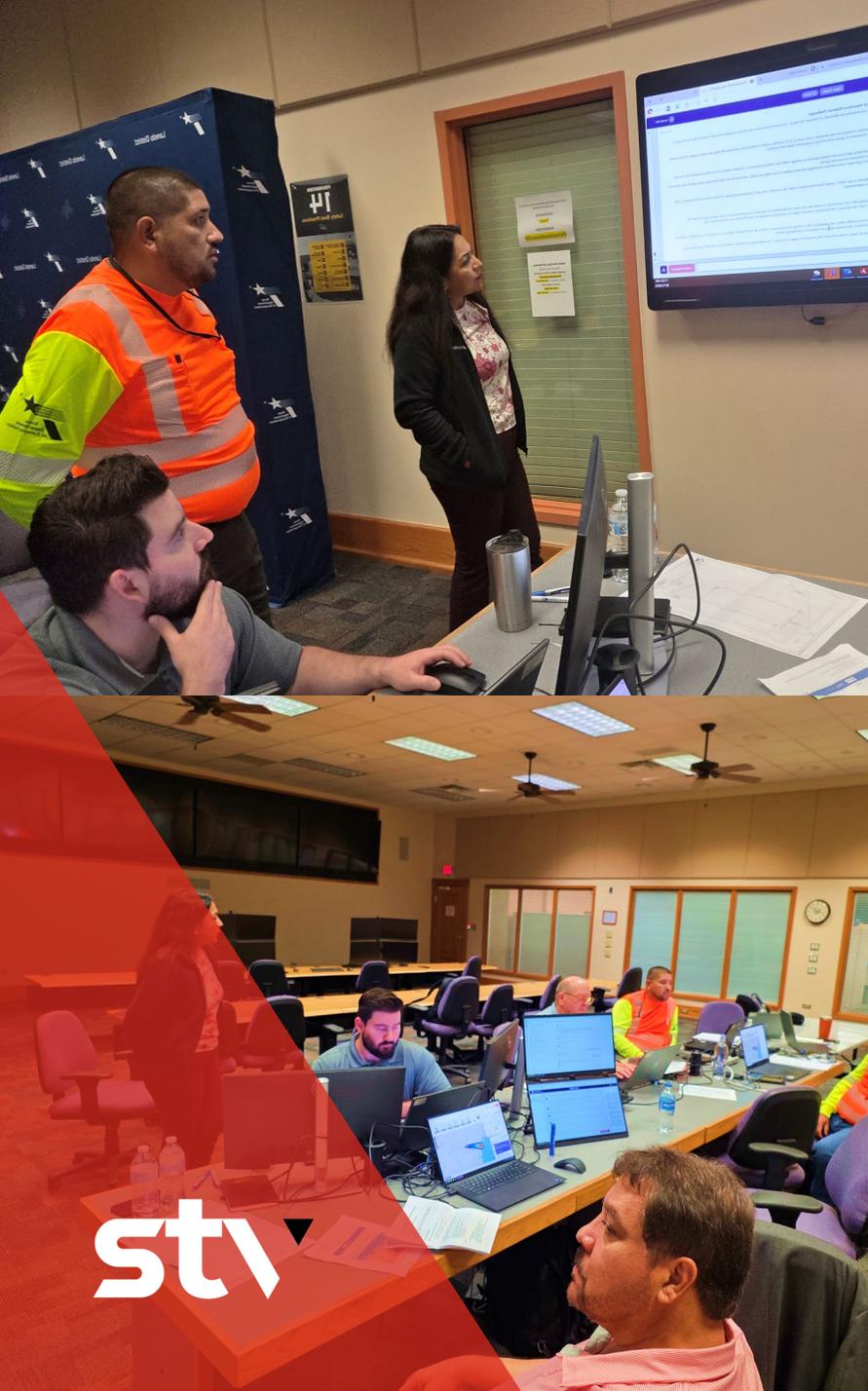**PROTECTING THE INTERSTATE ADVANTAGE:** Security and Flow at the Frontlines of Trade

INTERSTATE 27

Update on the Ports-to-Plains corridor naming Interstate 27

Agenda

▶ Ports to Plains Alliance & Why a Tabletop Exercise

▶ Exercise "Opens Roads" Planning Timeline

▶ Objectives

▶ Scenario Narrative-Artificial Intelligence Integration

▶ Exercise Injects

▶ Stress Test - Resilience

▶ Planning, Design, and Grants (Financial Relief)

▶ Questions

Participant Acknowledgement

Good afternoon,

I just wanted to say thank you again for the excellent exercise today. Going into this I was a bit skeptical on how it would all work as we have not done an exercise with AI before. From initial reports the team here in Austin and in the districts were super impressed and have ideas on how to expand it. I was very pleased with how the whole exercise played out. I think there was great conversations at each EOC, and everyone learned something.

 Again, thank you very much for all your time from planning, to today, and to the future.
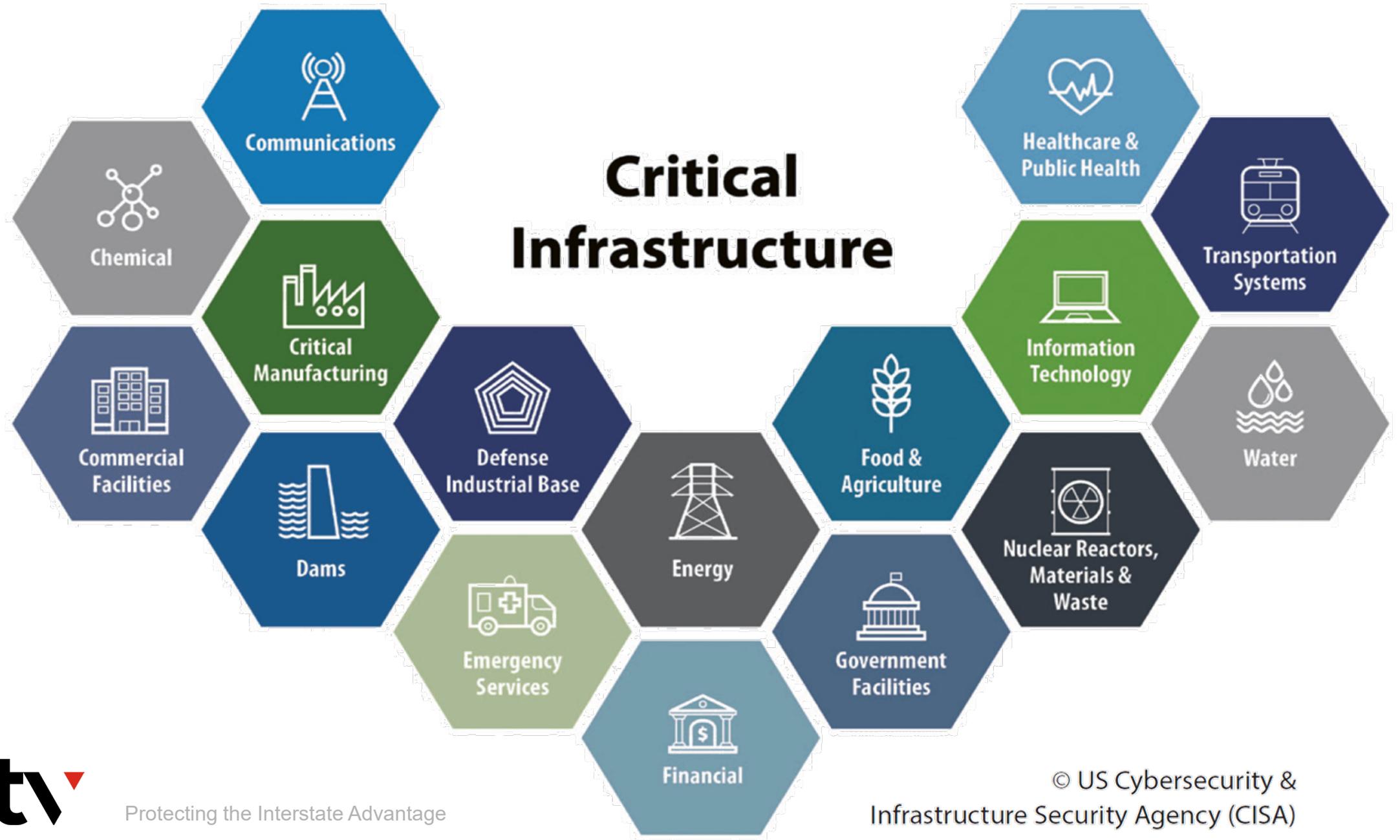
Thank you,
Matthew

Matthew Heinze
Texas Department of Transportation
Maintenance Division
Emergency Management Coordinator
6230 E Stassney Ln
Austin, TX 78744

Critical Infrastructure

Communications · Chemical · Critical Manufacturing · Commercial Facilities · Dams · Defense Industrial Base · Emergency Services · Energy · Financial · Food & Agriculture · Government Facilities · Nuclear Reactors, Materials & Waste · Healthcare & Public Health · Information Technology · Transportation Systems · Water

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Ports to Plains Alliance

INTERSTATE 27

▶ March 15, 2022, President Biden signed the FY2022 Omnibus Appropriation legislation designating the Ports-to-Plains Corridor in Texas and New Mexico as a Future Interstate Highway.

▶ Impacts to the Economy (Energy & Agriculture)

▶ Improve Fright Movement (Mexico to Canada)

▶ International Trade is a key economic sector to Ports to Plains

▶ Impacts to Growth

▶ Impacts to National Defense

RISK IMPLICATIONS

▶ Multiple Ports of Entry – Critical Infrastructure

▶ Homeland Security

▶ Natural Weather Impacts (Hurricanes)

▶ Communities along the corridor will experience growth

Protecting the Interstate Advantage   5

Ports to Plains – Texas Corridor
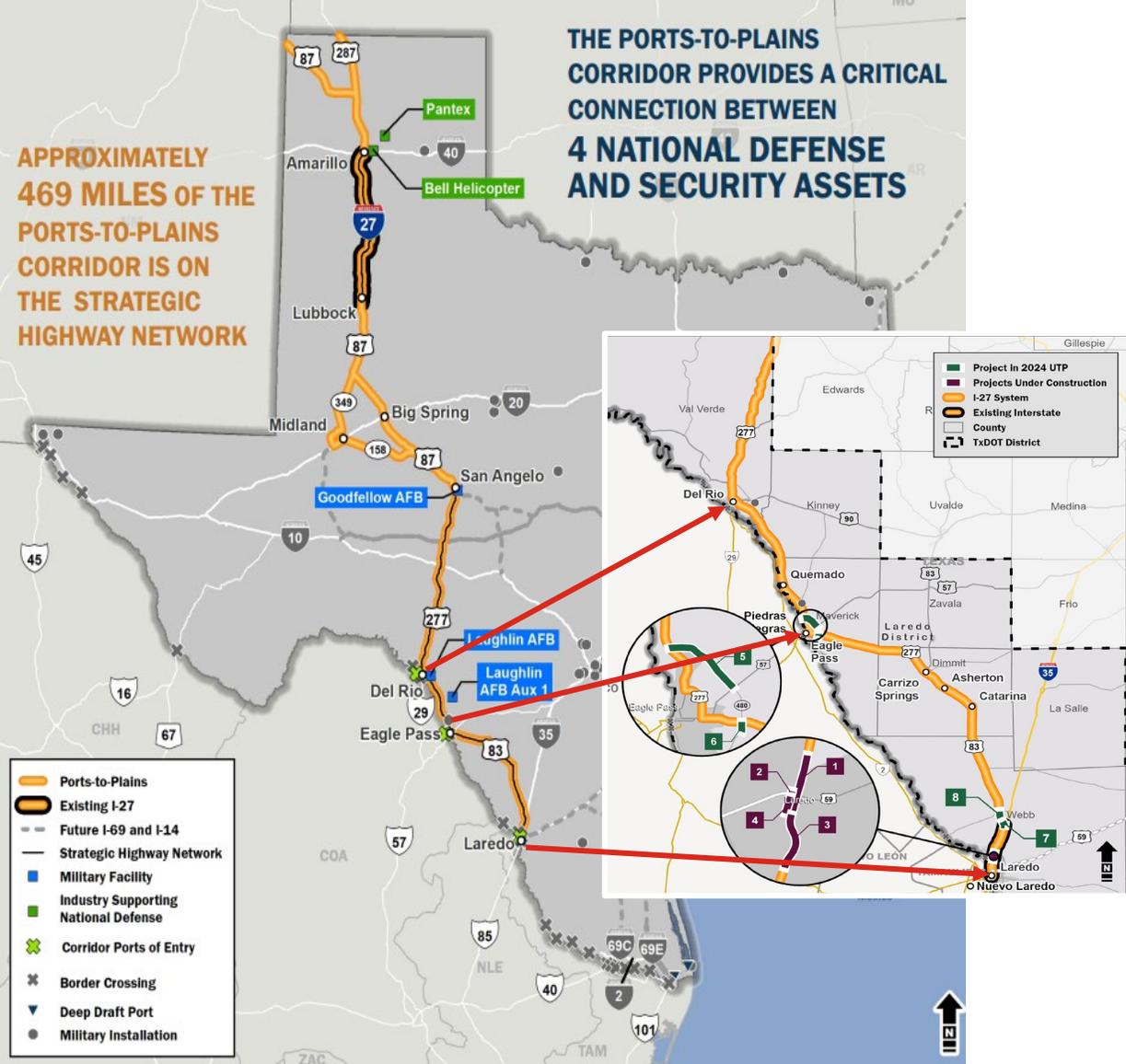
▶ Columbia-Solidarity International Bridge, Laredo Port of Entry

▶ Eagle Pass International Bridge, Land Port of Entry

▶ Del Rio International Bridge, Land Port of Entry

▶ Air Force Bases (Strategic to National Defense)

▶ Defense Industry (Bell Textron)

▶ AI Campus & Data Centers

▶ Pantex (Center for Nuclear Weapons)

STAKEHOLDERS
- TxDOT
- P2P Alliance
- SAME Texas Based Post
- Academia

PLANNING TIMELINE
- Nov 24 (Concept Discussion)
- Feb 25 TxDOT-STV Concept Review
- Apr 25 Scenario Approval
- June 25 Red/White Cell Training
- Aug 25 TTEX Dry Run
- Sep 25 Exercise

RESOURCE REQUIREMENTS
- Planning Team (SIM Cells)
- Technical Assistance
- TTEX (AI simulation-climate & site data)
- TTEX (Main Exercise Location-Austin)

stv

Protecting the Interstate Advantage

Exercise "Open Roads"

WHO: TxDOT, the Society of American Military Engineers (SAME) Texas-Based Post-Led by STV, the Ports to Plains Alliance, local agencies/communities (along the exercise Texas P2P corridor).

WHAT: Conduct an Artificial Intelligence generated Tabletop Exercise (TTEX) with graphic injects.

WHERE: Phase1 –TxDOT Hurricane Preparedness Workshop; Phase 2 – TxDOT Austin/Laredo & San Antonio.

WHEN: Phase 1 - May 2025 and Phase 2 – Sep 2025.

WHY: Build partnerships and strengthen National Security by exercising operational coordination, planning, risk management, intelligence sharing/dissemination, cyber security, infrastructure systems, threats/hazard identification, and long-term vulnerability reduction.

Exercise Overview

Title: "Open Roads"

Type: Hybrid exercise with integrated graphics and Artificial Intelligence generated

Duration: 4 hours

Participants: TxDOT EOCs

Scope: Focus on preparations, response, and continuity of operations for a Category 4 storm/500-year flood.

Facilitator:
- Fabian Mendoza (STV, Federal), exercise director

Red Cell:
- Clint Bodungen, (ThreatGen)
- Johhny McGlone (STV, GIS) – AI & Graphic facilitators

White Cell:
- Breanna Horne (STV, Resilience Director)
- Jose Aguilar (STV-Federal)
- Lars Zetterstrom (LAN-Federal)
- Bobby Landrum (STV Operations)

AutoTableTop

- Realism and Complexity
- Custom/Dynamic Injects
- Customization
- Speed and Efficiency
- Cost-Effectiveness
- Data-Driven Scenarios
- Scalability
- Dynamic Adaptation Innovation and Engagement (encourages critical thinking)
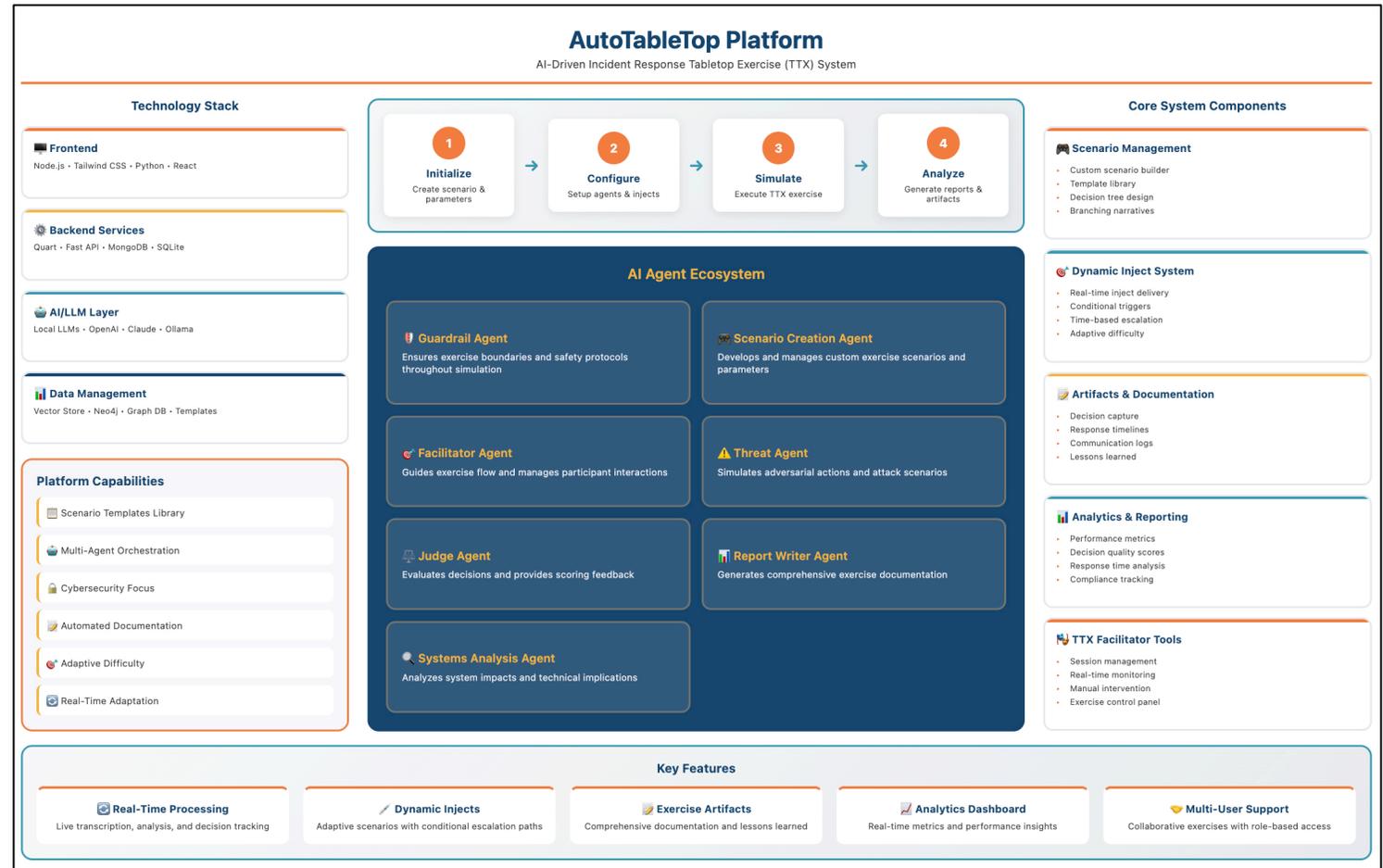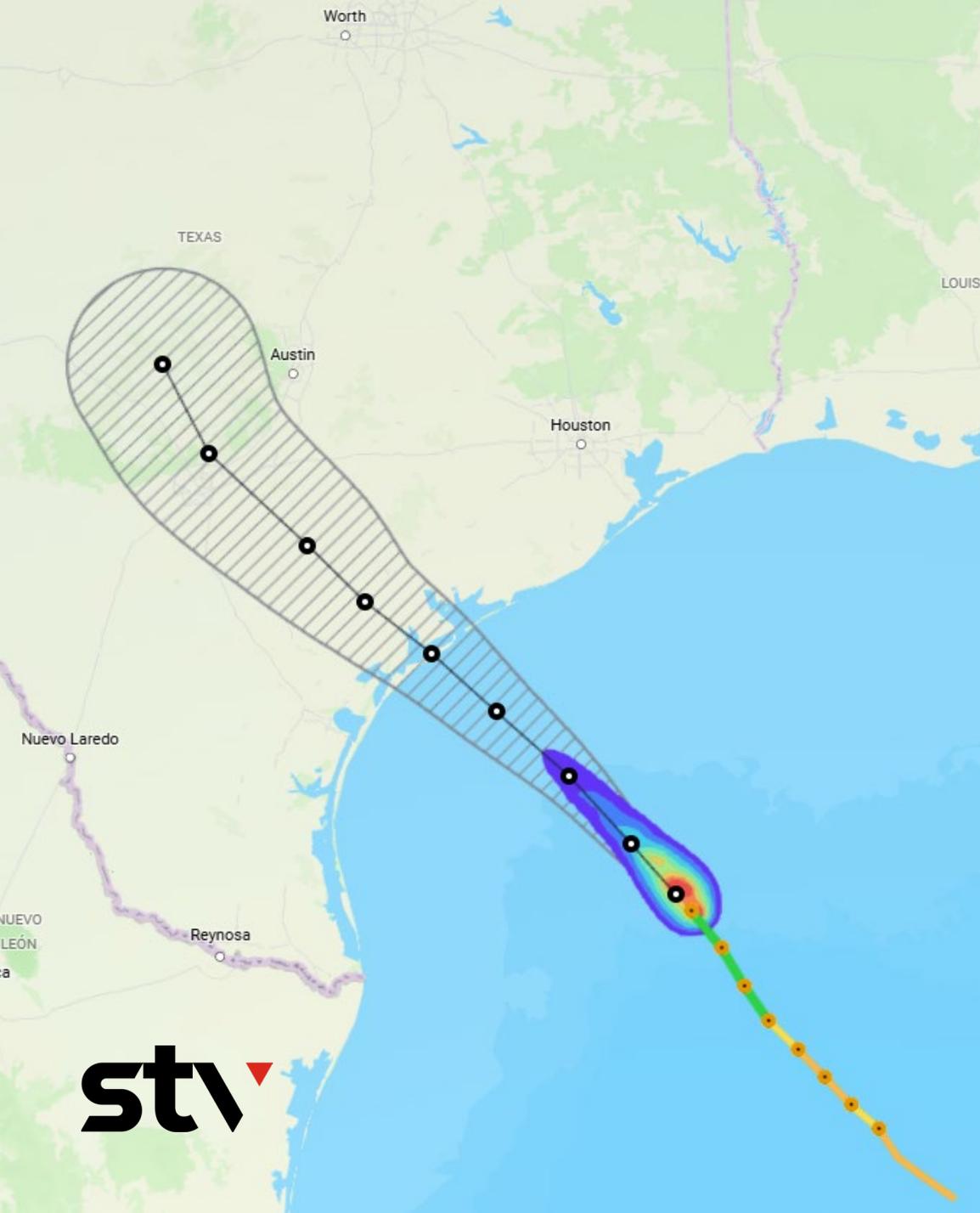
Exercise Objectives

▶ Assess TxDOT's readiness to respond to and recover from hurricane impacts on transportation assets focused on the Plains-To-Ports Corridor

▶ Evaluate communication and coordination between TxDOT districts and the TxDOT EOC

▶ Practice decision-making related to evacuation route management, road closures, and traffic routing

▶ Test internal resource deployment and coordination with local and state emergency partners (exercise play only)

▶ Stress Test the corridor vulnerability to flooding

Protecting the Interstate Advantage

Hurricane Beulah in the RGV, photo by Barry Goldsmith

IMAGINE: A hurricane makes landfall at Rockport/Corpus Christi, with major inland effects stretching north toward Del Rio, Eagle Pass and Laredo.

Scenario Overview – "Beulah II"

Timeframe: July – Peak of hurricane season

Storm: Rapidly intensifying Category 4 storm

Main Threats: 140 mph winds, 15-ft storm surge, flash flooding, major debris on key highways, and prolonged power outages

Timeline of Events

DAY 1 — 72 Hours Before Landfall
Hurricane Watch Issued

DAY 2 — 36 Hours Before Landfall
Evacuation Ordered

DAY 3 — Landfall at the Texas Gulf Coast

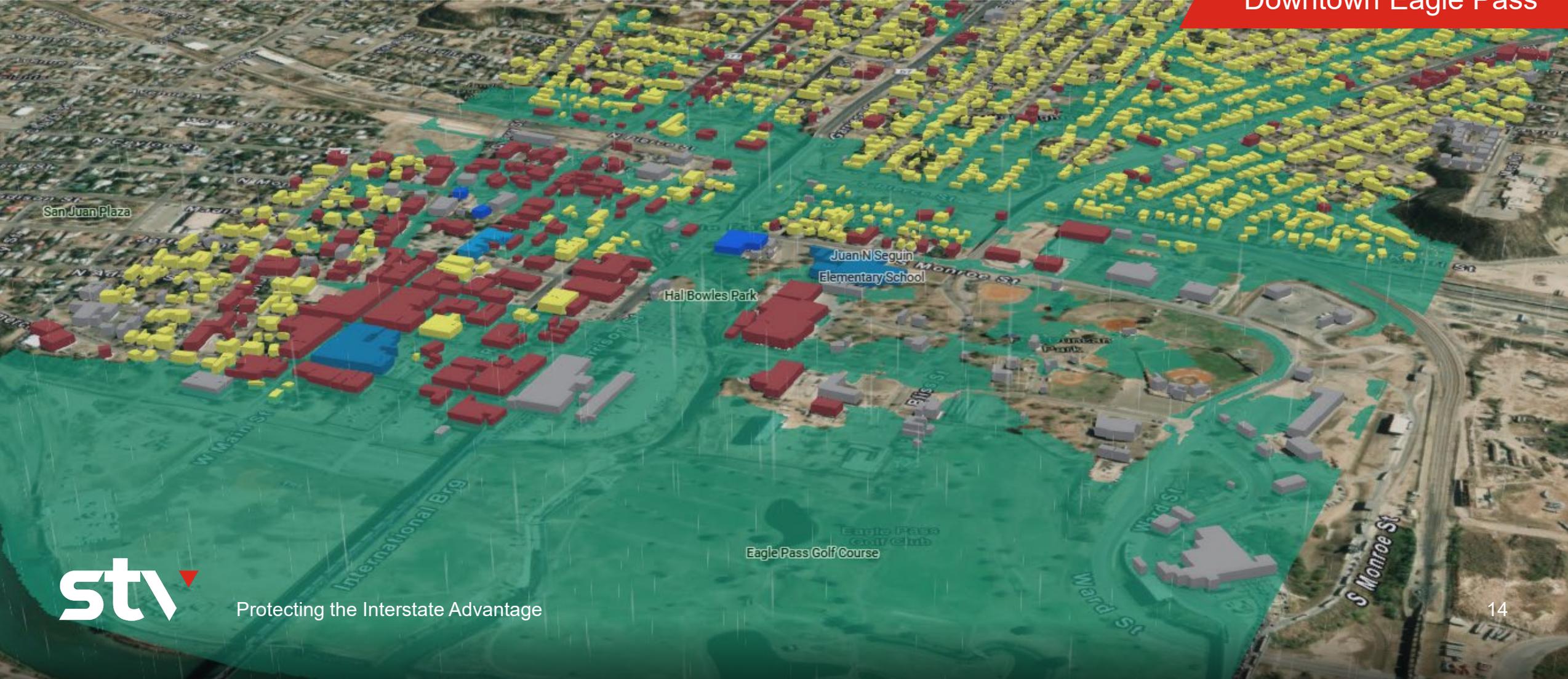**DAY 4** — Storm Moves Inland, reaches Laredo, Eagle Pass, Del Rio

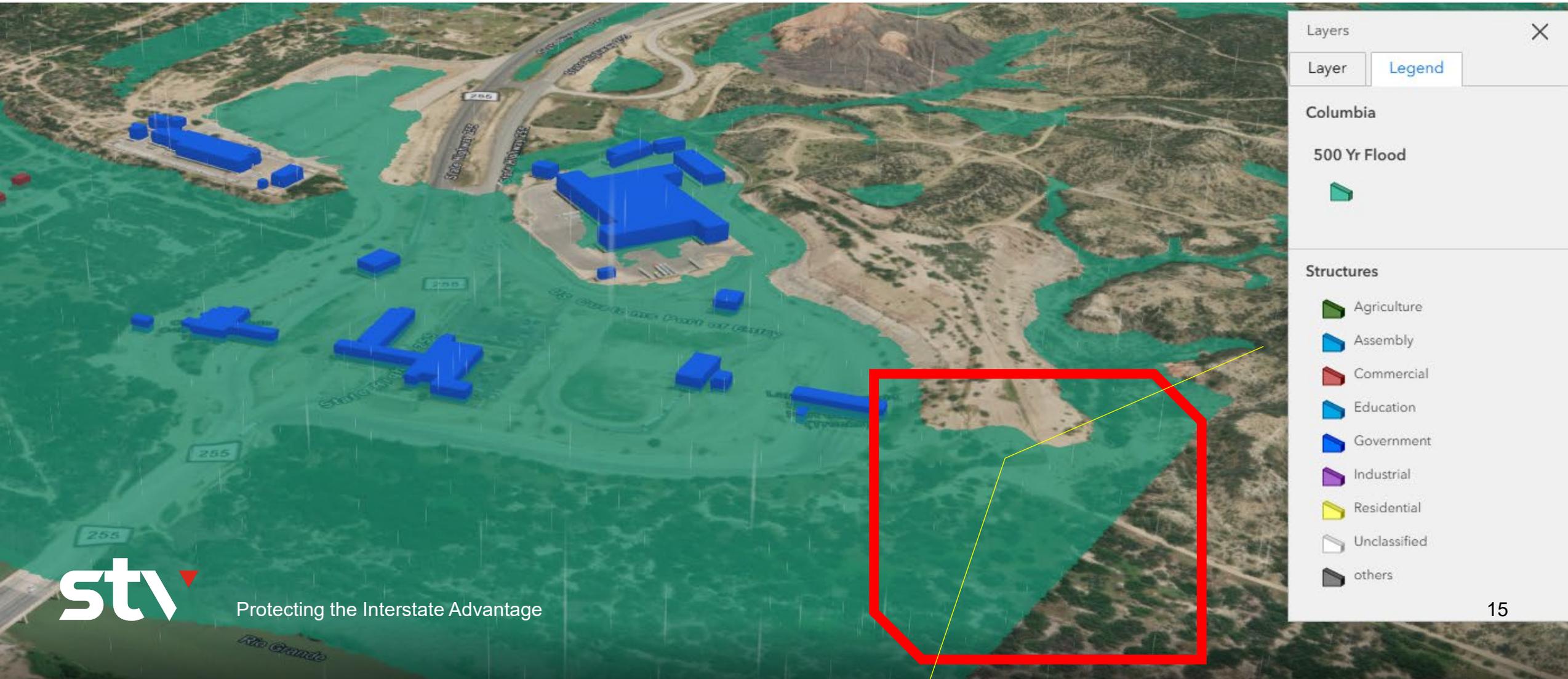**DAY 5-6** — Inland Impacts

DAY 7-14 — Immediate Recovery

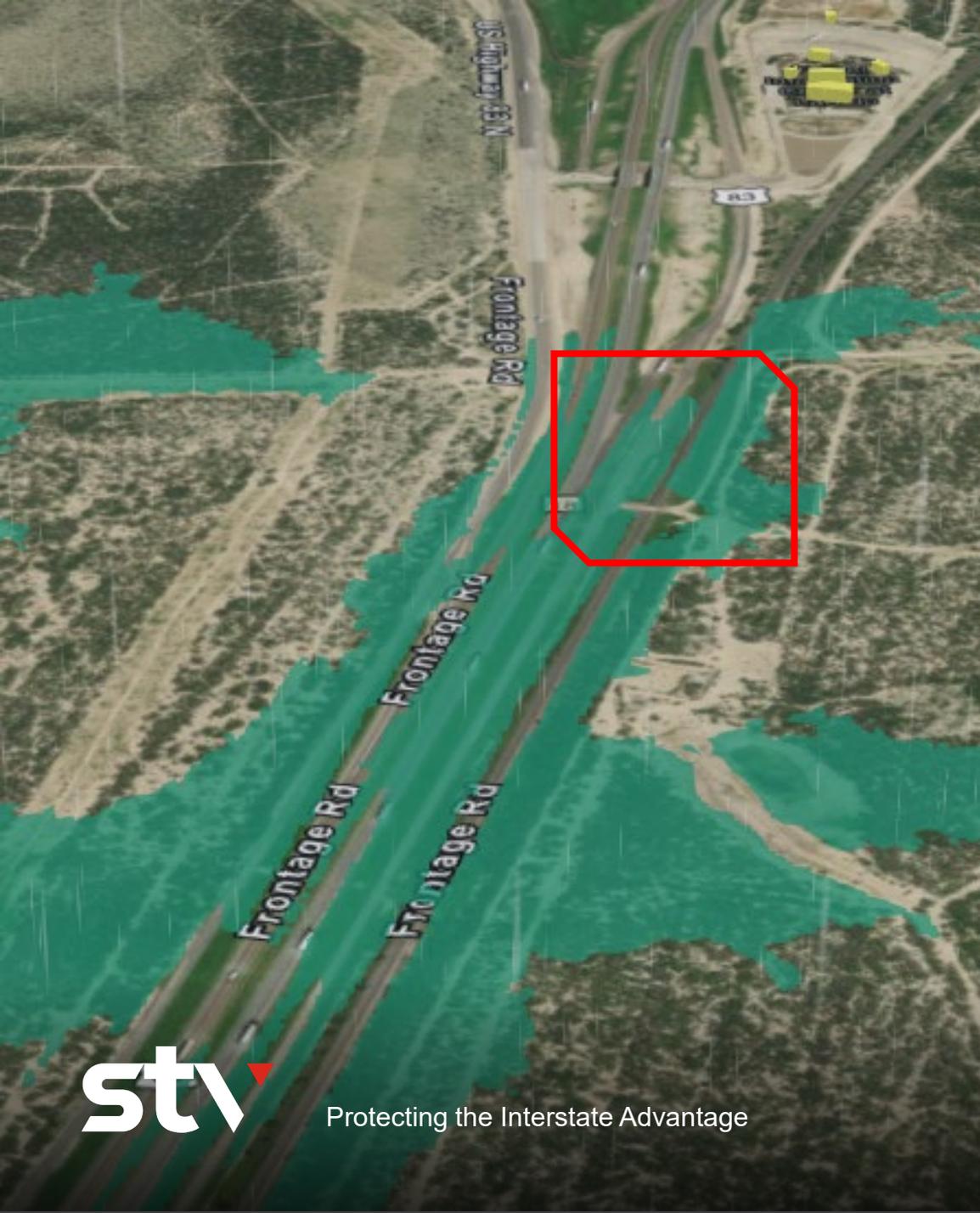# Piedras Negras: Levee Breach

Protecting the Interstate Advantage

Laredo: Riverine Flooding

Legend:

Columbia

500 Yr Flood

Structures
- Agriculture
- Assembly
- Commercial
- Education
- Government
- Industrial
- Residential
- Unclassified
- others

US-83 / I-35: Railroad Derailment

A derailment occurs in the vicinity of Hwy 83 and I35 link adjacent to a TxDOT Travel Tourist Center. The track loss structural integrity due to flooding, causing a rail car tanker to turnover and spill hazardous material.
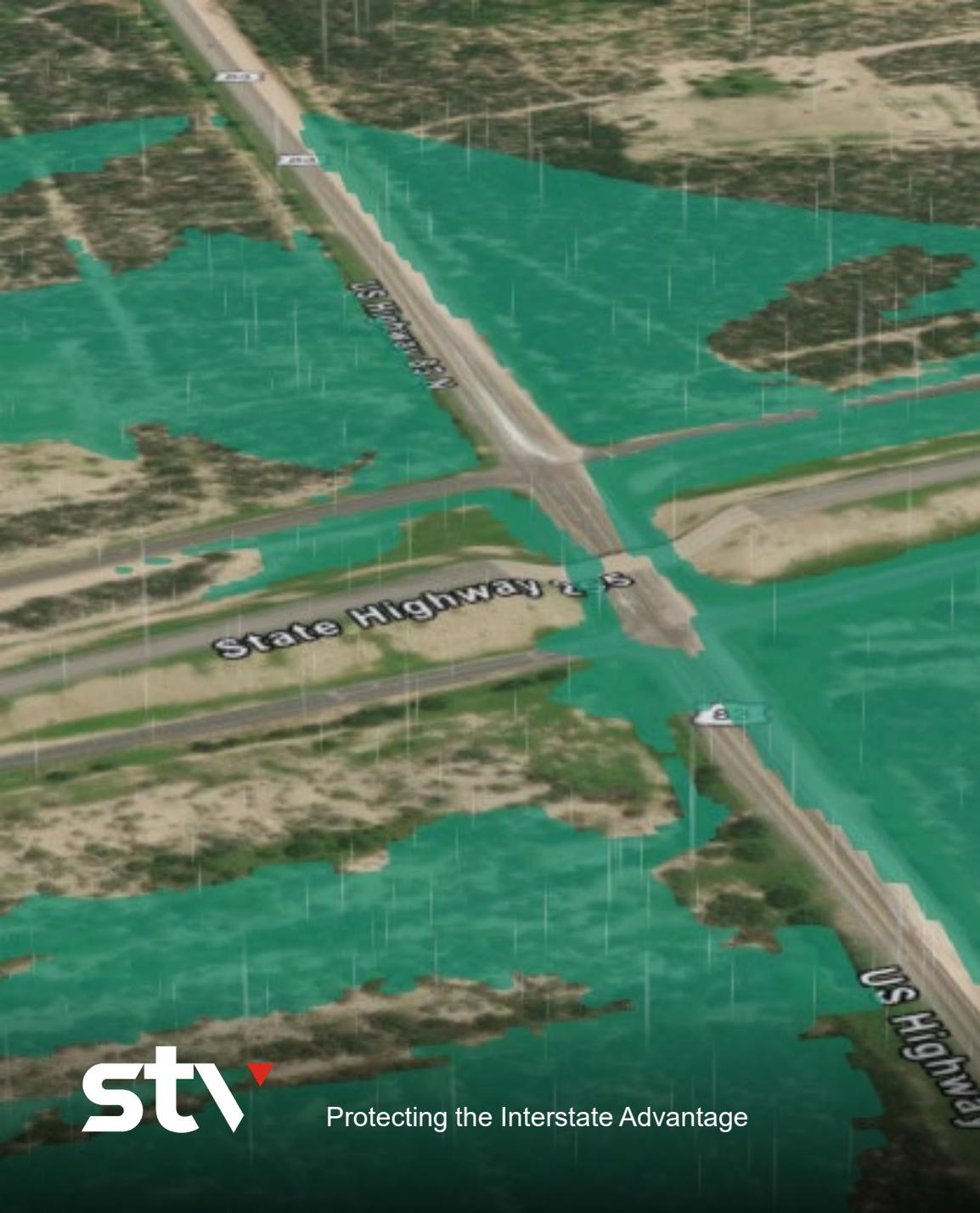
AAR Insights

▶ Having injects outside of the "normal" hurricane hazards got the team to really think. It also required them to not get focused on one threat.

▶ First time using AI for TxDOT EM. The outcome was very positively received by the teams.

▶ It was good to have people in remote locations, 2 districts and HQ, participate over a wide area along with different levels of response.

▶ This was a very positive experience and something that TxDOT will build on. In the future it would be good to have local government partners involved.

Resilience Opportunity

"Once-in-a-generation" investment to expand/widen the Future Interstate.

Exercise Insights

Protecting the Interstate Advantage

Policies, Institutions and Processes

Expertise

Operations and Maintenance

Technical Planning and Design

Financial Arrangements and Incentives

WHAT MAKES **INFRASTRUCTURE** RESILIENT?

Safe Failure

Good Governance

Flexibility

Information Flows

Resourcefulness

Responsiveness

Robustness

Capacity to Learn

Redundancy
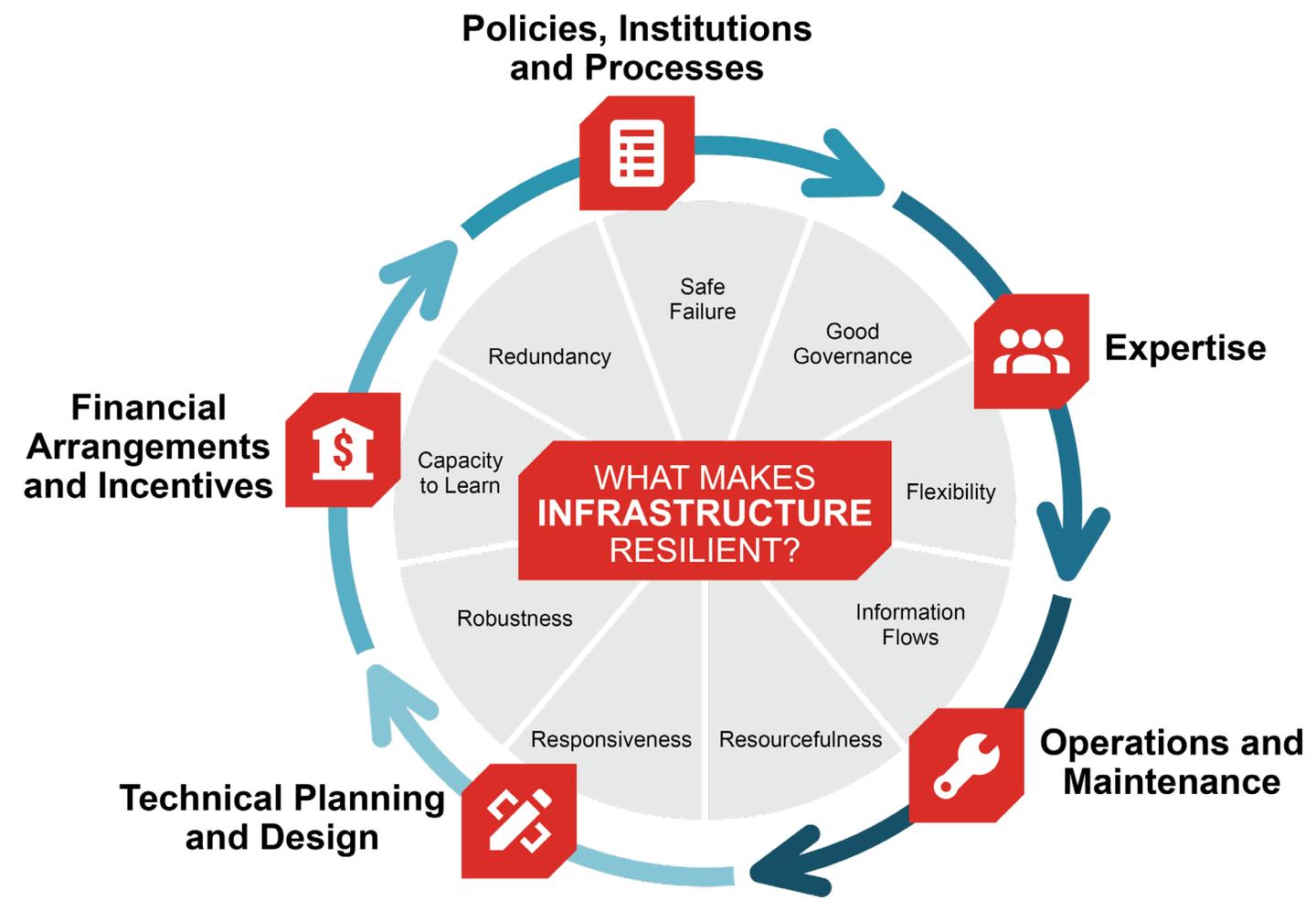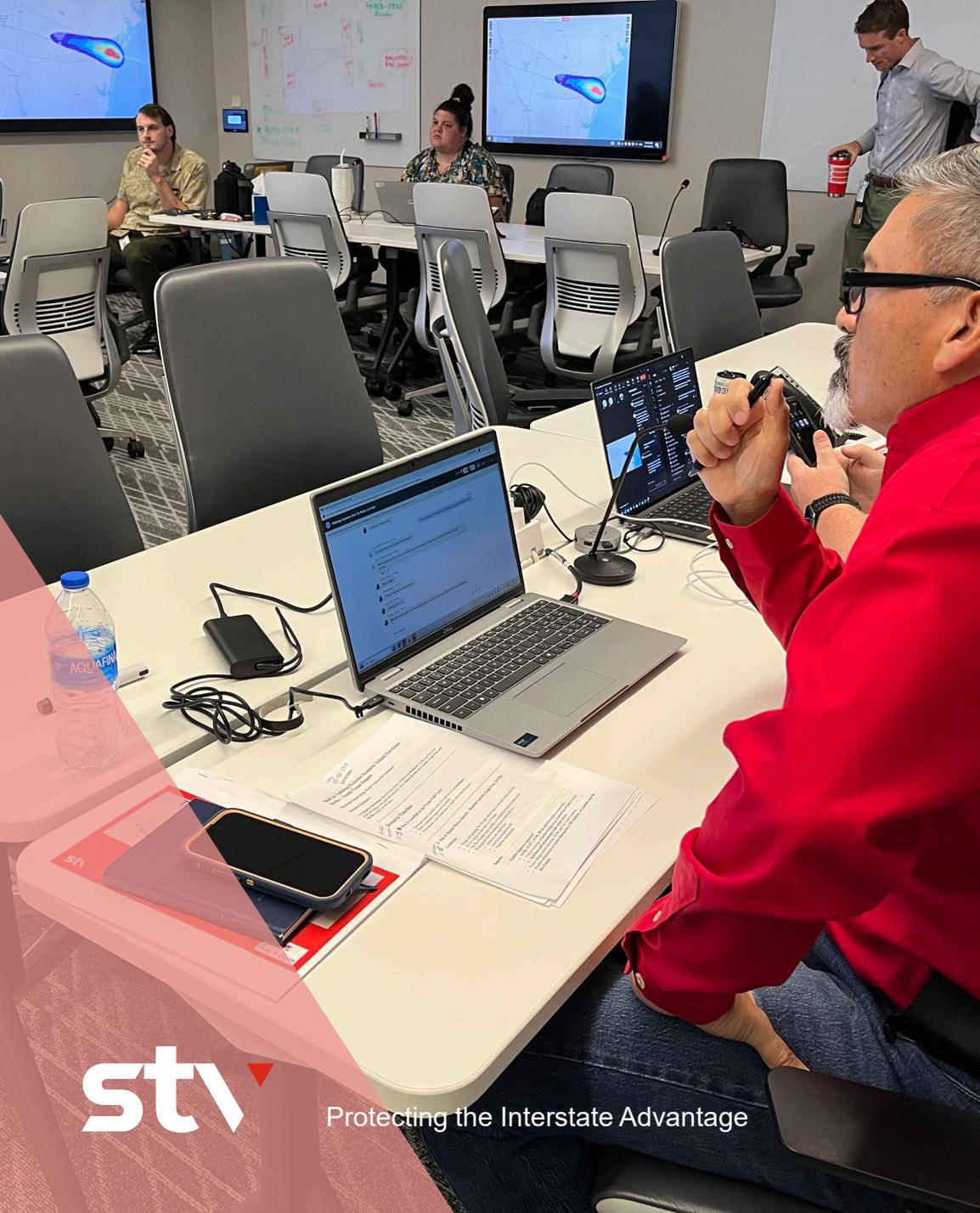
Resilience Analysis

IDENTIFY

▶ (Additional) vulnerabilities

▶ Critical infrastructure

▶ Important stakeholders

VALIDATE

▶ "Ground-truthing" modeling

▶ Resilience Improvement Plan +

LEVERAGE

▶ Operational resilience

Protecting the Interstate Advantage

Resilience Planning

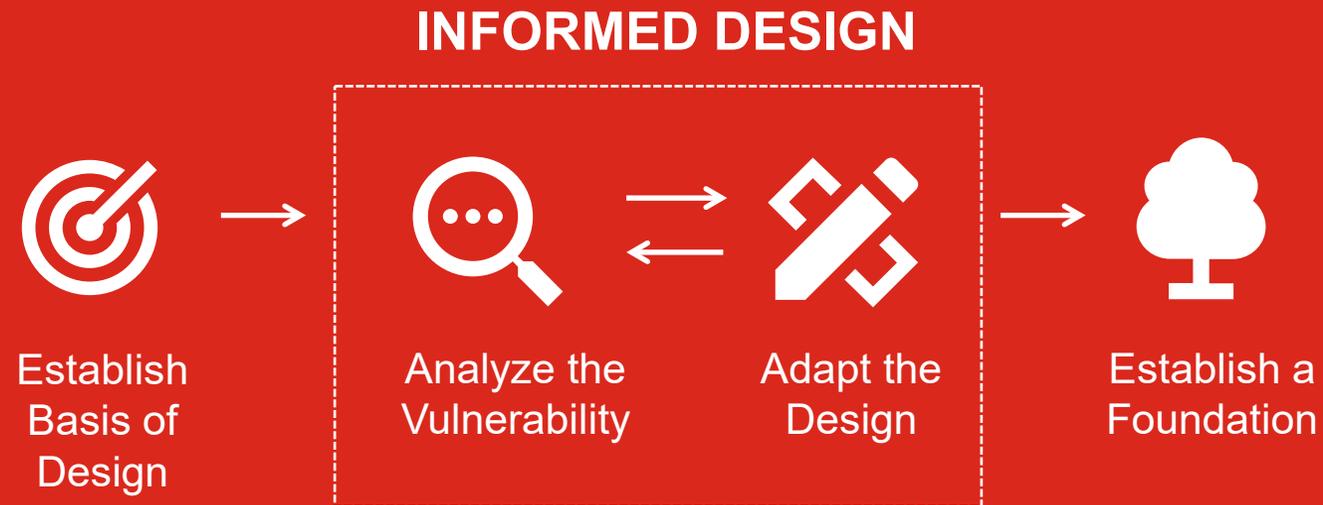▶ Economic development affecting 200+ communities
- Need to be resilient to environmental risks

Resilience planning increases public confidence by showing proactive considerations for safety durability.

Analyze Environmental Conditions and Policy Framework → **Establish Resilience Goals Identify Vulnerable Critical Assets** → **Iterate Alternative Approaches to Reduce Risk**

Resilience Planning

Resilient Design

INFORMED DESIGN

Establish
Basis of
Design

Analyze the
Vulnerability

Adapt the
Design

Establish a
Foundation

Vulnerability Ranking Equation
(Exposure + Sensitivity – Adaptive Capacity) * Criticality

Toolkit for Resilient Roadways

▶ Spillways

▶ Culvert size

▶ Wider shoulders (good for icy conditions, evac)
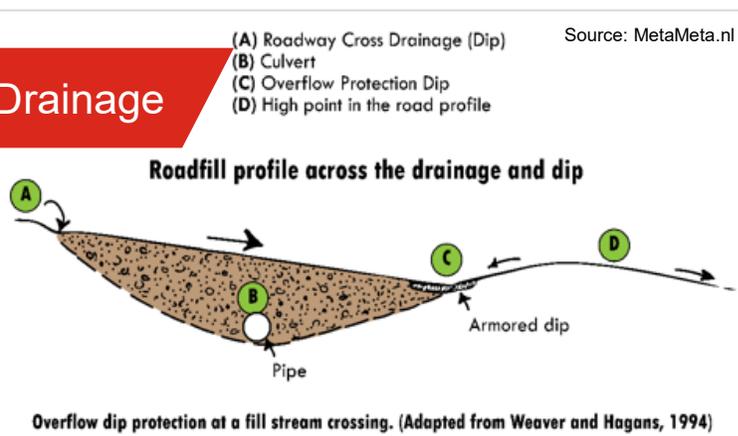
▶ Clearances on bridge heights

With the help of our team, infrastructure is designed to withstand and adapt to shocks and stresses, including natural disasters and economic disruptions.
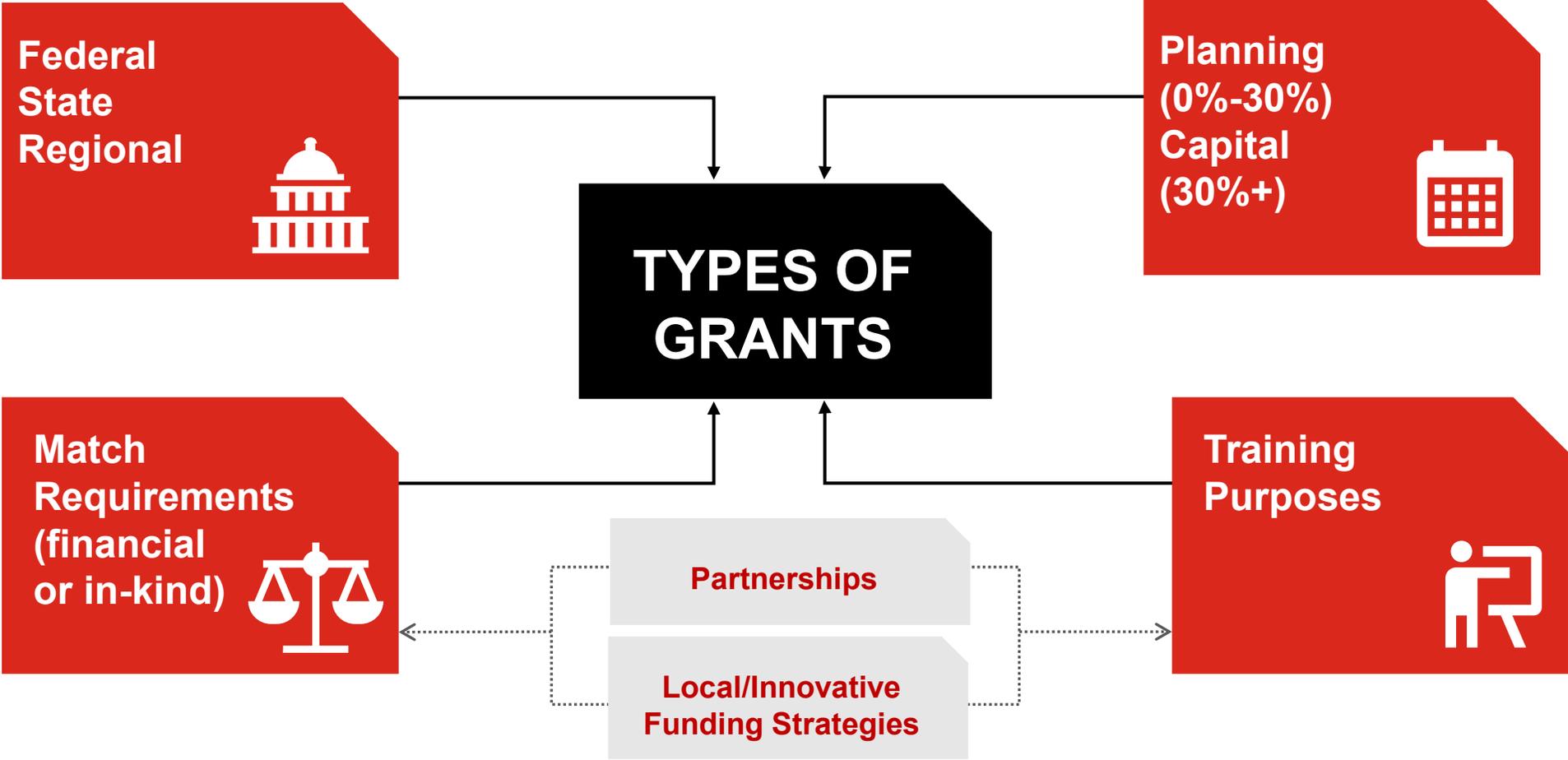
Toolkit for Resilient Roadways

▶ Armor plating
▶ Material selection
▶ Permeable infrastructure
▶ Opportunity to enhance cell service coverage

Considering resilience in infrastructure design, planning and operation leads to safer, longer-lasting, and more cost-effective infrastructure.

Drainage

Source: MetaMeta.nl

(A) Roadway Cross Drainage (Dip)
(B) Culvert
(C) Overflow Protection Dip
(D) High point in the road profile

Roadfill profile across the drainage and dip

A

B

Pipe

C

D

Armored dip

Overflow dip protection at a fill stream crossing. (Adapted from Weaver and Hagans, 1994)

Asphalt mix

Bioswale

Funding Foundations

**Federal
State
Regional**

**Planning
(0%-30%)
Capital
(30%+)**

TYPES OF GRANTS

**Match
Requirements
(financial
or in-kind)**

**Training
Purposes**

Partnerships

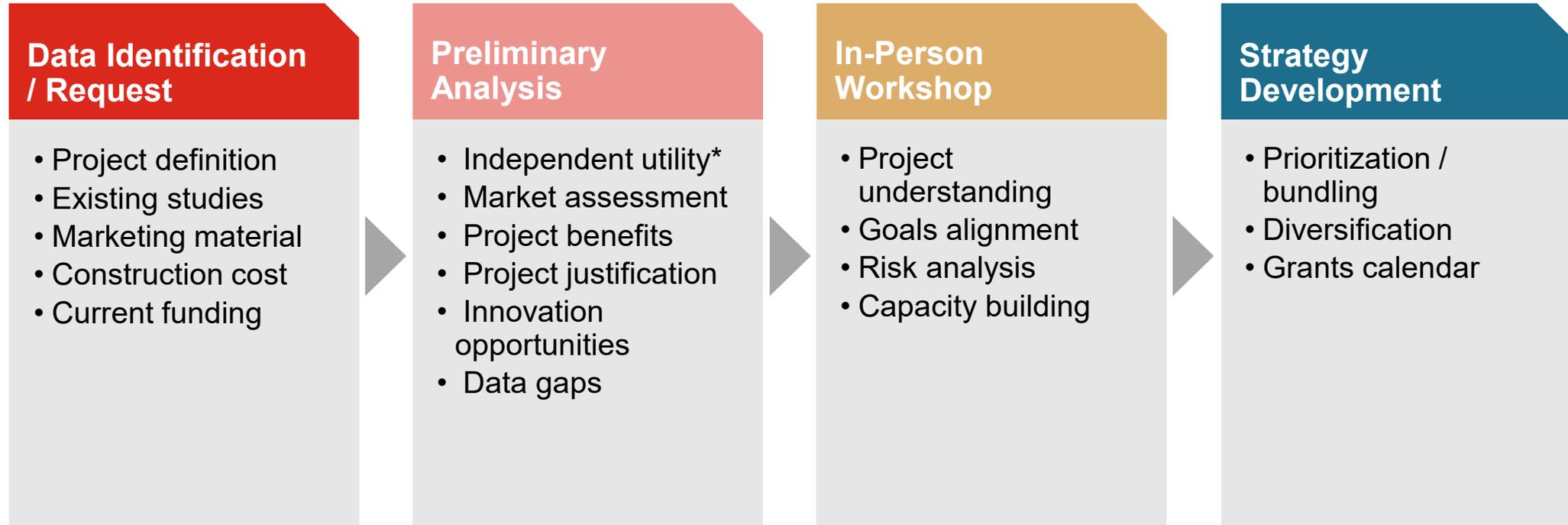**Local/Innovative
Funding Strategies**

Partnerships

▶ **Applicant**
- Public sector (city, county, MPO, regional agency)

▶ **Project owner**
- Public or Private sector

▶ **Project financial contributor**

▶ **Stakeholders**
- Government officials
- Local authorities
- Academic institutions
- Private companies
- Advocacy groups
- Advisory councils
- Local leaders

Funding Strategies

Data Identification / Request

- Project definition
- Existing studies
- Marketing material
- Construction cost
- Current funding

Preliminary Analysis

- Independent utility*
- Market assessment
- Project benefits
- Project justification
- Innovation opportunities
- Data gaps

In-Person Workshop

- Project understanding
- Goals alignment
- Risk analysis
- Capacity building

Strategy Development

- Prioritization / bundling
- Diversification
- Grants calendar

G.R.A.N.T.S. @ STV

▶ Proprietary tool designed to simplify and streamline the grant discovery process

▶ Advanced web scraping automatically pulls data from various grant sources and provides comprehensive view of available opportunities and requirements

▶ Seamlessly aligns grant opportunities with your project plans, matching the right resources with your initiatives

Click on the QR code to learn more about G.R.A.N.T.S Dashboard

Continuous Cycle

Resilience Funding Opportunities

▶ Unlock funding through risk reduction

- Monetize the benefits of resilience improvements through insurance
- De-silo resilience practitioners from funding and financing professionals
- Enhance resilience by capturing the value of projects to the wider economy

Funding models are shifting, with anticipated changes in insurance structure and federal uncertainty driving exploration of alternative finance approaches and mechanisms.

Infrastructure Economics Capabilities

▶ STV's Grant Advisory Services offer the following technical capabilities:
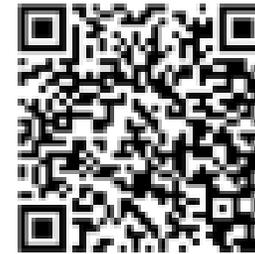
| Grant procurement & administration	Benefit-cost analysis	Geospatial analysis	Distributional analysis

▶ Additional capabilities include:
- Economic impact assessment
- Finance analysis
- Input-output model
- Life-cycle cost analysis
- Prioritization analysis
- Real estate economic development/analysis

Click on the QR code to view STV's interactive grants and funding opportunities
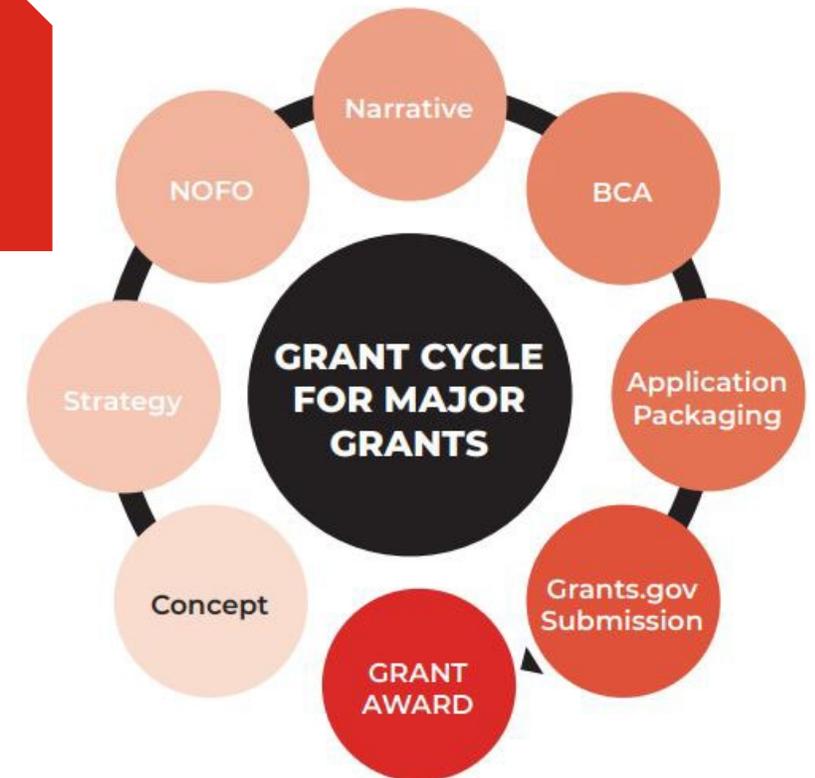
Thank You!

Please connect with us.

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