



Managing Uncertainty with Scenario Planning

Haley Schultheis and Ryan Collins
2026 NADO Annual Training Conference

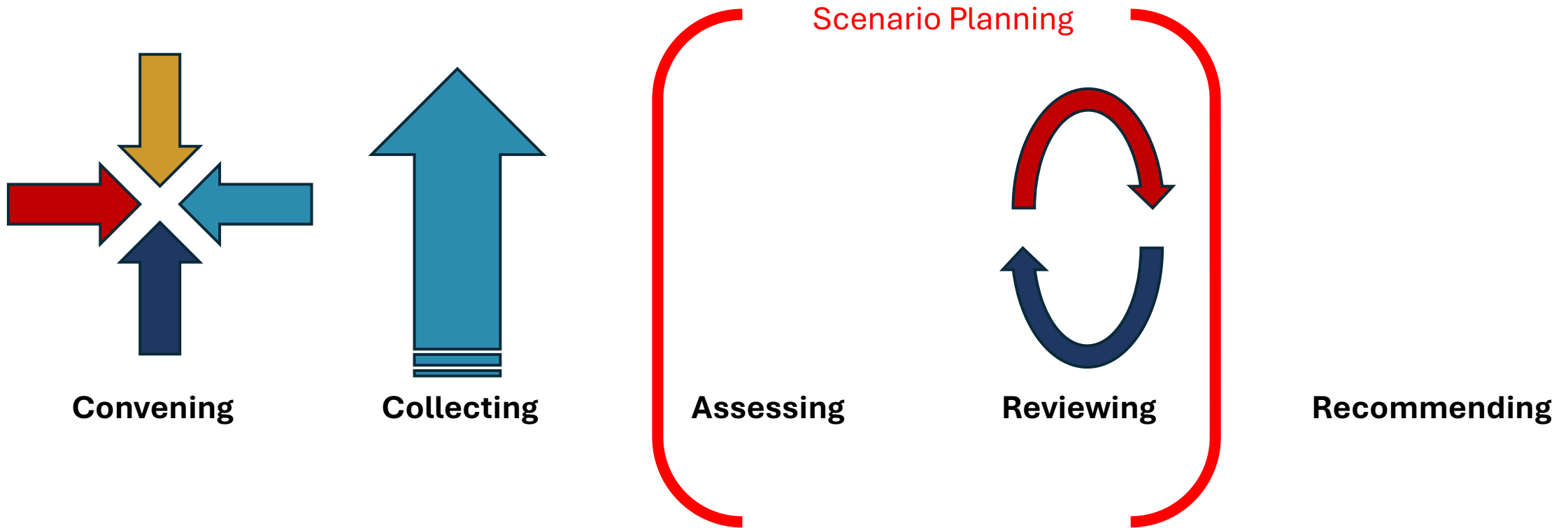


Session Agenda

- Introduction
- Identifying the forces shaping our regions
- Game time! Managing Uncertainty
- Discussing changing conditions, consequences, and our reactions



Typical Planning Process



Scenario Planning Basics

- Identify likely (or unlikely!) scenarios
- Varying conditions, varying assumptions, varying outcomes
- What data informs those conditions and assumptions?
- How would we react to those data conditions and how would changing data impact the scenario?



Scenario Planning in Transportation

- What will happen if our transit ridership goes up or down significantly over the next 3 years?
- How might electric vehicles impact our region's current commuting patterns?
- What if our local government decides it's no longer interested in developing that large infrastructure project?
- How might the new trail in our area change bicycle and pedestrian activity on our main street?



State Example: AccessOhio 2045



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Ohio Renaissance

The future is driven by increased population growth, innovation and global competitiveness.

Population

Ohio's population is growing while becoming more diverse with more people working in poverty and with

Population

Millennial and Generation Z are growing in Ohio; increased retention of older adults and return

Population

Ohio's population is growing with more workers, especially in urban areas

Population

Increasing retention of younger residents and return of former residents; appeal of lower cost of living, available water and stable climate



Economy



Resurgence in manufacturing and agriculture and continued growth in logistics, technology, energy, tourism, health care and other services

Development

Population growth in outer suburban areas, with some

Development

More dispersed economic activity and mixed-use development

Development

Concentration of economic activity in ports and industrial areas of specialized products and business opportunities

Development

Growth focused in centers connected by corridors; importance of unique community and environmental assets



Technology



Technology use accelerates and supports Ohio's economy and communities

RDO Example: PlanRVA

PATHWAYS TO THE FUTURE PROCESS

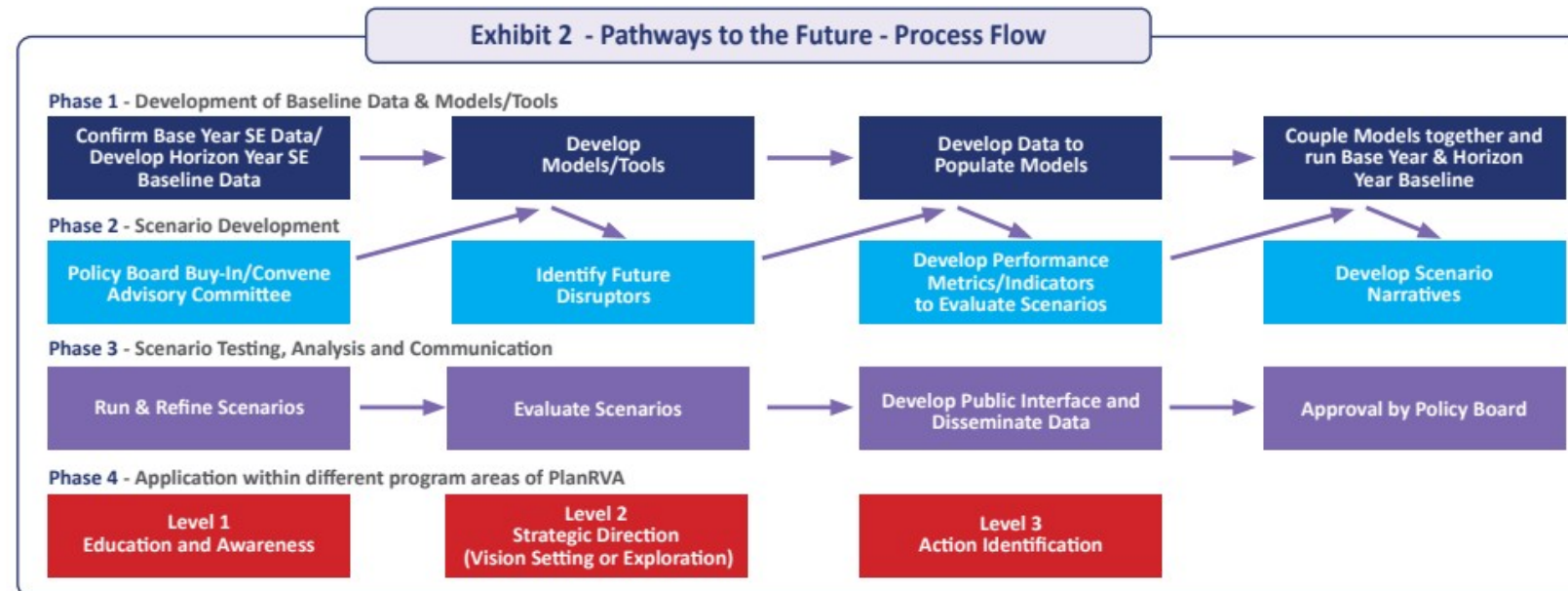
The process is divided into four main phases:

- Phase 1 Development of Baseline Data & Models/Tools,
- Phase 2 Scenario Development,
- Phase 3 Scenario Testing, Analysis and Communication, and
- Phase 4 Application within PlanRVA's different program areas.

This report summarizes the work completed in Phases 1-3.



Railroad looking into the horizon over agricultural land (Hanover)



Forces Shaping Transportation Planning in Our Regions

- Drivers of change that are uncertain and can affect the future
- Categories of changes:
 - Social
 - Technological
 - Economic
 - Environmental
 - Political

▪ *Slide content courtesy Lincoln Institute of Land Policy*



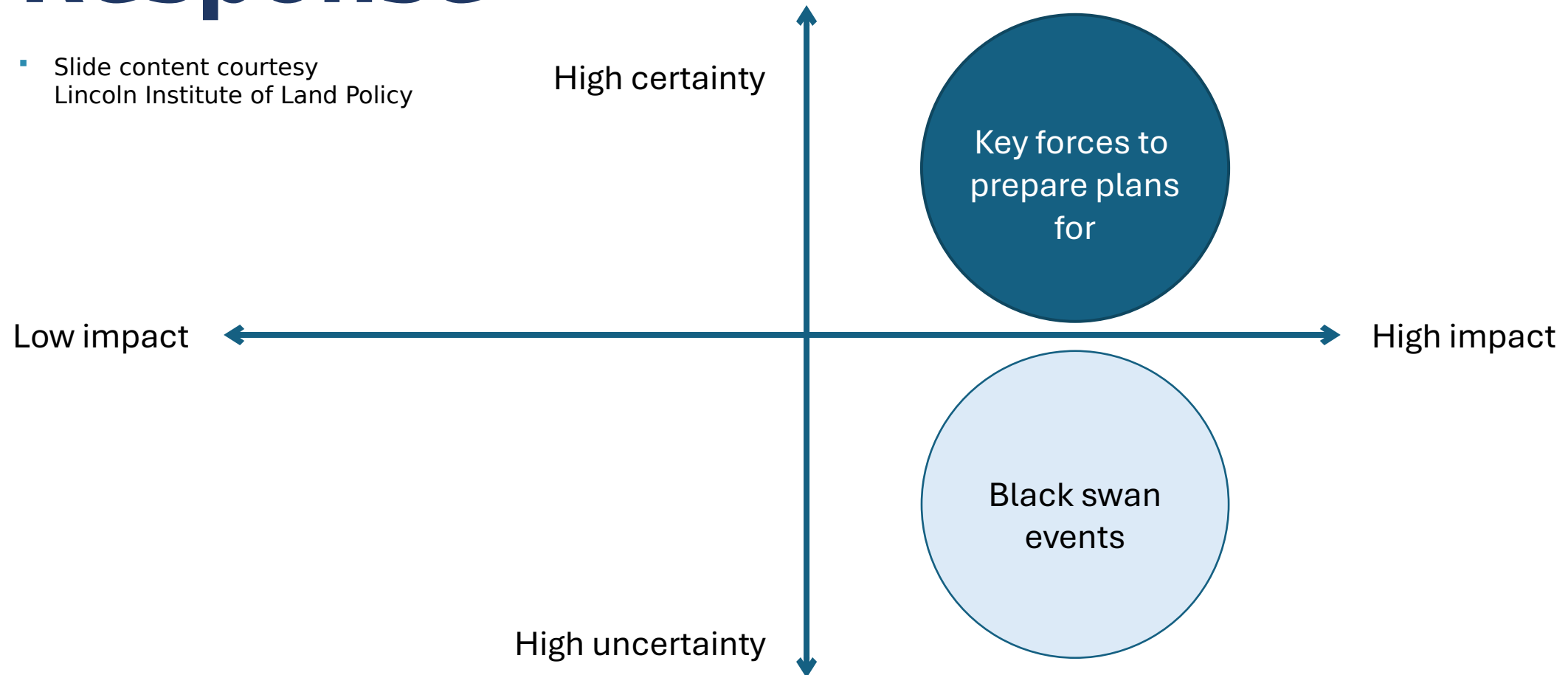
Activity: Identifying Forces

- Use the sticky notes at your table to identify potential forces in the categories:
 - Social
 - Technological
 - Economic
 - Environmental
 - *Example: Extreme heat or extreme cold*
 - Political



Prioritizing for Planning and Response

- Slide content courtesy
Lincoln Institute of Land Policy





Decisions for the Decade

**A game about risk and
planning for uncertainty**

**(Game originally created by:
American Red Cross - Climate Centre)**



This game will help us:

- Think about ways to plan for future scenarios
- Make decisions when there are unpredictable factors
- Discuss various methodologies for decision making



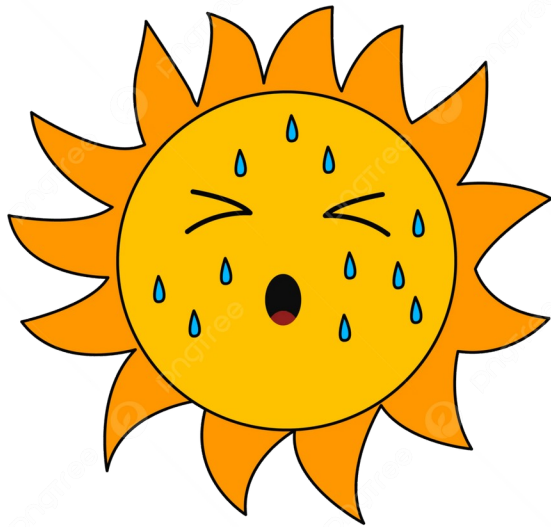
Imagine...you are a governor!

Your mission:

To build a prosperous environment and contribute to the success of your nation over the coming decades.



However, your mission faces challenges from natural disasters



Extreme Heat



Extreme Cold

**And you must properly
allocate your resources
in order to avoid
disaster!**





Rules of the game:

- Table = Nation; Each person = governor of individual province
- Each governor will receive 10 resources (beads) and they must individually decide how to invest them
- Investments made at the beginning of the decade cannot be changed
- Scores will be evaluated for each nation and each governor



Here's how we play:

- Allocate resources based on the scientific data (to come)
- Roll the dice 10 times (1 roll = 1 year)
- # on dice determines weather event for that year
- Will you have proper protection for an extreme event, have development resources available, or face a humanitarian crisis?
- **NOTE:** Once a governor faces 1 humanitarian crisis, they can no longer earn prosperity points



Game Methodology:



1. Receive Scientific
Information



2. Make Decisions



3. Make
Observations



4. Review
Consequences

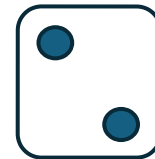
Step 1: Receive Scientific Information



= extreme cold snap



= extreme heat wave



= prosperity!



Step 2: Make Decisions

Allocate your 10 resources among the 3 investment areas

- freeze protection
- heat protection
- development

Investment in
FREEZE PROTECTION



Note - If you roll a 1: Use 1 bean

Investment in
DEVELOPMENT

Gain 1 Prosperity Point per bean



But! Only if no crisis!

Investment in
HEAT PROTECTION



Note - If you roll a 6: Use 1 bean

Step 3: Make Observations

Each table will roll the dice 10 times (1 roll = 1 year) to determine the potential weather conditions of the decade

If you roll a 1: remove 1 bead from freeze protection

If you roll a 6: remove 1 bead from heat protection

If you roll a 2, 3, 4, 5: you keep your beads till the next round

If you roll a 1 or a 6 with no resources remaining: you face a humanitarian crisis!



Step 4: Review Consequences

INDIVIDUAL SCORE CARD:

Decade	How many Humanitarian Crisis?	How many Prosperity Points?
1 st		
2 nd		

Remember: Once you face 1 humanitarian crisis, you can no longer earn prosperity points



How to win... or lose

- The table with the fewest collective humanitarian crises will be the winning nation!
- The governor with no humanitarian crises + the most prosperity points will be the winning governor!



Now lets play! (Round 1)

- Remember your scientific information
- Allocate your resources
- Roll the dice! 1 roll = 1 year
- Make observations
- Review consequences (individually and as a team)
- Raise your hand with any questions – we can help!



= extreme cold snap



= extreme heat wave



= prosperity!



What are your initial thoughts?

**How was your scenario planning
successful? or unsuccessful?**



Round 2

with new information/offerings



Reminder of our process:



1. Receive Scientific
Information



2. Make Decisions

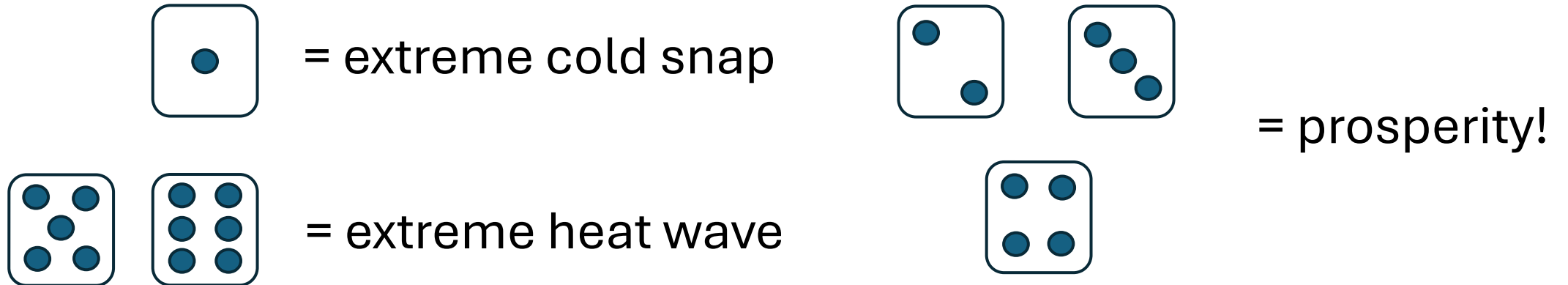


3. Make
Observations



4. Review
Consequences

Step 1: Receive **NEW** Scientific Information



Step 2: Make Decisions

Allocate your 10 resources among the 3 investment areas

- freeze protection
- development
- heat protection

Investment in
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Investment in
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Note - If you roll a 6: Use 1 bean

Step 3: Make Observations

Each table will roll the dice 10 times (1 roll = 1 year) to determine the potential weather conditions of the decade

If you roll a 1: remove 1 bead from freeze protection

If you roll a 5 or 6: remove 1 bead from heat protection

If you roll a 2, 3, 4: you keep your beads till the next round

If you roll a 1, 5, or 6 with no resources remaining: you face a humanitarian crisis!



Step 4: Review Consequences

INDIVIDUAL SCORE CARD:

Decade	How many Humanitarian Crises?	How many Prosperity Points?
1 st		
2 nd		



A reminder on how to win!

- The table with the fewest collective humanitarian crises will be the winning nation!
- The governor with no humanitarian crises + the most prosperity points will be the winning governor!



BUT WAIT!



Special Offer:



- **Receive a robust choice shield - no humanitarian crises!**
- **Only 2 guaranteed prosperity points**
- **All at the table must agree**

Now lets play! (Round 2)

- Remember your **new** scientific information
- Allocate your resources
- Roll the dice! 1 roll = 1 year or **Robust Option?**
- Make observations
- Review consequences (individually and as a team)
- Raise your hand with any questions – we can help!



Lets discuss:

- What did you realize about your planning style while playing?



- How did your priorities differ across the nation?
And how did that impact your planning and results?



- Who chose the robust option and why?



- How does this game relate to the state of planning today?





Using the "If...Then...We" Will Method

If... Then... We will...

- If:
 - Uncertain variable
- Then:
 - Consequences of those conditions for your agency or region
- Our responses/actions will be:
 - What your agency/community might do to manage, address, or mitigate consequences of those changing conditions



For Example

- **If** the region grows faster than expected, **then** existing roads and services may be unable to meet the increased travel demand, so **we will** accelerate roadway and transit investments in high-growth areas
- **If** the region's population continues to age, **then** residents may face increased challenges accessing healthcare, so **we will** invest in accessible transit programs and partner with aging service providers
- Remember: this is a thought exercise and some scenarios may be less predictable or be harder to account for



Next Steps

- Identify driving forces that are likely to have the highest impact:
 - For your region
 - For your organization
- What scenarios could occur?
- Map out the ifs/thens/we wills
- Identify low hanging fruit!
 - Are there some “we wills” that occur in response to more than one scenario? Prioritize those actions!



Thank you for playing!

- Ryan Collins
 - rcollins@nado.org
- Haley Schultheis
 - hschultheis@nado.org
- www.NADO.org
- www.RuralTransportation.org

