

**Minutes of the
State of Texas Resiliency Working Group**
Summary Report on August 24th, 2021 Virtual Meeting

Attendance

Airiohuodion, Charles	Girard, Laura (FHWA)	Nino, Julio
Alexander, Jamik (FHWA)	Gonzalez, Brigida	Norton, Laura
Balzen, Cody	Granger, Ryan	Overman, John
Barnett, Clay	Green, Veronica	Pike, Jason
Beall, Roger	Hall, Clifton	Ploch, Jackie
Benthul, Bart	Hofheins, Major	Prozzi, Jolanda
Bettis, Graham	Hong, Feng	Puppala, Anand J
Blazosky, Allie	Huerta, Ana Ramirez	Puppala, Anand J
Bonham, Christi	Jimenez, Sonia	Ramirez, Robert
Boulan, Yoshiko	Jones, ReaDonna	Ramirez, Thelma
Briones, Gracie	Keen, Stephen	Rodriguez III, Robert
Burns, Mike	Klee, RoseMarie	Rodriguez, Melany
Butler, Jessica	LaBorde, Ben	Rudge, Dan
Calle, Carlos	Leary, Michael (FHWA)	Schipull, Darcie
Campos, Jose (FHWA)	Li, Shirley	Schultz, Chelsea
Carlson, Todd	Lizewski, Ryan (FHWA)	Seedah, Dan
Casper, Craig	MacDonald, Robert	Shepherd, Annette
Christensen, Siobhan	Madrid, Pete	Shiraz, Mansour
Cousineau, Nicholas	Maley, Barbara (FHWA)	Tembely, Ibrahima
Dominguez, Javier	Mendive, Juan S.	Thurin, Peggy
English, Jeffrey	Miller, Matt	Tindall, Phillip
Fauver, Kirk (FHWA)	Mostafavidarani, Ali	Vourcos, Victor
Ferrini, Nicole M.	Muno, Travis	Walker, Cameron
Garcia, Eva	Neal, Jeffrey	Wells, Casey
Garza, Sara	Nelson, Christopher	Wolff, Catherine
Gick, Brittney	Nelson, Uryan	

Agenda

1. Jeff Neal- Introduction and Minutes Review- 10 Minutes
2. Kirk Fauver- Brief Overview of the Senate Transportation Reauthorization Bill - 5 Minutes (Attached)
3. Matt Miller- Resilience Resource TEMPO web page Discussion- 5 minutes
- 4. Presentations:**
 - a. City of El Paso, Nicole Ferrini on Municipal Resilience Plans and Community Resilience Concept- 20 minutes
 - b. TxDOT Maintenance, Feng Hong- Pavements Branch Manager- Managing Risk for Resilient Road Assets- 20 Minutes

5. Resilience Updates Around the State- 10 minutes
6. Jeff Neal- Closing Remarks- 5 minutes

Opening, Welcoming Comments:

Jeff Neal made brief introductory remarks in reviewing the agenda.

1. this meeting will provide presentations from City and State agency perspectives to expand conversation on some of the work going on around the state on the topic.
2. A web site has been developed on the TEMPO page containing resilience-related resources and documentation of past meetings, presentations, and notes (<https://www.texasmpo.org/resiliency-working-group/>).
3. past meeting delved into how to embed and communicate resilience concepts to ensure leadership buy-in and to identify champions for resilience. One of the critical outcomes of leadership buy-in is the development of resilience measures that ensure is integrated in investment decision making and in the project selection process, and in project design and development.
4. Outlined the agenda.
5. Minutes will be reviewed informally going forward as there is no formal charter. In the future the group may take on the task of establishing either bylaws or a charter to formalize how we develop and approve minutes and other related matters.

Presentations

Brief Overview of the Senate Transportation Reauthorization Bill

Kirk Fauver, FHWA

Kirk Fauver made the following key observations:

1. The Infrastructure Investment and Jobs act was passed by the senate providing \$550 billion for infrastructure over a 5 year reauthorization from FY 22-26.
2. This resulted in a 29% increase in comparison to the FAST Act highway contract authority, with 90% of the \$550 billion to be distributed by formula.
3. The senate bill contains a formula program called PROTECT (Promoting Resilience Operations for Transformative Efficient Cost-savings in Transportation).
 - a. \$7.3 billion over 5 years in contract authority to make surface infrastructure more resilience.
 - b. \$1.4 billion discretionary program with competitive bidding process.
4. Portions are set aside for At-Risk Coastal Infrastructure, Electric Charging Infrastructure, Zero Emission Vehicle purchases, Port Truck Zero Emissions programs, Urban Heat Island Mitigation, and Storm Water Reduction.

Resilience Resource TEMPO Web Page Discussion

Matt Miller, TTI

Matt Miller made the following key observations:

1. The TEMPO site houses the current version of the Resilience Working Group page.
2. The web site has an introduction to what the page contains and the purpose of the working group.
3. The site also has a table with links to posted documents from past meetings and for items deemed relevant to the resilience working group by the leadership team.
4. As for next steps:
 - a. there is a need to manage the decision for what gets posted here- currently this rests with the leadership team.
 - b. There are also options to post content in a way that nests multiple files together if needed under different headings.
 - i. The five-step framework could be used as an organizing framework within the table.

Resiliency Working Group

Resilience Resources

This page contains resources related to the Texas Statewide Resilience Working Group established in December 2020 as a working group operating under the auspices of the Association of Texas Metropolitan Planning Organizations.

The purposes of the Texas Statewide Resiliency Workgroup are:

1. To coordinate and collaborate across Texas transportation agencies and their programs to ensure a resilient system is prepared for, and adaptable to, changing conditions and able to withstand and recover rapidly from disruptions.
2. To bring awareness of resilience planning and regulatory requirements to the executive level for decision making.
3. To engage Texas transportation agency and metropolitan planning organization leadership on a regular basis for resources, actions and decisions related to enhancing and improving statewide transportation resilience.
4. To establish a high value standard for a common, shared process for project selection needs in resilience across partner and stakeholder agencies.

The below table serves as a repository of resilience planning resources containing the source link, and the date of the source's creation.

Show 10 entries Search:

Event	Author(s)	Contact	Title	Date Created
August 24, 2021	Matthew Miller, TTI	mmiller@tamuedu	August 24, 2021 Resilience Working Group Meeting Video	August 26, 2021

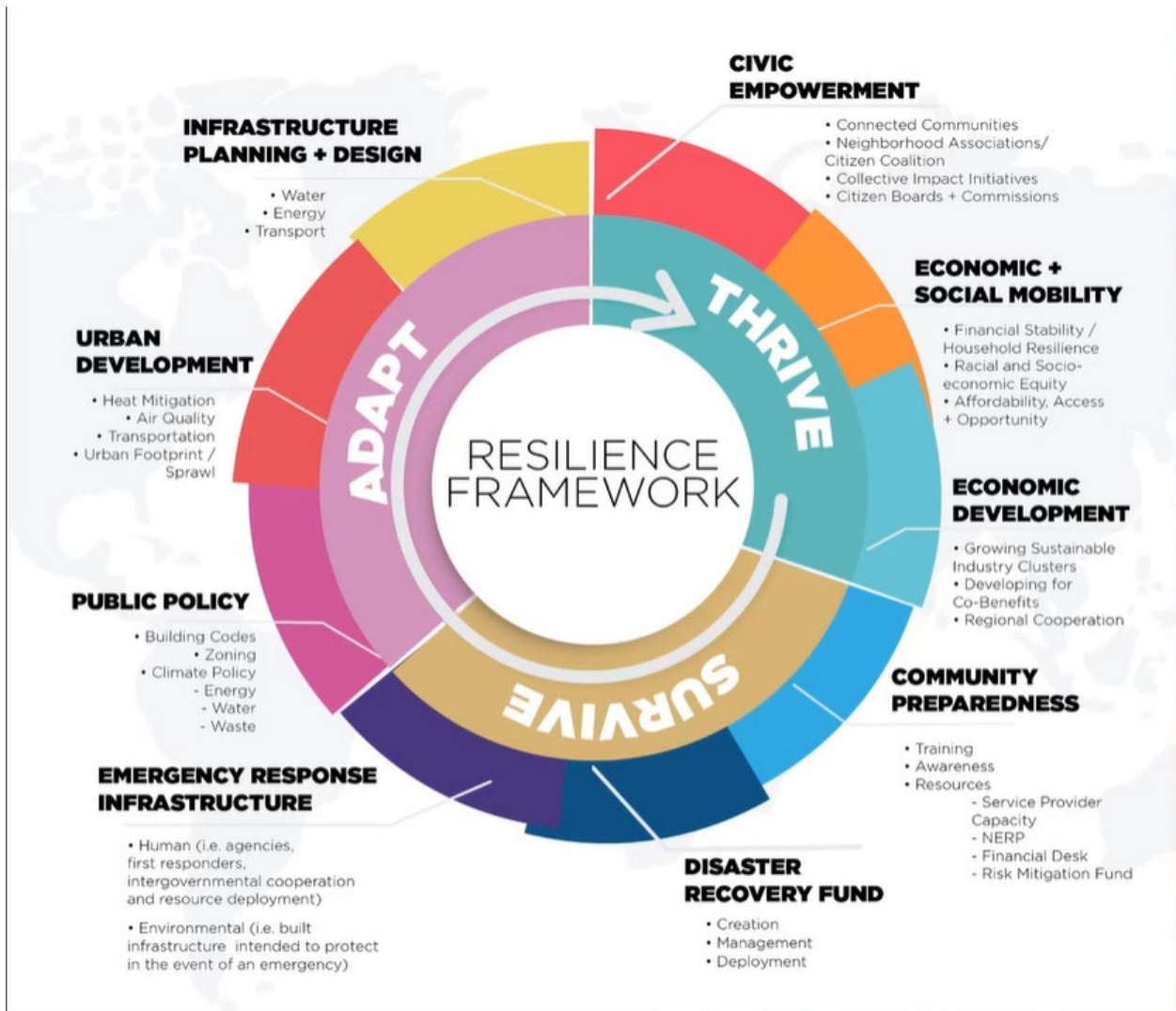
Presentation on Municipal Resilience Plans and Community Resilience Concept

Nicole Ferrini, Chief Resilience Officer, City of El Paso

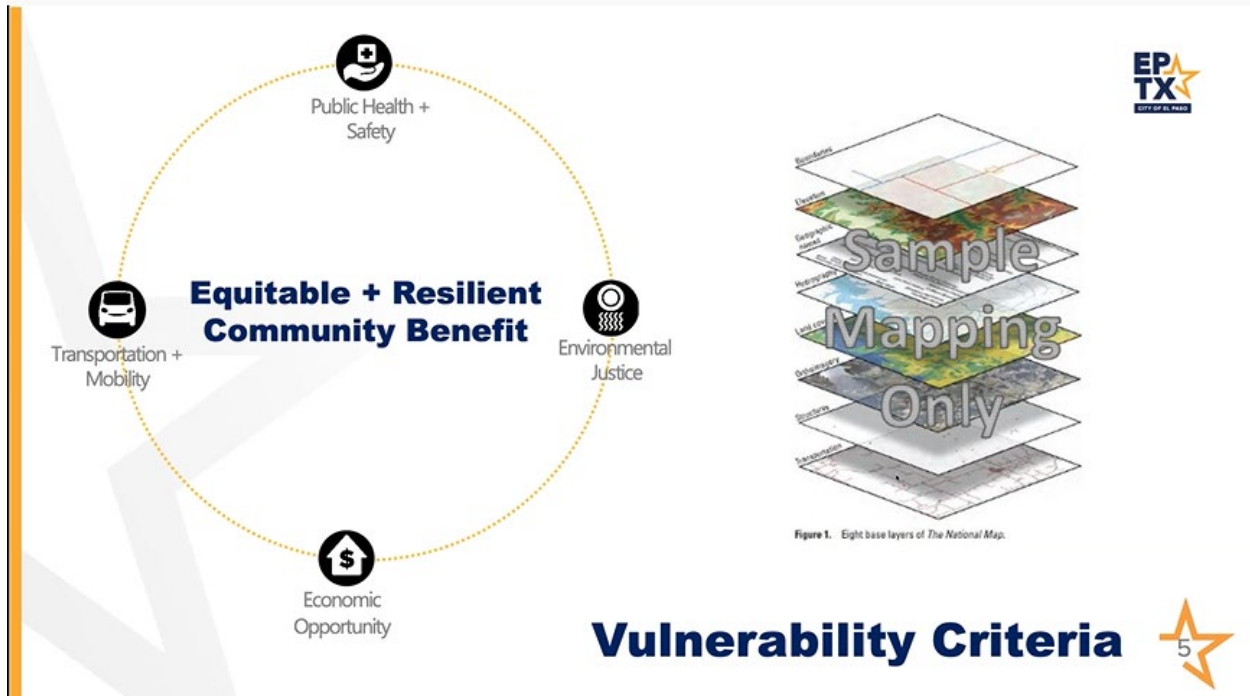
Nicole Ferrini made the following key observations:

1. The City of El Paso is the largest bi-national metroplex in the western hemisphere, spanning three states, and two countries.
2. Resilience strategies depend on the scale selected, and in El Paso's case they are proceeding along a scale at the corridor level. Corridor is meant to include communities and areas beyond typical extents of road-based corridors.
3. For the City of El Paso, resilience has its background rooted in an analysis of socioeconomic impacts on people, and focused on people, the environment, and the economy.
4. El Paso conducted a one year-long community perceptions assessment speaking to 70,000 people on where regional vulnerabilities reside. Following this they mapped these perceptions to infrastructure assets within the boundaries of the City of El Paso, finding that most perceived vulnerabilities were being addressed.
5. The City of El Paso looks at incidents tied to weather, and events such as economic booms to see if people are able to withstand rapid decline in mobility as a result of the weather incident, and

if there was enough housing for people when prices begin to go up as a result of the economic boom.

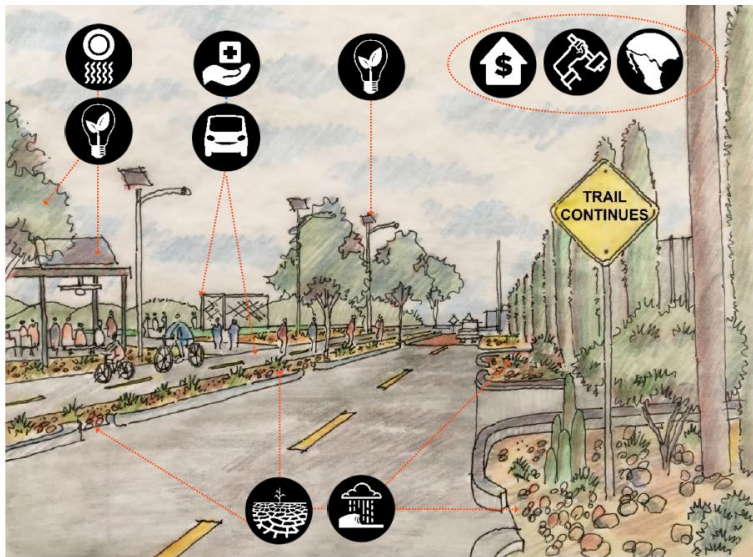


6. City of El Paso defines resilience as the ability to survive, adapt, and thrive in the face of change, not challenge. Resilience connects to all things a city does for the community as detailed in bold in the image above.



7. The City of El Paso developed a resilience plan called Resilient El Paso, and based it on four pillars: 1) Vibrant Desert City- awareness of environment and culture's place in future built environment decision making; 2) Thriving Binational Economy; 3) Empowered El Pasoans; 4) Resilient Governance.
 - a. A large part of their focus on civic engagement shifted thinking from what is called design, present, and defend public engagement methods where agencies develop a plan or a project design, bring it to a public meeting and defend it against all inquiries. The shift from design, present and defend moved on to actively soliciting change and input from stakeholders and citizens across the lifecycle of the project, including ideation, planning, selection, development, and design process stages.
8. The City of El Paso Resilience Office was assigned to identify priority corridors, defining what is a corridor (beyond asphalt and sidewalk). As a result, the City of El Paso developed four criteria for vulnerability including: public health/safety, environmental justice, economic opportunity, and transportation/mobility, with each breaking out into numerous data points which can be mapped and layered into GIS (mapping and stacking).
9. The City of El Paso developed project selection processes centered on these layers in GIS to show where vulnerability is visualized in clustered data points that cross over the four criteria sets. Funding sources from all associated government entities (HUD, FHWA, DOE, DHS, etc.) were catalogued and pursued with data points being adjusted to match key metrics associated with funding opportunities

Sample Intervention Analysis



By applying multiple vulnerability criteria to existing conditions in a proposed corridor not only can priority investment be established, but multiple areas of community impact can be measured following project implementation.



10. The Franklin Canal / Texas Alameda Corridor intervention and analysis addresses a vulnerability map and stack cluster of data points indicating high levels of vulnerability. Each of these signs address the four criteria with related investments and designs provided by the Urban Land Institute.
11. An important part of the corridor intervention and analysis is that the data points, and performance measures are good for benefits assessment before and after investments, to ensure accountability in investments. Benefits due to reduced temperatures around the corridor were one of the data points and measures to determine if they have been reduced by more than one degree of Fahrenheit. This corridor intervention began in 2014, so there are seven years of data collected over this time-period.

The audience had several questions for Nicole including:

1. *Eva Garcia with RGVMPPO stated that she really liked the El Paso Resilience Framework and sample intervention analysis. Does Nicole think other agencies can use the universal icons used (representing urban heat, energy demand, etc.) in your graphics? Additionally does the state want to develop consistency in vocabulary/definitions and icons/color codes, etc?* Nicole Ferrini replied:
2. *Matt Miller advised that Nicole mentioned earlier that the things the El Paso population perceived as biggest vulnerability were being addressed. What assets were the population most concerned with from the transportation arena and how did it have cross over with other non-transportation utilities and infrastructure? What were their concerns in transportation compared to other infrastructure arenas like energy, water, health, etc.?* Nicole Ferrini replied:
3. *What strategies are you using to communicate the state of assets more effectively to the public to show them they might not need to worry so much?* Nicole Ferrini replied:

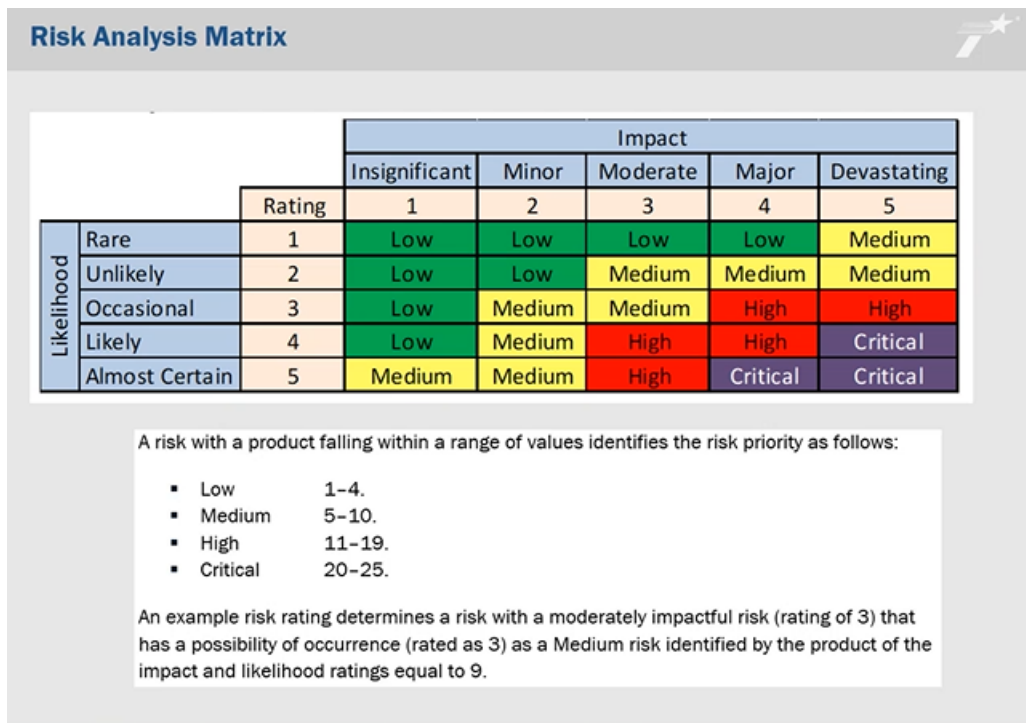
- Do you have any sample benefit assessment data sets and ArcGIS shapefiles that you could share to give MPOs a sense for what kinds of data are used in the vulnerability assessment/corridor investment activities (e.g., the mapping and stacking approaches) and to determine how the benefits accrued post investment? Nicole Ferrini replied:

Presentation on Managing Risk for Resilient Road Assets

Dr. Feng Hong, Pavement Branch Manager, Texas Department of Transportation

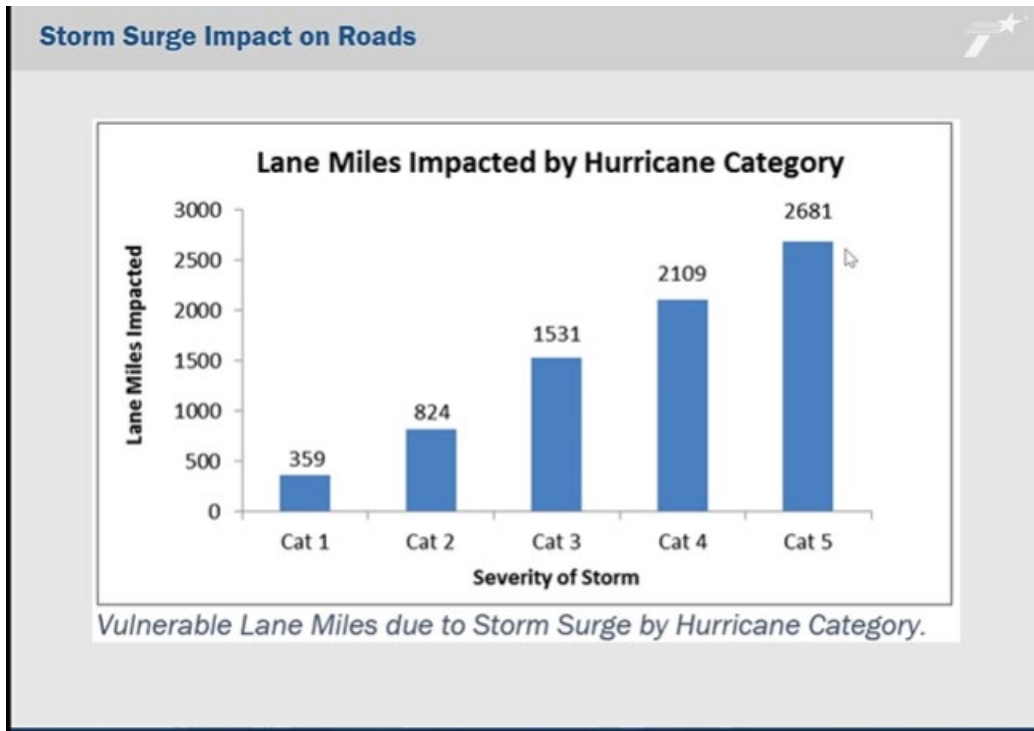
Dr. Hong made the following key observations:

- The risk management approach developed within the transportation asset management plan process is a process framework to manage potential risks (identifying, analyzing, evaluating asset risks and system performance risks) covering all districts, divisions, and program levels across TxDOT.
- Steps include: identify risks, analyze risks, prioritize by estimating risk impacts, and develop proportionate response measures to address risks, and monitor risks to determine if active or not.



- TxDOT developed a risk registry and risk matrix to visualize the prioritization approach to risks. Key criteria in the risk assessment included system condition and performance, health and safety, environmental, economic, agency function, legal and compliance, and stakeholder interest.
- Risk calculations are based on multiplying likelihood by impact, with a range of 1-25. Risks that score from 11-25 are high risks and added to the risk registry for risk response development.

5. The sole resilience-specific risk on the list of high priority risks is “Occurrence of an Unanticipated Weather Events or Natural Disasters such as a Hurricane Resulting in System Damage.” The mitigation response is to update hydraulic design criteria and guidance; continue ongoing resiliency efforts; and develop contingency funding scenarios to be prepared for increasing impacts to current contingency pool of funds.
6. TxDOT tracks impacts on state assets from multiple climate variables including: freeze/thaw cycles, heatwaves, wildfire, sea level rise, drought, and flooding from precipitation or storm surge.



7. Vulnerable Lane Miles impacted are a GIS-based pavement performance measure comparing to various event factors such as storm surge depth over the existing road network by hurricane category.
 - a. FEMA flood plain map provides frequency of 100 and 500 year flood events and their extent which can also reveal vulnerable lane miles impacted similarly to the way the storm surge maps reveal vulnerable lane miles from hurricanes.

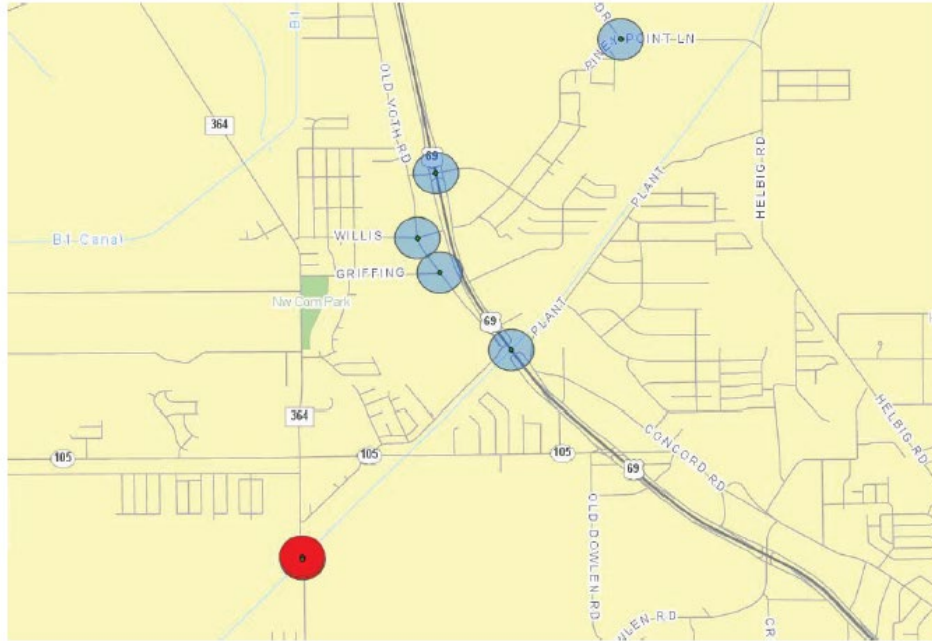


Fig. 1 – Project Locations and Tenth-mile Radii Containing One Point (Blue) or More (Red)

8. Contingency fund expenditures for each Hurricane are documented to ensure scenario developments in response to storm surge and other related hurricane damages are based on solid figures.
 - a. TxDOT files an annual report (23 CFR 667) listing assets damaged by two or more separate extreme weather or natural disaster events. Once repairs are made to address the reason for recurring damages the asset will be removed from the recurring damage list.
 - b. The analysis method to identify discrete assets such as bridges and culverts are simple given their location, and long continuous roads uses GIS-based tenth-mile buffer zones around the disaster coverage areas (e.g., flood plains, storm surge maps, etc.) and their intersection with road assets.
9. This risk management effort involves the transportation asset management planning work group led by colleagues from maintenance and bridge divisions.

The audience had several questions for Dr. Hong:

1. *Will TxDOT offer district-level training accessible to MPO staff regarding maintenance resilience strategies and regional contributions to the development and maintenance of a regional risk register?*
 - a. No training has been prepared for districts other than that we share the analysis results with them for where risks reside, and where repeated repairs may make new resilience funds available. It is early stages yet, so this will be communicated as a need to the TAMP work group.
2. *When and where does TxDOT apply the resilience risk analysis: how does it connect to the UTP project selection criteria?*

- a. We communicate results to planning division, but we are unsure of how they apply it within the UTP.
3. *Has TxDOT considered nature-based features from agencies such as the US Army Core of Engineers leveraging marshes or hardening coastal corridors to prepare for sea level rise and flooding events?*
 - a. We have had a separate study sponsored by FHWA that connects to our current pavement design factors and the need to enhance pavement structure design, but nothing specific from other agencies beyond that study.
4. *Are performance measures associated with risk mitigation strategies once they are deployed and if so what are they? Is there any check to determine if mitigation strategies are succeeding given xyz conditions that brought about the active risk status?*
 - a. From pavement perspective, performance is focused on two evaluation systems: internal TxDOT pavement condition scores and metrics from FHWA HPMIS. The application of these measures within the risk management process and in evaluating impacts of mitigation strategies on active risks is at a beginning stage. Weather uncertainty will impact statewide pavement condition in the future so TxDOT is being proactive in developing measures that attach to the risk management process framework.

Around the State

1. San Angelo MPO advised that the City of San Angelo is partnering with the San Angelo MPO to develop a resilience plan. In addition, sidewalk network expansion will be considered in a new ordinance, and one roadway suffering from severe flooding will be improved with five foot culverts from 18 inches, and raising the elevation profile of the street by two feet.
2. Rio Grande Valley MPO is hosting a workshop next month as a kick off meeting to resilience planning efforts. This will invite their technical activities committee and key stakeholders. RGV MPO is also holding 1 on 1 interviews with key stakeholders before the workshop to gain a sense of what resilience means to them, from asset and non-asset owner perspective.

Closing Comments

Jeff Neal advised that in following meetings we plan to talk results, challenges, lessons learned, and how the resilience working group can assist in decision making processes for MPOs across the state on resilience- in controlling the dialogue, communicate its importance, and remaining transparent on the decisions made. Jeff posited that a good method given all the organizational flux going forward on this line of resilience work and in the work group is to make it iterative: find out what is right from a theoretical perspective, apply it, evaluate to find out what works and what doesn't, improve it and continue progressing. So that is the aim moving forward, to keep things iterative.