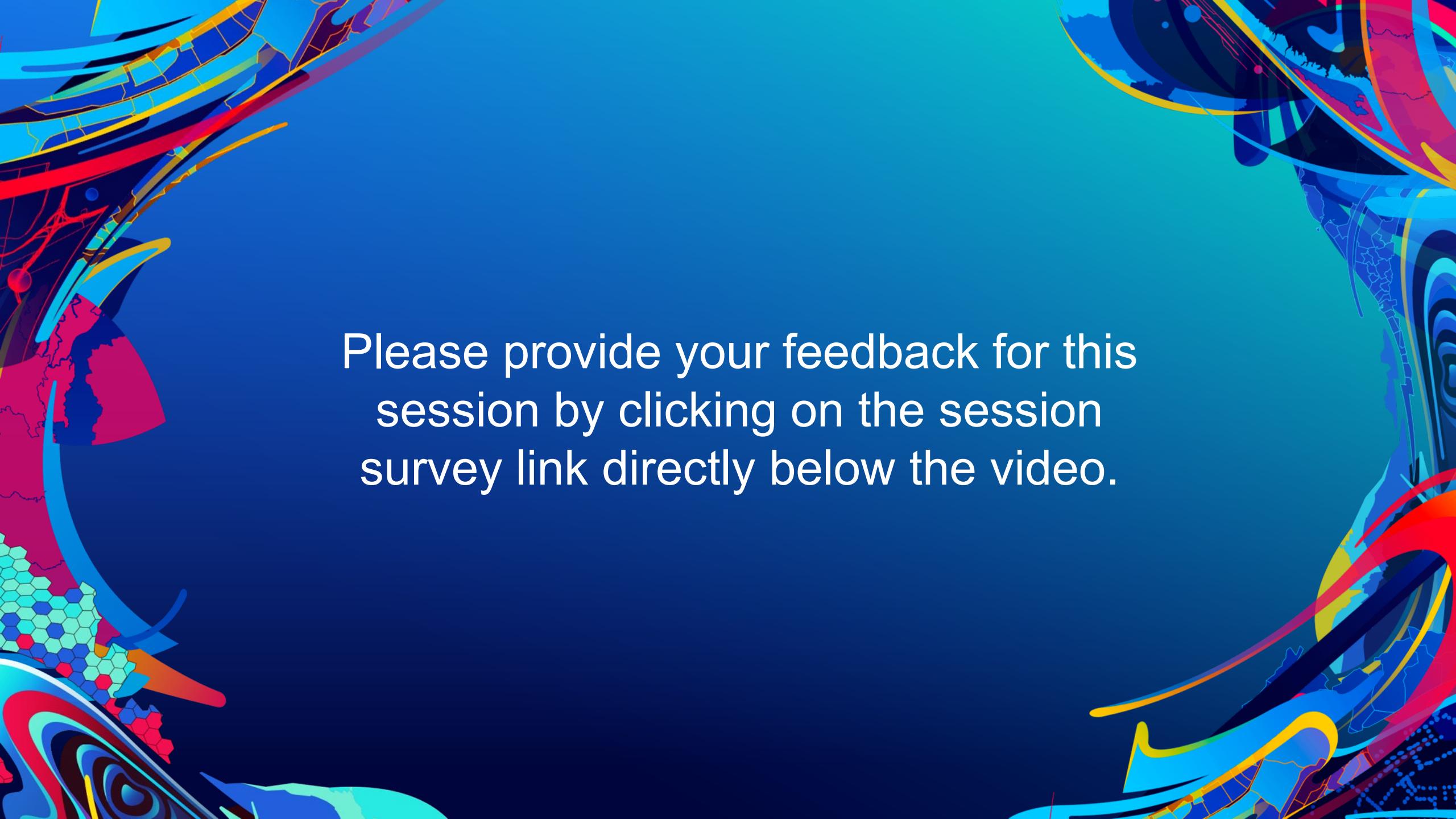
Resources & Feedback

- Interested? Your feedback wanted!
 - Survey: <https://arcg.is/0e4Sq1>
- Resources:
 - Vector Tile Style Editor: <https://developers.arcgis.com/vector-tile-style-editor/>
 - GitHub repo (prototype control, demo projects, links to ArcGIS Online resources): <https://github.com/esridevsummit/2021-12345-themed-maps>





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