Resilience 101

Community Health and Equity Committee
Item 2
November 7, 2017

Presented by:

Douglas Melnick, AICP, ISSP-SA, CNU-A
Chief Sustainability Officer
Office of Sustainability

SA TOMORROW sustainability plan

What is Resilience?

Resilience is about **surviving and thriving**, regardless of the challenge.

- Climate Resilience
- Economic Resilience
- Cyber Resilience
- Individual Resilience
- Neighborhood Resilience
- Urban Resilience

What is Urban Resilience?

URBAN RESILIENCE is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

CHRONIC STRESSES weaken the fabric of a city on a day-to-day or cyclical basis.

Examples include: high unemployment, inefficient public transportation systems, endemic violence, and chronic food and water shortages.

ACUTE SHOCKS are sudden, sharp events that threaten a city.

Examples include: tornadoes, floods, disease outbreaks, extreme heat, and terrorist attacks.

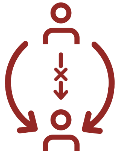
Resilient City Qualities?

Reflective
Using past experience to inform future decisions

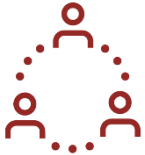
Resourceful
Recognizing alternative ways to use resources

Robust
Well-conceived, constructed, and managed systems

Redundant
Spare capacity purposively created to accommodate disruption



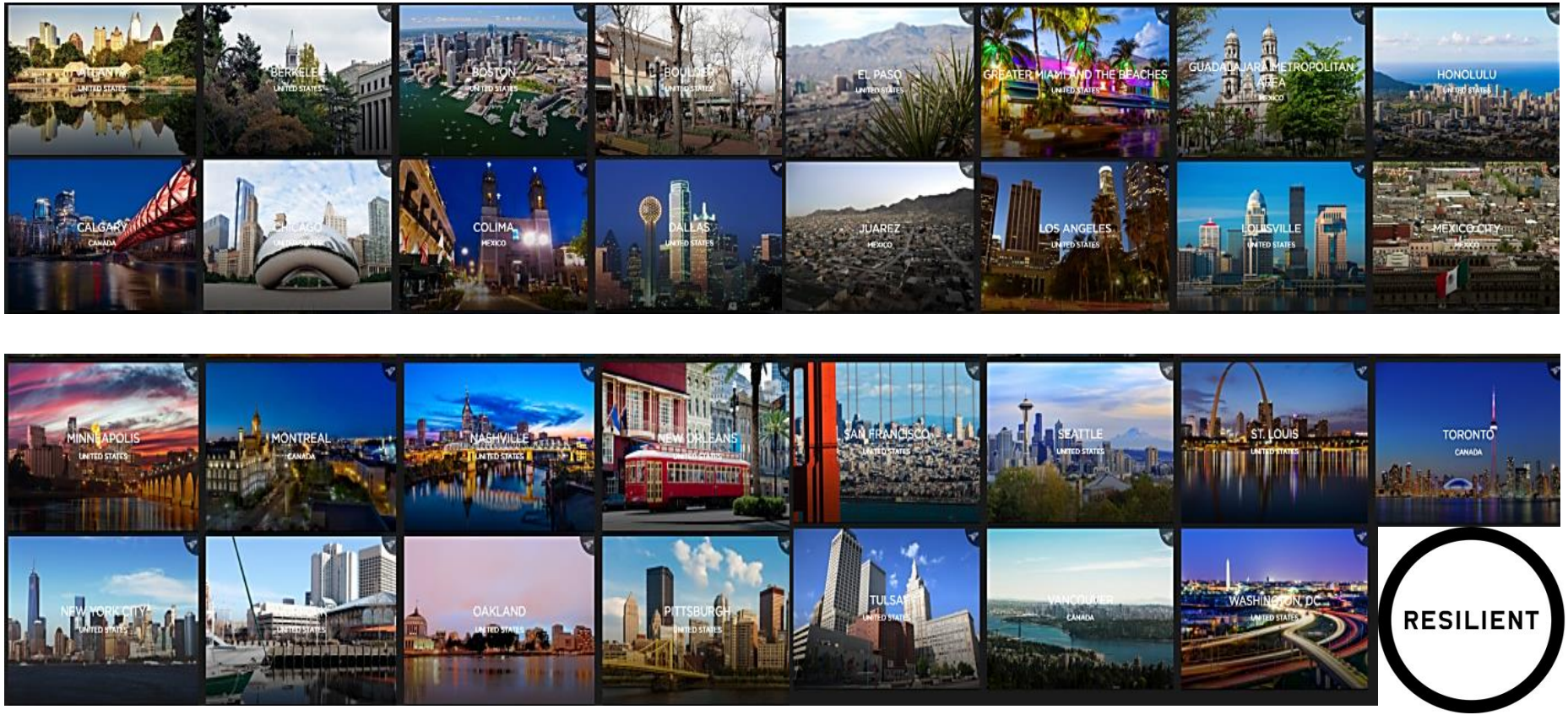
Flexible
Willingness and ability to adopt alternative strategies in response to changing circumstances



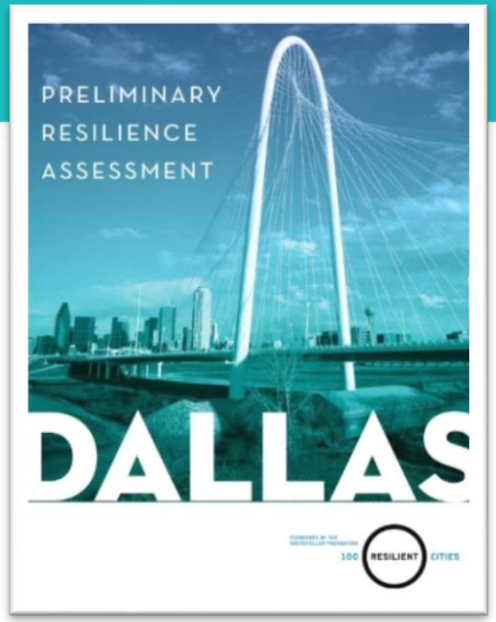
Inclusive
Prioritize broad consultation to create a sense of shared ownership in decision-making

Integrated
Bring together a range of distinct systems and institutions

100 Resilient Cities – North America



Resilient Dallas

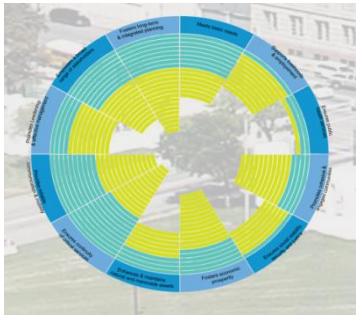


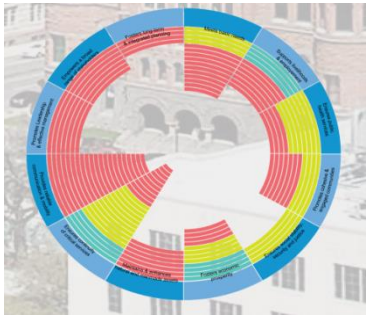
In 2015, the City of Dallas was selected to participate in the 100RC program.

Chronic Stresses:
- Social equity/ Poverty imbalance
- Transportation Inequity
- Regionalism versus Urbanism
- Workforce and employment concentration

Acute Shocks:
- Hail, flooding, tornadoes, earthquakes
- Infrastructure failure
- Civil unrest and violence

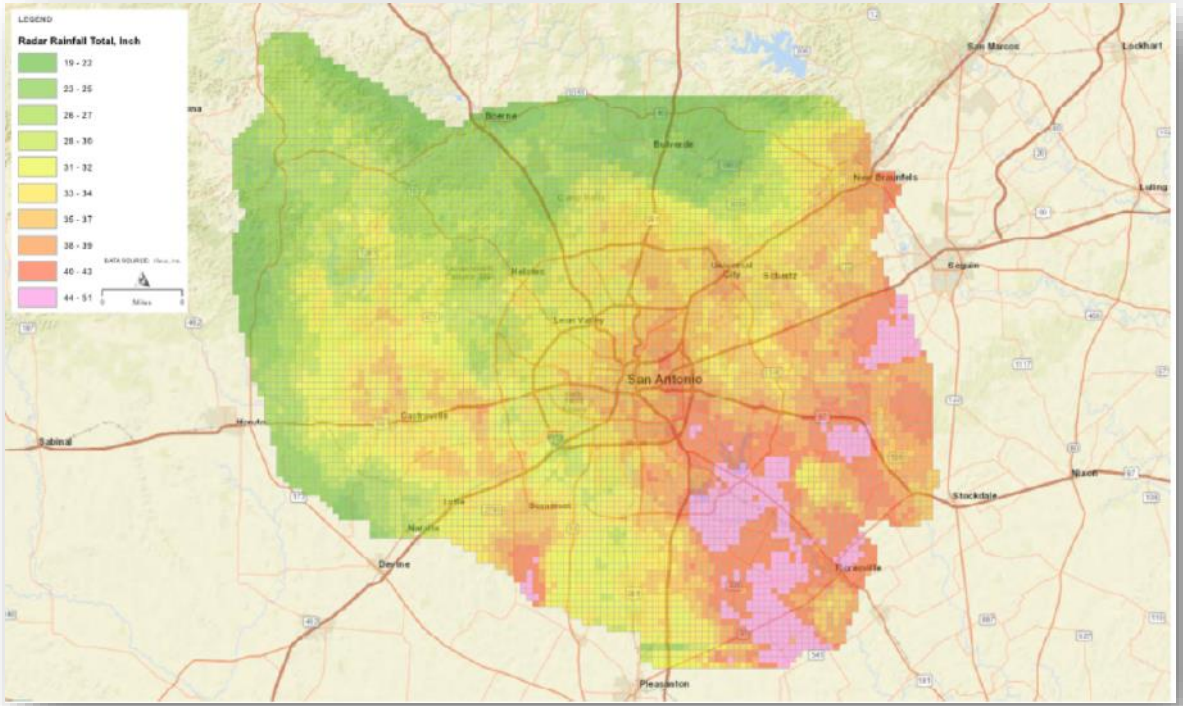
100RC Phases
- Phase I, PRA & Discovery Areas are complete
- Phase 2 is nearing completion

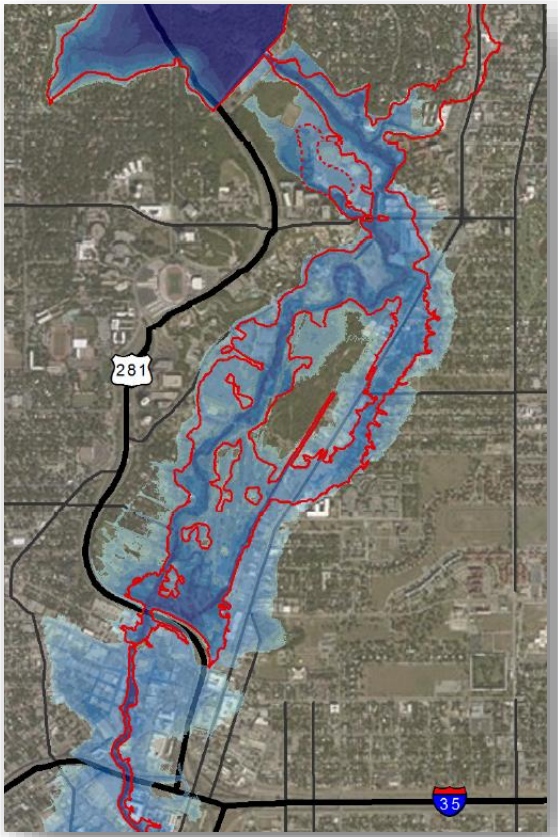




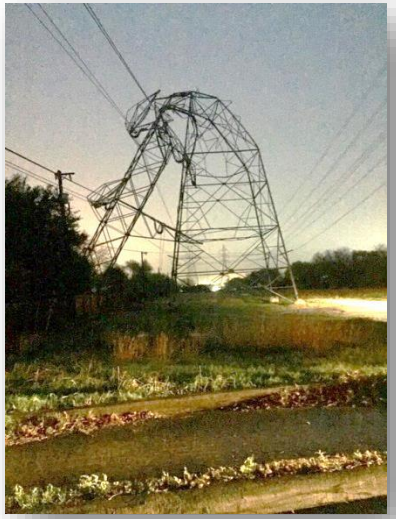
Perceptions and Actions mapped against the Resilience Lens

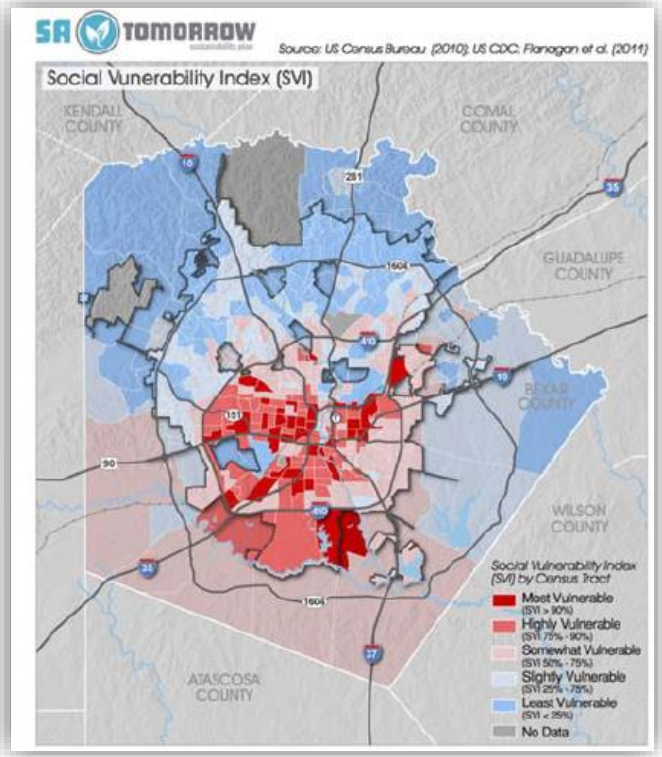
Why a Resilient SA?





San Antonio Vulnerabilities

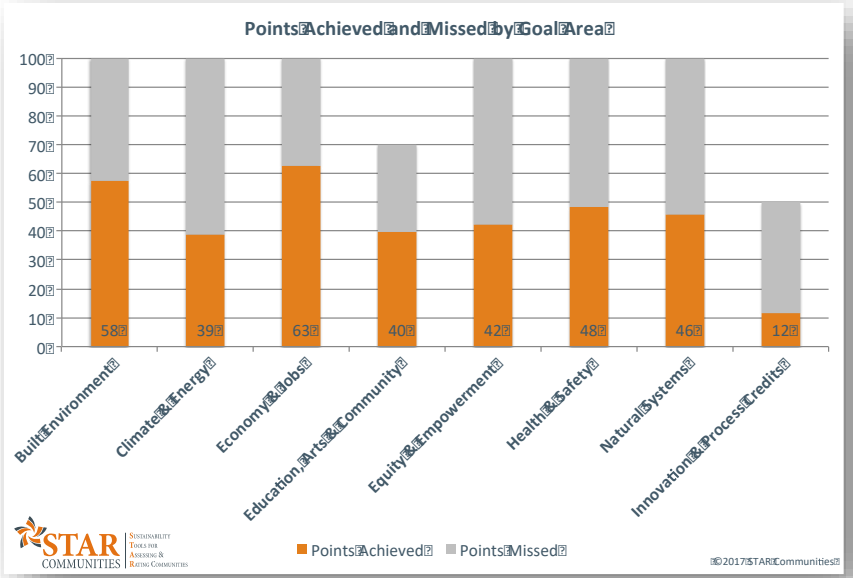




Resilience Ratings

STAR COMMUNITIES | SUSTAINABILITY TOOLS FOR ASSESSING & RATING COMMUNITIES

San Antonio, TX was awarded a Certified 3-STAR Community Rating on April 6, 2016.



Built Environment	Climate & Energy	Economy & Jobs	Education, Arts, & Community	Equity & Empowerment	Health & Safety	Natural Systems	Innovation & Process
BE-1: Ambient Noise & Light	CE-1: Climate Adaptation	EJ-1: Business Retention & Development	EAC-1: Arts & Culture	EE-1: Civic Engagement	HS-1: Active Living	NS-1: Green Infrastructure	IP-1: Best Practices & Processes
BE-2: Community Water Systems	CE-2: Greenhouse Gas Mitigation	EJ-2: Green Market Development	EAC-2: Community Cohesion	EE-2: Civil & Human Rights	HS-2: Community Health	NS-2: Biodiversity & Invasive Species	IP-2: Exemplary Performance
BE-3: Compact & Complete Communities	CE-3: Greening the Energy Supply	EJ-3: Local Economy	EAC-3: Educational Opportunity & Attainment	EE-3: Environmental Justice	HS-3: Emergency Management & Response	NS-3: Natural Resource Protection	IP-3: Local Innovation
BE-4: Housing Affordability	CE-4: Energy Efficiency	EJ-4: Quality Jobs & Living Wages	EAC-4: Historic Preservation	EE-4: Equitable Services & Access	HS-4: Food Access & Nutrition	NS-4: Outdoor Air Quality	IP-4: Good Governance
BE-5: Infill & Redevelopment	CE-5: Water Efficiency	EJ-5: Targeted Industry Development	EAC-5: Social & Cultural Diversity	EE-5: Human Services	HS-5: Health Systems	NS-5: Water in the Environment	
BE-6: Public Parkland	CE-6: Local Government GHG & Resource Footprint	EJ-6: Workforce Readiness	EAC-6: Aging in the Community	EE-6: Poverty Prevention & Alleviation	HS-6: Hazard Mitigation	NS-6: Working Lands	
BE-7: Transportation Choices	CE-7: Waste Minimization				HS-7: Safe Communities		

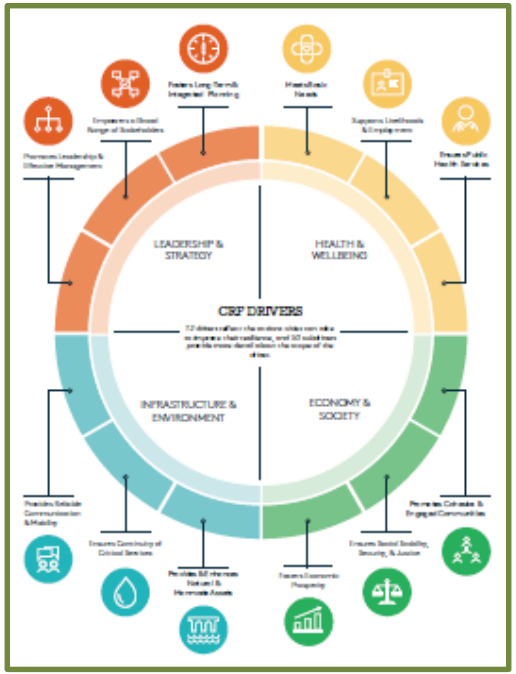
Tools - Resilience Frameworks

U.S. Climate Resilience Toolkit

1. Explore Hazards
2. Access Vulnerability & Risks
3. Investigate Options
4. Prioritize & Plan
5. Take Action

1. Plan Making
2. Identify, Understand & Use Current & Future Risk Scenarios
3. Strengthen Financial Capital for Resilience
4. Pursue Resilient Urban Development
5. Safeguard Natural Buffers to Enhance Natural Ecosystem Protective Functions
6. Strengthen Institutional Capacity for Resilience
7. Understand & Strengthen Societal Capacity for Resilience
8. Increase Infrastructure Resilience
9. Ensure Effective Disaster Response
10. Expedite Recover & Build Back Better

100 RESILIENT CITIES



Tools – Envision Infrastructure Rating System

QUALITY OF LIFE
13 Credits

1 PURPOSE
QL1.1 Improve Community Quality of Life
QL1.2 Stimulate Sustainable Growth & Development
QL1.3 Develop Local Skills & Capabilities

2 WELLBEING
QL2.1 Enhance Public Health & Safety
QL2.2 Minimize Noise and Vibration
QL2.3 Minimize Light Pollution
QL2.4 Improve Community Mobility & Access
QL2.5 Encourage Alternative Modes of Transportation
QL2.6 Improve Site Accessibility, Safety & Wayfinding

3 COMMUNITY
QL3.1 Preserve Historic & Cultural Resources
QL3.2 Preserve Views & Local Character

LEADERSHIP
10 Credits

1 COLLABORATION
LD1.1 Provide Effective Leadership & Commitment
LD1.2 Establish A Sustainability Management System
LD1.3 Foster Collaboration & Teamwork
LD1.4 Provide for Stakeholder Involvement

2 MANAGEMENT
LD2.1 Pursue By-Product Synergy Opportunities
LD2.2 Improve Infrastructure Integration

3 PLANNING
LD3.1 Plan For Long-Term Monitoring & Maintenance
LD3.2 Address Conflicting Regulations & Policies
LD3.3 Extend Useful Life

LD0.0 Innovate or Exceed Credit Requirements

RESOURCE ALLOCATION
14 Credits

1 MATERIALS
RA1.1 Reduce Net Embodied Energy
RA1.2 Support Sustainable Procurement Practices
RA1.3 Use Recycled Materials
RA1.4 Use Regional Materials
RA1.5 Divert Waste From Landfills
RA1.6 Reduce Excavated Materials Taken Off Site
RA1.7 Provide For Deconstruction & Recycling

2 ENERGY
RA2.1 Reduce Energy Consumption
RA2.2 Use Renewable Energy
RA2.3 Commission & Monitor Energy Systems

3 WATER
RA3.1 Protect Fresh Water Availability
RA3.2 Reduce Potable Water Consumption
RA3.3 Monitor Water Systems

NATURAL WORLD
15 Credits

1 SITING
NW1.1 Preserve Prime Habitat
NW1.2 Protect Wetlands & Surface Water
NW1.3 Preserve Prime Farmland
NW1.4 Avoid Adverse Geology
NW1.5 Preserve Floodplain Functions
NW1.6 Avoid Unsuitable Development on Steep Slopes
NW1.7 Preserve Greenfields

2 LAND+WATER
NW2.1 Manage Stormwater
NW2.2 Reduce Pesticide & Fertilizer Impacts
NW2.3 Prevent Surface & Groundwater Contamination

3 BIODIVERSITY
NW3.1 Preserve Species Biodiversity
NW3.2 Control Invasive Species
NW3.3 Restore Disturbed Soils
NW3.4 Maintain Wetland & Surface Water Functions

CLIMATE AND RISK
8 Credits

1 EMISSIONS
CR1.1 Reduce Greenhouse Gas Emissions
CR1.2 Reduce Air Pollutant Emissions

2 RESILIENCE
CR2.1 Assess Climate Threat
CR2.2 Avoid Traps & Vulnerabilities
CR2.3 Prepare For Long-Term Adaptability
CR2.4 Prepare For Short-Term Hazards
CR2.5 Manage Heat Island Effects

CR0.0 Innovate or Exceed Credit Requirements

LEVEL OF ACHIEVEMENT

IMPROVED: Conventional performance that slightly exceeds regulatory requirements

ENHANCED: On the right track with superior performance within reach

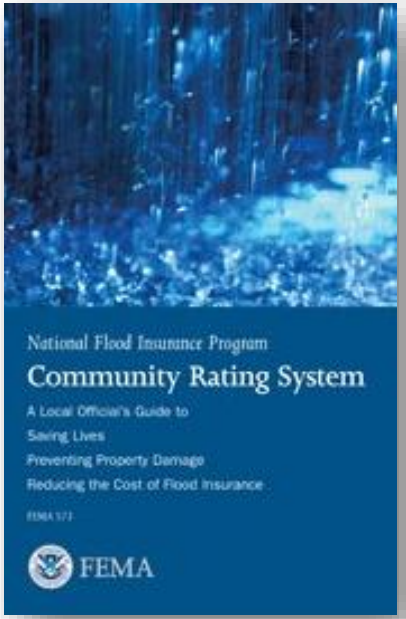
SUPERIOR: Remarkable performance that is noteworthy but not yet conserving

CONSERVING: Zero negative impacts

RESTORATIVE: Restoration of resources, ecological, economic and social systems

Institute for Sustainable Infrastructure

Tools – NFIP Community Rating System

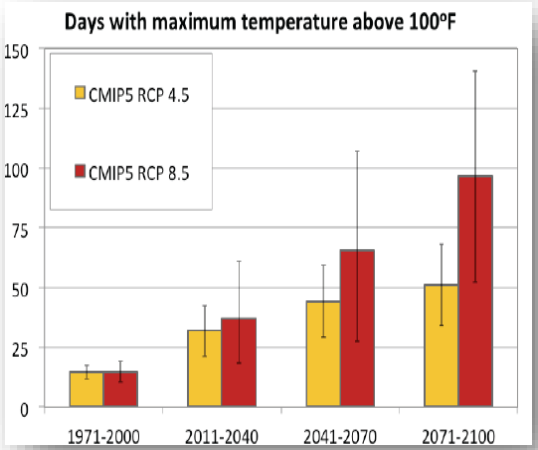


The National Flood Insurance Program's (NFIP) Community Rating System (CRS) was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities exceeding the NFIP's minimum standards.

- Lower cost flood insurance rates for property owners.
- Citizens and property owners in CRS communities have increased opportunities to learn about risk, evaluate their individual vulnerabilities, and take action to protect themselves, as well as their homes and businesses.
- CRS floodplain management activities provide enhanced public safety, reduced damage to property and public infrastructure, and avoidance of economic disruption and loss.
- Communities can evaluate the effectiveness of their flood programs against a nationally recognized benchmark.

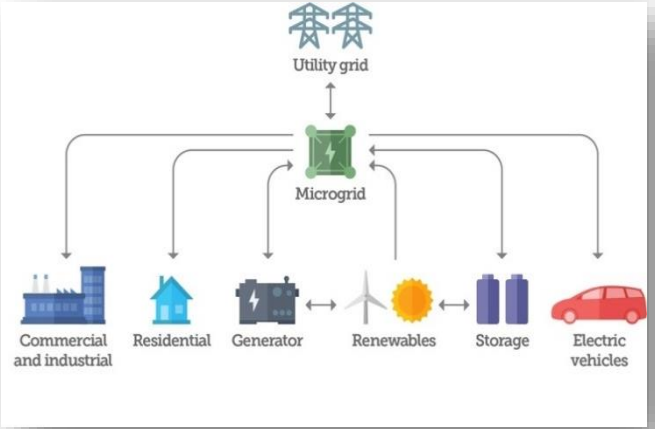
Climate Action & Adaptation Plan - Resilience

Climate Projections



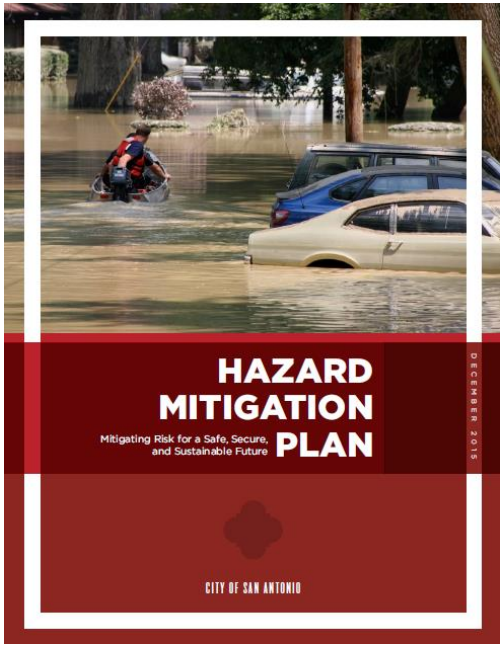
Scenario Planning

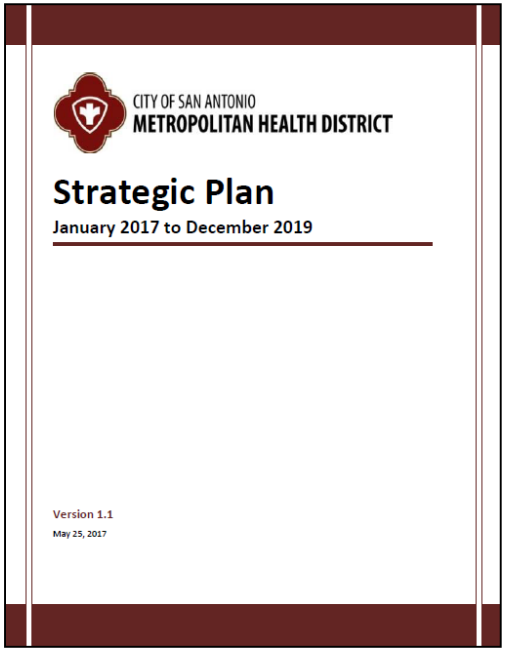
Adaptation Strategies

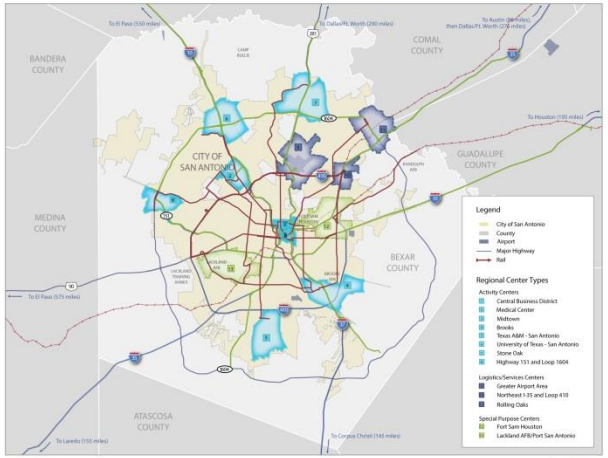


La Buena Vida

Other Resilience-Related Opportunities







Regional Center Types and Primary Transit Corridors

SA PARKS SYSTEM PLAN

IMP

Adopted Rolling 5 Year
Infrastructure Management Program

SMARTSA

SA TOMORROW
sustainability plan