

SHRP2 TECHNICAL MEETING: COMMON DATA AND MAPPING TOOL

Agenda

- Overview of partner map viewers
- Our goal
- Map viewer storyboard
- Analysis and reporting tools
- The data
- Questions for you

Types of Map Viewers

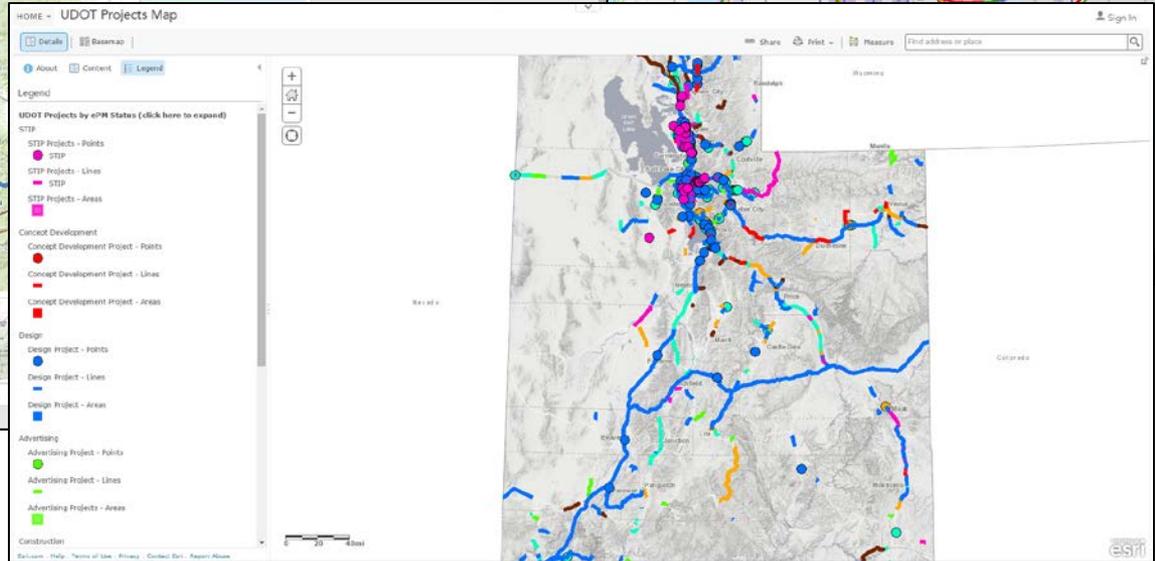
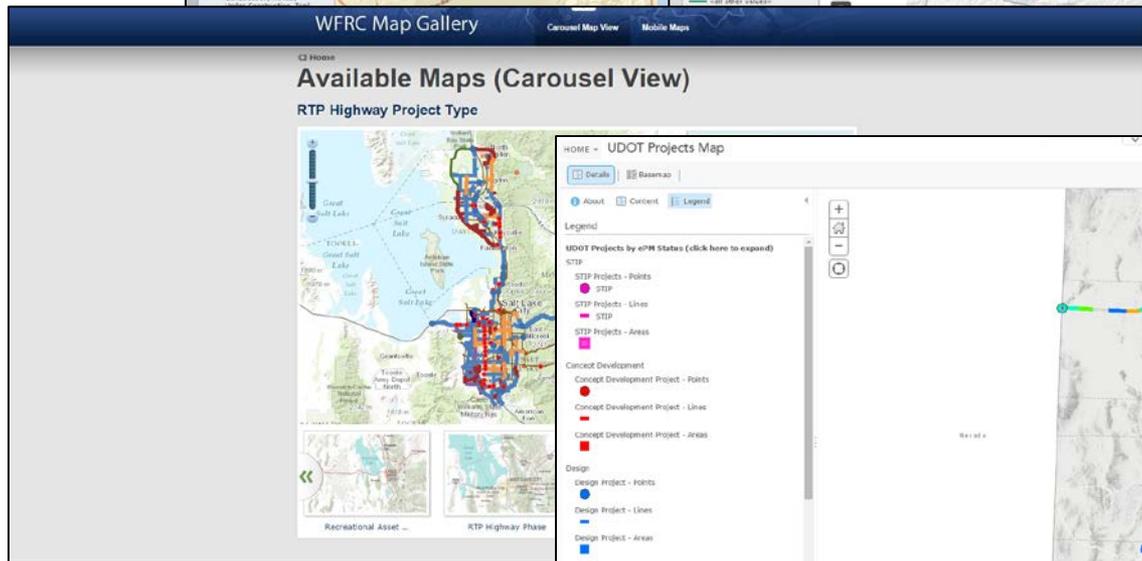
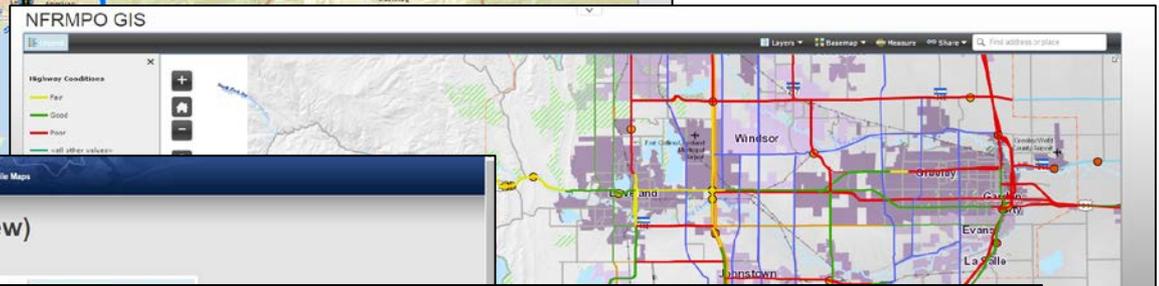
- Viewers by agency:
 - ▣ Single Topic (including KML) – 8
 - ▣ Story Map – 2
 - ▣ Dashboard – 2
 - ▣ All in One – 1
- 6 agencies offer viewers with reports
- 2 agencies offer analytical viewers
- Most common data is Transportation, followed by Employment and Land Use

Functionality and Data Matrix

State	COG/MPO	Viewer	Type	Analysis Capabilities	Reporting	Demographics	Education	Employment	Housing	Health	Transportation	Land Use	Environmental	Hazards
AZ	MAG	Link	Single topic	Demographics, employment, land use of selected or pre-determined areas	Demographics, employment, land use of selected or pre-determined areas	Census and ACS (Population, Age, Race, Ethnicity, Poverty, Income), Projections	ACS (Education attainment)	Jobs, employment clusters	Census and ACS (Housing units, tenure, value, rent)		Bikeways	Existing and future land use		
AZ	PAG	Link	Single topic		Find Your School	Extreme heat vulnerable population, Population density	Schools, School districts, School attendance boundaries			Food deserts	Bikeways, Pedestrian demand, bus stops	Land use, Land ownership	Air quality areas and monitors, tree canopy, regional surface temperature, water users, groundwater recharge, WWTP, superfund sites, groundwater levels	Land subsidence
CO	DRCOG	Link	All in one	Visual (1/2 and 1 mile buffers around FasTrack Stations)	County and Tract level demographics, employment, and commuting	ACS (Age, Ethnicity, Poverty, Income, Minorities, Race)	Child Care, Free and Reduced Lunches, School performance, ACS Ed attainment)	Employment clusters, Jobs, ACS (Commuters)	ACS (Rent burden, construction year), affordable housing, restricted owner/renter units	Asthma, Obesity, Farmers Markets, Hospitals, Trauma Centers, Parks	LRT, BRT, Bus routes, Bike routes			
CO	North Front Range	Link	Single topic								Highway conditions, Bridge conditions, Functional classification, Hazardous material routes			
CO	Pikes Peak	Link	Single topic KML layers			jections, Populat Households					RTP, Pavement conditions, PPRTA funded, Crash data			Floodplains
ID	Compass	Link	Dashboard	All datasets can be analyzed as subsets of the whole				Economic Clusters, Employment near transit	Multi-family housing, residential density, housing affordability	Connectivity	Crash data, Bikeways, Bridge conditions, Emissions, Congestion, Level of Service, Sidewalks, Transit, Travel Time, TIP	Farm Land, Jobs/housing balance, Open Space, Trails		
NV	RTCS	Link	Dashboard		Freeway speed, congestion, peak speeds, traffic incidents,						Freeway speed, ITS, crash data, rap meters, TIP			
NM	MRCOG	Link	Single topic and Story Maps		Reports rolled up with Story Maps			Employment density	Housing affordability		Crash data, roadway improvements, traffic volumes, road performance, transit users, transit improvements, bike/ped, RTP, travel time, travel speed,	Land Ownership, Open Space,	Critical habitat	Flood hazards, Forest fire hazards
UT	WFRC	Link	Single topic								TIP, RTP, Bikeways,	Green infrastructure, Open space		
UT	Mountainland	Link	Single topic								Roadway projects, TIP, Bikeways, Electric car charging stations,			Earthquake hazards, wildland fire hazards
WA	SRTC	Link	Single topic and Story Maps		Reports rolled up with Story Maps			Employment density, Employment centers			Construction projects, Bikeways, TIP, congestion, crash data, bridge conditions, freight, functional classification,			
WY	CMPO													

DRAFT

Types of Viewers: Single Topic



Types of Viewers: Story Map

Futures 2040 MTP
Intro to Futures 2040 MTP

Multimodal Planning

Futures 2040 includes a number of strategies that address regional challenges and can help achieve the Preferred Scenario.

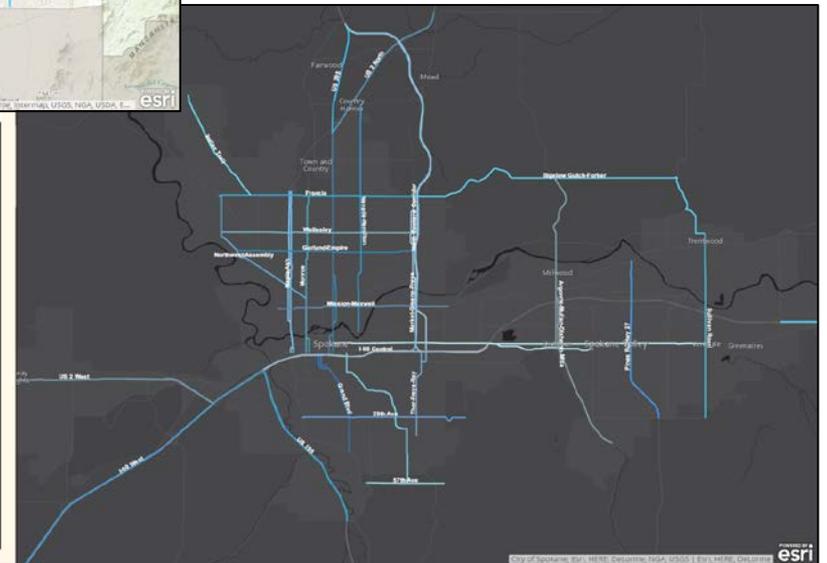
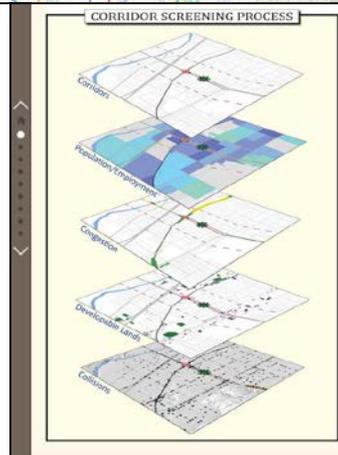
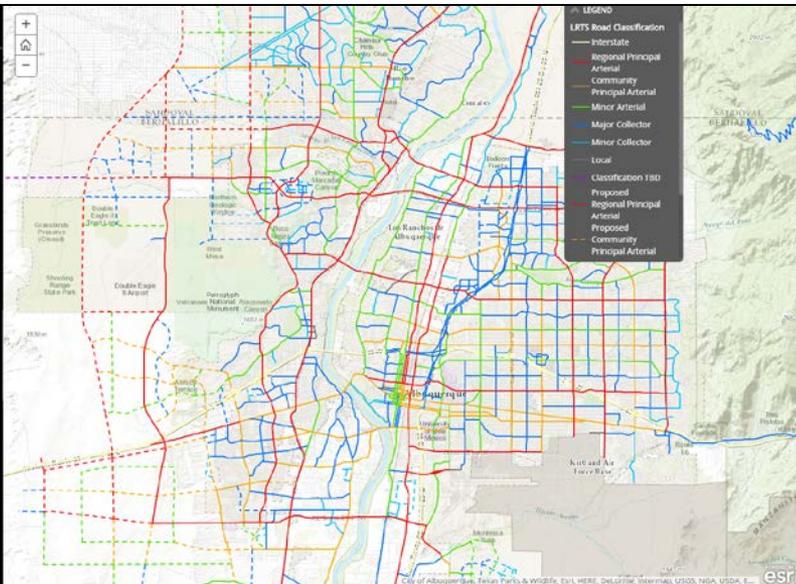
Roadway investments need a strong emphasis on efficiency improvements and maintenance. Limited federal funding means that we need to get as much as possible out of the infrastructure that we already have. Capacity expansion is at times necessary, but should be strategic and undertaken as an option after efforts to maximize the functionality of the existing transportation system.

Transit investments are crucial. Multiple Bus Rapid Transit studies have taken place in the last three years, and the Albuquerque Rapid Transit (ART) service proposed for Central Avenue has entered the project development phase and could be implemented as early as 2017. Carrying out these services should be a high priority for the region.

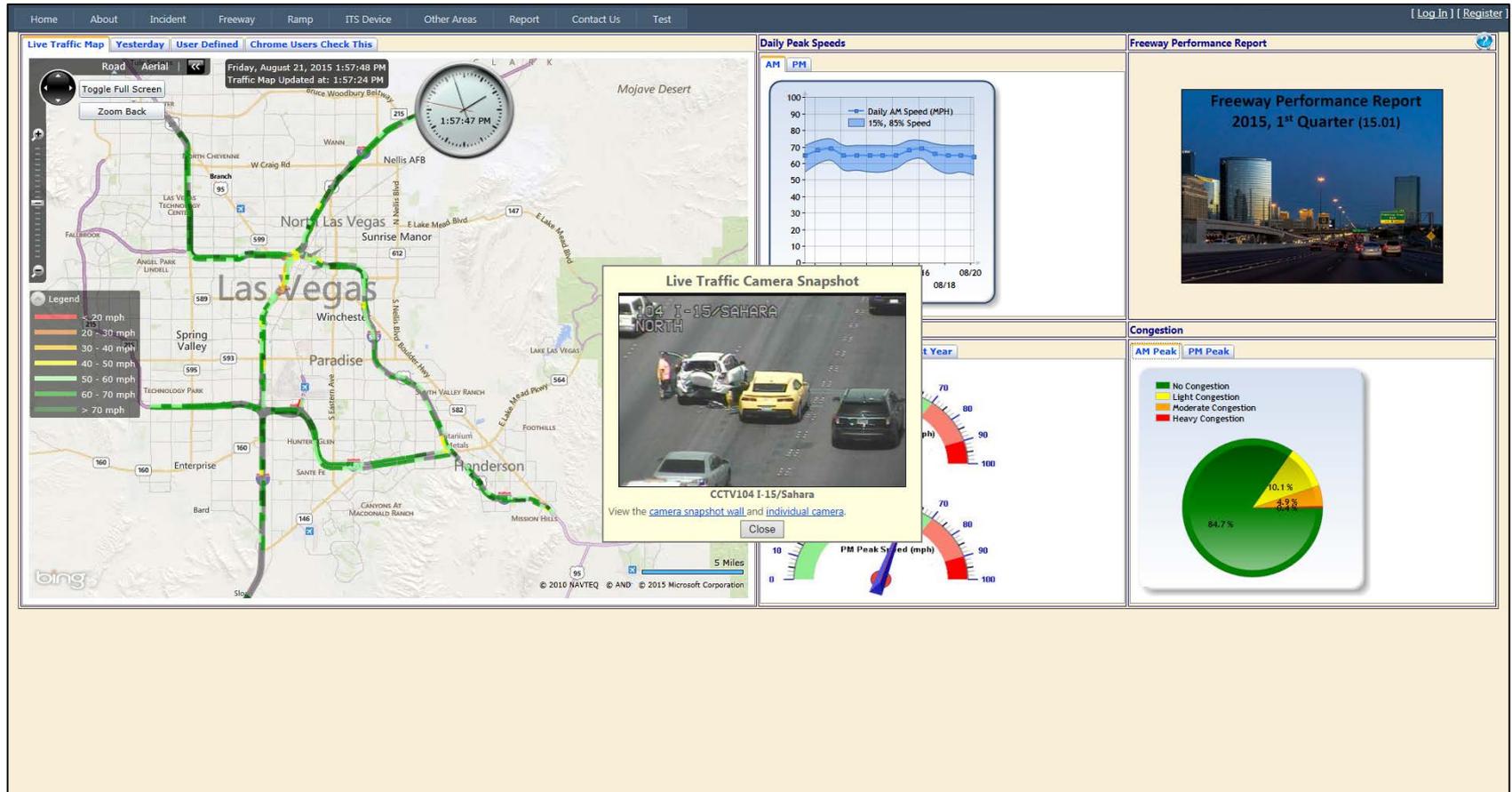
Bicycle and pedestrian improvements will also play a critical role. Providing new connections, filling in gaps and expanding the network help create new transportation options, promote healthy lifestyles, and support land use decisions.



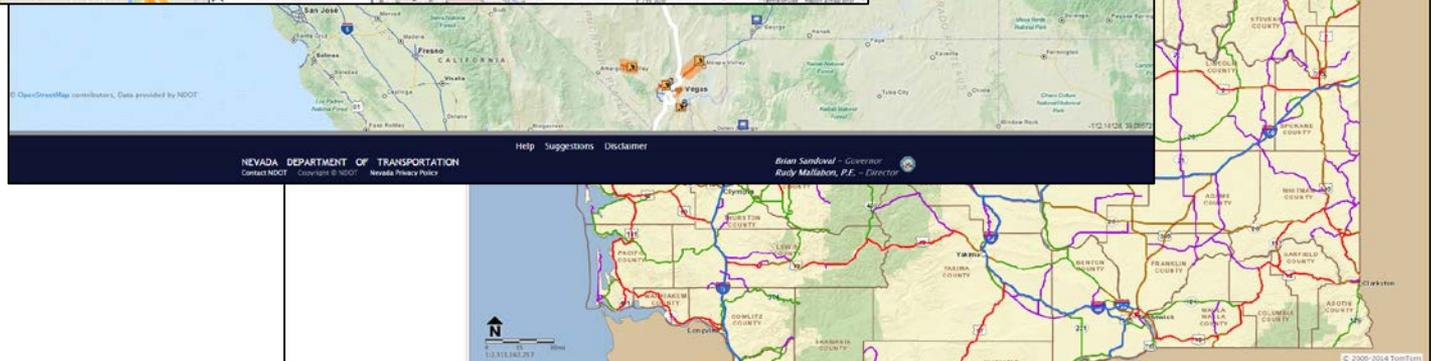
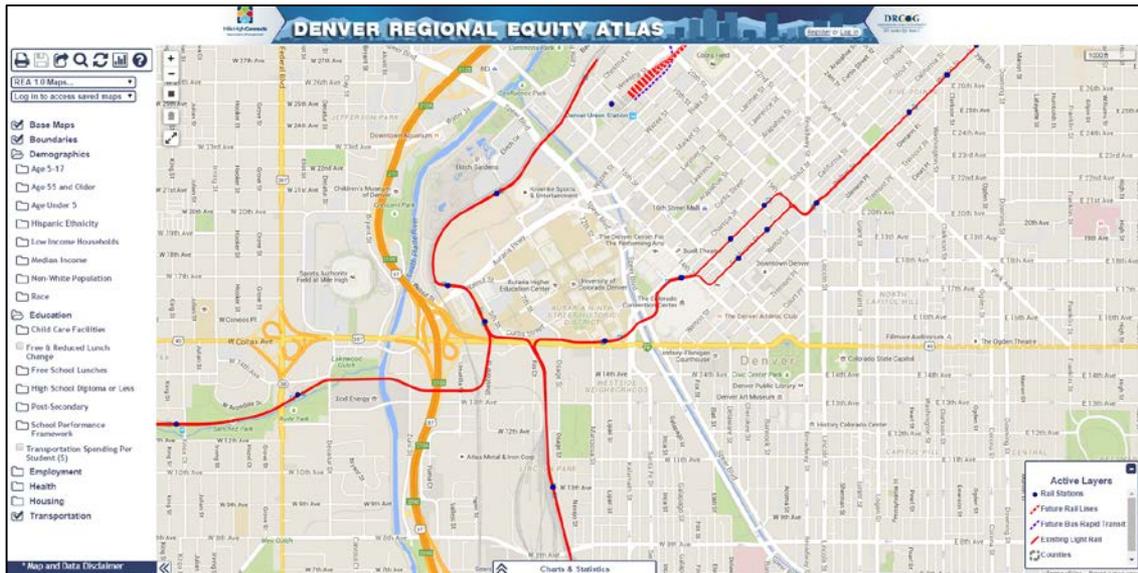
Pedestrians walking along Central



Types of Viewers: Dashboard



Types of Viewers: All in One



Let's Build a Map Viewer!

- These questions are not rhetorical:
 - ▣ What's the purpose of the application?
 - ▣ What questions does it answer?
 - ▣ Who is the audience?
 - ▣ What does the user get out of it?
- The answers will govern...
 - ▣ The data we need in the application
 - ▣ The tools we have to build
 - ▣ The reports that will be generated

Our Goal

- Develop a common operating vision and platform for easier data sharing and develop a risk register that documents various risks that would stand in the way of successfully completing an activity

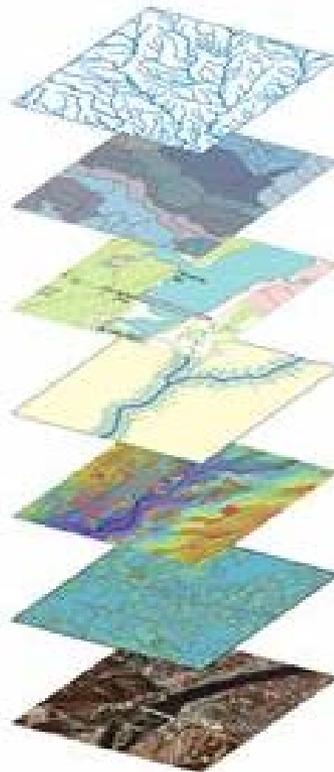
Common operating vision = data and standards

Common operating platform = map viewer/portal

Risk register = analytics utilizing the common data

A Common Operating Vision

Agreed upon thematic layer set



Data Standards

Simple feature class						Geometry	Polygon
dev.DATALOADER.MPA						Contains M values	No
						Contains Z values	No
Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
MPA	String	Yes		MPA			2
SQMI	Double	Yes			12	2	
SHAPE	Geometry	Yes					
SHAPE.area	Double	No			0	0	
SHAPE.len	Double	No			0	0	

Metadata

Maricopa Association of Governments Municipal Planning Areas, 2012
File: GeoDatabase

Topic:
Boundaries, Planning Areas

Summary
This data was created to serve as base information for use in GIS systems for a variety of planning and analysis purposes. These data do not represent a legal record.

Description
Geographical boundaries used by MAG for socioeconomic, projections, traffic, forecasting and other planning purposes.

Credits
Maricopa Association of Governments (MAG) and the MAG member agencies.

Use Limitations
Data may be used only by the licensee and only for the non-commercial purposes stated in each licensee's request. Data is provided on an "as is" basis, with no warranties, express or implied, including, but not limited to, any warranties of accuracy, merchantability or fitness for a particular purpose. The licensee shall be solely responsible, and MAG shall have no liability, for the accuracy, selection, installation, use, efficiency and suitability of any data or documentation provided to licensee by MAG. In no event shall MAG be liable to the licensee for any damages arising from or related to any use or loss of the data. The licensee is advised to use the data with caution and to independently verify accuracy. For information regarding commercial use of the data, see Arizona Revised Statutes section 39-123.03.

Extent
West: -113.359412 East: -110.427361
North: 34.092282 South: 32.493269

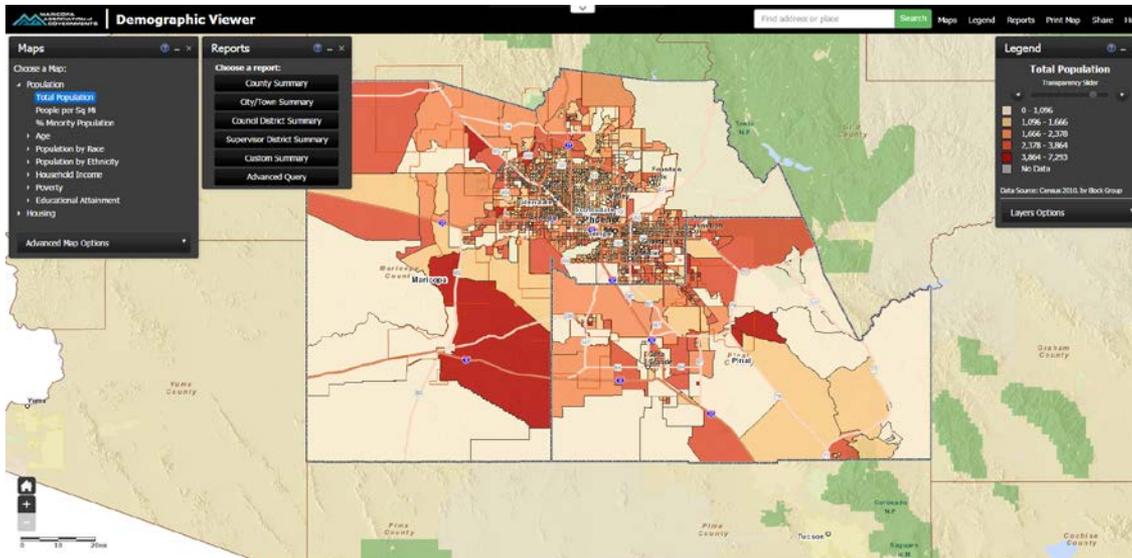
Scale Range
Maximum (zoomed in): 1:50,000
Minimum (zoomed out): 1:5,000,000

ArcGIS Metadata >

Topics and Keywords >
THEMES OR CATEGORIES OF THE RESOURCE: boundaries, planning|Cadastra

A Common Operating Platform

Map viewer

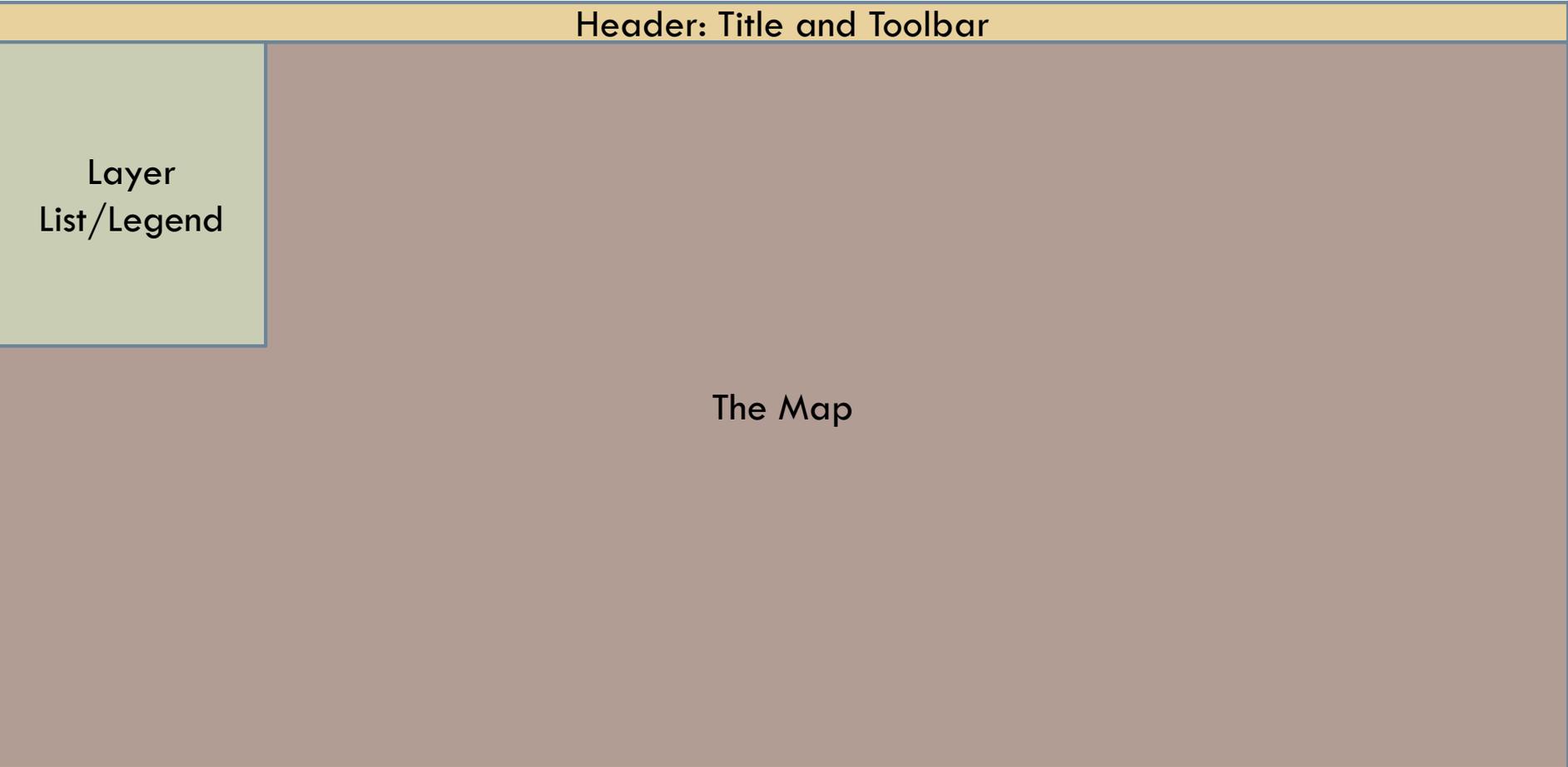


- View data and metadata
- Discover resources
- Analyze routes and areas
- Download data

Demo

- MAG's interactive map viewers

Viewer Storyboard



The diagram illustrates a viewer storyboard layout. It features a yellow header bar at the top containing the text "Header: Title and Toolbar". Below the header, the main area is divided into two sections: a light green box on the left labeled "Layer List/Legend" and a large brown area on the right labeled "The Map".

Header: Title and Toolbar

Layer
List/Legend

The Map

Viewer Storyboard

Header: Title and Toolbar

Layer List

The Map

- Categorized list
- Expandable/collapsible categories
- Click a layer, get simple metadata
- Download from here?
- Custom symbology (advanced options on some layers)
- Transparency sliders on layers

Viewer Storyboard

Header: Title and Toolbar

Layer List

The Map

- Map title
- Analysis tools
 - City/county/custom area analyses tool
 - Corridor risk tool
- Contact
- Help/User guide

Viewer Storyboard

Header: Title and Toolbar

Layer List

Analysis Window

- Window only present when user selects corridor risk analysis tool
- User has options to select what layers to include in analysis
- Window closes while analysis is run

Viewer Storyboard

Header: Title and Toolbar

Layer List

Results/Report window

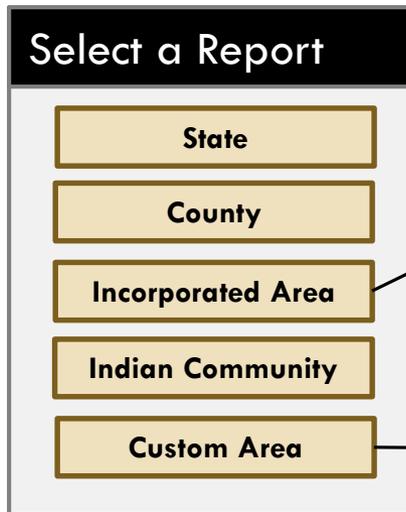
- Window only present after analysis
- Results of any analysis displayed in the results window
- Print report from here

Analysis and Reporting Tools

- Areas report tool
 - ▣ Select area from a list and get a pre-generated report
 - ▣ Select custom area and get a custom report
- Corridor risk tool
 - ▣ Analyze a user defined route for environmental and land use risks

Area Report Tool

- User can request reports on any state, county, city, or tribal area in the project area...



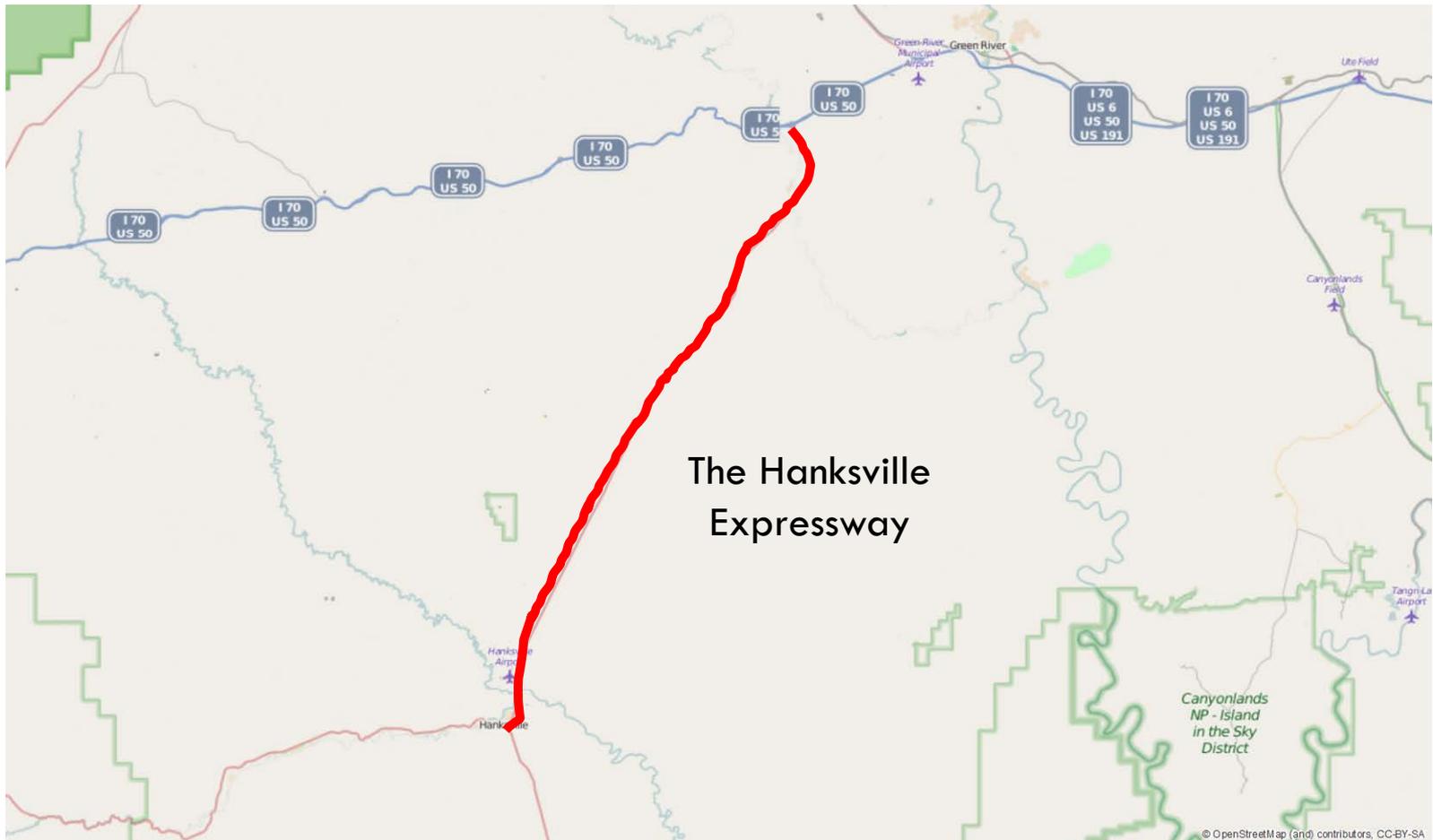
The image shows a software interface titled "Select a Report". It contains five vertically stacked, light yellow buttons with black text and borders. The buttons are labeled "State", "County", "Incorporated Area", "Indian Community", and "Custom Area" from top to bottom. Two lines point from the text on the right to the "Incorporated Area" and "Custom Area" buttons.

Each button expands to show a dropdown menu listing each. User can also type into the dropdown.

Expands to show graphical selection options: point, line, rectangle, polygon, with buffering options.

Corridor Risk Tool: The Line

- User can draw a line on the map along a corridor.



Corridor Risk Tool: The Weights

- Once the drawing is complete, the fun begins...

Values are prefilled with values that this group determines. User can also enter their own values. User updated values are highlighted.

User can save settings and re-load them for later analysis.

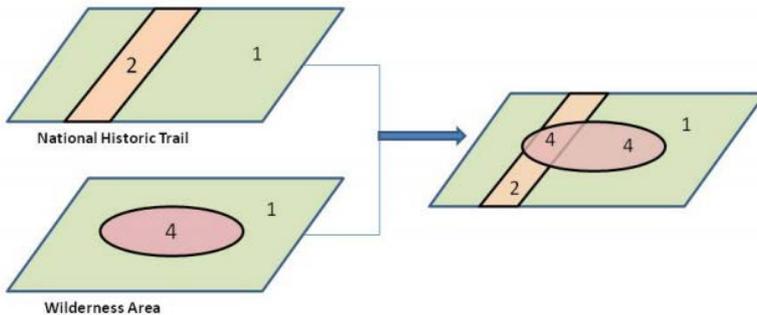
The screenshot shows the 'Corridor Risk Assessment Tool' interface. It features two sections: 'Land Ownership' and 'Wildlife'. Each section contains a list of categories with numerical weight values in small boxes. In the 'Land Ownership' section, the value '4' for 'BLM National Monuments' is highlighted in yellow. At the bottom, there are three buttons: 'Load' and 'Save' (both in blue boxes) and 'Run' (in a green box).

Land Ownership			
4	Park Service areas	3	National Forest
2	General BLM public land	4	US Fish and Wildlife
4	BLM National Monuments	1	Private land
1	BLM right of ways		

Wildlife			
3	BLM Sage-grouse general		
3	BLM Sage-grouse priority		

Buttons: Load, Save, Run

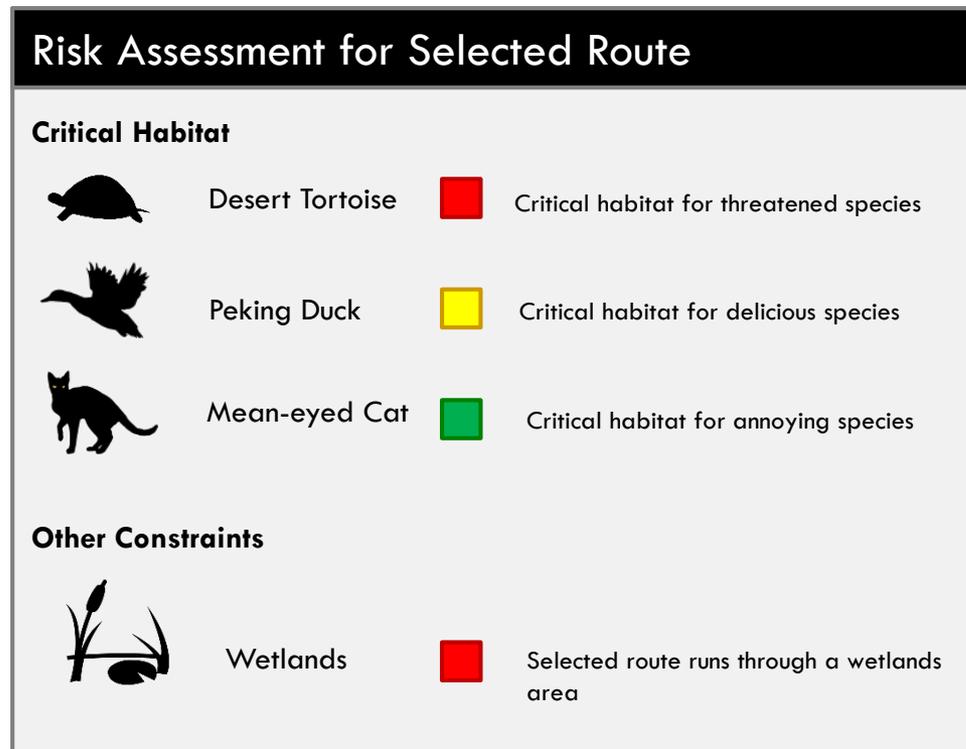
Corridor Risk Analysis



Dataset	Source	Risk (1 to 4)
Critical habitat	USFWS	3 to 4
Sage-grouse general	BLM	2
Sage-grouse priority	BLM	3
Wetlands	USFWS	3
Wilderness/WSA	PADUS	4
ACEC	BLM	3
BLM Nat. Monuments	BLM	4
BLM public land	PADUS	2
National Forests	PADUS	3
Park Service areas	PADUS	4

Corridor Risk Reporting

- Return results of analysis to user in an printable report



Viewer Data

- Demographics
 - ▣ Total population
 - ▣ Minority population
 - ▣ Households in poverty
- Economy
 - ▣ Major employers
 - ▣ Employment density
- Energy Resources
 - ▣ BLM solar
 - ▣ Geothermal
- Natural Resources
 - ▣ Areas of Critical Environmental Concern
 - ▣ Critical habitat
 - ▣ WGA CHAT
- Hazards
 - ▣ Flood zones
 - ▣ Expansive soils
- Other Constraints
 - ▣ Land use/ownership

WHAT ELSE IS IMPORTANT?

Think About It...

- Demographic data
 - ▣ Which Census topics do we display? What scale – tract, block group?
- Employment data
 - ▣ What classification system do we use – NAICs, clusters, something novel?
- Land use
 - ▣ What classification scheme do we use? How specific does it need to be?
- Branding
 - ▣ What logos go on the site? Who are the site contacts?
 - ▣ Does the thing have a name? What color is it?

Think Some More...

- The Viewer Layout
 - ▣ Multi-pane? Single pane? Markup tools? What else should go into the viewer?
- Analysis
 - ▣ What are important variables to include as analysis layers (land uses, land ownership, wetlands, critical habitat, etc.)?
 - ▣ What weights get assigned to analysis layers?
 - ▣ For land use/ownership/other analyses, does the state/county/city a project is in matter or do we consider them equally?
 - ▣ Does the application calculate an overall risk rating for the route? Or for individual segments? Or both?

Thank You



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