

**Report Out Slides
Minneapolis, MN
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Transportation Committee

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- Transportation Research Board: Resiliency Section Updates
 - Advisory Committee (CROs and Federal Partners)
 - Task Force (Resiliency and Sustainability)
 - Conduct mapping exercise of all TRB activities
 - Current Research Activities (Community Perspective)
 - Incorporating resiliency into State Department of Transportation agencies
 - Primer & Toolkit on Resiliency for State DOT
 - Resiliency Summit (Oct 2018) in Denver
 - **All are welcome!**
- American Association of State Highway & Transportation Officials
 - Formed Transportation Systems Security and Resiliency (TSSR)
 - Grown from post-9/11 security efforts – extension of a long history of security related resiliency efforts and guidance.

How do we add value to these efforts?

SURFACE TRANSPORTATION PLANNING (Roadways)

WHO		PLANNING
ROADWAY OWNERS	INFLUENCERS	RISK IDENTIFICATION & COMMUNICATION
LOCAL/PRIVATE	COMMUNITY	
STATE	ELECTED OFFICIALS	PLAN DEVELOPMENT
REGIONAL	UNIONS	FINANCE
FEDERAL	METROPOLITAN PLANNING ORGANIZATIONS	BUILD BACK BETTER

What questions should communities be asking?

- Local risks
- Critical roadways
- Where are
 - Economic Hubs/Services
 - Vulnerable Populations
- Major supply chain routes
 - For the community (food, fuel)
 - Through the community
- Transportation access



What questions should communities be asking?

- Do you understand
 - Timeframe for recovery
 - Each roadway element
 - Maintenance plans
 - Known problem areas
- Build back better
 - Can you create robust critical nodes?
 - Where can there be redundancies or robustness be built into the roadway system?
 - Redundancy of functionality - e.g., two bridges for planned maintenance and access
 - For unplanned events, will it be helped by planning for other events?



What questions should communities be asking?

- Emerging technologies/processes
 - What is the level of awareness of design/tech/materials, etc?
- Who will operate and maintain new systems and how?
- Who are key contacts/partners?
- Can the community use P3s?
- Do project lifecycles align to hazard needs (acute & chronic)?
- Can other existing processes be leveraged?



- Currently working through a short list
- AASHTO resource from discussion, next steps for community

Table 2. Strategies to Achieve Resilience

STRATEGY	DEFINITION
Add Redundancy	Adding redundancies to the asset or system can improve resilience by being able to reroute production or process flows through one or more parallel components or subsystems.
Backup Components	Having backup components available can improve resilience by being able to quickly replace a component or asset whose function is disrupted.
Substitution	Substitution can improve resilience by allowing a process to switch from one input or component to another, perhaps with slightly different properties, but without major impact on the final product or process.
Reduce Vulnerabilities	Products and processes can also be redesigned to reduce or eliminate their vulnerabilities to specific threats.
Improvise Approaches	Resilience may depend on the ability to improvise during a disruptive event, perhaps by re-engineering processes in real time or making do with materials and assets at hand.
Priority Access	The resilience of a critical infrastructure asset could be enhanced by giving it priority access to critical resources, thereby maintaining its services or getting services back on-line more quickly to aid in a more general community recovery.
Model Disruptions	Many discussions regarding resilience of critical infrastructure stress the importance of modeling system operations, including the system's interdependencies with other systems beyond the immediate control of operators, assessing vulnerabilities, and contingency planning.
Backup Logistics	Planning (preparedness) is particularly important if one is using back-up systems or substitution to help respond to events.