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9.1 UNINCORPORATED DOUGLAS COUNTY

9.1.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
<p>Tim Johnson, Director of The Office of Emergency Management 4000 Justice Way Castle Rock, CO, 80109 Telephone: 303-660-7589 E-mail Address: tjohnso@dcsheriff.net</p>	<p>Tim Hallmark, Director of Facilities, Fleet & Emergency Support Services 3026 N Industrial Way Castle Rock, CO, 80109 Telephone: 303-663-7275 E-mail Address: thallmar@douglas.co.us</p>

9.1.2 Jurisdiction Profile

Location

Much of Douglas County consists of unincorporated land, with incorporated towns in much of the area directly east and west of Interstate 25 in the northern half of the County. As much of Douglas County is made up of unincorporated land, the region is bordered by Jefferson County to the West, Park County to the Southwest, Teller County and El Paso County to the South, Elbert County to the East, and Arapahoe County to the North. The land consists of a wide range of topography encompassing mountain vistas, dramatic ridgelines, hills, and grass covered plains. Three state parks, Castlewood Canyon State Park, Chatfield State Park, and Roxborough State Park are located within the unincorporated regions of Douglas County.

Unincorporated Douglas County is dispersed throughout Douglas County, namely comprising the Western half of the county, as well as the Southern half and Eastern-most regions of Douglas County. Unincorporated Douglas County is bound by South Platte River to the West and Delbert Road to the East, encompassing an area of 766 square miles.

History

Unincorporated Douglas County is shaped by its County’s history, which began in 1861 with the Colorado Territory Sessions Laws with the creation of Douglas County, after Stephen A. Douglas. While Douglas County used to encompass much of the land from the Rocky Mountains to Colorado’s border with Kansas, it now sits in Central Colorado. Much of Unincorporated Douglas County consists of permanently protected land, which can be attributed to the Douglas County Open Space Program, offering over 146,000 acres of recreational land and green space.

Climate

Douglas County is characterized by a moderate climate and significant sun exposure (more than 300 days per year). The County features low humidity, approximately 18 inches of rain each year, and 71 inches of snowfall. Temperatures range from highs of 85 degrees in July to 45 degrees in January (according to USA.com).

Governing Body Format

Unincorporated Douglas County is governed by the Board of County Commissioners. This Board, comprised of three members, acts as the legislative and administrative body for the unincorporated regions of the county. The Board of County Commissioners also makes all policy decisions, including adopting

ordinances and resolutions. The Board of County Commissioners is responsible for appointing other relevant County officials, such as the County Manager and County Attorney. The County Manager oversees the implementation of policy and leads County staff, while the County Attorney is an advisor and representative of the Board and elected officials, department heads, and other pertinent governmental staff in Douglas County. Other county elected officials include the Assessor, Clerk and Recorder, Coroner, Sheriff, Surveyor, and Treasurer.

The Douglas County Board of County Commissioners assumes responsibility for the adoption of this plan; Office of Emergency Management and Facilities, Fleet & Emergency Support Services will oversee its implementation. Development of this annex was carried out by the members of the local mitigation planning team, whose members are listed in Table 9.1-1.

Table 9.1-1. Local Mitigation Planning Team Members

Name	Title
Tim Johnson	Director of Office of Emergency Management
Tim Hallmark	Director of Facilities, Fleet and Emergency Support Services
Steve Koster	Assistant Director Planning Services / Community Development
Matt Williams	Assistant Director Engineering / Public Works Engineering
Dan Avery	Chief Planner / Community Development
Joel Hanson	GIS Manager / Information Technology
Sean Owens	Special Projects Manager / Public Works Engineering
Zak Humbles	Engineer IV Special Projects / Public Works Engineering
Nathan Wysocki	Senior GIS Analyst / Information Technology
Lisa Goudy	Safety and Security Coordinator / Facilities, Fleet and Emergency Support Services

9.1.3 Current Trends

Population

According to the U.S. Census Bureau, the population of Unincorporated Douglas County as of 2020 was 205,800. The population of all of Douglas county was 362,390. Since 2010, the population of Unincorporated Douglas County has grown at an average annual rate of 1.71% percent. Since 2010, the population of all of Douglas County has grown at an average annual rate of 2.36% percent.

Development

From 2015 to 2019 unincorporated Douglas County grew at annual growth rates of between 2.5 and 3.7%. Much of the growth occurred in the northern portion of the County, where substantial suburban-density development has occurred. Single-family residential units continue to be the majority of permits issued, but multifamily development and attached single-family are a growing market segment. Sterling Ranch, a master-planned community in the northwestern portion of the County, will continue to be a significant source of new residential development for the next 10 years or more.

Beyond the development occurring in the unincorporated portions of the County, much of the County’s overall growth has occurred in the municipalities of Lone Tree, Parker, Castle Pines, and Castle Rock.

Table 9.1-2 summarizes development trends in the performance period since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 9.1-2. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the preparation of the previous hazard mitigation plan?	No					
<ul style="list-style-type: none"> If yes, give the estimated area annexed and estimated number of parcels or structures. 						
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No					
<ul style="list-style-type: none"> If yes, describe land areas and dominant uses. 						
<ul style="list-style-type: none"> If yes, who currently has permitting authority over these areas? 						
Are any areas targeted for development or major redevelopment in the next five years?	No					
<ul style="list-style-type: none"> If yes, briefly describe, including whether any of the areas are in known hazard risk areas 						
How many permits for new construction were issued in your jurisdiction since the preparation of the previous hazard mitigation plan?	2015	2016	2017	2018	2019	
	Single Family	890	847	933	1004	931
	Multi-Family	521	585	697	512	581
	Other (commercial, mixed use, etc.)	2101	3824	9066	5478	5640
	Total	85	56	59	70	21
Provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	<p>Douglas County maps environmental constraints and hazard areas in the County in consultation with the Colorado Geological Survey (geophysical), Colorado State Forest Service (wildfire), and Federal Emergency Management Agency (flood risk) as part of its Comprehensive Master Planning processes.</p> <p>The information within the hazard maps is general in nature and is supplemented through site-specific studies performed during the development review process, primarily at the preliminary subdivision plan phase of review. These land use review processes are designed to ensure that development occurs outside of identified hazard areas, or that hazards are mitigated in accordance with professional recommendations.</p> <p>Additionally, wildfire hazard areas are identified within the adopted Wildfire Hazard Area-Overlay District Map. For lands designated as subject to wildfire by this map, a site-specific analysis of wildfire hazard and proposed mitigation is required at the time of land use review applications and building permit requests.</p> <p>County-wide, over 95% of permits are issued in the northern urbanized portion of the County. This portion of the County is largely free of identified hazard areas.</p>					
Describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Douglas County's Comprehensive Master plan identifies areas of the County in which urban development is anticipated. Over the years, the effect of these planning efforts has been the concentration 90% of the population to 18% of the County's total land area. Through 2040, the County CMP does not envision expansion of designated urban areas. Douglas County anticipates accommodating approximately 200,000 new residents within currently designated urban areas, which as previously noted are largely free of identified hazard areas.					

9.1.4 Status of Previous Plan Actions

Table 9.1-3 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 9.1-3. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Multijurisdictional Action #1: Citizen Disaster Preparedness Guide. Revise and Update the Citizen Preparedness Guide using a new format with a focus on disaster preparedness for all Douglas County Citizens. Components include Warning systems, Citizen Information, Preparing a Family Disaster Plan, Stockpile Checklist, Shelter & Recovery, Access & Functional Needs, Pet Preparedness and Evacuation, Thunderstorms & Lightning, Winter Storms & Extreme Cold, Floods, Tornadoes, Wildfires, Terrorism, Active Shooter, Public Health Emergency, Pandemic Flu, Hazardous Materials, and Helpful Resources. Printed and electronic versions available as well as an application for smart phones.	x		x	DC1
Comment:	Updates to guides are done annually and distributed to citizens.			
Performance assessments for small NRCS dams- There are about 24 small dams owned by the NRCS in the County. Most are over 60 years old and are located on Cherry Creek. This project would develop assessments of the dams to determine if they still function as intended or need repair or rehabilitation.	x		x	DC2
Comment:	1 dam has been completed and others are being studied			
Flood Hazard Inventory Tool- Connect flood response to Inventory Tool and develop a flood response plan for the County. The Inventory Tool will connect to the County's GIS system.	x		x	DC3
Comment:	Gauges are linked to our GIS system: https://arcg.is/1Wu50S0 this is a webmap from AGOL			
Highline Canal studies for stormwater runoff and improvement- The Highline Canal is being decommissioned by Denver Water as infrastructure for water transport in the metro area. Fifteen miles of the canal traverses the County. A feasibility study has been completed that shows it could be repurposed for stormwater quality and quantity enhancements.	x			
Comment:	Staff continues to work with Denver Water and other stakeholders regarding the repurposing of the Highline Canal for stormwater and recreational purposes. Additional studies/analysis is not required at this time as the County will work with stakeholders on a case-by-case basis.			
Plum Creek geomorphological assessment- Plum Creek has a history of problems with aggradation and erosion. This project entails a geomorphological study to identify stability problems with Plum Creek and recommend alternatives for stream restoration/stabilization.		X		
Comment:	This Project is ongoing and may see construction improvements with a Plum Creek regional sanitary sewer project that the County is currently studying.			
Comment:	New Action item			
Continue to implement fuels management strategies identified on Douglas County properties- The management strategies for County-Owned lands categorized as forested properties include a hazardous fuels reduction component as part of a larger forest management /forest restoration strategy for protection of the property, the financial investment of tax payers, the natural resources values as well as social, recreational, and intrinsic values. Management strategies for smaller properties in hazardous subdivisions contain a hazardous fuels reduction component where appropriate.			x	DC4

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update Check if Yes	Enter Action #
Implementation projects are guided by hazard analysis, the Douglas County CWPP and the current process for approval and implementation with Douglas County Open Space and Natural Resources. The County maintains a spreadsheet of county-owned properties that have the potential for mitigation action. Mitigation actions may include hand work, equipment work, County work, contractor work, and prescribed fire.				
<i>Comment:</i> This is ongoing and the CWPP is being updated with anticipated completion in 2021				
Use prescribed fires to protect and enhance resource values- Douglas County can use prescribed fires as a management tool to protect and enhance resource values where appropriate and in concert with additional resource management tools that guide the management activities to meet the goals of the property in question. Prescribed fires implemented by Douglas County have been limited to areas with grass fuels. Prescribed fires in forested areas have been implemented by CSFS and USFS.			x	DC5
<i>Comment:</i> This will continue to be a viable tool we will utilize when appropriate				
Commodity flow along major highways in Douglas County- This project would request and obtain a hazardous materials commodity flow study to determine what is being transported along Douglas County roadways. This study would read placards on vehicles along I-25, E-470, C-470, Highway 85, and Highway 83 for a designated period of time.			x	DC6
<i>Comment:</i> New Action item				
Hazardous materials public education TV PSA- Develop a series of Hazardous Materials Public Service Announcements. PSA Topics: #1 - Reassurance for DC citizens that while this is a topic to be mindful of, there is no need for alarm. DC local, State & Federal agencies and first responders as well as area businesses and railroads are working together to enhance preparedness and response for any hazardous materials release. #2 – Railroad, Water Treatment Safety & Preparedness Overview #3 – Sheltering In Place		x		
<i>Comment:</i> Remove				
Debris management plan development- The Debris Management Plan will be developed beginning Q3 2015, completion scheduled for Q2 2016. The Debris Management Plan is used following a large scale disaster such as flooding or a tornado. These events tend to have an extraordinary amount of debris and trash associated with them to the extent that a plan is needed for managing the waste.	x		x	DC7
<i>Comment:</i> Ongoing and plan will be updated in 2022				
Facility retrofit for generator back-up- Douglas County has identified three facilities that provide critical support for the overall response and continuation of DC Government mission essential services. These designated facilities would be retro-fit to allow for emergency generator power. This project includes the purchase of two 50 kw generators on trailers so the generators can be transported and “plugged” in at all facilities equipped with the appropriate receptacles.	x		x	DC26
<i>Comment:</i> New action item for additional critical facilities				
Evacuation plan revision and execution- DCSO began development on the Emergency Operations Plan Evacuation Annex in 2012 as a response to lessons learned by Colorado Springs PD during the Waldo Canyon Fire. The Evacuation Annex is partially complete and will be completed in phases over the next 3 years.	x		x	DC8
<i>Comment:</i> Plan fully complete and will be updated in 3-4 years – ongoing				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Horse Creek stream stabilization- Horse Creek is a tributary of the South Platte River that drains the Hayman Burn area. Stream stability and erosion has been an issue for many years. The erosion and deposition affects Denver Water supply, including Strontia Springs reservoir, and fish habitat. Newer private driveway culverts are inadequate and prone to washout, complicating erosion problems	X			
Comment: Complete				
120,000 gallon Water Cistern installed at the USFS Work Station at Hwy 67 and Rampart Range Road- Douglas County would like to put a 120,000 gallon water cistern at the USFS Work Station to assist the West Douglas Fire Protection District in fire suppression along Highway 67. A significant water source located at this workstation would help with fire suppression in this heavily wooded area of the Pike National Forest. There are numerous homes and businesses located in the area, including those located in Moon Ridge, Sprucewood, the Round-up Ranch (which has 1400 children visit annually) and the Silverstate Youth Camp (which has 3000 children visit annually). Water supply is always limited in this area, and an ISO-approved water tank could also have a positive impact on insurance costs for the residents and businesses in that area		X		
Comment: No longer feasible with USFS				

9.1.5 Capability Assessment

Unincorporated Douglas County performed an assessment of its existing capabilities for implementing hazard mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 9.1-4.
- Development and permitting capabilities are presented in Table 9.1-5.
- An assessment of fiscal capabilities is presented in Table 9.1-6.
- An assessment of administrative and technical capabilities is presented in Table 9.1-7.
- An assessment of education and outreach capabilities is presented in Table 9.1-8.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 9.1-9.
- Classifications under various community mitigation programs are presented in Table 9.1-10.

Findings of the capability assessment were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 9.1.10 identifies these as community capacity building mitigation actions.

Table 9.1-4. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes
<i>Comment:</i>	The Douglas County Board of County Commissioners approved the adoption of the 2018 International Building, Residential, Plumbing, Mechanical, Fuel Gas, Energy Conservation and Fire Codes with amendments on Nov. 12, 2019. The Building Official enforces the code and the County has a full time Chief Building Official.			
	All building code information is available on the Douglas County Building Division website via the following link: https://www.douglas.co.us/land/building/adopted-building-codes/			
Zoning Code	Yes	Yes	Yes	Yes
<i>Comment:</i>	Douglas County Zoning Resolution			
Subdivisions	Yes	No	Yes	Yes
<i>Comment:</i>	Douglas County Zoning Resolution			
Stormwater Management	Yes	No	Yes	Yes
<i>Comment:</i>				
Post-Disaster Recovery	Yes	No	No	Yes
<i>Comment:</i>				
Real Estate Disclosure	No	Yes	Yes	No
<i>Comment:</i>				
Growth Management	No	No	No	No
<i>Comment:</i>				
Site Plan Review	Yes	No	No	Yes
<i>Comment:</i>	Component of the Zoning Resolution			
Environmental Protection	Yes	No	Yes	Yes
<i>Comment:</i>				
Flood Damage Prevention	Yes	No	Yes	Yes
<i>Comment:</i>				
Emergency Management	Yes	No	Yes	Yes
<i>Comment:</i>				
Climate Change	No	No	No	No
<i>Comment:</i>				
Other none				
<i>Comment:</i>				
Planning Documents				
General Plan	Yes	No	Yes	Yes
<i>Comment:</i>	2040 Comprehensive Master Plan			
Capital Improvement Plan	Yes	No	Yes	Yes
<i>How often is the plan updated?</i>	5 years			
<i>Comment:</i>				
Disaster Debris Management Plan	Yes	No	No	Yes
<i>Comment:</i>				
Floodplain or Watershed Plan				
<i>Comment:</i>	FP/SW/UW combined below			
Stormwater Plan				
<i>Comment:</i>	FP/SW/UW combined below			
Urban Water Management Plan				
<i>Comment:</i>	FP/SW/UW combined below			
Habitat Conservation Plan	Yes	No	No	No
<i>Comment:</i>				
Economic Development Plan	No	No	No	No
<i>Comment:</i>				
Shoreline Management Plan				
<i>Comment:</i>	N/A			
Community Wildfire Protection Plan	Yes	No	Yes	Yes
<i>Comment:</i>				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Forest Management Plan	No	No	No	No
<i>Comment:</i>				
Climate Action Plan	No	No	No	No
<i>Comment:</i>				
Comprehensive Emergency Management Plan	Yes	No	No	Yes
<i>Comment:</i>				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	No	No
<i>Comment:</i>				
Post-Disaster Recovery Plan	Yes	No	No	Yes
<i>Comment:</i>				
Continuity of Operations Plan	Yes	No	No	No
<i>Comment:</i>				
Public Health Plan	Yes	Yes	Yes	No
<i>Comment:</i>				
Other Floodplain/Stormwater/Urban Water plan	Yes	No	Yes	Yes
<i>Comment:</i>				

Table 9.1-5. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
<ul style="list-style-type: none"> If no, who does? If yes, which department? 	Public Works Engineering - Building, Public Works Engineering - Engineering, Community Development -Planning
Does your jurisdiction have the ability to track permits by hazard area?	Yes it is possible
Does your jurisdiction have a buildable lands inventory?	No

Table 9.1-6. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Pending
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes with voter approval
User Fees for Water, Sewer, Gas or Electric Service	No - Douglas County does not have a stormwater utility or stormwater service fees.
Incur Debt through General Obligation Bonds	Yes with voter approval
Incur Debt through Special Tax Bonds	Maybe with voter approval
Incur Debt through Private Activity Bonds	No, County cannot incur debt through Private Activity Bonds, only private entities can. Douglas County does have ability to approve issuance
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Limited ability but don't
Other	No

Table 9.1-7. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development, Public Works Operations, Public Works Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Operations, Public Works Engineering
Planners or engineers with an understanding of natural hazards	Yes	Community Development, Public Works Engineering
Staff with training in benefit/cost analysis	Yes	Community Development, Public Works Engineering
Surveyors	Yes	Public Works Engineering
Personnel skilled or trained in GIS applications	Yes	Community Development, Public Works Engineering, Public Works Operations, Information Technology, Assessors, Sheriff's Office
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	OEM
Grant writers	No	
Other	Yes	Resiliency Planner – Douglas County

Table 9.1-8. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes
• If yes, briefly describe.	County Webpage
Do you use social media for hazard mitigation education and outreach?	Yes
• If yes, briefly describe.	Various
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes
• If yes, briefly describe.	Planning Commission
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
• If yes, briefly describe.	Code Red, CERT, Social Media, Disaster Preparedness Guides, Public outreach, Training and exercise programs
Do you have any established warning systems for hazard events?	Yes
• If yes, briefly describe.	IPAWS, Code Red, Social Media, NWS, EAS, Weather radios, Local media (radio and TV)

Table 9.1-9. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Public Works Engineering
Who is your floodplain administrator? (department/position)	Janet Herman
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	5/10/2016

Criterion	Response
Does your floodplain management program meet or exceed minimum requirements?	Exceeds
• If exceeds, in what ways?	Structures are not allowed to be placed in SFHA's.
When was the most recent Community Assistance Visit or Community Assistance Contact?	May 2019
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
• If so, state what they are.	
Are any RiskMAP projects currently underway in your jurisdiction?	No
• If so, state what they are.	
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
• If no, state why.	
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
• If so, what type of assistance/training is needed?	
Does your jurisdiction participate in the Community Rating System (CRS)?	Yes
• If yes, is your jurisdiction interested in improving its CRS Classification?	Yes
• If no, is your jurisdiction interested in joining the CRS program?	
How many flood insurance policies are in force in your jurisdiction?	224
• What is the insurance in force?	\$68,884,800
• What is the premium in force?	\$121,967
How many total loss claims have been filed in your jurisdiction?	44
• How many claims are still open or were closed without payment?	19
• What were the total payments for losses?	\$493,120

a. According to FEMA statistics as of November, 2020

Table 9.1-10. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	5	5/2019
Building Code Effectiveness Grading Schedule	Yes	4	11/2019
Public Protection ISO	No Individual fire departments participate	-	-
Storm Ready	Yes	n/a	1/2019
Firewise	No		

9.1.6 Review and Incorporation of Information for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).

- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- Flood Insurance Study (FIS) - Douglas County is required to have a Flood Insurance Study (FIS) and Flood Insurance Rate Maps to participate in the National Flood Insurance Program. An effective FIS has been maintained in Douglas County for more than 40 years. The most current effective date is February 17, 2017.
- Douglas County Wildfire Partnership (2021) - The mission of the DCWP is to increase collaboration among local, state & federal agencies, local fire districts, homeowner groups, NGO's, etc. (stakeholders) to reduce the negative effect of wildfire and post fire impacts, protect critical watersheds and support and enhance recreation and wildlife. The mission is not to create a partnership – but rather build a partnership to achieve specific goals.
- 2040 Douglas County Comprehensive Master Plan (2019). <https://apps.douglas.co.us/planning/projects/download.aspx?PosseObjectId=64569763>
- Comprehensive Emergency Management Plan <https://www.dcsheriff.net/sheriffs-office/divisions/emergency-management/douglas-county-comprehensive-emergency-management-plan-cemp/>
- High Line Canal (2019). <https://highlinecanal.org/plan/>
- High Line Canal Stormwater and Operations Master Plan (2018). <https://2wvq1t1cqijt89rrweqcedrn-wpengine.netdna-ssl.com/wp-content/uploads/2019/05/20181031-HLC-Master-Plan-Final-Report.pdf>
- Douglas County Zoning Resolution. <https://www.douglas.co.us/land/regulations-and-procedures/zoning/zoning-resolution/>
- Douglas County Subdivision Resolution. <https://www.douglas.co.us/land/regulations-and-procedures/subdivision-resolution/>
- Various meetings were held to discuss and complete both Phase I, Risk Assessment and Phase II for the HMP update:
- Phase I annex update meeting 8/5/2020 1pm attendees: Tim Johnson, Tim Hallmark, Zak Humbles, Dan Avery, Joel Hanson, Lisa Goudy
- Phase I action item meeting 8/26/2020 2pm attendees: Matt Williams, Tim Johnson, Steve Koster, Lisa Goudy
- Phase I update review meeting 9/2/2020 11:30am attendees: Tim Johnson, Tim Hallmark, Dan Avery, Joel Hanson, Zak Humbles, Steve Koster, Lisa Goudy
- Risk Assessment work session meeting 10/7/2020 12:30pm attendees: Tim Johnson, Tim Hallmark, Zak Humbles, Joel Hanson, Sean Owens, Dan Avery, Steve Koster, Lisa Goudy
- Risk Assessment ‘dam profile format’ meeting 10/9/2020 1:30pm attendees: Tim Johnson, Tim Hallmark, Zak Humbles, Joel Hanson, Sean Owens, Steve Koster, Lisa Goudy

- Risk Assessment ‘dam finalization’ meeting 10/15/2020 Noon attendees: Tim Johnson, Zak Humbles, Lisa Goudy
- Phase II prep meeting 10/23/2020 1:00pm attendees: Tim Johnson, Tim Hallmark, Zak Humbles, Sean Owens, Steve Koster, Matt Williams, Dan Avery, Joel Hanson, Nathan Wysocki, Lisa Goudy
- HMP Wildfire discussion 11/10/2020 3:00pm attendees: Tim Johnson, Randy Johnson (Larkspur), Lisa Goudy
- Phase II Q&A meeting 11/10/2020 4:00pm attendees: Tim Johnson, Steve Koster, Lisa Goudy
- **Technical Reports and Information**—The following outside resources and references were reviewed:
 - Hazard Mitigation Plan Annex Development Tool-kit—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

Existing Integration

- **NFIP** - Douglas County is required to continually comply with NFIP requirements to ensure that flood insurance coverage is available to County residents. Douglas County floodplain regulations exceed NFIP minimum standards, are included in the Douglas County Zoning Resolution, and are enforced as other Zoning violations would be enforced.
- **Erosion/Sediment Control Program** - Douglas County has an erosion and sediment control program that was first developed and implemented in 1993. The program has evolved and is viewed as a model nationally. The current program and criteria are available on the County website: <https://www.douglas.co.us/land/drainage-and-erosion-control/grading-erosion-and-sediment-control-manual-gesc-drainage-erosion-and-sediment-control-desc/>
- **Douglas County Wildfire Partnership** – in the beginning of 2021, the County began creating a partnership with federal, state, and local departments and agencies to increase the collaboration among different agencies, fire districts, homeowner groups, and stakeholders and reduce the negative effects of wildfire and post-fire impacts. The partnership has developed several goals that they plan to build out once feedback is received from the core committee.
- Douglas County does not allow structures in the FEMA Special Flood Hazard Area (SFHA). Consistent with our annual CRS Recertification response, there may be situations where Pre-FIRM structures or structures placed in the SFHA through updated floodplain studies would be substantially improved. If that situation were to arise, the County would follow all NFIP requirements for construction in the SFHA, including requiring and maintaining a copy of an Elevation Certificate.
- The **Douglas County Zoning Resolution** (“DCZR”) requires that applicants for rezoning’s identify natural and man-made hazards impacting the subject property. The approval criteria for rezoning’s then include an assessment by the Planning Commission and Board of County Commissioners of whether the property is suitable for the proposed uses. The DCZR includes the Wildfire Hazard Overlay District and the Floodplain Overlay District which set expectations for mitigation or avoidance of flood and wildfire hazards to be integrated into new developments in designated hazard areas.
- The **Douglas County Subdivision Resolution** (“DCSR”) requires identification of natural and man-made hazards as part of the submittal requirements for new subdivisions. Approval criteria for subdivisions of land require demonstration by an applicant that hazards have been or can be mitigated or avoided. Public land dedication standards in the DCSR require that lands proposed

for dedication as public parks and schools be evaluated for hazards that would preclude development prior to acceptance of the dedication by the county.

- The DCZR contains standards for review of site plans for development of nonresidential, multi-family, and public facility projects. Mitigation or avoidance of hazards is evaluated in the review process for all three application types (use by special review, site improvement plan, and location and extent).
- The **Douglas County 2040 Comprehensive Master Plan** (“2040 CMP”) includes mapping of environmental constraints and hazards across the county. That information is then supplemented by site-specific studies performed as part of land use applications. Goals, objectives, and policies in the 2040 CMP support development outside of hazard areas or mitigation of hazards if they cannot be avoided. Conformance with the 2040 CMP is an approval criterion for all significant land use application types in the DCZR and DCSR.

Opportunities for Future Integration

- **Zoning Code**—Douglas County revised our Floodplain Overlay District in the Zoning Resolution in May of 2016 to stay consistent with State and Federal regulations. The County constantly reviews our Floodplain regulations against State and Federal regulations and updates as needed.

9.1.7 Jurisdiction-Specific Natural Hazard Event History

Table 9.1-11 lists past occurrences of natural hazards for which specific damage was recorded in Unincorporated Douglas County hazard events that broadly affected the entire planning area, including Unincorporated Douglas County, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.1-11. Past Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Blizzard (Bomb Cyclone)	State #	3/12/2018	\$334,488,.97
Pandemic (COVID-19)	EM-3436/DR-4498	January 20 th , 2020 - Present	\$see below
* Indicates County-wide event			

Bomb Cyclone Blizzard Specifics

The blizzard weather event was well forecasted by meteorologists. The Office of Emergency Management (OEM), the Sheriff’s Office and a variety of County departments and agencies began to “lean forward” with the County Emergency Operations Center (EOC) activated at 10:00 a.m. March 13th. Early rain was already turning to snow with high winds. While the weather was expected, the 40-car pile-up on I-25 a little after 10:00 a.m. was not. This multi-vehicle crash stage for what would become more than 24 hours of rescues of stranded drivers off the highways and roads of Douglas County.

With I-25 shutdown, first due to the large crash and then due to CDOT’s closure of I-25 from Lone Tree to the EL Paso County line, motorists began to leave I-25 both east and west, looking for county roads and highways that would divert them around the closures. Instead of finding the easier routes they were looking for they instead drove straight into the worst part of the blizzard on narrower side roads and highways and quickly became overcome by blowing snow, treacherous road conditions and the blocking of routes by other drivers who slid off roads, into other vehicles or had to stop due to snow drifting.

The EOC Team launched a concerted effort to create rescue Task-Forces comprised of Douglas County Sheriff Patrol Cars teamed up with Snow Plows and Douglas County School District Buses. These Rescue Task-Forces swept through county roads rescuing stranded travelers from their vehicles. In addition the EOC Team, with the help of the Red Cross, opened and supplied emergency sheltering where rescued travelers could be dropped for a safe, warm shelter for the duration of the storm.

Douglas County made a Local Disaster Declaration, signed by Commissioner Lora Thomas on Wednesday afternoon. This declaration made state resources accessible to Douglas County for this emergency period.

In all, more than 700 individuals were rescued and sheltered during the blizzard event and then transported safely back to their vehicles the next day. The list of individuals and agencies who worked together on this effort is extensive and includes the Douglas County OEM Staff & EOC Volunteer Team, DCSO, Douglas County Facilities and the Fairground, Douglas County Public Works, Douglas County School District, New Covenant Church in Larkspur, New Hope Church in Castle Rock, the City of Castle Rock MAC Rec Center, Lone Tree Rec Center, the Red Cross, Castle Rock Fire, Larkspur Fire, Franktown Fire, Douglas County Search and Rescue, CDOT and the Colorado State Patrol.

It was a large and well-coordinated effort, achieved with a few minor injuries and no casualties.

Summary of Costs - March 2019 Blizzard					
Assignment	Personnel Costs		Equipment Costs	Material Costs	Total
	Hours	Costs			
Douglas County Personnel	Detentions	12.75	\$737.82		\$737.82
Douglas County Personnel	OEM	7.00	\$424.94		\$424.94
Douglas County Personnel	Various Depts	100.00	\$4,100.00		\$4,100.00
	Grand Total	112.75	\$4,837.82		\$4,837.82
EOC Personnel	food				\$3,427.84
PW - Road & Bridge					
Highlands Ranch	Snow Plowing	305.5	\$12,769.68	\$14,484.38	\$23,553.69
Snow Route #1	Snow Plowing	494.5	\$24,141.03	\$26,422.12	\$36,931.49
Snow Route #2	Snow Plowing	343.5	\$17,616.95	\$20,534.80	\$11,039.92
Snow Route #3	Snow Plowing	195.5	\$8,660.83	\$11,382.08	\$8,229.80
Snow Route #4	Snow Plowing	265.5	\$12,050.38	\$15,524.83	\$31,065.50
Snow Route #5	Snow Plowing	273	\$9,935.36	\$8,829.82	\$27,586.54
Other Misc. Routes	Snow Plowing	76.5	\$2,718.42	\$1,216.47	\$1,529.22
	Grand Totals	1954	\$ 87,892.65	\$ 98,394.50	\$ 139,936.16
					\$ 326,223.31

Pandemic Specifics

The COVID-19 pandemic reached Colorado on March 5, 2020, when the state's first two cases were confirmed, one of which was a Douglas County resident. This initiated the activation of the Douglas County EOC on March 6th. On March 11th Governor Jared Polis issued a written State of Emergency and on March 13th President Trump declared COVID-19 a pandemic and issued an emergency declaration. That same day, Douglas County made a Disaster Declaration. Within days all municipalities in Douglas County had also issued Disaster Declarations.

By March 25th Governor Polis had issued a Stay-At-Home Order for the state of Colorado and schools closed. Businesses, unless they were met the criteria of Essential Service also closed. Throughout the

following months of April and May, COVID-19 cases, hospitalizations and fatalities continued to rise (see Figure 1 below).

Douglas County, recognizing the impact that school and business closures would have on the residents of the County rapidly formed a range of Taskforces based out of the EOC. Initial Taskforces included a Human Needs Taskforce, an Economic Taskforce, a FEMA Grants Taskforce, a Hospital Surge Taskforce, a Communications Taskforce and a County Human Resources Taskforce. Later Taskforces included a Testing Taskforce and Vaccination Taskforce. Unemployment claims climbed and businesses began to go out of business.

Governor Jared Polis issued a statewide mask mandate in mid-July to avoid the sharp surge of COVID-19 cases and deaths being observed in neighboring states. Over the summer months COVID cases, hospitalizations and fatalities declined only to rebound in the late fall. By November 2020, COVID-19 was again surging in Colorado and Douglas County.

As of the date of this summary, January 13, 2021 TCHD reported 17,720 total COVID-19 cases for Douglas County. The County’s death toll stands at 215. As of January 13, 4.8% of county residents have been positively diagnosed with COVID-19^[6] and the 7-day moving average of new COVID-19 cases is 128 cases per day.^[5] As of January 13, 2020, 11,450 COVID-19 vaccine doses have been administered in Douglas County, equivalent to approximately 3% of the population.



Event	Federal	County
Bomb Cyclone*	-	????
CARES ACT for COVID 19**		
Testing/Tracing	1,129,276	
PPE/Facility Improvements/Cleanin	3,365,873	
Repurposed Employees	344,291	
EOC Employees	57,326	
COVID Sick/Childcare	372,799	
IT Purchases	199,155	
IT Additional Employees	16,954	
HHS Support (rent/food/utility)	755,742	
HHS Employees	342,861	
Small Business Support	14,151,213	5,000,000
Not for Profit Support	1,119,278	
Public Awareness	240,000	
Municipality Support	8,011,344	
Misc	18,370	99,781
Total	30,124,482	5,099,781
FEMA for COVID 19		
Testing/Tracing (projected)	750,000	250,000
PPE/Facility Improvements/Cleanin	158,567	52,856
EOC Employees	13,037	4,346
Total	921,604	307,201

9.1.8 Hazard Risk Ranking

Table 9.1-12 presents a local ranking for Unincorporated Douglas County of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.1-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	48	High
2	Drought	30	Medium
2	Pandemic	30	Medium
3	Hail	24	Medium
4	Animal Disease	18	Medium
4	Lightning	18	Medium
4	Severe Thunderstorms	18	Medium
4	Severe Winter Storm	18	Medium
4	Transportation Accidents	18	Medium

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
5	Earthquake	16	Medium
5	Tornadoes	16	Medium
6	Erosion	12	Low
6	Expansive Soils	12	Low
6	Extreme Temperatures	12	Low
6	Flood	12	Low
6	Land Subsidence	12	Low
6	Landslide	12	Low
6	Slope Failure	12	Low
7	Dam and Levee Failure	6	Low

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

9.1.9 Jurisdiction-Specific Vulnerabilities

The hazard profiles in Section 5 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the County. For additional vulnerability information relevant to this jurisdiction, refer to Section 5 (Risk Assessment).

Repetitive Loss Properties

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other Noted Vulnerabilities

The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- NRCS-owned dams throughout the County (DC2)
- The County does not have a flood response plan (DC3)
- The County lacks a debris management plan. By not having a formal plan in place, the County cannot properly plan for or respond to debris-creating events such as tornadoes and floods (DC6).

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 9.2.10.

9.1.10 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.1-13 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.1-14 identifies the priority for each action. Table 9.1-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.1-13. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action DC1— Citizen Disaster Preparedness Guide. Revise and Update the Citizen Preparedness Guide using a new format with a focus on disaster preparedness for all Douglas County Citizens. Components include Warning systems, Citizen Information, Preparing a Family Disaster Plan, Stockpile Checklist, Shelter & Recovery, Access & Functional Needs, Pet Preparedness and Evacuation, Thunderstorms & Lightning, Winter Storms & Extreme Cold, Floods, Tornadoes, Wildfires, Terrorism, Active Shooter, Public Health Emergency, Pandemic Flu, Hazardous Materials, and Helpful Resources. Printed and electronic versions available as well as an application for smartphones. Comment: Updates to guides are done annually and distributed to citizens.						
<i>Hazards Mitigated:</i> Wildfire, Flood, Drought, Pandemic, Hail, Lightning, Severe Thunderstorms, Winter storm, Tornado, Earthquake, Extreme temps						
Both	#1, 2, 5, 8, 9, 11, 15, 16	OEM	Facilities Admin BOCC	\$30,000	General Fund	On-going
Action DC2— Performance assessments for small NRCS dams. There are about 24 small dams owned by the NRCS in the County. Most are over 60 years old and are located on Cherry Creek. This project would develop assessments of the dams to determine if they still function as intended or need repair or rehabilitation. Comment: 1 dam has been completed and others are being studied						
<i>Hazards Mitigated:</i> Flood, Severe Thunderstorms, Dam and Levee failure						
Existing	#6	PWE PWOPs	N/A	\$500K	General Fund	2023
Action DC3— Flood Hazard Inventory Tool. Connect flood response to Inventory Tool and develop a flood response plan for the County. The Inventory Tool will connect to the County's GIS system. Comment: Gauges are linked to our GIS system: https://arcg.is/1Wu50S0 this is a webmap from AGOL						
<i>Hazards Mitigated:</i> Flood, Severe Thunderstorms, Dam and Levee failure						
New and Existing	# 2, 4, 5	PWE County GIS	N/A	\$350K	General fund	2023
Action DC4— Continue to implement fuels management strategies identified on Douglas County properties. The management strategies for County-Owned lands categorized as forested properties include a hazardous fuels reduction component as part of a larger forest management /forest restoration strategy for protection of the property, the financial investment of tax payers, the natural resources values as well as social, recreational, and intrinsic values. Management strategies for smaller properties in hazardous subdivisions contain a hazardous fuels reduction component where appropriate. Implementation projects are guided by hazard analysis, the Douglas County CWPP and the current process for approval and implementation with Douglas County Open Space and Natural Resources. The County maintains a spreadsheet of county-owned properties that have the potential for mitigation action. Mitigation actions may include hand work, equipment work, County work, contractor work, and prescribed fire. Comment: This is ongoing and the CWPP is being updated with anticipated completion in 2021						
<i>Hazards Mitigated:</i> Wildfire, Erosion, Flooding, Landslide						
Existing	#2, 4, 5, 8, 9, 10, 12, 13, 16, 20, 24	OEM, County Wildfire Mitigation	Building Dept. Open Space and Natural Resources	Staff	General fund	On-going
Action DC5— Use prescribed fires to protect and enhance resource values. Douglas County can use prescribed fires as a management tool to protect and enhance resource values where appropriate and in concert with additional resource management tools that guide the management activities to meet the goals of the property in question. Prescribed fires implemented by Douglas County have been limited to areas with grass fuels. Prescribed fires in forested areas have been implemented by DFPC and USFS. Comment: This will continue to be a viable tool we will utilize when appropriate. Comment: This will continue to be a viable tool we will utilize when appropriate						
<i>Hazards Mitigated:</i> Wildfire, Erosion						
New and Existing	#2, 16, 20, 24	OEM	DFPC, USFS, Open Space and Natural Resources, Local fire districts	100K	General fund	On-going
Action DC6— Debris management plan development. The Debris Management Plan will be developed beginning Q3 2015, completion scheduled for Q2 2016. The Debris Management Plan is used following a large scale disaster such as flooding or a tornado. These events tend to have an extraordinary amount of debris and trash associated with them to the extent that a plan is needed for managing the waste Comment: Ongoing and plan will be updated in 2022						
<i>Hazards Mitigated:</i> Wildfire, Flooding, Severe Thunderstorms, Winter Storm						
N/A	#3, 7, 9, 10, 18, 22, 23	OEM	Public Works Operations, Facilities, Tri-County Health Dept.	Steff cost	General fund	2022

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action DC7 – Evacuation plan revision and execution - DCSO began development on the Emergency Operations Plan Evacuation Annex in 2012 as a response to lessons learned by Colorado Springs PD during the Waldo Canyon Fire. The Evacuation Annex is partially complete and will be completed in phases over the next 3 years. Comment: plan fully complete and will be updated in 3-4 years ongoing						
<i>Hazards Mitigated:</i> Wildfire, Flood, Tornado, Transportation accidents, Severe Thunderstorms, Sever Winter Storms, Earthquake, Landslide, Dam & Levee failure						
New and Existing	#1, 2, 4, 8, 9, 10, 13, 15, 16	OEM	Facilities, Red Cross, Sheriff's Office	Staff cost	General fund	On-going
Action DC8 CERT certification To enhance public outreach, OEM schedules a seven session Citizen Preparedness Training, utilizing the national CERT curriculum and Stop the Bleed practicum training.						
<i>Hazards Mitigated:</i> Wildfire, Flood, Drought, Pandemic, Hail, Lightning, Severe Thunderstorms, Winter Storms, Transportation accidents, Tornadoes, Earthquake						
N/A	#1, 2, 8, 9, 15, 16	OEM	SAR, Fire Depts	\$2250.00	General fund	Annual
Action DC9 Wildland Fire Preparedness Seminars – for HOAs and for the General Public This seminar features and an examination of lessons learned from recent wildfire disasters in other communities similar to Douglas County, evacuation readiness tips, and a discussion panel of panel of emergency management, firefighter and law enforcement subject matter experts. In addition, this workshop will provide individual, hands-on assistance – helping participants register to receive early-warning alerts via CodeRED, PulsePoint and Twitter.						
<i>Hazards Mitigated:</i> Wildfire						
New and Existing	#2, 16, 15, 20, 24	OEM		Staff cost	General fund	Spring and Summer months on-going
Action DC10 – Hazmat ESRI commodity flow identification project.						
<i>Hazards Mitigated:</i> Transportation accidents						
New and Existing	#1, 2, 4, 5, 8, 9, 10, 13, 14, 15, 16, 20, 21, 23, 24	OEM	DCSO Hazmat team, County GIS team	\$150K	FEMA Grant	3 yr
Action DC11 - Franktown Area Wildfire Evacuation Drills – (to include the HOAs and localities of Bannockburn, Burning Tree, Comanche Pines and Whispering Pines) Wildfire evacuation drills provide participants with a realistic evacuation experience that includes receiving CodeRed alerts via phone, text and emails, or a knock on the door by law enforcement personnel; instruction to evacuate the area by vehicle and direction to a “evacuation point”. Participants then “execute” their home and family evacuation plan and travel to the designated evacuation point where they gather together to receive evacuation preparedness information and handouts, have the opportunity to ask questions of local authorities, and make connections and network with their neighbors regarding continued community preparedness planning.						
<i>Hazards Mitigated:</i> Wildfire						
New and Existing	#1, 2, 4, 5, 9, 10, 13, 15, 16, 20, 24	OEM	Sheriff's office and Fire depts.	Staff time	General fund	Spring and Summer months On-going
Action DC12 - Greater Larkspur Wildfire Mitigation Project Collaborative effort between Douglas County, Colorado State Forest Service, US Forest Service and Perry Park Metro District. Goal is reduce hazardous wildfire fuels bordering public and private lands, focusing on dead vegetation created by the Tussock Moth infestation. Desired end result is more resilient landscape and private property that can withstand wildfire and give firefighters better opportunities for suppression.						
<i>Hazards Mitigated:</i> Wildfire, Erosion, Landslide						
New and Existing	#2, 4, 5	OEM	County Wildfire Mitigation, PP Metro, CSFS, Larkspur Fire, USFS, Open Space and Natural Resources	\$2,065,000.00	CSFS Grant, General Fund	2025 all phases
Action DC13 - Douglas County Fire and Aviation Facility Permanent facility to house the Douglas County Emergency Services Unit and Wildfire Suppression Aviation Program. Goal is to improve wildfire suppression effectiveness and capability by co-housing county wildfire program managers with contract aviation assets. Permanent facility would improve training opportunities, situational awareness, response times and equipment longevity and safety.						
<i>Hazards Mitigated:</i> Wildfire, Transportation accidents						
Existing	#1, 4, 7, 8, 9, 10, 12, 15, 20	OEM	Cty Admin, BOCC, PWE, PWO, Fire depts	5Mil	General fund	2024 all phases
Action DC14 - Develop a top-down science-based wildfire strategy for agency officials that includes preparedness, risk reduction (mitigation), and personal responsibility with an emphasis on home ignition.						
<i>Hazards Mitigated:</i> Wildfire						
	#1, 2, 5, 6, 8, 9, 10, 12, 14, 17, 21	OEM, County Wildfire Mitigation	Public Relations	Staff cost	None unless consultant requested	18-24 months

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action DC15 - Establish with partner agencies, a coordinated group, reflective of a wildfire working group to establish and commit to using consistent, accurate, science-based messaging on wildfire preparedness and risk reduction practices in the Home Ignition Zone (HIZ). Establish science-based BMPs for native vegetation as species as it relates to wildfire. Identify opportunities and methods for thought provoking and engaging communication.						
<i>Hazards Mitigated:</i> Wildfire						
New and Existing	#1, 2, 4, 5, 8, 9, 10, 12, 13, 16, 17, 21, 24, 25, 26	CSFS, County Wildfire Mitigation	OEM, FPDs, DC Wildland Coordinators	Staff cost	No additional	12 months
Action DC16 - Educate through individual property and community wildfire assessment and risk reduction recommendations and assist in the design and execution of community-based wildfire mitigation projects.						
<i>Hazards Mitigated:</i> Wildfire						
New and Existing	#1, 2, 4, 5, 8, 9, 10, 12, 13, 16, 21	County Wildfire mitigation, CSFS		Staff cost	Community, grant assisted	Ongoing/as needed
Action DC17 - Completed two development-wide wildfire mitigation/hazardous fuels reduction projects in both a new community of high-density homes and 2 new filings for new home construction in existing communities. As these projects come through, we will continue to develop these hazardous fuels reduction projects.						
<i>Hazards Mitigated:</i> Wildfire						
New and Existing	#2, 7, 9, 10, 13, 17, 19, 21, 25, 26	County Wildfire mitigation		No cost	Developer	Ongoing/as needed
Action DC18 —Happy Canyon Creek at Interstate 25 Stream Stabilization						
<i>Hazards Mitigated:</i> Flooding, Erosion, Slope Failure						
New and Existing	#8, 20	Douglas County – Public Works Engineering	Mile High Flood District	\$3.5M	Douglas County Mile High Flood District Cherry Creek Basin Water Quality Authority	Preliminary Design Underway. Construction in 2022-2023
Action DC19 — Happy Canyon Creek North of Lincoln Avenue						
<i>Hazards Mitigated:</i> Flooding, Erosion, Slope Failure						
New and Existing	#2, 8, 9, 20	Douglas County – Public Works Engineering	Mile High Flood District	\$4.0M	Douglas County Mile High Flood District	Initiate Preliminary Design in 2021
Action DC20 —Major Drainageway Planning Study for Cherry Creek from Reservoir to Bayou Gulch Road						
<i>Hazards Mitigated:</i> Flooding, Erosion						
Existing	#2, 6, 7, 8, 10, 12, 18	Mile High Flood District	Douglas County	\$130K	Douglas County Town of Parker Mile High Flood District Southeast Metro Stormwater Authority	Study Kicked off in Fall 2020
Action DC21 - Maintain Culverts Reduce flood hazard to public by ensuring culvert inventory is fully functional, passing design flows and capacities. Also creates the possibility of brining substandard pipes to meet contemporary criteria. Primarily achieved through trenchless rehabilitation.						
<i>Hazards Mitigated:</i> Flooding						
Existing	#6	DC	DC PW EN	\$750K	General fund	Annual
Action DC22 - Surveil Culverts Inspect and video culverts throughout the county to identify hazards to the public that may include sub-design capacities (flooding), structural failures (road collapse), and related hazards resulting from a failed culvert. This routine annual program informs and prioritizes the culvert rehabilitation program.						
<i>Hazards Mitigated:</i> Flooding						
Existing	#4	DC	DC PW EN	\$250K	General fund	Annual
Action DC23 – CWPP The DC CWPP is going through the update process. The CWPP process authorized Under Title 1 of the 2003 HFRA and required in the State of Colorado under SB 09-001 is a collaborative effort to identify and implement locally based solutions for protection of life, property and critical infrastructure in the WUI. The process brings together a diverse group of stakeholders and must meet the minimum standards set forth by the State Forester.						

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Hazards Mitigated: Wildfire						
New and Existing	#2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 22, 24, 25	County Wildfire mitigation	CSFS, OEM, FPD	Staff cost	Unknown – new challenge	12 months
Action DC24 - Continue the Douglas County Water Alternatives Program. The program assists homeowners and small domestic water providers in developing renewable water supply alternatives through the funding of feasibility studies and engineering costs. Participants in the program may also have the ability to use the support as leverage for additional grant funding. Diversification of water supplies by entities that provide water to existing developments can improve their capability to withstand drought conditions.						
Hazards Mitigated: Drought						
New and Existing	#5, 9, 10, 12, 13	Department of Community Development, Community and Resource Services Div.	Public Works Engineering	Low	County general fund and leveraged grant dollars	On-going
Action DC25 - Continue providing technical support for water resource planning. Douglas County staff offers technical support to homeowners, small communities, and water districts and aids those entities with limited resources in addressing water resources planning needs. Support could include fostering relationships, providing research assistance, or coordinating public outreach efforts. Diversification of water supplies by entities that provide water to existing developments can improve their capability to withstand drought conditions.						
Hazards Mitigated: Drought						
New and Existing	#5, 9, 10, 12, 13	Department of Community Development, Community and Resource Services Div.		Low	County General fund	On-going
Action DC26 - Develop fuels management strategies for County park and trail properties. Douglas County owns several parks and trails in the wildland urban interface, particularly on the edges of developed subdivisions. Fuel management strategies could include fuel reduction or development of fire breaks						
Hazards Mitigated: Wildfire						
N/A	#7, 10, 18	Department of Community Development, Parks, Trails, & Building Grounds Div.	Douglas County Wildfire Mitigation	Low	County general fund	On-going

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing new or existing program with no completion date
See the introduction to this volume for list of acronyms used here.

Table 9.1-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
DC1	8	Medium	Low	Yes	No	Yes	High	Low
DC2	1	High	Low	Yes	Yes	Yes	High	Low
DC3	3	High	Low	Yes	Yes	Yes	High	Medium
DC4	11	Medium	Low	Yes	Yes	Yes	High	Medium
DC5	4	High	Low	Yes	Yes	Yes	High	Medium
DC6	7	Medium	Low	Yes	No	Yes	High	Low
DC7	9	High	Low	Yes	No	Yes	High	Low
DC8	6	Medium	Low	Yes	No	Yes	High	Low
DC9	5	Medium	Low	Yes	Yes	Yes	High	Medium
DC10	15	Medium	High	Yes	Yes	No	High	High

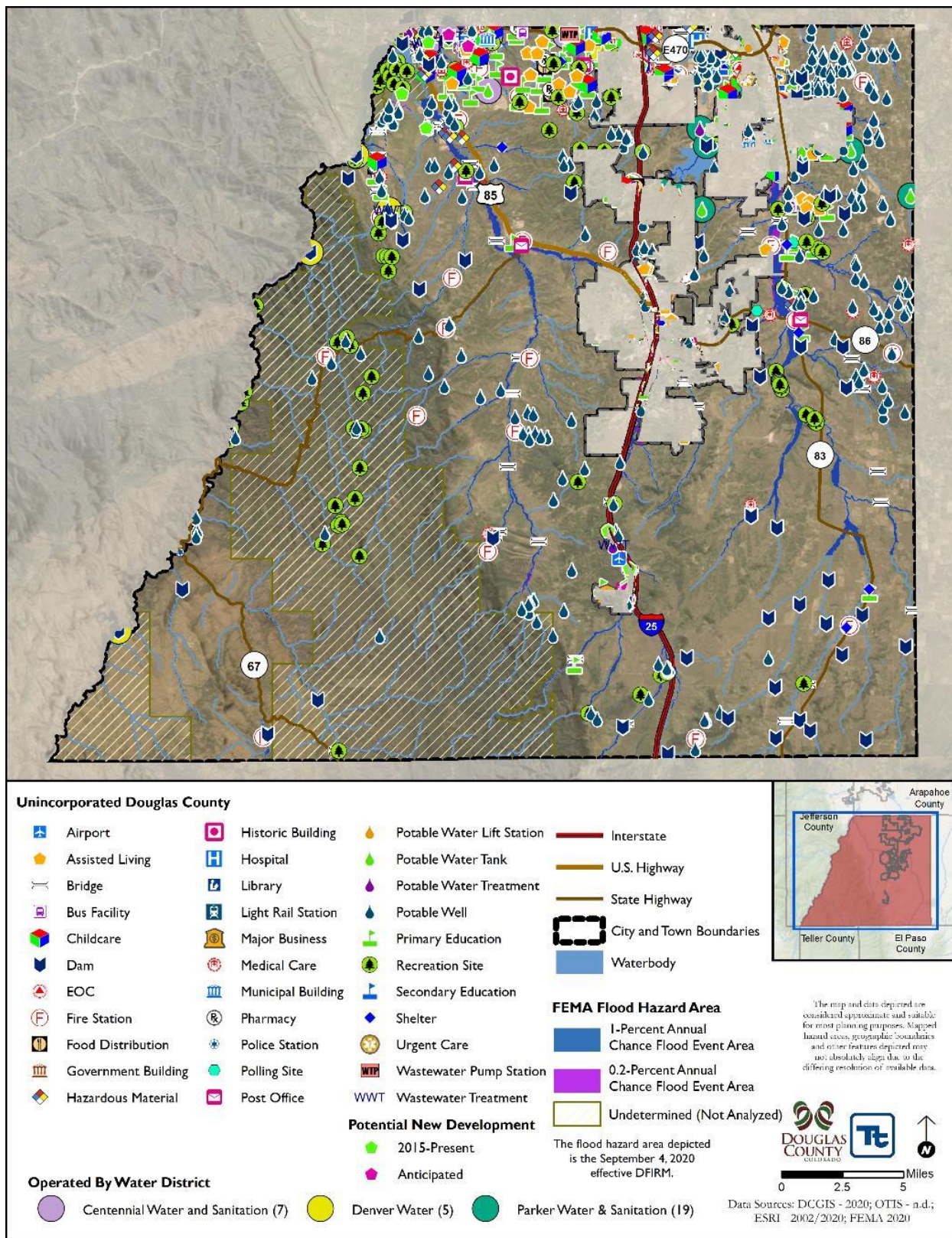
Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
DC11	11	Medium	Low	Yes	Yes	Yes	High	Medium
DC12	3	Medium	Medium	Yes	Yes	Yes	High	Medium
DC13	9	Low	Low	Yes	No	Yes	Medium	Low
DC14	11	Medium	Low	Yes	Yes	Yes	Medium	Medium
DC15	15	Medium	Low	Yes	Yes	Yes	Medium	Medium
DC16	11	Medium	Low	Yes	Yes	Yes	Medium	Medium
DC17	10	Low	Low	Yes	Yes	Yes	Low	Medium
DC18	2	Low	Medium	Yes	Yes	Yes	Low	Medium
DC19	4	Low	Medium	Yes	Yes	Yes	Low	Medium
DC20	7	Medium	Medium	Yes	Yes	Yes	Medium	Medium
DC21	1	High	Low	Yes	No	Yes	Medium	Low
DC22	1	High	Low	Yes	No	Yes	Medium	Low
DC23	20	Medium	High	Yes	Yes	Yes	Medium	Medium
DC24	5	Medium	Medium	Yes	Yes	Yes	Medium	Medium
DC25	5	Medium	Low	Yes	No	Yes	Medium	Low
DC26	3	Low	Low	Yes	No	Yes	Low	Low

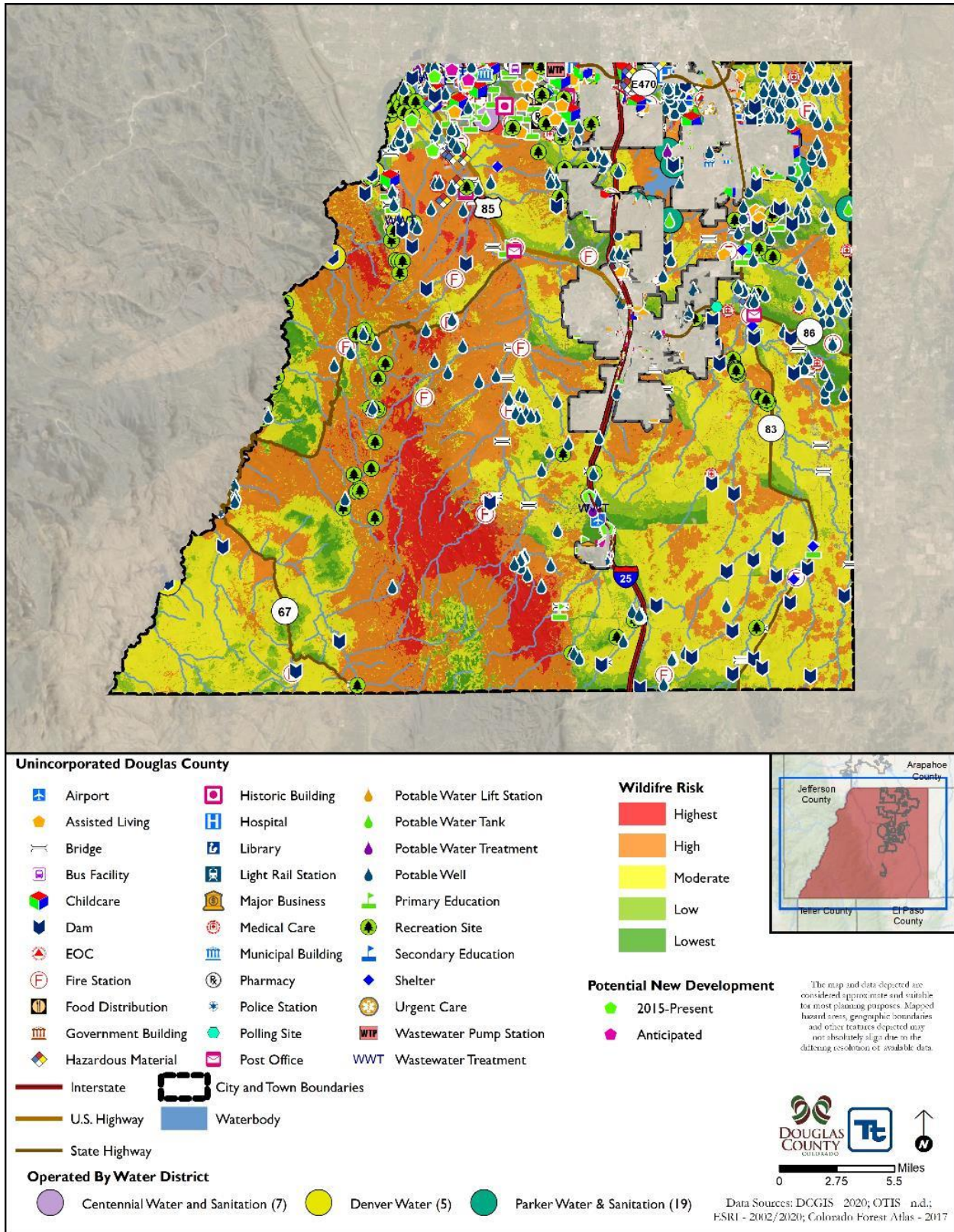
a. See the introduction to this volume for explanation of priorities.

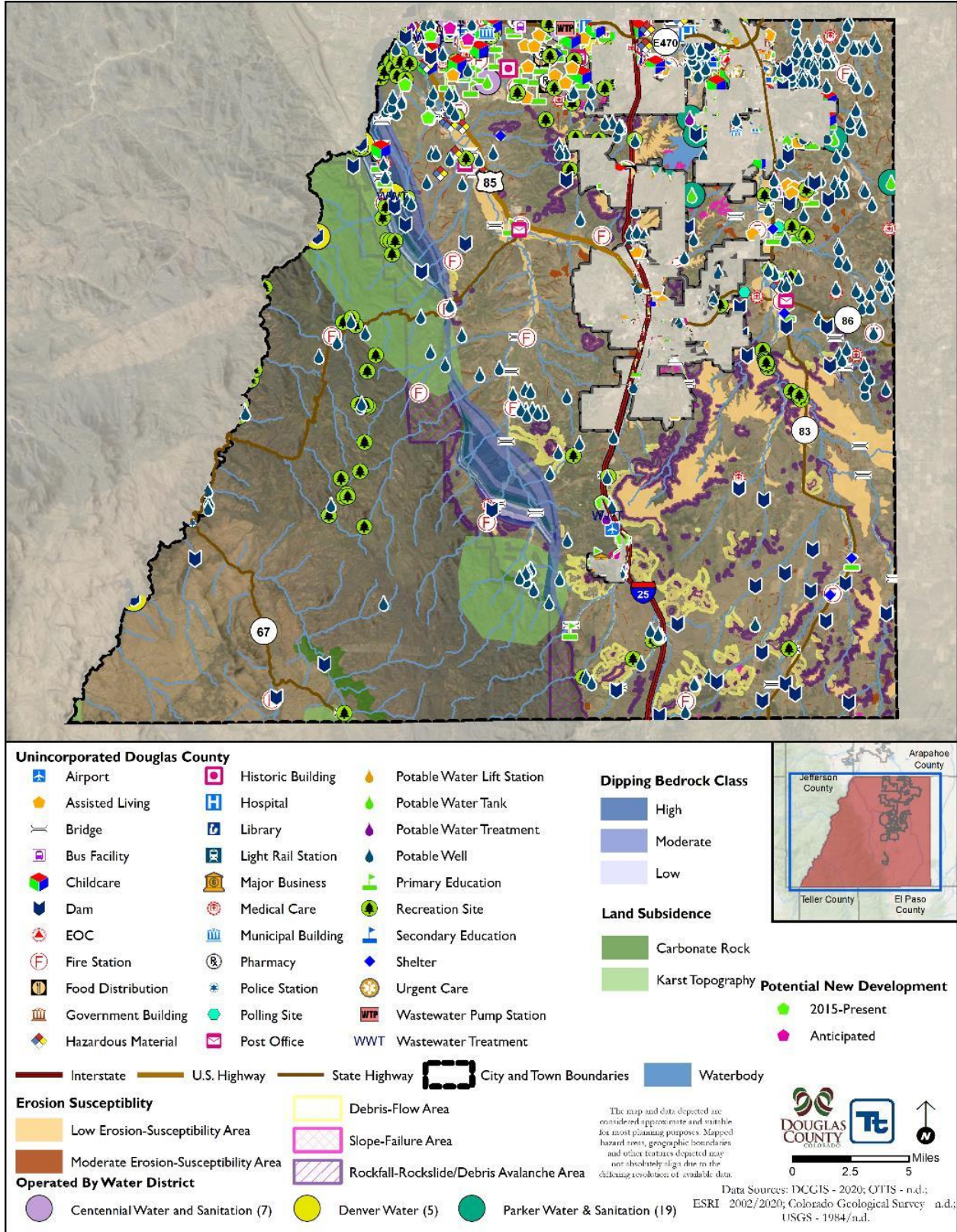
Table 9.1-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
High-Risk Hazards							
Wildfire	DC4, 5, 6, 12, 14, 17, 23, 26	DC23, 26	DC1, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 23, 26	DC4, 5, 6, 7, 12, 14, 15, 16, 17, 23, 26	DC1, 4, 5, 6, 7, 8, 9, 10, 11, 13	DC12	DC1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 23
Medium-Risk Hazards							
Animal Disease							
Drought			DC1, 8, 24, 25	DC24, 25	DC1, 8,		DC1, 8, 24, 25
Earthquake			DC1, 7, 8	DC7	DC1, 7, 8		DC1, 7, 8
Hail			DC1, 8		DC1, 8		DC1, 8
Lightning			DC1, 8		DC1, 8		DC1, 8
Pandemic			DC1, 8		DC1, 8		DC1, 8
Severe Thunderstorms	DC2, 3, 6	DC2, 3	DC1, 3, 7, 8	DC2, 3, 6, 7	DC1, 3, 6, 7, 8	DC2, 3	DC1, 3, 6, 7, 8
Severe Winter Storm	DC6		DC1, 6, 7, 8	DC7	DC1, 6, 7, 8		DC1, 6, 7, 8
Transportation Accidents			DC1, 7, 8, 10, 13	DC7,	DC1, 7, 8, 10, 13		DC1, 7, 8, 10, 13
Tornadoes			DC1, 7, 8	DC7	DC1, 7, 8		DC1, 7, 8
Low-Risk Hazards							
Dam and Levee Failure	DC2, 3	DC2, 3	DC3, 7	DC2, 3, 7	DC3, 7	DC2, 3	DC3, 7
Erosion	DC4, 5, 12, 18, 19, 20	DC20	DC12	DC4, 5, 12, 18, 19, 20	DC5, 6	DC18, 19	DC4, 5, 12,
Expansive Soils							
Extreme Temperatures			DC1		DC1		DC1
Flooding	DC2, 3, 4, 6, 18, 19, 20, 21, 22,	DC2, 3, 18, 19, 20, 21, 22,	DC1, 3, 4, 7, 8,	DC2, 3, 4, 6, 7, 18, 19, 20,	DC1, 3, 4, 6, 7, 8, 21, 22,	DC2, 3, 18, 19, 21	DC1, 3, 4, 6, 7, 8
Land Subsidence							
Landslide	DC5		DC7	DC5, 8	DC5, 7		DC5, 7
Slope Failure	DC18, 19			DC18, 19		DC18, 19	

a. See the introduction to this volume for explanation of mitigation types.







9.2 CITY OF CASTLE PINES

9.2.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Larry Nimmo, Public Works Director 360 Village Square Lane, Suite B Castle Pines, CO 80108 Telephone: 303.705.0216 e-mail Address: Larry.Nimmo@castlepinesco.gov	Sam Bishop, Community Development Director 360 Village Square Lane, Suite B Castle Pines, CO 80108 Telephone: 303.705.0225 e-mail Address: sam.bishop@castlepinesco.gov

9.2.2 Jurisdiction Profile

Location

City of Castle Pines is set at the base of Daniels Park and situated on 2,433 acres of upland Ponderosa Pine, shrub lands, and grassy plains. The City is bisected by Interstate 25. The land consists of a wide range of topography encompassing mountain vistas, dramatic ridgelines, hills, and grass covered plains.

The current boundaries generally extend from Cherokee Ranch and Daniels Park primarily to the west, Highlands Ranch Open Space Conservation Area to the north, open space and agricultural lands to the east, and agricultural lands to the south, which serve as a physical boundary between the City, Castle Pines Village, and Castle Rock. The City of Castle Pines encompasses an area of 9.55 square miles.

History

City of Castle Pines was incorporated in February 2008. Although the City government is fairly new, residents have been established in the area since the early 1980s, when the first subdivision was platted in unincorporated Douglas County. During this time, the area began a fast growth period during the 1980s, with an historic population of a few thousand, and then slowed down in growth during the early 1990s. In the late 1990s and early 2000s, the population began to increase as new housing and adequate infrastructure became available. In November 2010, the residents of Castle Pines voted to drop the term “North” from the City’s title. In November of 2018, Castle Pines residents opted to move towards Home Rule with the establishment of the Home Rule Charter Commission. The City’s government structure was officially changed on May 14, 2019 to Home Rule, making Castle Pines the latest home rule municipality in Colorado.

Climate

The climate of Douglas County is characterized by a moderate climate and significant sun exposure (more than 300 days per year). The County features low humidity, approximately 18 inches of rain each year, and 71 inches of snowfall. Temperatures range from highs of 85 degrees in July to 45 degrees in January (according to USA.com).

Governing Body Format

With the adoption of home rule, Castle Pines follows Colorado laws and operates under a mayor- council government system. The city council and mayor are elected officials. These positions are voluntary, and both the Council and mayor make a multitude of policy decisions on behalf of the jurisdiction. Elections for City Council commence on odd-numbered years, where three to four seats are typically open for election. The Mayor and Council members serve four year terms.

The Castle Pines City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation. Development of this annex was carried out by the members of the local mitigation planning team, whose members are listed in Table 9.2-1.

Table 9.2-1. Local Mitigation Planning Team Members

Name	Title
Larry Nimmo	City of Castle Pines Public Works Director
Sam Bishop	City of Castle Pines Community Development Director

9.2.3 Current Trends

Population

According to the U.S. Census Bureau the population of City of Castle Pines as of July 2019 was 10,763. Since 2010, the population has grown at an average annual rate of four percent.

Development

At the time of incorporation, the City of Castle Pines was approximately 2,417 acres with a small business district, consisted of 3,912 households and contained a 250 acre undeveloped residential development. Subsequent to the City’s incorporation, the City has annexed over 3,600 acres allowing for an additional 6,000 dwelling units and 2.6 million square feet of commercial land uses; these properties have entitlements and are currently being developed. With the addition of these properties, the City of Castle Pines will effectively triple its current population, more than double its housing stock, open space, parks and provide the opportunity for commercial development. The City has grown its original municipal boundary area from 2417 acres to approximately 6,117 acres or 9.55 square miles.

Table 9.2-2 summarizes development trends in the performance period since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 9.2-2. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the preparation of the previous hazard mitigation plan?	Yes					
If yes, give the estimated area annexed and estimated number of parcels or structures.	2 acres/ 3 parcels					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No					
If yes, describe land areas and dominant uses.						
If yes, who currently has permitting authority over these areas?						
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
If yes, briefly describe, including whether any of the areas are in known hazard risk areas	Development is anticipated on the east side of I-25 over the next five years. The development activity will primarily consist of residential, commercial and recreational land uses. There are no known hazard risk areas where development is anticipated to occur.					
How many permits for new construction were issued in your jurisdiction since the		2015	2016	2017	2018	2019
	Single Family	<10	<10	<30	_97_	_254_

Criterion	Response					
preparation of the previous hazard mitigation plan?	Multi-Family	0	0	0	0	0
	Other (commercial, mixed use, etc.)	0	0	0	0	0
	Total	<10	<10	<30	97	254
Provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	Special Flood Hazard Areas: #0 Landslide: #0 High Liquefaction Areas: #0 Wildfire Risk Areas: #0					
Describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	It is anticipated the City will continue to develop and buildout over the next twenty years with a total anticipated population of just over 30,000. Today, the City is less than half developed.					

9.2.4 Status of Previous Plan Actions

Table 9.2-3 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 9.2-3. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Repair flooding hazard at Monarch Blvd. and Stonemont Dr.- On a yearly basis, when heavy rainfall occurs in the City, flooding occurs on the street at Monarch and Stonemont. The City's engineers have been tasked with designing a modification to fix this issue in the future. We hope to have the repair completed in FY 2015.	Yes			
<i>Comment:</i>				
Wildfire prevention and preparation- The City of Castle Pines has identified the potential for wildfires within portions of our community as having the potential of having a medium significance. The City of Castle Pines will continue to work with South Metro Fire Rescue Authority to develop plans to mitigate the impact of future wildfires within our community. In addition, Castle Pines has put into place means of communicating with the community during the time of an actual emergency (CodeRED) as well as providing ongoing communication on fire prevention and mitigation strategies for the citizens. The City also works in conjunction with Douglas County to identify situations when the fire danger is higher and incorporate additional restrictions associated with open fires.	Ongoing		Yes	CP-001
<i>Comment:</i> This is an ongoing operation.				

9.2.5 Capability Assessment

City of Castle Pines performed an assessment of its existing capabilities for implementing hazard mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 9.2-4.
- Development and permitting capabilities are presented in Table 9.2-5.

- An assessment of fiscal capabilities is presented in Table 9.2-6.
- An assessment of administrative and technical capabilities is presented in Table 9.2-7.
- An assessment of education and outreach capabilities is presented in Table 9.2-8.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 9.2-9.
- Classifications under various community mitigation programs are presented in Table 9.2-10.

Findings of the capability assessment were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section identifies these as community capacity building mitigation actions.

Table 9.2-4. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes
<i>Comment:</i>	<i>Last adopted in 2009</i>			
Zoning Code	Yes	No	Yes	Yes
<i>Comment:</i>	<i>The City adopted the Douglas County Zoning Code in 2008</i>			
Subdivisions	Yes	No	Yes	Yes
<i>Comment:</i>	<i>The City adopted the Douglas County Zoning Code in 2008</i>			
Stormwater Management	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>Special Districts Included, for the City it is Chapter 11-Article 2 of the Municipal code</i>			
Post-Disaster Recovery	No	No	No	Yes
<i>Comment:</i>				
Real Estate Disclosure	No	No	No	Yes
<i>Comment:</i>				
Growth Management	Yes	No	Yes	Yes
<i>Comment:</i>	<i>Three Mile Plan</i>			
Site Plan Review	Yes	No	Yes	Yes
<i>Comment:</i>				
Environmental Protection	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>City it is Chapter 11-Article 6 of the Municipal code</i>			
Flood Damage Prevention	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>MHFCD and Chapter 18 Article 1 Sec 18-1-30 of the Municipal Code</i>			
Emergency Management	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>South Metro Fire and Rescue Department and the Douglas County</i>			
Climate Change	No	No	No	No
<i>Comment:</i>				
Other	No	No	No	No
<i>Comment:</i>				
Planning Documents				
General Plan	Yes	No	Yes	Yes
<i>Comment:</i>				
Capital Improvement Plan	Yes	No	No	Yes
<i>How often is the plan updated?</i>	<i>Annually</i>			
<i>Comment:</i>	<i>The Five Year Capital Projections is part of the annual budget and is approved by the City Council. This plan approves the current year and projects future investments in capital projects as directed by the City Council.</i>			
Disaster Debris Management Plan	No	No	No	Yes
<i>Comment:</i>	<i>The City will rely upon contracted resources initially and will call upon a mutual aid agreement if organic assets are overwhelmed. In the event that a state of emergency is declared the City may call upon state or federal resources.</i>			
Floodplain or Watershed Plan	No	Yes	Yes	Yes
<i>Comment:</i>	<i>Watershed plans are conducted for major drainageways through a partnership with the City and Mile High Flood District</i>			

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Stormwater Plan	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>City of Castle Pines MS4 Plan</i>			
Urban Water Management Plan	No	No	No	No
<i>Comment:</i>				
Habitat Conservation Plan	No	No	No	No
<i>Comment:</i>				
Economic Development Plan	Yes	No	No	Yes
<i>Comment:</i>	<i>The City has an Economic Action Plan adopted in 2019</i>			
Shoreline Management Plan	No	No	No	No
<i>Comment:</i>				
Community Wildfire Protection Plan	No	No	No	Yes
<i>Comment:</i>	<i>No standalone Wildfire Protection Plan yet exists.</i>			
Forest Management Plan	No	No	No	Yes
<i>Comment:</i>				
Climate Action Plan	No	No	No	No
<i>Comment:</i>				
Comprehensive Emergency Management Plan	No	Yes	No	Yes
<i>Comment:</i>	<i>No formal plan has been developed, but any plan will be integrated in conjunction with the County as well as South Metro Fire and Rescue who has fire protection and hazardous materials response responsibilities in the City.</i>			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	No	Yes
<i>Comment:</i>	<i>No formal plan has been developed, but any plan will be integrated in conjunction with the County as well as South Metro Fire and Rescue who has fire protection and hazardous materials response responsibilities in the City.</i>			
Post-Disaster Recovery Plan	No	No	No	Yes
<i>Comment:</i>	<i>No formal plan has been developed, but any plan will be integrated into the Emergency Management Plan in conjunction with the County as well as South Metro Fire and Rescue.</i>			
Continuity of Operations Plan	Yes	Yes	No	Yes
<i>Comment:</i>	<i>The Continuity of Operations Plan was developed and approved by City Council in coordination with Douglas County, and for various service providers in the City.</i>			
Public Health Plan	No	Yes	Yes	Yes
<i>Comment:</i>	<i>The City of Castle Pines does not have a Public Health Department. The Local Public Health Authority for the City is Tri-County Health Department. We integrate with that Department to implement any Public Health Plans.</i>			
Other	No	No	No	No
<i>Comment:</i>				

Table 9.2-5. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
If no, who does? If yes, which department?	Community Development Department
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	No

Table 9.2-6. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes, subject to voter approval
User Fees for Water, Sewer, Gas or Electric Service	N/A

Financial Resource	Accessible or Eligible to Use?
Incur Debt through General Obligation Bonds	Yes, subject to voter approval
Incur Debt through Special Tax Bonds	Yes, subject to voter approval
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Currently No
Other	N/A

Table 9.2-7. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	In-house
Engineers or professionals trained in building or infrastructure construction practices	Yes	In-house
Planners or engineers with an understanding of natural hazards	Yes	In-house
Staff with training in benefit/cost analysis	Yes	Contracted
Surveyors	Yes	Contracted
Personnel skilled or trained in GIS applications	Yes	Contract
Scientist familiar with natural hazards in local area	Yes	Contract
Emergency manager	N/A	N/A
Grant writers	Yes	In-house/Contract
Other	No	N/A

Table 9.2-8. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes
If yes, briefly describe.	
Do you use social media for hazard mitigation education and outreach?	Yes
If yes, briefly describe.	
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
If yes, briefly describe.	
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
If yes, briefly describe.	Email/Electronic newsletter database
Do you have any established warning systems for hazard events?	No
If yes, briefly describe.	

Table 9.2-9. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Public Works Department
Who is your floodplain administrator? (department/position)	Larry Nimmo
Are any certified floodplain managers on staff in your jurisdiction?	Contracted
What is the date that your flood damage prevention ordinance was last amended?	2012
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Meets However, not a participating NFIP member
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unable to determine if there has been a Visit

Criterion	Response
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state what they are.	Not a NFIP member
Are any RiskMAP projects currently underway in your jurisdiction? If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If no, state why.	No Limited FEMA mapping for drainages
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Yes Need to join NFIP
Does your jurisdiction participate in the Community Rating System (CRS)? If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program?	No No No
How many flood insurance policies are in force in your jurisdiction? ^a What is the insurance in force? What is the premium in force?	0 \$0 \$0
How many total loss claims have been filed in your jurisdiction? ^a How many claims are still open or were closed without payment? What were the total payments for losses?	0 \$0 \$0

a. According to FEMA statistics as of October 26, 2020

Table 9.2-10. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule	No	-	-
Public Protection	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-

9.2.6 Review and Incorporation of Information for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Castle Pines Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Castle Pines Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Castle Pines Comprehensive Plan**—The Comp Plan sets forth goals that recognize and respect natural geologic conditions and hazard risks; specifically, ensure development is appropriate when weighed against hazards and natural constraints, discourage and avoid development in areas with high potential for wildfire, where mitigation is impractical or excessive, or other significant constraints and hazards are present, identify and mitigate wildfire hazards in areas determined appropriate for development, coordinate with local fire and emergency service providers, as well as county and state level wildlife departments on pertinent wildlife management issues.
- **Technical Reports and Information**—The following outside resources and references were reviewed:
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

Existing Integration

- **Capital Improvement Plan**— Integration with special districts
- **Storm Water Plan** - Opportunity to integrate with MHFCD, CCBWQA

Opportunities for Future Integration

- **Zoning Code**—The City of Castle Pines is conducting a comprehensive update to its zoning code. The opportunity to incorporate additional mitigation and abatement measures will be contemplated for inclusion into the Code.- Opportunity to integrate with SMFR, Douglas County
- **Capital Improvement Projects**—Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.- Integration with special districts
- **Wildfire Mitigation Plan** – No standalone plan exist - Opportunity to integrate with SMFR, Douglas County
- **Post-Disaster Recovery Plan**—The City of Castle Pines does not have a recovery plan and intends to develop one as a mitigation planning action during the next five years. The plan will build on the mitigation goals and objectives identified in the mitigation plan.- Opportunity to integrate with SMFR, Douglas County
- **Stormwater Management** - The City has a stormwater management program (Chapter 11) as a part of the MS4 permit and this program can include policies and procedures for responding to flooding events.
- **Environmental Protection** – The City is currently in the process of updating its Comprehensive Plan and is considering integrating requirements for the provisions that will support the City’s MS4 program.

- Flood Damage Prevention - The City has a floodplain code (Chapter 18) that incorporates the regulatory standards than the National Flood Insurance Program and periodically reviews this code to ensure the health and safety of the public.
- Pandemic Response/Mitigation – No standalone plan exists.
- Floodplain or Watershed Plan - The City partners with other governmental agencies to prepare and update watershed plans. Integration of natural hazards in watershed plans can take place as these plans are updated.
- Stormwater Plan - The City is in the process of creating a Stormwater plan which will in part identify risks and vulnerabilities to the existing storm infrastructure network and put a plan in place to address those areas.
- Habitat Conservation Plan – The City’s Comprehensive Plan, as well as several plans specific to Planned Developments in the City, identify habitat conservation goals and policies, however, no stand-alone plan exists and this represents an opportunity for future integration.
- Economic Development Plan – In 2019 the City adopted an Economic Development Action Plan.
- Wildfire Protection Plan – The City does not currently have a stand-alone Wildfire Protection Plan and this is an area for future integration and possible collaboration with regional partners.

9.2.7 Jurisdiction-Specific Natural Hazard Event History

Table 9.2-11 lists past occurrences of natural hazards for which specific damage was recorded in City of Castle Pines hazard events that broadly affected the entire planning area, including City of Castle Pines, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.2-11. Past Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Pandemic (COVID-19)	EM-3436/DR-4498	January 20 th , 2020 - Present	\$ 382,000.00
* Indicates County-wide event			

9.2.8 Hazard Risk Ranking

Table 9.2-12 presents a local ranking for City of Castle Pines of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.2-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	36	High
2	Drought	30	Medium
2	Pandemic	30	Medium
6	Land Subsidence	12	Low
6	Animal Disease	12	Low
4	Hail	18	Medium
4	Lightning	18	Medium
4	Severe Thunderstorms	18	Medium
4	Severe Winter Storm	18	Medium

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
6	Transportation Accidents	12	Low
6	Earthquake	10	Low
6	Tornadoes	10	Low
6	Erosion	12	Low
6	Expansive Soils	12	Low
6	Extreme Temperatures	12	Low
6	Flood	12	Low
6	Landslide	12	Low
6	Slope Failure	12	Low
7	Dam and Levee Failure	6	Low

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

9.2.9 Jurisdiction-Specific Vulnerabilities

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on key vulnerabilities identified by the jurisdiction. Available jurisdiction-specific risk maps of the hazards are provided at the end of this annex.

Repetitive Loss Properties

The City of Castle Pines does not participate in the NFIP; therefore, the City does not have any repetitive loss or severe repetitive loss properties.

Other Noted Vulnerabilities

The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- Wildfire – the City is located within the WUI and needs to identify fuel load throughout the higher risk areas (CP-001)
- Severe Weather – the City currently does not have a protocol for extreme weather conditions to address cancellation and evacuation for outdoor events (CP-004)

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 9.2.10.

9.2.10 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.2-13 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.2-14 identifies the priority for each action. Table 9.2-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.2-13. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action CP-001— Wildfire prevention and fuel reduction. City of Castle Pines will coordinate with South Metro Fire Rescue to reduce fuel load throughout high risk areas of the City, including WUI areas of Castle Pines and unincorporated Douglas County.						
<i>Hazards Mitigated:</i>	Wildfire					

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
New	2, 4, 7, 9, 14	City of Castle Pines	SMFR and Douglas County	\$10,000 Annually	City Budget; HMGP; BRIC; Fire Grants	Ongoing
Action CP-002— Update Land Development Code. Update land development code to promote water conservation measures, including a requirement for future commercial development to include 50% xeriscaping when feasible. ETC.						
<u>Hazards Mitigated:</u> Wildfire, drought, water consumption/conservation, and flood mitigation.						
New	3, 10, 21, 22	Special Districts	City of Castle Pines	Staff Time	City Budget; HMGP; BRIC; FMA	Ongoing
Action CP-003—Pandemic Preparedness Plan. Coordinate with various divisions from City, County, State and Federal entities to identify vulnerable populations and facilities; and develop a preparedness plan to ensure continuity of operations during a potential epidemic or pandemic.						
<u>Hazards Mitigated:</u> Pandemic						
New	4, 8, 9, 10, 13, 15	CDPHE	Tri-County Health, Douglas County, City of Castle Pines	\$50,000	Cares Act	Ongoing
Action CP-004 – Lightning/ Severe Weather protocols for outside events. Develop a City-wide protocol for extreme weather conditions to address cancellation and evacuation for outdoor events; and ensure all attendees at outside events are aware of safety precautions.						
<u>Hazards Mitigated:</u> Lightning, Severe Thunderstorm, Hail, Tornado, and Wildfire						
New	1, 2, 15, 16	City of Castle Pines	Douglas Country	Staff Time	City Budget	1 year
Action CP-005- Enhanced Warning and Weather Service. Purchase weather service specific to Castle Pines to provide real-time data to increase warning capacity for high-hazard events.						
<u>Hazards Mitigated:</u> Lightning, Severe Thunderstorm, Severe Winter Storm, Hail, Extreme Temperatures, and Tornado						
New	1, 2, 15, 16	City of Castle Pines	-	\$50,000 Annually	City Budget; HMGP; BRIC	Ongoing
Action CP-006 International Building Code Update. The City has adopted the 2015 International Building and Fire Code with Amendments. Integration opportunities will be considered as part of the next cycle of code updates planned in 2022. These codes establish the minimum requirements for building codes for all new construction and tenant finishes and the fire and life safety codes for new and existing businesses						
<u>Hazards Mitigated:</u> Severe winter storms, high winds, lighting, and wildfire						
New	3, 10, 21, 22	City of Castle Pines	-	Staff Time	City Budget; HMGP; BRIC	1 year
Action CP-007 Douglas County Wildfire Partnership. Castle Pines will join the Douglas County Wildfire Partnership (DCWP). Castle Pines along with South Metro Fire and Rescue and various state, federal, NGO, and private stakeholders, will work with the Partnership to assess impact from wildfire; identify opportunities to maintain continuity of operations; and develop a comprehensive mitigation strategy to identify projects that will reduce wildfire risk, increase natural resource protection, encourage the incorporation of wildfire management principles into local planning, land use and building codes, and promote public awareness of wildfire risk.						
<u>Hazards Mitigated:</u> Wildfire						
New	#2, 7, 9, 11, 14, 20, 23	City of Castle Pines	DCWP; SMFR	Staff Time	City Budget, Grants	Ongoing

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing new or existing program with no completion date
See the introduction to this volume for list of acronyms used here.

Table 9.2-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
CP-001	5	High	High	Data Not Available	Yes	Partial/No	High	High
CP-002	4	High	High	Data Not Available	Yes	No	Medium	High
CP-003	6	High	High	Data Not Available	Yes	Partial/No	High	High
CP-004	4	High	Low	Data Not Available	Yes	Yes	Medium	High
CP-005	4	High	Medium	Data Not Available	Yes	Partial/Yes	High	High
CP-006	4	High	Low	Data Not Available	Yes	Partial/Yes	High	Medium
CP-007	7	High	Low	Data Not Available	Yes	Partial/Yes	High	Medium

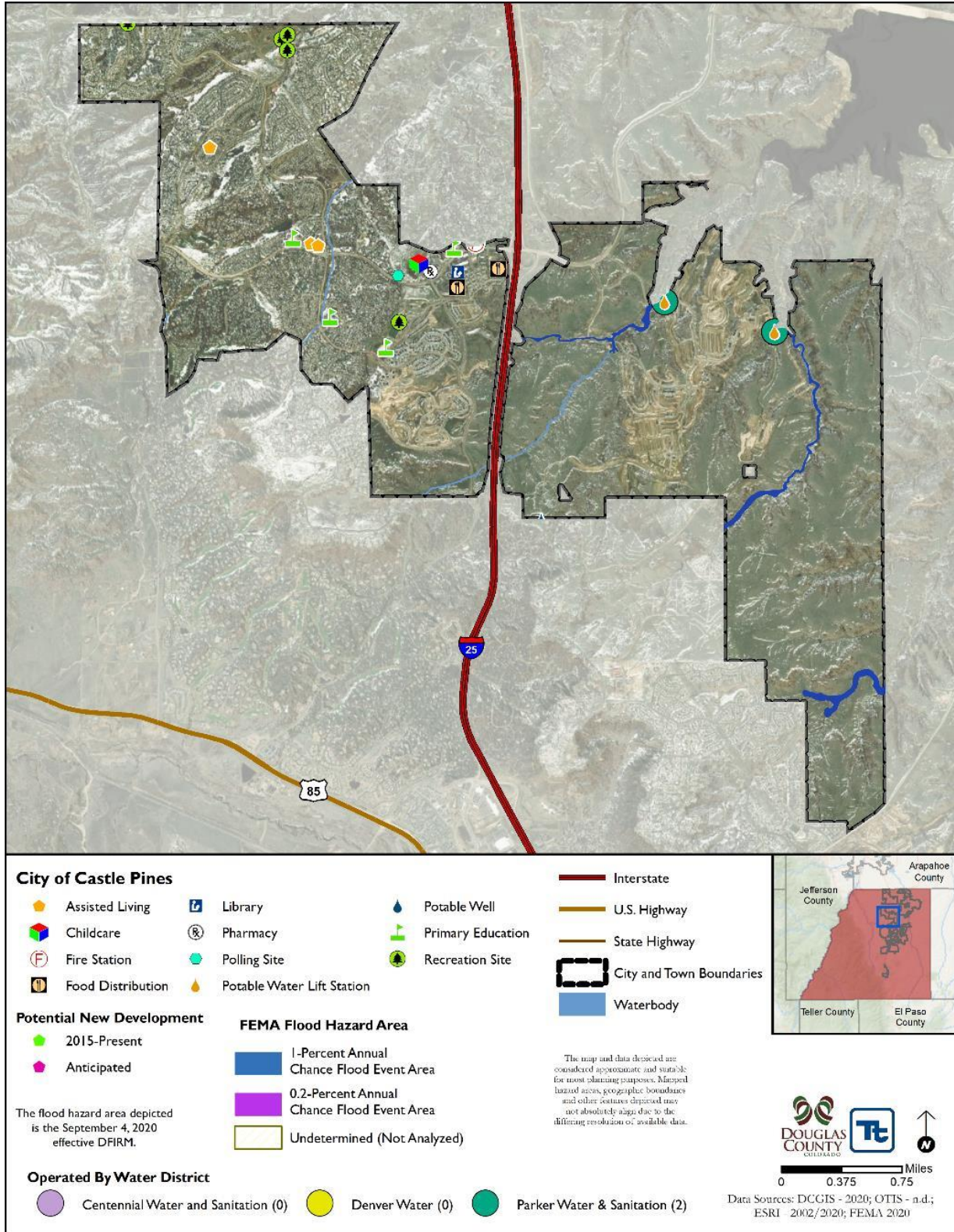
a. See the introduction to this volume for explanation of priorities.

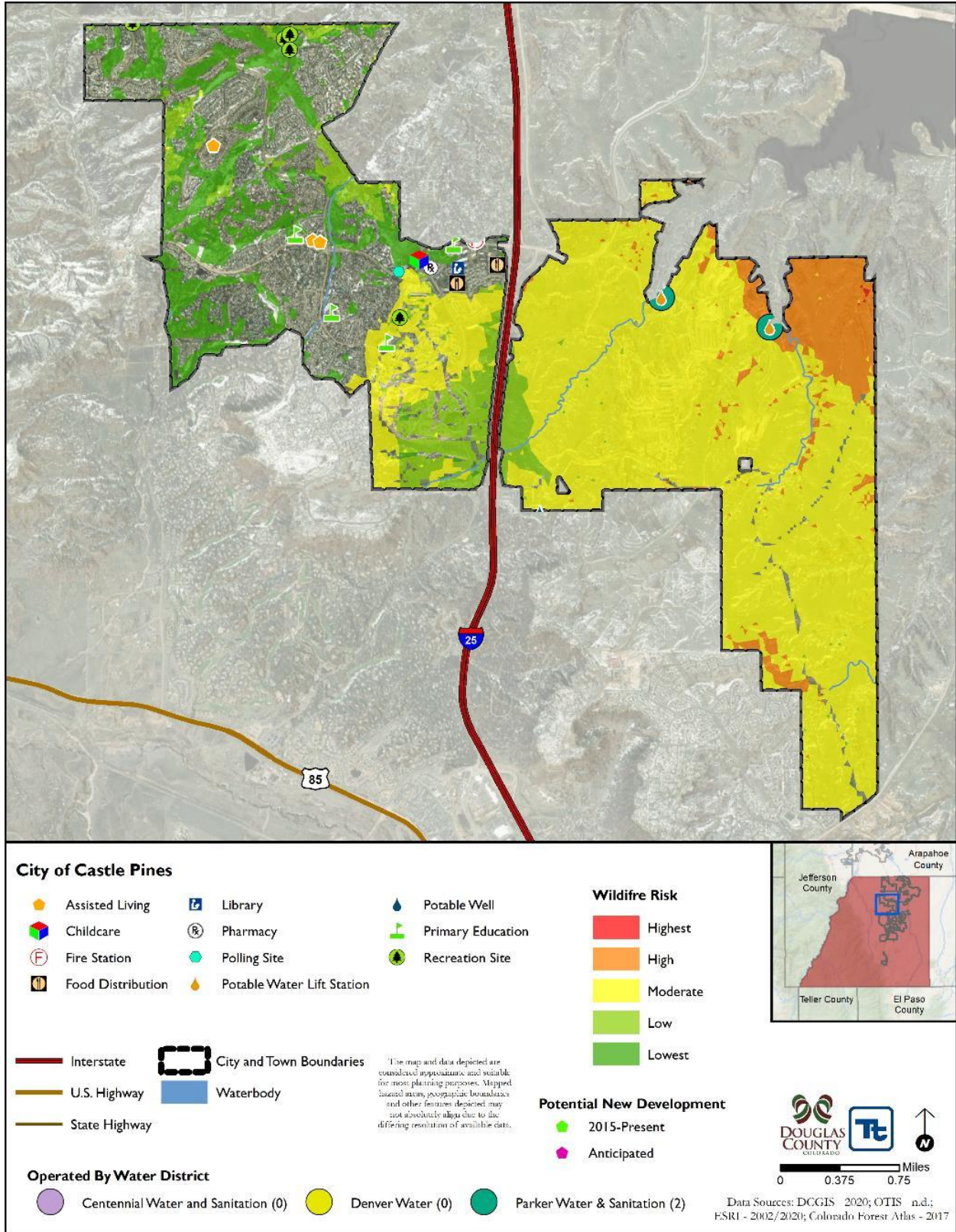
Table 9.2-15. Analysis of Mitigation Actions

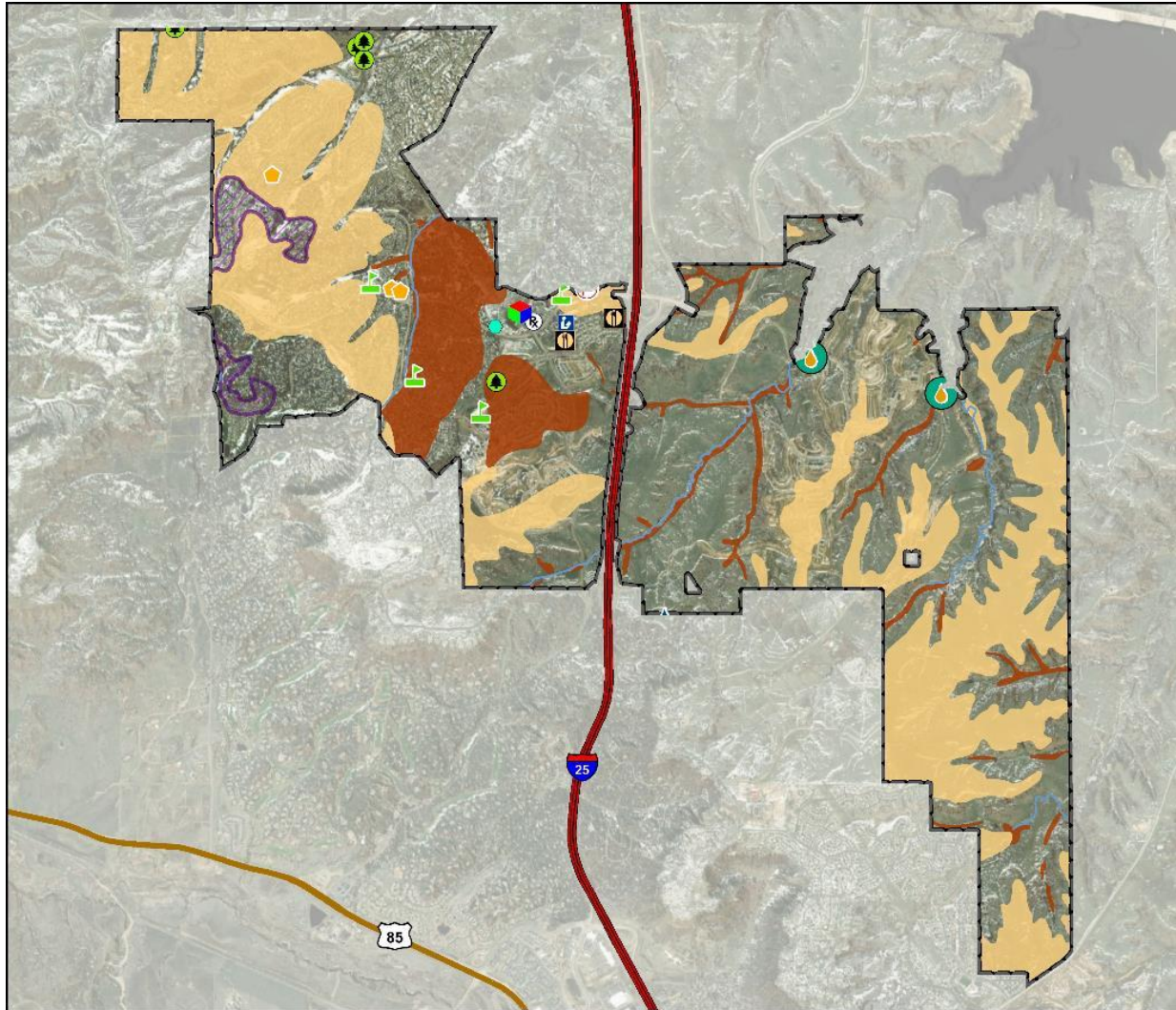
Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
High-Risk Hazards							
Wildfire	CP-001, 007	CP-001	CP-001, 007	CP-001, 007	CP-001		CP-001, 006, 007
Medium-Risk Hazards							
Drought	CP-002		CP-002	CP-002			CP-002
Pandemic	CP-003		CP-003		CP-003		
Severe Thunderstorms (Hail, Lighting, and High Wind)	CP-004	CP-004	CP-004	CP-004	CP-004		CP-004, 006, 007
Severe Winter Storm	CP-005		CP-005		CP-005		CP-006, 007
Low-Risk Hazards							
Land Subsidence							
Animal Disease							
Transportation Accidents							
Earthquake							
Tornados							
Erosion							
Expansive Soils							

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
Extreme Temperatures							
Flood							
Landslide							
Slope Failure							
Dam and Levee Failure							

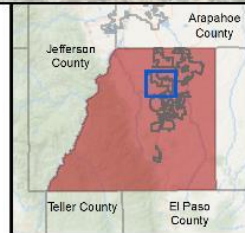
a. See the introduction to this volume for explanation of mitigation types.







City of Castle Pines



The map and data depicted are considered approximate and suitable for most planning purposes. Mapped hazard areas, geographic boundaries, and other features depicted may vary slightly due to the differing resolution of available data.



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI - 2002/2020; Colorado Geological Survey - n.d.; USGS - 1984/n.d.

9.3 TOWN OF CASTLE ROCK

9.3.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Norris W. Croom, III, Fire Chief 300 Perry St. Castle Rock, CO 80104 Telephone: 303-660-1066 e-mail Address: ncroom@crgov.com	Craig Rollins, Assistant Chief 300 Perry St. Castle Rock, CO 80104 Telephone: 303-660-1066 e-mail Address: crollins@crgov.com

9.3.2 Jurisdiction Profile

Location

The Town of Castle Rock’s physical setting gives it a natural shape and identity. Steeply sloping terrain, buttes and ridgelines surround the Town, rising 300 to 800 feet above the 6,200-foot average elevation. Creeks and gulches meander through the many drainage basins and ponderosa pine and scrub oak cover the landscape. Panoramic views of the Rocky Mountains extend from Pike’s Peak in the south to Long’s Peak to the north.

The current boundaries generally extend from Happy Canyon Road, south to Dawson Ridge and from the Meadows, east to Castlewood Ranch Cobblestone Ranch, encompassing an area of 34.2 square miles.

History

The Town of Castle Rock was incorporated in 1881, after having been selected the County seat seven years earlier. Much of the early Town was built on the availability of rail transportation and the presence of the quarries that the railroads served. Settlers, attracted by the Homestead Act of 1862, joined gold prospectors, quarry, sawmill and railroad workers and ranchers in building the new community. The Town’s population initially grew slowly and steadily after its founding, topping 300 in 1900, and reaching 478 in 1930. By 1940 the Town added another 100 residents.

From 1950 to 1960, the Town grew by over 400 residents, from 741 to 1,154 persons. By the time the 1970 Census was conducted, Castle Rock’s population reached 2,078 persons. This was just under 25 percent of the County’s total population of 8,407.

The Denver area’s rapid sub-urbanization in the 1970’s strongly affected the Town as new, urban density developments were approved and began to develop. From 1970 to 1980 Castle Rock added 1,843 new residents, an increase of 88 percent to 3,921 persons. During this decade, the Town population dropped to 16 percent of the County’s total of 25,153. During the 1980’s the Town’s population grew at a much faster rate. At the end of 1989, the population of the Town was estimated at 8,875, an increase of 126 percent from 1980. Castle Rock’s population has steadily increased since 1990, growing by nearly two and one-half times during that decade from 8,612 to 20,224 persons.

Climate

Douglas County is characterized by a moderate climate and significant sun exposure (more than 300 days per year). The County features low humidity, approximately 18 inches of rain each year, and 71 inches of snowfall. Temperatures range from highs of 85 degrees in July to 45 degrees in January (according to USA.com).

Governing Body Format

Castle Rock is governed by the Town Council, which includes seven elected officials: five Council Members, who each represent an election district, the Mayor, and the Mayor Pro Tem. Among its duties, the Town council adopts ordinances to become local law and approves the budget, financial plans, land-use decisions, and the Town’s Comprehensive and Master Plans. The Castle Rock Town Council assumes responsibility for the adoption of this plan; Castle Rock Fire and Rescue Department, serving as the Emergency Management Agency for the Town will oversee its implementation. Development of this annex was carried out by the members of the local mitigation planning team, whose members are listed in Table 9.3-1.

Table 9.3-1. Local Mitigation Planning Team Members

Name	Title
Norris W. Croom III	Fire Chief
Craig Rollins	Assistant Chief
David Van Dellen	Stormwater Manager
Phil Kranz	Business Administration Manager
Joseph Montoya	Chief Building Official

9.3.3 Current Trends

Population

According to U.S. Census Bureau, the population of Town of Castle Rock as of 2019 was 68,484. Since 2010, the population has grown at an average annual rate of 41.9% percent.

Development

The Town of Castle Rock has experienced a sustained period of large growth in the residential arena for the last several years. This primarily consists of single family homes, but recently the Multi family segment has seen a significant increase in growth. Following the 2008 recession, the Town has averaged 840 new single family homes annually. The last three years have seen an average increase of 997 single family homes annually. The last five years have seen an average of 294 Multi Family units added inside the Town as well. Prior to this recent increase the Town had seen minimal activity on Multi Family since the early 2000s.

Commercially, the Town has seen a dramatic increase as well. This is primarily due to a large commercial, retail and restaurant development on the north end of the Town, The Promenade. There are also two notable mixed-use projects in the downtown core (Riverwalk, Encore) that incorporate multi-family units (apartment and condominium) with retail development. The Town has seen over one million square feet of commercial growth since 2015.

Future development in the Town looks as though it will follow the current trending barring any large changes to the overall economy.

Table 9.3-2 summarizes development trends in the performance period since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 9.3-2. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the preparation of the previous hazard mitigation plan?	Yes					
If yes, give the estimated area annexed and estimated number of parcels or structures.	222.4006					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	Yes					
If yes, describe land areas and dominant uses.	The Town of Castle Rock is expect to annex various parcels during the performance period of this plan. The anticipated use are open space, parks, residential housing, light commercial.					
If yes, who currently has permitting authority over these areas?	Douglas County					
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
If yes, briefly describe, including whether any of the areas are in known hazard risk areas	Over the next five years there are several development projects anticipated. However, none of them are within a known hazard risk area.					
How many permits for new construction were issued in your jurisdiction since the preparation of the previous hazard mitigation plan?		2015	2016	2017	2018	2019
	Single Family	794	756	862	1029	901
	Multi-Family	83	380	402	372	23
	Other (commercial, mixed use, etc.)	51	79	129	58	44
	Total	92	1,1	1,393	1,459	968
Provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	Special Flood Hazard Areas: # 16 Landslide: #0 High Liquefaction Areas: #0 Wildfire Risk Areas: the entire Town is subject to wildfire risk					
Describe the level of buildout in the jurisdiction, based on your jurisdiction’s buildable lands inventory. If no such inventory exists, provide a qualitative description.	The Town of Castle Rock is roughly 51% built out based on current buildable land inventory. Between the years of 2015 and 2019, The Town built out an estimated 8% of the available buildable land inventory to include annexations within that same timeframe.					

9.3.4 Status of Previous Plan Actions

Table 9.3-3 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 9.3-3. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Public awareness – support Douglas County citizen disaster preparedness guide. Revise and Update the Citizen Preparedness Guide using a new format with a focus on disaster preparedness for all Douglas County Citizens. Components include Warning systems, Citizen Information, Preparing a Family Disaster Plan, Stockpile Checklist, Shelter & Recovery, Access & Functional Needs, Pet Preparedness and Evacuation, Thunderstorms & Lightning, Winter Storms & Extreme Cold, Floods, Tornadoes, Wildfires, Terrorism, Active Shooter, Public Health Emergency,	CRFD continues to distribute disaster Preparedness Guides at all Town and Department			

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update Check if Yes	Enter Action #
Pandemic Flu, Hazardous Materials, and Helpful Resources. Printed and electronic versions available as well as an application for smart phones.	public events			
<i>Comment: On-going</i>				
Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) Update- The Town of Castle Rock, in partnership with Douglas County and Urban Drainage and Flood Control District, is updating the FIRM and FIS to incorporate new flood hazard studies and changes to the special flood hazard area since 2005.	Complete			
<i>Comment: Adopted per ordinance 2016-001</i>				
Stream Stabilization and Flood Control on Major Drainageways- This project includes stream channel stabilization for East Plum Creek, Sellars Gulch and their tributaries within Town boundaries. Projects are identified and prioritized per the Stormwater Master Plan as scheduled activities. Stream improvements generally include natural or engineered segments of vegetated stream between engineered hard points that reduce channel slope and erosive velocities. Improvements also ensure adequate flood capacity in the channel to reduce flood potential for adjacent properties.	Complete and on-going		Yes	CR1
<i>Comment: On-going: Projects are established per the Castle Rock Stormwater Master Plan adopted by resolution 2017-098. Completed projects as follows: 2016: East Plum Creek Stabilization at Meadows Pkwy 2017: East Plum Creek Stabilization at Perry Street, Sellars Gulch Culvert Rehab at Plum Creek Pkwy, Omni Tributary Culvert at Wolfensberger Road 2018: 6400 South Tributary Stabilization at Red Hawk, Douglas Lane Tributary Stabilization, Hangmans Gulch Stabilization 2020: Industrial Tributary Stabilization, McMurdo Gulch Stabilization</i>				
Plum Creek /North Meadows Extension Flood Erosion Protection-Storm Drainage System- Construction of 100-year storm drainage collection system to East Plum Creek to slow storm-water flow and prevent swift-water erosion to East Plum Creek banks. The existing area collection system is under-sized and has led to significant erosion to the area. Through installation of a regional detention facility, adequately sized storm-sewer pipes and downstream outfall protection, water speeds will be reduced and erosion minimized.	Complete			
<i>Comment:</i>				
Crystal Valley Stormwater Collection Re-design- Re-construction of Crystal Valley storm drainage collection system to Crystal Valley regional detention pond to slow storm-water flow and prevent swift-water erosion to the area. The existing area collection system is too steep, has failed, and has led to significant erosion to the area. Through installation of new storm- sewer pipes and drop chambers, water speeds will be reduced and erosion minimized.	Complete			
<i>Comment:</i>				
Woodlands/Escavera Wildland Mitigation Program- The wildland open space area that runs through the Woodlands and Escavera residential developments of Castle Rock poses a significant wildfire threat the surrounding residential areas. Aggressive mastication and mitigation efforts which began in 2007 have continued to present day, and regrowth continuously has to be addressed on an annual basis.			x	CR2
<i>Comment: On-going: This is part of a larger CWPP goal within the 2020-2024 Community Driven Strategic Plan</i>				

9.3.5 Capability Assessment

Town of Castle Rock performed an assessment of its existing capabilities for implementing hazard mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan

describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 9.3-4.
- Development and permitting capabilities are presented in Table 9.3-5.
- An assessment of fiscal capabilities is presented in Table 9.3-6.
- An assessment of administrative and technical capabilities is presented in Table 9.3-7
- An assessment of education and outreach capabilities is presented in Table 9.3-8.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 9.3-9.
- Classifications under various community mitigation programs are presented in Table 9.3-10.

Findings of the capability assessment were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 9.3.11 identifies these as community capacity building mitigation actions.

Table 9.3-4. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	No	No
<i>Comment:</i>	<i>Building code ordinance; the Town is currently operating under the 2018 ICC codes. As of October 2020, the BCEGS rating for the Town is Class 5 for both residential and commercial/industry.</i>			
Zoning Code	Yes	No	No	No
<i>Comment:</i>				
Subdivisions	Yes	No	No	Yes
<i>Comment:</i>	<i>2020-2024 CRFD Strategic Plan: Strategic Goal #1 Community Wildfire Protection Plan (2020-010)</i>			
Stormwater Management	Yes	No	Yes	No
<i>Comment:</i>	<i>Storm Drainage Design and Technical Criteria Manual and Temporary Erosion and Sediment Control Manual Ordinance 2019-013</i>			
Post-Disaster Recovery	Yes	Yes	No	Yes
<i>Comment:</i>	<i>No existing Post-Disaster Recovery Plan</i>			
Real Estate Disclosure	No	No	No	No
<i>Comment:</i>				
Growth Management	No	No	No	No
<i>Comment:</i>				
Site Plan Review	Yes	No	No	Yes
<i>Comment:</i>	<i>DEVELOPMENT SERVICES</i>			
Environmental Protection	Yes	No	Yes	No
<i>Comment:</i>	<i>IDDE Ordinance: Resolution 2012-024</i>			
Flood Damage Prevention	Yes	No	Yes	No
<i>Comment:</i>	<i>Chapter 18 of the Town charter discusses the rolls and responsibilities of the floodplain administrator, permitting procedures and variance process. The Town maintains elevation certificates, as required in 18.10.020. The Director of Castle Rock Water is designated as the Floodplain Administrator for the Town. Their duties include enforcing this chapter of the town charter, as outlined in the chapter. If a person wants to develop in a floodplain, they must complete a permit application and, if approved, meet all requirements for building in a SFHA.</i>			
Emergency Management	Yes	No	No	Yes
<i>Comment:</i>	<i>2019 Emergency Operations Plan: Resolution 2019-055</i>			
Climate Change	N/A	N/A	N/A	N/A
<i>Comment:</i>				
Other	N/A	N/A	N/A	N/A
<i>Comment:</i>				
Planning Documents				
Capital Improvement Plan	Yes	No	No	Yes

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
How often is the plan updated?	Annually			
Comment:				
Disaster Debris Management Plan	No	Yes	No	No
Comment:	Douglas County Debris Management Plan			
Floodplain or Watershed Plan	Yes	No	No	No
Comment:	Stormwater Master Plan Update: Resolution 2017-098			
Stormwater Plan	Yes	No	No	No
Comment:	Storm Water Master Plan 2017-098			
Urban Water Management Plan	Yes	No	No	Yes
Comment:	Water Resource Strategic Master Plan Resolutions 2017-012 and 2018-043			
Habitat Conservation Plan	Yes	Yes	No	No
Comment:	Douglas County Habitat Conservation Plan			
Economic Development Plan	No	No	No	No
Comment:	The Town of Castle Rock partners with the The Castle Rock Economic Development Council to evaluates proposed commercial development activities within Town limits.			
Shoreline Management Plan	N/A	N/A	N/A	N/A
Comment:	N/A			
Community Wildfire Protection Plan	Yes	Yes	No	Yes
Comment:	2020-2024 CRFD Strategic Plan: Strategic Goal #1 Community Wildfire Protection Plan (2020-010); the 2017 CWPP was never approved but the Town is currently working on an update and we have it formally adopted by the end of 2021.			
Forest Management Plan	N/A	N/A	N/A	N/A
Comment:	N/A			
Climate Action Plan	No	No	No	No
Comment:				
Comprehensive Emergency Management Plan	Yes	Yes	No	Yes
Comment:	Castle Rock Fire Department is the Emergency Management Agency for the Town of Castle Rock and is limited to the 2019 adoption of the Emergency Operations Plan (2019-055)			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	Yes	No
Comment:	The Town of Castle Rock relies on the Douglas County THIRA process			
Post-Disaster Recovery Plan	No	No	No	No
Comment:				
Continuity of Operations Plan	No	No	No	Yes
Comment:	COOPs are department specific			
Public Health Plan	No	Yes	Yes	No
Comment:	TRI-COUNTY HEALTH DEPARTMENT			
Other	No	No	No	No
Comment:				

Table 9.3-5. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
If no, who does? If yes, which department?	Development Services
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	Yes

Table 9.3-6. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes, Water And Sewer – the Town charges for stormwater service fees on every water account for both residential and commercial
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 9.3-7. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Development Services, Development Review, And Planning, Fire Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Development Services, Building, Fire Department, Castle Rock Water, Public Works
Planners or engineers with an understanding of natural hazards	Yes	Development Services, Development Review, And Planning, Castle Rock Water
Staff with training in benefit/cost analysis	Yes	Business Administrative Division, Finance Department, Town Manager Office
Surveyors	No	Provided By 3 rd Party
Personnel skilled or trained in GIS applications	Yes	Doit, Fire, Public Works, Water, Development Services
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire Department – Part-Time Responsibility
Grant writers	Yes	As Needed By Department Submitting
Resiliency Planner	No	-
Other	Yes	<ul style="list-style-type: none"> • Transportation planner in the Public Works Department • Full-time building code official in the Development Services Department

Table 9.3-8. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	No
If yes, briefly describe.	
Do you use social media for hazard mitigation education and outreach?	No
If yes, briefly describe.	
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes
If yes, briefly describe.	Public Safety Commission, Planning Commission, Town Council
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
If yes, briefly describe.	Social Media, Code Red
Do you have any established warning systems for hazard events?	Yes
If yes, briefly describe.	Code Red

Table 9.3-9. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	CASTLE ROCK WATER
Who is your floodplain administrator? (department/position)	Stormwater Manager
Are any certified floodplain managers on staff in your jurisdiction?	YES
What is the date that your flood damage prevention ordinance was last amended?	March 2016
Does your floodplain management program meet or exceed minimum requirements?	EXCEEDS
If exceeds, in what ways?	Two-Foot Freeboard requirement
When was the most recent Community Assistance Visit or Community Assistance Contact?	2009
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
If so, state what they are.	The Town is in good standing with the NFIP. Chapter 18 of the Town Charter discusses the rolls and responsibilities of the floodplain administrator, permitting procedures, and variance process.
Are any RiskMAP projects currently underway in your jurisdiction?	NO
If so, state what they are.	-
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	YES
If no, state why.	-
Does your floodplain management staff need any assistance or training to support its floodplain management program?	NO
If so, what type of assistance/training is needed?	-
Does your jurisdiction participate in the Community Rating System (CRS)?	NO
If yes, is your jurisdiction interested in improving its CRS Classification?	-
If no, is your jurisdiction interested in joining the CRS program?	-
How many flood insurance policies are in force in your jurisdiction? ^a	Insert appropriate information
What is the insurance in force?	\$21,572,400
What is the premium in force?	\$36,708
How many total loss claims have been filed in your jurisdiction? ^a	5
How many claims are still open or were closed without payment?	3
What were the total payments for losses?	\$4,573

a. According to FEMA statistics as of December 02, 2020

Table 9.3-10. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	NO	N/A	N/A
Public Protection (ISO)	YES	2/2X	2016
Storm Ready	NO	N/A	N/A
Firewise	NO	N/A	N/A

9.3.6 Review and Incorporation of Information for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).

- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **2020-2024 Castle Rock Fire and Rescue Department: Community Driven Strategic Plan** – this plan details the department’s Community Wildfire Protection Plan.
- **2019 Town of Castle Rock Emergency Operations Plan** – this plan is the foundational document of the Town of Castle Rock’s emergency management plan.
- **2018 Building and Fire Code** – Establish minimum building safety requirements for new and tenant finish construction and life and life safety guidelines for commercial and business inspections.
- **2020 Flood Insurance Study** – FEMA updated the Douglas County Flood Insurance Study (FIS) on September 4, 2020. The FIS revises and updates information on the existence and severity of flood hazards in the geographic area of Douglas County, Colorado, including: the Towns of Castle Rock, Larkspur, and Parker; the Cities of Castle Pines and Lone Tree; and the unincorporated areas of Douglas County (hereinafter referred to collectively as Douglas County).
- **Zoning Codes** – Establish minimum setback and allowed zoning use for residential and commercial new and remodel permits.
- **Development Services Procedures Manual** – This procedural manual is associated with development from annexation through certificate of occupancy detailing the processes required for development at all stages to ensure all Town entities and outside agencies who are coordinated with regarding development have all of their requirements and regulations adhered to.
- **Storm Drainage Design and Technical Criteria Manual and Temporary Erosion and Sediment Control Manual (TESC Manual)** – These documents are adopted by reference in Municipal Code and last updated in 2019. The TESC Manual describes the permitting program that has been adopted to promote environmentally sound construction practices in Town. The goal of the program is to implement erosion and sediment control measures as a standard for all land-disturbance activities. The hope is to reduce increases in erosion and sedimentation over pre-development conditions. Erosion caused by construction and downstream sedimentation can damage property and degrade the quality of streams and lakes. The manual is available online (<http://crgov.com/2669/TESC-Manual>)
- **2017 Stormwater Master Plan Update** – This document provides a five-year planning window for stormwater management practices and capital improvements within the Town of Castle Rock. Flood mapping, stormwater quality, maintenance and drainageway master planning efforts. Stormwater management is funded through the stormwater enterprise fund including development impact fees and monthly service charges.

- **Erosion/Sediment Control Program** – The Town has an erosion/sediment control program which is managed by the Town’s stormwater division at Castle Rock Water.
- **Water Resource Strategic Master Plan** – This document is updated every five years and details the water supply and water conservation projects that are necessary to become a community that relies upon renewable water resources for at least 75% of its supply. It also details the capital investments that are necessary to achieve this goal.
- **Elevation Certificates** – The Town maintains elevation certificates in accordance with the Town’s floodplain regulations.
- **Technical Reports and Information**—The following outside resources and references were reviewed:
 - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

Existing Integration

- **Capital Improvement Plan**— This CIP is updated annually and approved via Town Council as part of the annual budget process.
- **Building Code and Fire Code** - The Town adopted the 2018 Unified Building and Fire Codes via resolution 2019-012. These codes establish the minimum requirements for building codes for all new construction and tenant finishes and the fire and life safety codes for new and existing businesses.
- **2030 Comprehensive Master Plan** — This plan was adopted in 2017 and provides an overview and plan for the built environment in the Town to enhance it’s natural environment. The plan also identifies building blocks of the community using four cornerstones: Distinct Town Identity, Responsible Growth, Community Services and Thriving Economy. Each of the cornerstones provides guidance to the community and its decision-makers.
- **Emergency Operations Plan** – The Emergency Operations plan was updated and adopted by the Town of Castle Rock Town Council via ordinance 2019-055 and provide a high-level guideline for the Town of Castle Rock during a large-scale or extended emergency or disaster event.

Opportunities for Future Integration

- **Zoning Code**—The Town of Castle Rock has a comprehensive zoning code and will periodically review the code, looking for opportunities to incorporate mitigation and abatement measures into the Code.
- **Capital Improvement Projects**—Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization. (TMO, Matt Gohl)
- **Subdivision** – The Castle Rock Fire and Rescue Department is coordinating with other Town department and local agencies to determine the feasibility for developing a Community Wildfire

Protection Plan (CWPP) that has the potential to include subdivision or neighborhood specific mitigation plans.

- **Post-Disaster Recovery** – The Town of Castle Rock does not have a local post-disaster recovery plan, but closely coordinates with Douglas County Office of Emergency Management during all significant events that affect the Town. The Town of Castle Rock intends to explore the feasibility of developing a Town specific disaster recovery plan during the next five years. The plan will build on the mitigation goals and objectives identified in this mitigation plan.
- **Site Plan Review** – The Town of Castle Rock current site plan review process includes a review of certain risks/hazards. The Town will evaluate the feasibility of updating the site review plan process to include other identified risk and mitigation efforts determined within this plan
- **Emergency Management** – The Castle Rock Fire and Rescue Department also serves as the Emergency Management Agency for the Town of Castle Rock. Those roles and responsibilities are part-time duties of the Fire Chief and Assistant Chief. The Castle Rock Fire and Rescue Department and Town of Castle Rock will review the current staffing and deployment model related to the functions of Town-wide emergency management, and consider the need of a full-time dedicated emergency manager.
- **Urban Water Management Plan** – The Town of Castle Rock should evaluate its Water Resource Master Plan to determine the potential for additional or increased renewable water resources.
- **Community Wildfire Protection Plan** – The Castle Rock Fire and Rescue Department is coordinating with other Town departments and local agencies to determine the feasibility for developing a Community Wildfire Protection Plan (CWPP) that has the potential to include subdivision or neighborhood specific mitigation plans.
- **Continuity of Operations Plan** – Currently, each Town department is responsible for its own Continuity of Operations Plan (COOP). Within the next five years, the Town of Castle Rock will develop a Town-wide COOP plan to ensure minimum levels of service are maintained as well as supporting all mission essential functions.

9.3.7 Jurisdiction-Specific Natural Hazard Event History

Table 9.3-11 lists past occurrences of natural hazards for which specific damage was recorded in the Town of Castle Rock hazard events that broadly affected the entire planning area, including the Town of Castle Rock, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.3-11. Past Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Hail	N/A	7/7/2016	\$579,695
Hail	N/A	6/12/2019	\$1,828
Winter Weather*	N/A	March 2019	\$25,755
Pandemic (COVID-19)*	EM-3436/DR-4498	3/1/2020 – 1/31/2021	\$3,766,510
* Indicates County-wide event			

1.7.1 Pandemic Response

In response to the COVID-19 Pandemic and ongoing response, The Town of Castle Rock was forced to transition to a 100% remote working environment rapidly in order to perform mission essential functions and maintain minimum levels of service while providing for customer, community, and employee safety. The table below details the category of expenses and the total as of January 31, 2021.

Description of expense	CARES Act Subcategory	Value (\$)
Medical Expenses	Emergency medical response expenses	\$126,165.37
Public Health Expenses	Communication and enforcement	\$128,598.41
	Acquisition and distribution of medical and protective supplies	\$269,190.37
	Disinfection of public areas and other facilities	\$42,650.82
	Public safety measures	\$149,993.87
	Quarantining individuals	\$444.96
	COVID-19 testing	\$140.00
Payroll Expenses	Public safety, public health, health care, human services, and similar employees whose services are dedicated to mitigating/responding to COVID-19	\$641,751.30
Economic Support	Expenditures related to the provision of grants to small businesses to reimburse the costs of business interruption and other related business assistance programs	\$1,927,623.86
Facilitate Compliance	Improve telework capabilities for public employees to enable compliance	\$410,567.61
	Expenses of providing paid sick and paid family and medical leave to public employees	\$66,383.27
Other Expenses	Any other COVID-19 related expenses	\$3,000.00

9.3.8 Hazard Risk Ranking

Table 9.3-12 presents a local ranking for Town of Castle Rock of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.3-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	48	High
2	Drought	30	Medium
2	Pandemic	30	Medium
3	Hail	24	Medium
4	Land Subsidence	18	Medium
4	Lightning	18	Medium
4	Severe Thunderstorms	18	Medium
4	Severe Winter Storm	18	Medium
4	Transportation Accidents	18	Medium
5	Tornadoes	16	Medium
6	Erosion	12	Low
6	Expansive Soils	12	Low
6	Extreme Temperatures	12	Low
6	Flood	12	Low
6	Landslide	12	Low
6	Slope Failure	12	Low
7	Dam and Levee Failure	6	Low
6	Animal Disease	12	Low
7	Earthquake	6	Low

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

9.3.9 Jurisdiction-Specific Vulnerabilities

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on key vulnerabilities identified by the jurisdiction. Available jurisdiction-specific risk maps of the hazards are provided at the end of this annex.

Repetitive Loss Properties

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other Noted Vulnerabilities

The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- Wildfire – a needs assessment and wildfire risk assessment is needed to get an understanding of wildfire risk to the areas around and adjacent to the Town’s critical infrastructure (see CR12 in Table 9.3-13).

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 9.2.10.

9.3.10 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.3-13 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.3-14 identifies the priority for each action. Table 9.3-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.3-13. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action CR1 - Stream Stabilization and Flood Control on Major Drainageways- This project includes stream channel stabilization for East Plum Creek, Sellars Gulch and their tributaries within Town boundaries. Projects are identified and prioritized per the Stormwater Master Plan as scheduled activities. Stream improvements generally include natural or engineered segments of vegetated stream between engineered hard points that reduce channel slope and erosive velocities. Improvements also ensure adequate flood capacity in the channel to reduce flood potential for adjacent properties.						
<u>Hazards Mitigated:</u>	Flood and Erosion Control					
Existing	# 2, 4, 6, 7, 12, 14, 17, 19, 20, 23, 24	Castle Rock Water	N/A	\$10 million	Stormwater Enterprise Fund	Short

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action CR2 — Reconstruction/rehabilitation of small scale jurisdictional dams retaining stormwater runoff for recreational use. Older retention pond embankments previously used for agricultural purposes exist within Town of Castle Rock boundaries. These facilities require reconstruction and/or major upgrades to bring them into compliance with state engineering standards. These actions will reduce the potential for public risk associated with dam failure.						
<u>Hazards Mitigated:</u> Dam Failure						
New	# 6, 14, 17, 18, 19, 24	Castle Rock Water	Castle Rock Parks and Recreation	\$3.5 million	Stormwater Enterprise Fund, Castle Rock General Fund	Short
Action CR3—Castle Rock Reservoir No. 2 – A 1,130 acre-foot raw water storage reservoir that will be used to store Castle Rock’s reuse water and other junior surface water rights from Plum Creek. The water will subsequently be pumped back either to Castle Rock for treatment, or to Rueter-Hess Reservoir for additional storage (and later treatment by Parker Water and Sanitation District and delivery to Castle Rock).						
<u>Hazards Mitigated:</u> Drought						
New	# 2, 6, 7, 12, 14, 17, 19, 20, 21, 24	Castle Rock Water	Colorado Division of Natural Resources	\$15 million	Water Resource Fund	Short
Action CR4—Update and implement a comprehensive wildland fire mitigation program through the creation of a Community Wildfire Protection Plan (CWPP). Once finalized, send to the State for review and approval.						
<u>Hazards Mitigated:</u> Wildfire						
Existing	#2, 8, 12, 15, 16, 20	Castle Rock Fire and Rescue Department	Castle Rock Parks and Recreation	\$100k	Existing Budget	Short
Action CR5— <u>Plum Creek to Rueter Hess Reservoir Pipeline, Pump Station and Outlet Structure</u> – An eight mile, 12-inch pipeline that will transfer up to 1,100 acre-feet per year of water from the Plum Creek watershed to Rueter-Hess Reservoir for storage and later treatment by Parker Water and Sanitation District and delivery to Castle Rock.						
<u>Hazards Mitigated:</u> Drought						
New Assets (currently in design phase)	# 2, 7, 12, 14, 19, 20, 21, 24	Castle Rock Water	Parker Water and Sanitation District	\$7 million	Water Resources Fund	Short
Action CR6— <u>Chatfield Westside Pumpback Project</u> – A pump station and pipeline from Chatfield Reservoir to Castle Rock Reservoirs #1 and #2.						
<u>Hazards Mitigated:</u> Drought						
New Asset (Conceptual Engineering Phase)	#2, 7, 12, 14, 19, 20, 21, 24	Castle Rock Water	Denver Water, Dominion Water and Sanitation District	\$25 million	Water Resources Fund	Long
Action CR7— <u>Rueter-Hess Fill Pipeline</u> – A an outlet pipeline from the WISE Project infrastructure in Parker Water and Sanitation District into RHR.						
<u>Hazards Mitigated:</u> Drought						
New Asset	#2, 7, 12, 14, 20, 21, 24	Castle Rock Water	Parker Water and Sanitation District	\$2 million	Water Resources Fund	Short
Action CR8 — Develop a Town-wide Continuity of Operations Plan (COOP).						

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
<u>Hazards Mitigated:</u> All-Hazard						
New	#4, 5, 8, 11, 12, 13, 14, 15, 17, 23	Castle Rock Fire and Rescue Department	Town Manager's Office	\$150,000	TBD	Short
Action CR9 — Post Disaster Recovery Plan - The Town of Castle Rock will explore the feasibility of developing a Town specific disaster recovery plan.						
<u>Hazards Mitigated:</u> All-Hazard						
New	#8, 9, 11, 13, 14	Castle Rock Fire and Rescue Department	Town Manager's Office Finance Department	\$50,000	Existing/proposed budget	Short
Action CR10 — Perform a needs assessment and gap analysis to determine the need for a full-time Emergency Manager						
<u>Hazards Mitigated:</u> All-Hazard						
New	#2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	Castle Rock Fire and Rescue Department	Town Manager's Office	\$10,000	Existing/Proposed Budget	Short
Action CR11 — Develop a Public Safety Message on Flood Safety. Flood safety messaging is needed to educate the public on risks associated with development and property adjacent to floodplains and behaviors around flood control facilities. Messaging to cover topics including insurance coverage, regulations and restrictions, where to find information and safe practices.						
<u>Hazards Mitigated:</u> Flooding						
New	# 2, 3, 5, 6, 15, 16	Castle Rock Water	Community Relations	\$20,000	Stormwater Enterprise Fund	Short
Action CR12 – Douglas County is currently working on developing a countywide wildfire partnership. Working with the County, the Town will perform a needs assessment and wildfire risk assessment for the areas immediately around and adjacent to the Town's critical infrastructure sites.						
<u>Hazards Mitigated:</u> Wildfire						
New and Existing	#2, 7, 9, 11, 14, 20, 23	Castle Rock Fire and Rescue Department	Town Manager's Office	\$20,000	Existing / Proposed Budget	Ongoing

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing = Continuing new or existing program with no completion date

Table 9.3-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
CR1 (previous action)	11	High	High	Yes	Yes	Yes	Low	Low
CR2	6	Low	Low	Yes	Yes	No	Low	Low

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
(previous action)								
CR3	10	High	High	Yes	Yes	Yes	High	Low
CR4 (previous action)	6	High	Medium	Yes	No	Yes	High	Low
CR5	8	High	Medium	Yes	Yes	Yes	High	Low
CR6	8	High	High	Yes	Yes	No	Low	Low
CR7	7	Medium	Low	Yes	Yes	Yes	Medium	Low
CR8	10	High	Low	Yes	Yes	Yes	Low	Low
CR9	5	High	Low	Yes	Yes		Low	Low
CR10	24	High	Low	Yes	No	Yes	Medium	N/A
CR11	6	Medium	Low	Yes	Yes	Yes	Low	Low
CR12	7	Medium	Low	Yes	Yes	Yes	Medium	Low

a. See the introduction to this volume for explanation of priorities.

Table 9.3-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
High-Risk Hazards							
Wildfire	CR4	CR4	CR4	CR4	CR4, 12		
Multiple Hazard	CR8, 9, 10	CR8, 9	CR8, 9, 10		CR10		
Medium-Risk Hazards							
Drought	CR3, CR5, CR6, CR7	CR3	CR3, CR5, CR6, CR7	CR3, CR5, CR6, CR7			
Low-Risk Hazards							
Dam Failure	CR2		CR11			CR2	
Flooding	CR1	CR1	CR11	CR1		CR1	

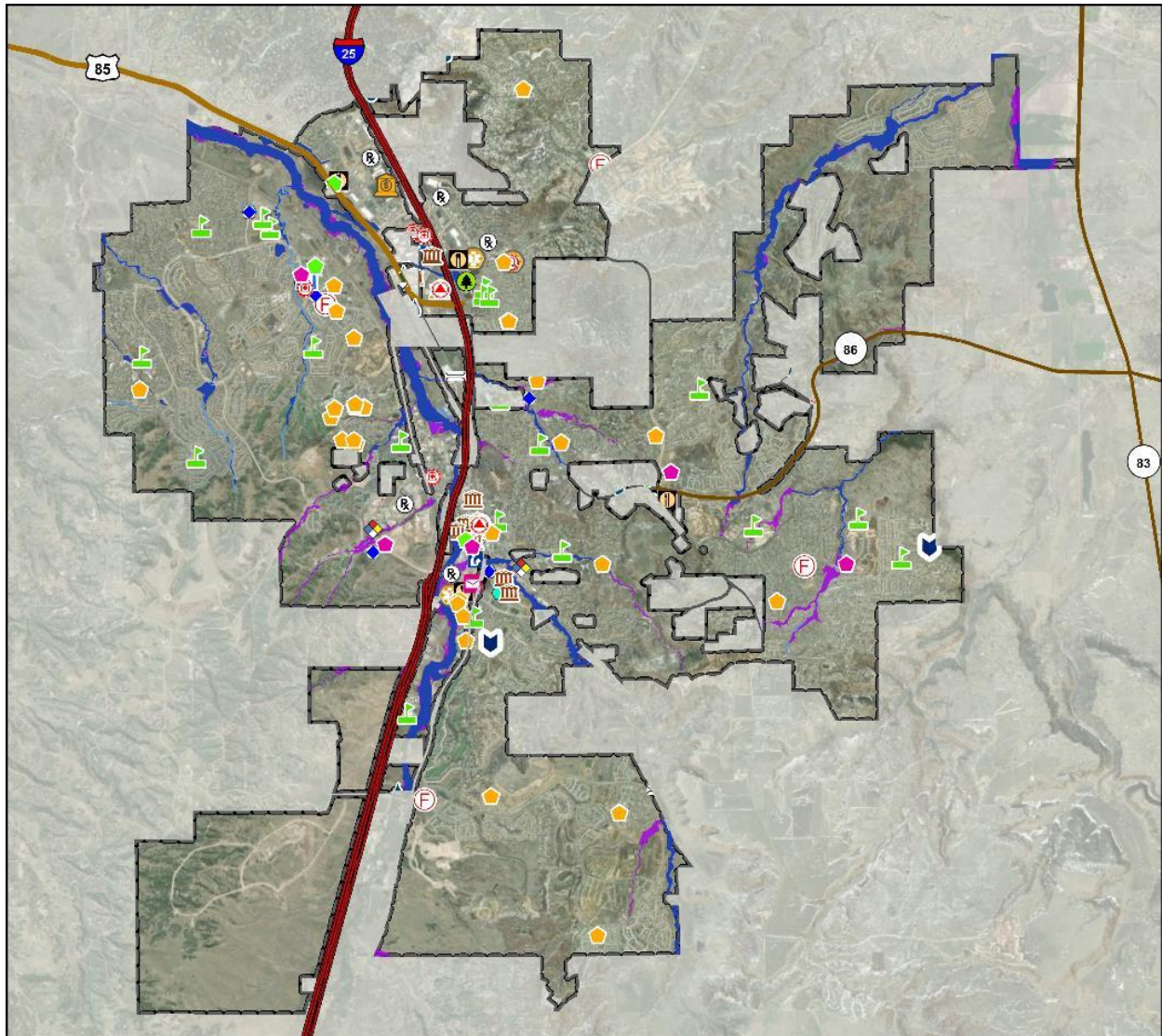
a. See the introduction to this volume for explanation of mitigation types.

9.3.11 Future Needs to Better Understand Risk/Vulnerability

No additional comments

9.3.12 Additional Comments

No additional comments



Town of Castle Rock

- | | | |
|---------------------|--------------------|-------------------|
| Assisted Living | Hazardous Material | Polling Site |
| Bridge | Hospital | Post Office |
| Dam | Library | Potable Well |
| EOC | Major Business | Primary Education |
| Fire Station | Medical Care | Recreation Site |
| Food Distribution | Pharmacy | Shelter |
| Government Building | Police Station | Urgent Care |

- Interstate
- U.S. Highway
- State Highway
- City and Town Boundaries
- Waterbody



The map and data depicted are considered approximations and suitable for most planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not absolutely align due to the differing resolution of available data.

Potential New Development The flood hazard area depicted is the September 4, 2020 effective DFIRM.

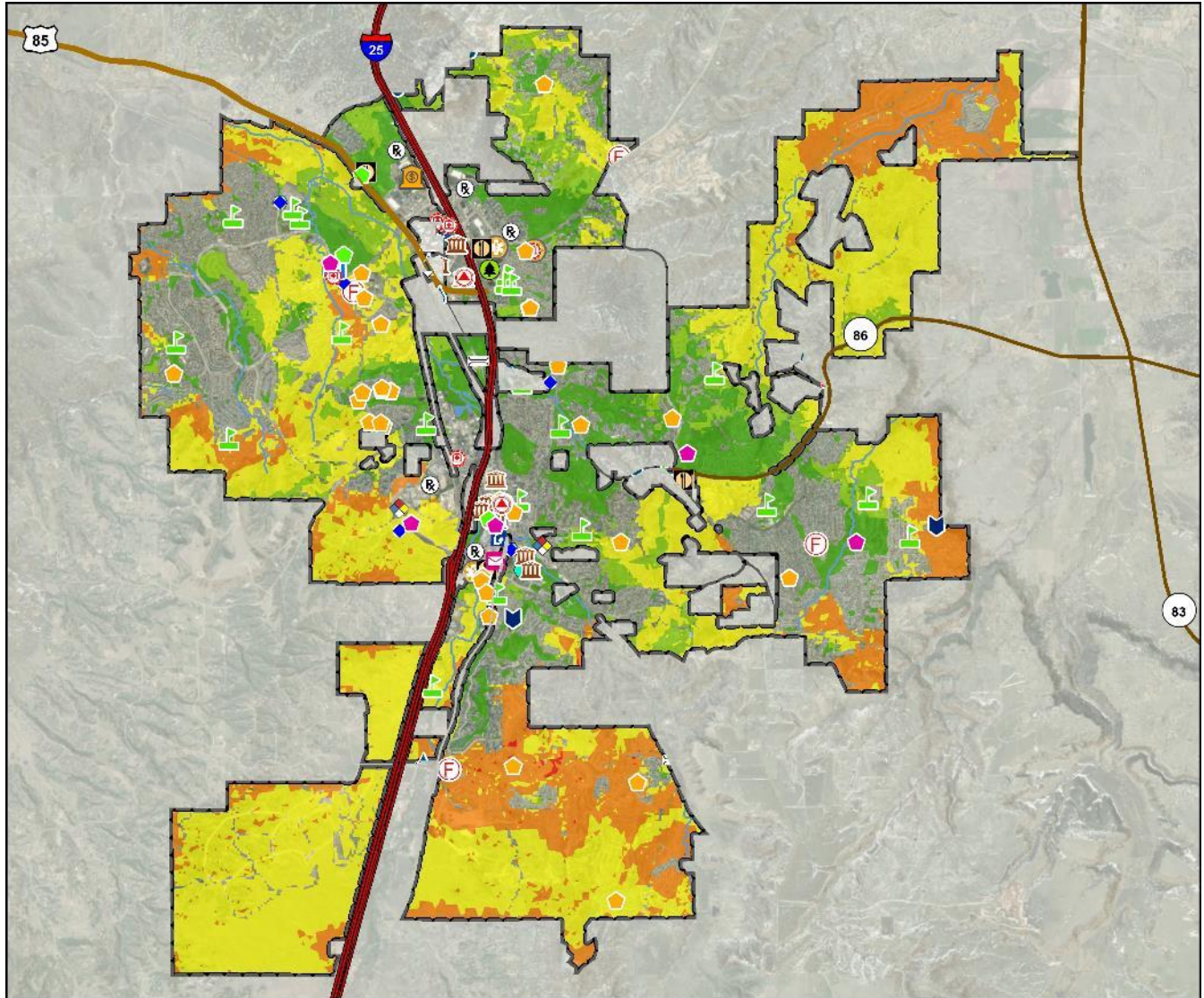
- 2015-Present
- Anticipated

- FEMA Flood Hazard Area**
- 1-Percent Annual Chance Flood Event Area
 - 0.2-Percent Annual Chance Flood Event Area
 - Undetermined (Not Analyzed)

- Operated By Water District**
- Centennial Water and Sanitation (0)
 - Denver Water (0)
 - Parker Water & Sanitation (0)



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI - 2002/2020; FEMA 2020



Town of Castle Rock

- | | | |
|---------------------|--------------------|-------------------|
| Assisted Living | Hazardous Material | Polling Site |
| Bridge | Hospital | Post Office |
| Dam | Library | Potable Well |
| EOC | Major Business | Primary Education |
| Fire Station | Medical Care | Recreation Site |
| Food Distribution | Pharmacy | Shelter |
| Government Building | Police Station | Urgent Care |

- Wildfire Risk**
- Highest
 - High
 - Moderate
 - Low
 - Lowest

- | | |
|---------------|--------------------------|
| Interstate | City and Town Boundaries |
| U.S. Highway | Waterbody |
| State Highway | |

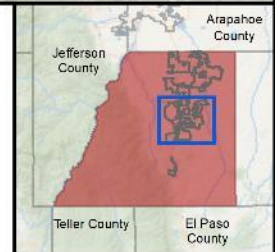
The map and data depicted are considered approximate and suitable for most planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not absolutely align due to the differing resolution of available data.

Potential New Development

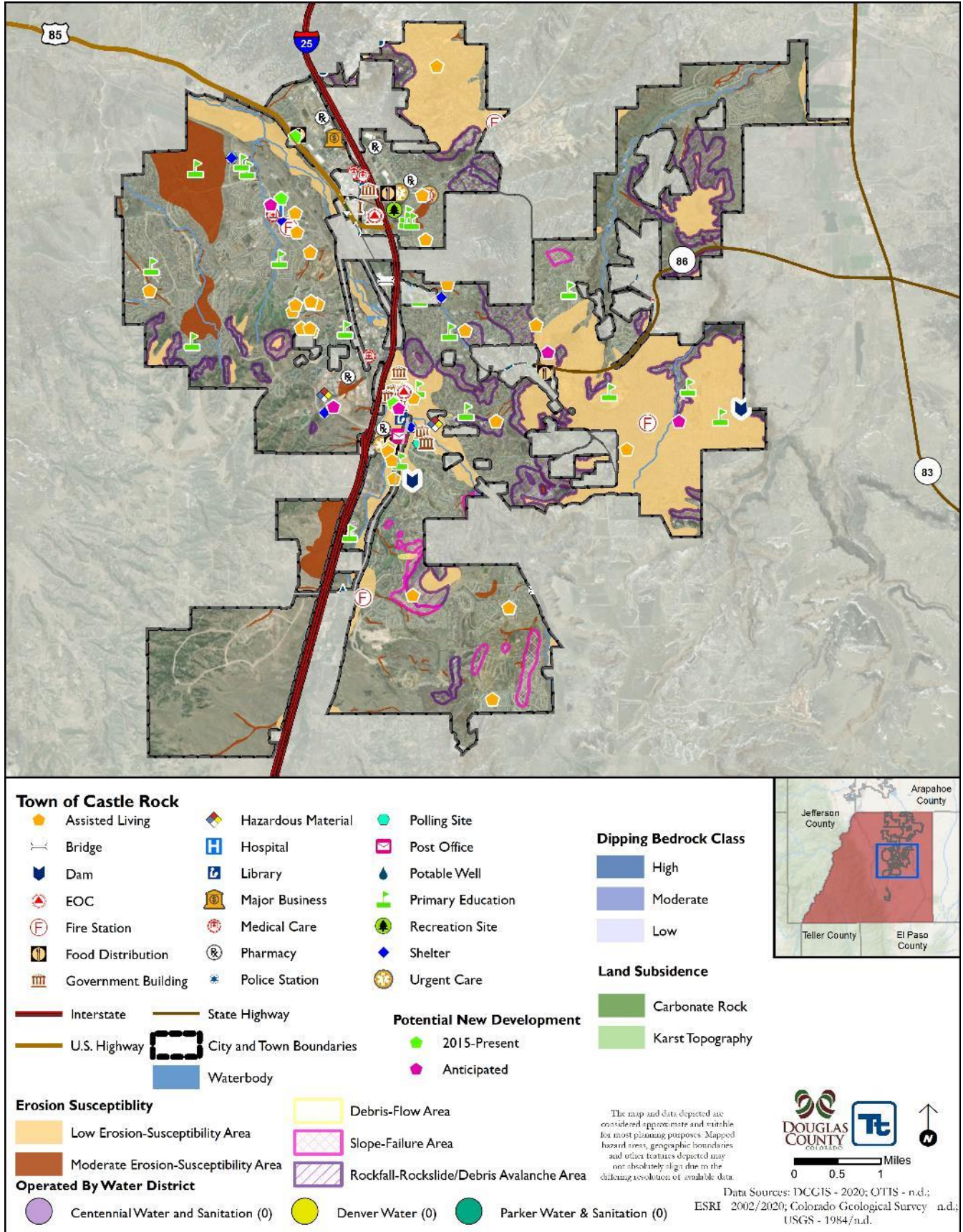
- 2015-Present
- Anticipated

Operated By Water District

- | | | |
|-------------------------------------|------------------|-------------------------------|
| Centennial Water and Sanitation (0) | Denver Water (0) | Parker Water & Sanitation (0) |
|-------------------------------------|------------------|-------------------------------|



Data Sources: DCGIS - 2020; OTIS - n.d.; FSR1 - 2002/2020; Colorado Forest Atlas - 2017



9.4 TOWN OF LARKSPUR

9.4.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Randy Johnson, Fire Marshal 9414 Spruce Mountain Road Larkspur CO 80118 Telephone: (303) 681-3284 e-mail Address: rjohnson@larkspurfire.org	Sean Hogan, Town Clerk 8720 Spruce Mountain Rd. Larkspur, CO 80118 Telephone: (303) 681-2324 e-mail Address: shogan@townoflarkspur.org

9.4.2 Jurisdiction Profile

Location

The Town of Larkspur is located between Castle Rock and the Tri-Lakes area. It is located in southern Douglas County on the west side of Interstate Highway 25, approximately 10 miles south of the Town of Castle Rock.

The current boundaries generally extend from Exit 173 (Spruce Mountain Road to West Fox Farm Road) and the west side of 1-25 on Perry Park Road just past the Colorado Renaissance Festival, encompassing an area of 1.59 sq miles.

History

The Town of Larkspur was incorporated in 1979. The Town of Larkspur website (<http://townoflarkspur.org/about-us/larkspur-history/>) summarizes the Town's history as follows:

Before arrival of the pioneers, the Larkspur area was occupied by the Ute, Kiowa, Cheyenne, and Arapahoe tribes. What began as a stage stop along the Territorial Road soon became a resort and eventually a town.

On January 22, 1862, a territorial post office was established at what was called Huntsville, Douglas County, Colorado named after Territorial Governor Alexander Hunt. The post office was discontinued on August 29, 1867 and re-established on April 8, 1869. With the arrival of the Rio Grande Railroad the name Huntsville was changed to Larkspur on December 13, 1871, by then Governor Edward McCook, for the abundant purple flowers growing in the area. Larkspur, rich in lumber, red sandstone, gypsum, and potash, prospered with the railroad and added two sawmills, a blacksmith shop, a hotel, two general stores, a school, and a casino.

In 1916 the American Federation of Human Rights, a Co-Masonic Fraternal Order, purchased land in Larkspur and built their administration building which is still in use today. In 1965, Plum Creek, which runs along the east side of town, flooded and destroyed much of early day Larkspur including the Carlson Frink Creamery. Larkspur was incorporated in 1979.

Climate

Douglas County is characterized by a moderate climate and significant sun exposure (more than 300 days per year). The County features low humidity, approximately 18 inches of rain each year, and 71 inches of snowfall. Temperatures range from highs of 85 degrees in July to 45 degrees in January (according to USA.com).

Governing Body Format

The Town of Larkspur operates as a Home Rule Municipality. The Town’s City Council is made up of elected officials, including the Mayor, Vice Mayor, and three Council Members.

The Larkspur Town Council assumes responsibility for the adoption of this plan; the Town of Larkspur will oversee its implementation. Development of this annex was carried out by the members of the local mitigation planning team, whose members are listed in Table 9.4-1.

Table 9.4-1. Local Mitigation Planning Team Members

Name	Title
Randy Johnson	Fire Marshal
Reed Lutter	Accounting Assistant
Marvin Cardenas	Mayor
Sean Hogan	Town Clerk

9.4.3 Current Trends

Population

According to U.S. Census Bureau the population of Town of Larkspur as of July 1, 2019 was 212. Since 2010, the population has grown at an average annual rate of 16 percent.

Development

Development trends for the Town of Larkspur have been modest commercial activity, with the exceptions of the Jellystone RV Campground and the Travel Center projects. Residential development has only seen one new home constructed.

Future trends will see limited commercial development primarily along Spruce Mountain Road, the completion of the Travel Center complex, very limited single family housing, and one or two multifamily housing developments.

Table 9.4-2 summarizes development trends in the performance period since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 9.4-2. Recent and Expected Future Development Trends

Criterion	Response				
	2015	2016	2017	2018	2019
Has your jurisdiction annexed any land since the preparation of the previous hazard mitigation plan?	No				
If yes, give the estimated area annexed and estimated number of parcels or structures.					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No				
If yes, describe land areas and dominant uses.					
If yes, who currently has permitting authority over these areas?					
Are any areas targeted for development or major redevelopment in the next five years?	Yes/No				
If yes, briefly describe, including whether any of the areas are in known hazard risk areas	Yes, there is currently a Travel Center in the works and a possible apartment complex with 4 additional store fronts.				
	2015	2016	2017	2018	2019

Criterion	Response					
How many permits for new construction were issued in your jurisdiction since the preparation of the previous hazard mitigation plan?	Single Family	0	3	0	0	0
	Multi-Family	0	0	0	0	0
	Other (commercial, mixed use, etc.)	0	1	1	4	10
	Total	0	4	1	4	10
Provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	<ul style="list-style-type: none"> Special Flood Hazard Areas: #0 Landslide: #0 High Liquefaction Areas: #0 Wildfire Risk Areas: #19 					
Describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	<ul style="list-style-type: none"> Larkspur has a few underdeveloped areas within Town limits. There are some projects that are under review and in the works. A 12 apartment and 4 retail stores on the lot next to the Spur, a tree/landscape company, and the travel center. 12 acres of buildable commercial property yet to be developed. 					

9.4.4 Status of Previous Plan Actions

Table 9.4-3 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 9.4-3. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Establishing a fire break along the new Town of Larkspur water line (East - West fire break) crossing the property of the American Federation of Human Rights (AFHR) - The Town of Larkspur is currently installing a new major upgrade to the existing water system with additional water storage capacity and new water line to the new water treatment plant. The existing water tank capacities are: Tank # 1 128,000 gallons, Tank # 2 161,000 gallons. The new tank will tremendously increase the water storage capacity for the Town of Larkspur. The new tank capacity is 451,000 gallons. The construction and installation of this system is scheduled for completion mid-2016. As part of this construction project the Town of Larkspur proposes to add a fire break to run along the easement of this system. The pipeline easement/firebreak is 50' wide and runs from the to be constructed water treatment, plant located near the southern end of Douglas Blvd., west 0.44 miles to the water tank location. The Agreement and Deed for Water Line Easement with the dimensions is attached.	Yes			
<i>Comment:</i>				
Mitigation Along East Plum Creek from north end to south end of the Town of Larkspur- East Plum Creek runs along the east town limits of the Town of Larkspur. The creek banks have not been maintained in recent years and are overgrown. The overgrowth needs to be removed to reduce both wildfire damage and improve conveyance during high flow events.	No		Yes	LR1
<i>Comment:</i>	<i>Its ongoing and we wish to carry this over.</i>			
Mitigation Along East town limits of the Town of Larkspur- The Town of Larkspur will initiate a mitigation project to remove the accumulated brush and debris from the east town limits of the Town of Larkspur. This project will run from Upper Gulch Lake Road south to Fox Farm Road and west to east from Frank Road to I-25. This wildfire mitigation to protect the business along the east edge of the town	No		Yes	
<i>Comment:</i>	<i>Its ongoing and we wish to carry this over.</i>			

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
The AFHR will work with the Colorado State Forest Service to establish and implement a plan of fire mitigation for their property with grant assistance over a ten year time frame.	Phase 1 and Phase 2 complete with continued annual or biannual implementation anticipated		Yes	LR2
<i>Comment:</i>	<i>Its ongoing and we wish to carry this over. This action is identified as Action LR2 in Table 9.4-13 and has been rephrased to meet the current needs of the Town.</i>			
Assessment of Yogi Bear’s Jellystone Park and RV Camp to determine mitigation needs and to establish evacuation routes- Yogi Bear’s Jellystone Park and RV Camp is a 104-acre property that contains a 35-acre campground and RV park. It sits at the intersection of I-25 and exit 174 and the address is 650 Sky View Ln, Larkspur, CO 80118. This site is a privately owned commercial venture. The Jellystone campground was sold and redeveloped into a much large campground facility. 95% of the site was stripped of native fuels regraded and developed into a high end RV park with numerous amenities. There is little wildland fire hazard present at this time from within the property.	Yes			LR3
<i>Comment:</i>	<i>This action is identified as Action LR3 in Table 9.4-13 and has been rephrased to meet the current needs of the Town.</i>			
Water share with the U. S. Forest Service, Pike National Forest, Rampart Range Area: This was not a feasible project given geographic distance from the Pike National Forest and no action was taken.	No	No Longer Feasible		
<i>Comment:</i>				
Public awareness – support Douglas County citizen disaster preparedness guide- Revise and Update the Citizen Preparedness Guide using a new format with a focus on disaster preparedness for all Douglas County Citizens. Components include Warning systems, Citizen Information, Preparing a Family Disaster Plan, Stockpile Checklist, Shelter & Recovery, Access & Functional Needs, Pet Preparedness and Evacuation, Thunderstorms & Lightning, Winter Storms & Extreme Cold, Floods, Tornadoes, Wildfires, Terrorism, Active Shooter, Public Health Emergency, Pandemic Flu, Hazardous Materials, and Helpful Resources. Printed and electronic versions available as well as an application for smart phones. This will be used in conjunction with the Larkspur Fire Department’s disaster and mitigation meetings and disaster potential guide for the Town.	Yes		Yes	LR4
<i>Comment:</i>	<i>Its ongoing and we wish to carry this over. This action is identified as Action LR4 in Table 9.4-13 and has been rephrased to meet the current needs of the Town</i>			

9.4.5 Capability Assessment

The Town of Larkspur performed an assessment of its existing capabilities for implementing hazard mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 9.4-4.
- Development and permitting capabilities are presented in Table 9.4-5.
- An assessment of fiscal capabilities is presented in Table 9.4-6.
- An assessment of administrative and technical capabilities is presented in Table 9.4-7.
- An assessment of education and outreach capabilities is presented in Table 9.4-8.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 9.4-9.
- Classifications under various community mitigation programs are presented in Table 9.4-10.

Findings of the capability assessment were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 9.4.11 identifies these as community capacity building mitigation actions.

Table 9.4-4. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	No	No
<i>Comment:</i>	<i>All building in locally controlled; last updated in 2012</i>			
Zoning Code	Yes	No	No	No
<i>Comment:</i>	<i>All zoning in locally controlled</i>			
Subdivisions	Yes	No	No	No
<i>Comment:</i>	<i>All subdivisions are locally controlled</i>			
Stormwater Management	Yes	No	No	No
<i>Comment:</i>	<i>Storm water drainage is locally controlled and reviewed</i>			
Post-Disaster Recovery	Yes	Yes	Yes	Yes
<i>Comment:</i>				
Real Estate Disclosure	No	Yes	Yes	No
<i>Comment:</i>				
Growth Management	Yes	No	No	No
<i>Comment:</i>	<i>Growth management of the town is locally controlled</i>			
Site Plan Review	Yes	No	No	No
<i>Comment:</i>	<i>Locally controlled</i>			
Environmental Protection	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>State management compliance from CDPHE</i>			
Flood Damage Prevention	Yes	Yes	No	Yes
<i>Comment:</i>	<p><i>The Town’s floodplain regulations Larkspur, Colorado - Municipal Code CHAPTER 16 - Zoning ARTICLE 14 - FLOOD DAMAGE PREVENTION is currently meets NFIP requirements. The Town identifies flood hazard areas as areas subject to periodic inundation that can result in loss of life and property, health and safety hazards, disruption of commerce and governmental services and extraordinary public expenditures for flood protection and relief, all of which adversely affect the health, safety and general welfare of the public. To accomplish this, the Town uses the following methods:(1)Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities.(2)Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.(3)Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters.(4)Control filling, grading, dredging and other development which may increase flood damage.(5)Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.</i></p> <p><i>The Town Manager is the identified floodplain administrator and is responsible for enforcing the floodplain regulations for the Town.</i></p> <p><i>Any new construction or substantial improvements in the Town must have their lowest floor and utilities elevated one foot above the base flood elevation.</i></p>			
Emergency Management	Yes	Yes	No	Yes
<i>Comment:</i>				
Climate Change	Yes	Yes	No	No
<i>Comment:</i>	<i>Town recently just put solar panels on the Town Hall</i>			
Other	No	No	No	No
<i>Comment:</i>				
Planning Documents				
General Plan	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>Updated master plan with need to include hazardous mitigation in the master plan</i>			
Capital Improvement Plan	Yes	NO	NO	No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
<i>Comment:</i>	<i>We are currently in the process of creating the Town's first capital improvement plan that is scheduled to be completed by December 31st. The plan is to update this every 5 years</i>			
Disaster Debris Management Plan	No	no	no	yes
<i>Comment:</i>	<i>We currently do not have this</i>			
Floodplain or Watershed Plan	Yes	no	Yes	yes
<i>Comment:</i>	<i>There is a plan to build a retention pond in the town park</i>			
Stormwater Plan	Yes	yes	yes	yes
<i>Comment:</i>	<i>There is a plan to build a retention pond in the town park</i>			
Urban Water Management Plan	Yes	Yes	yes	no
<i>Comment:</i>	<i>The Town is working to develop water management plan. We share our main water source with surrounding communities and water conservation will be key for the success of the future.</i>			
Habitat Conservation Plan	no	no	yes	no
<i>Comment:</i>	<i>The state reviews the impact of development on the habitat. The protected Preble's Meadow Jumping Mouse habitat is a priority in the town</i>			
Economic Development Plan	no	no	no	no
<i>Comment:</i>				
Shoreline Management Plan	no	no	no	no
<i>Comment:</i>	<i>NA</i>			
Community Wildfire Protection Plan	Yes	no	no	yes
<i>Comment:</i>	<i>Currently working on developing our wildfire protection plan; once developed and approved by the Town, it will be sent to the State for their review and approval</i>			
Forest Management Plan	No	no	Yes	no
<i>Comment:</i>	<i>Colorado Parks and wildlife manage area forest areas</i>			
Climate Action Plan	no	no	yes	no
<i>Comment:</i>				
Comprehensive Emergency Management Plan	Yes	Yes	no	no
<i>Comment:</i>	<i>Working with the county to develop emergency management planning</i>			
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	Yes	no	no
<i>Comment:</i>	<i>Working with the county to develop hazard mitigation plan</i>			
Post-Disaster Recovery Plan	no	no	no	no
<i>Comment:</i>				
Continuity of Operations Plan	No	no	no	no
<i>Comment:</i>				
Public Health Plan	No	no	no	no
<i>Comment:</i>				
Other	no	no	no	no
<i>Comment:</i>				

Table 9.4-5. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? If no, who does? If yes, which department?	Yes
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No

Table 9.4-6. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes

Financial Resource	Accessible or Eligible to Use?
User Fees for Water, Sewer, Gas or Electric Service	Yes water and sewer; no stormwater service fees
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

Table 9.4-7. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	GMS Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	GMS Engineering
Planners or engineers with an understanding of natural hazards	Yes	GMS Engineering
Staff with training in benefit/cost analysis	Yes	DNash Accounting & Tax Services
Surveyors	Yes	Archer and Associates
Personnel skilled or trained in GIS applications	Yes	GMS Engineering
Scientist familiar with natural hazards in local area	Yes	Keith Worley / Larkspur Fire Dept.
Emergency manager	No	Coordinate with county and sheriffs dept. on MOU
Grant writers	No	We hire on an as needed basis
Resiliency Planner	No	The Town of Larkspur does not have a full-time resiliency planner; however, there is a team consisting of representatives from engineering, security, facilities, and IT who meet once a week for safety and security and once every 6 months for an overall district review in which mitigation concepts and projects are reviewed and updated.
Other	No	none

Table 9.4-8. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	No
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	No
If yes, briefly describe.	When mitigation plan complete we will post on town website
Do you use social media for hazard mitigation education and outreach?	No
If yes, briefly describe.	Will work on town face book page
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
If yes, briefly describe.	Will look at developing board for Hazard Mitigation
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes Douglas County Code Red
If yes, briefly describe.	
Do you have any established warning systems for hazard events?	Yes
If yes, briefly describe.	Douglas County Code Red

Table 9.4-9. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Planning Commission
Who is your floodplain administrator? (department/position)	Town Manager
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	7-21-2016
Does your floodplain management program meet or exceed minimum requirements?	Meets; The Town of Larkspur does not allow structures in the FEMA Special Flood Hazard Area (SFHA). There may be situations where Pre-FIRM structures or structures placed in the SFHA through updated floodplain studies would be substantially improved. If that situation were to arise, the Town would follow all NFIP requirements for construction in the SFHA, including requiring the lowest floor and utilities be elevated at least one foot above the BFE and requiring and maintaining a copy of an Elevation Certificate.
If exceeds, in what ways?	Adopted flood plain maps from FEMA
When was the most recent Community Assistance Visit or Community Assistance Contact?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
If so, state what they are.	Insert appropriate information
Are any RiskMAP projects currently underway in your jurisdiction?	No
If so, state what they are.	
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
If no, state why.	
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes
If so, what type of assistance/training is needed?	
Does your jurisdiction participate in the Community Rating System (CRS)?	No
If yes, is your jurisdiction interested in improving its CRS Classification?	No
If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction? ^a	2
What is the insurance in force?	\$732,000
What is the premium in force?	\$7,131
How many total loss claims have been filed in your jurisdiction? ^a	0
How many claims are still open or were closed without payment?	0
What were the total payments for losses?	\$0

a. According to FEMA statistics as of November 13, 2020

Table 9.4-10. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule	No	-	-

	Participating?	Classification	Date Classified
Public Protection	Yes	4	2018
Storm Ready	No	-	-
Fire wise	No	-	Study to incorporate as part of CWPP

9.4.6 Review and Incorporation of Information for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

1. Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
2. Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
3. Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
4. Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Technical Reports and Information**—The following outside resources and references were reviewed:
 - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
 - **Community Wildfire Protection Plan---** The Town is currently completing the protection plan.

Existing Integration

- Flood Insurance Study - The Town of Larkspur is required to have a Flood Insurance Study (FIS) and Flood Insurance Rate Maps to participate in the National Flood Insurance Program. An effective FIS has been maintained in The Town of Larkspur for more than 32 years. The most current effective date is September 4, 2020.
- Capital Improvement Plan-The development of the CIP is underway and is projected to be completed in March.
- Building Code and Fire Code- The Town undertook a fire code adoption workshop with the Larkspur Fire Protection District.
- Emergency Operations Plan- The EOP is covered by Larkspur Fire District and has identified a need to work with county on MOU with the Douglas County Code Red Program.
- Community Wildfire Protection Plan-Currently working on developing our wildfire protection plan.

- Stormwater Plan- There is a plan to build a retention pond in the town park.
- Floodplain or Watershed Plan- There is a plan to build a retention pond in the town park.
- Disaster Debris Management Plan-The Town currently does not have a plan in place.
- General Plan-Update master plan with need to include hazardous mitigation in the master plan.
- Emergency Management- Do a review of current plan for opportunities and updates.
- Flood Damage Prevention-Coordinate Flood Damage prevention with water conservation, Flood Plain watershed plan to ensure mitigation.
- Environmental Protection- Working with CDPHE to ensure State management compliance.
- Post-Disaster Recovery-Conduct a Review of current Ordinances to ensure sufficiency in post disaster Recovery.

9.4.7 Opportunities for Future Integration

- **Capital Improvement Projects**— *The Town is currently completing capital improvement to obtain financing and grants for water main replacement.*
- **Post-Disaster Recovery Plan**— *Larkspur does not have a recovery plan and intends to develop one as a mitigation planning action during the next five years. The plan will build on the mitigation goals and objectives identified in the mitigation plan.*

9.4.8 Jurisdiction-Specific Natural Hazard Event History

Table 9.4-11 lists past occurrences of natural hazards for which specific damage was recorded in the Town of Larkspur hazard events that broadly affected the entire planning area, including the Town of Larkspur, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.4-11. Past Weather Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Winter Weather*	N/A	3/6/2017	
High Wind*	N/A	6/8/2020	-
Winter Weather*	N/A	9/7/2020	-
Pandemic (COVID-19)	EM-3436/DR-4498	January 20 th , 2020 - Present	\$ <u>520,000</u>
* Indicates County-wide event			

COVID-19 Impacts

Larkspur continues to mitigate the pandemic risk. The Town experienced \$520,000 in revenue decreases due to the cancellation of the annual Colorado Renaissance Festival, which was cancelled as a COVID-19 precaution.

9.4.9 Hazard Risk Ranking

Table 9.4-12 presents a local ranking for the Town of Larkspur of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for

this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.4-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	48	High
2	Drought	30	Medium
2	Pandemic	30	Medium
3	Erosion	24	Medium
3	Hail	24	Medium
4	Animal Disease	12	Low
4	Land Subsidence	18	Medium
4	Lightning	18	Medium
4	Severe Thunderstorms	18	Medium
4	Severe Winter Storm	18	Medium
4	Transportation Accidents	18	Medium
5	Earthquake	12	Low
5	Tornadoes	16	Medium
6	Expansive Soils	12	Low
6	Extreme Temperatures	12	Low
6	Flood	12	Low
6	Landslide	12	Low
6	Slope Failure	12	Low
7	Dam and Levee Failure	6	Low

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

9.4.10 Jurisdiction-Specific Vulnerabilities

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on key vulnerabilities identified by the jurisdiction. Available jurisdiction-specific risk maps of the hazards are provided at the end of this annex.

Repetitive Loss Properties

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other Noted Vulnerabilities

The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- Severe Weather/Flood/Wildfire – The Town currently debris clearing program from streams and under trees that can help reduce or prevent streams from overflowing its banks or create fuel for wildfires (see LR-1 in Table 9.4-13).

- All hazards – the Town needs to enhance their early warning systems and ways of communication to keep residents informed before, during, and after a hazard event (see LR-5 in Table 9.4-13).

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 9.4.10.

9.4.11 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.4-13 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.4-14 identifies the priority for each action. Table 9.4-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.4-13. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action LR1— Lead and develop a county-wide stream clearing strategy including the development of thresholds for response / action. Clear fuels (dry underbrush, diseased trees) on land that can trigger and maintain wildfires.						
<i>Hazards Mitigated:</i>	Severe Weather, Flood, Wildfire					
Wild Fire / Flooding	OBJ-6, OBJ-18, OBJ-20	Larkspur Fire Dept	Douglas County Sheriff’s Department	4,000	Town General Fund	5 Years
Action LR2— Clear fuels (dry underbrush, diseased trees) on land that can trigger and maintain wildfires, Implement Best Management Practices on public lands .						
<i>Hazards Mitigated:</i>	Wildfire					
Wildfire	OBJ-6, OBJ-9, OBJ-18, OBJ-20	Larkspur Fire Dept	Douglas County Sheriff’s Department	4,000	Town General Fund	5 Years
Action LR3— Working with Yogi Bear’s Jellystone Park and RV Camp, the Town will establish and implement a plan of fire mitigation for their property.						
<i>Hazards Mitigated:</i>	Wildfire					
Wildfire	OBJ-9, OBJ-12, OBJ-18	the Colorado State Forest Service	Larkspur Fire Department	200,000	Grant	10 years
Action LR4— Support Douglas County citizen disaster preparedness guide. Provide technical information and guidance on appropriate mitigation options available to businesses and homeowners						
<i>Hazards Mitigated:</i>	Extreme Temperature, Flood, Severe Weather, Severe Winter Storm, Wildfire					
ALL	OBJ-8, OBJ-13, OBJ-15	Larkspur Fire Dep	Douglas County Sheriff’s Dept	2,500	Town General Fund	2 Years
Action LR5—Increase communication alternatives for early warning systems for the Town						
<i>Hazards Mitigated:</i>	Extreme Temperature, Flood, Severe Weather, Severe Winter Storm, Wildfire					
Lightning	OBJ-1, OBJ-15, OBJ-16	Larkspur Fire Dept	Douglas County Sheriff’s Dept	75,000	Grant	5 years
Action LR6 -Following current Tri County Health and state of Colorado guidance and mandates. To reduce vulnerability to the hazard, Increasing regular cleaning of work environments, Increase Capability: Storage of PPE Equipment for monitoring/treatment Trainings for staff Public outreach.						
<i>Hazards Mitigated:</i>	Extreme Temperature, Flood, Severe Weather, Severe Winter Storm, Wildfire					
Pandemic	OBJ-1, OBJ-16, OBJ-18	Town Administration	Douglas County	10,000	Grant	2 years

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action LR7— Incorporate retrofitting / replacement of critical facilities and infrastructure in Capital Improvement Plans (CIPs), Promote the use of vegetation/plants as green erosion control measure to reduce localized flooding. Establish stream maintenance programs with stakeholders (e.g. Soil and Water Conservation District)						
<u>Hazards Mitigated:</u>	Extreme Temperature, Flood, Severe Weather, Severe Winter Storm, Wildfire					
Flood	OBJ-3, OBJ-7, OBJ-8, OBJ-10, OBJ-12	Town Administration	Douglas County	300,000	Grant	5 years
Action LR8—Trimming trees back from power lines, Adopt ordinances that regulate the type and quantity of trees planted near utility lines						
<u>Hazards Mitigated:</u>	Severe Weather, Severe Winter Storm, Wildfire					
Tornados	OBJ-9, OBJ-20	Town Administration	Town Administration	11,347	Town General Fund	2 years
Action LR9— Create and maintain defensible space around structure and infrastructure, Evaluate and repair water main supply and hydrants. Add or replace new Hydrants as needed. Develop Community Wildfire Protection Plan.						
<u>Hazards Mitigated:</u>	Wildfire					
Wildfire	OBJ-9	Town Administration	Larkspur Fire Dept	1.5 million	Grant	5 years
Action LR10— Provide backup power sources at vital critical facilities, Develop or enhance the capacity/capability of stormwater conveyance systems.						
<u>Hazards Mitigated:</u>	Extreme Temperature, Flood, Severe Weather, Severe Winter Storm					
Severe Winter Storm	OBJ-11, OBJ-12, OBJ-17	Town Administration	Larkspur Fire Dept	100,000	Grant	5 years
Action LR11 – Douglas County Wildfire Partnership - The Town of Larkspur intends to join the Douglas County Wildfire Partnership (DCWP). Larkspur along with Douglas County FIRE DEPT/DIV] and various state, federal, NGO, and private stakeholders, will work with the Partnership to assess impact from wildfire; identify opportunities to maintain continuity of operations; and develop a comprehensive mitigation strategy to identify projects that will reduce wildfire risk, increase natural resource protection, encourage the incorporation of wildfire management principles into local planning, land use and building codes, and promote public awareness of wildfire risk.						
<u>Hazards Mitigated:</u>	Wildfire					
New and Existing	#2, 7, 9, 11, 14, 20, 23	Town of Larkspur	DCWP	Staff Time	Town Budget, Grants	Ongoing

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing new or existing program with no completion date

See the introduction to this volume for list of acronyms used here.

Table 9.4-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
LR6	3	High	High	Yes	Yes	No	1	6
LR1	3	High	Low	Yes	Yes	Yes	2	5
LR2	4	High	Low	Yes	Yes	Yes	3	4
LR3	3	High	High	Yes	Yes	No	4	7
LR4	3	Medium	Low	Yes	Yes	Yes	5	3
LR9	2	High	High	Yes	Yes	No	6	1
LR7	5	Medium	High	No	Yes	No	7	8
LR8	2	Low	Medium	No	Yes	No	8	9

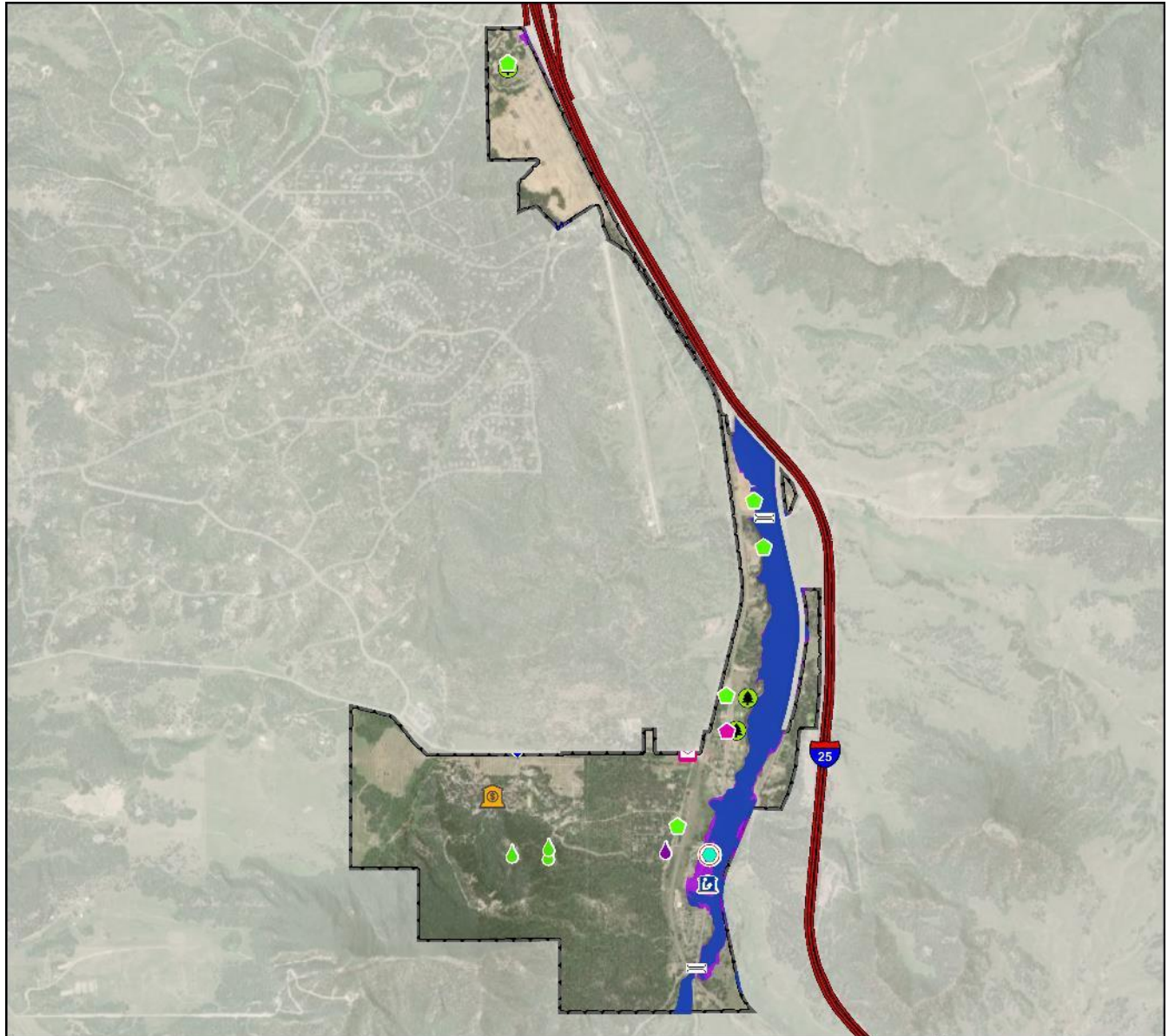
Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
LR10	3	Medium	High	Yes	Yes	No	9	2
LR5	3	Low	High	No	Yes	No	10	10

a. See the introduction to this volume for explanation of priorities.

Table 9.4-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
High-Risk Hazards							
Wild Fire	X	X	X	X			
Medium-Risk Hazards							
Pandemic	X		X				
Severe Winter Weather		X					X
Tornados / High Winds		X			X		
Thunder Storms			X		X		
Low-Risk Hazards							
Flood	X	X		X			

a. See the introduction to this volume for explanation of mitigation types.



Town of Larkspur

- | | | | |
|---------------------|--------------------|--------------------------|--------------------------|
| Bridge | Major Business | Potable Water Treatment | Interstate |
| Fire Station | Polling Site | Recreation Site | U.S. Highway |
| Government Building | Post Office | Shelter | State Highway |
| Library | Potable Water Tank | WWT Wastewater Treatment | City and Town Boundaries |
| | | | Waterbody |



The map and data depicted are considered appropriate and suitable for most planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not absolutely align due to the differing resolution of available data.

Potential New Development The flood hazard area depicted is the September 4, 2020 effective DFIRM.

- 2015-Present
- Anticipated

FEMA Flood Hazard Area

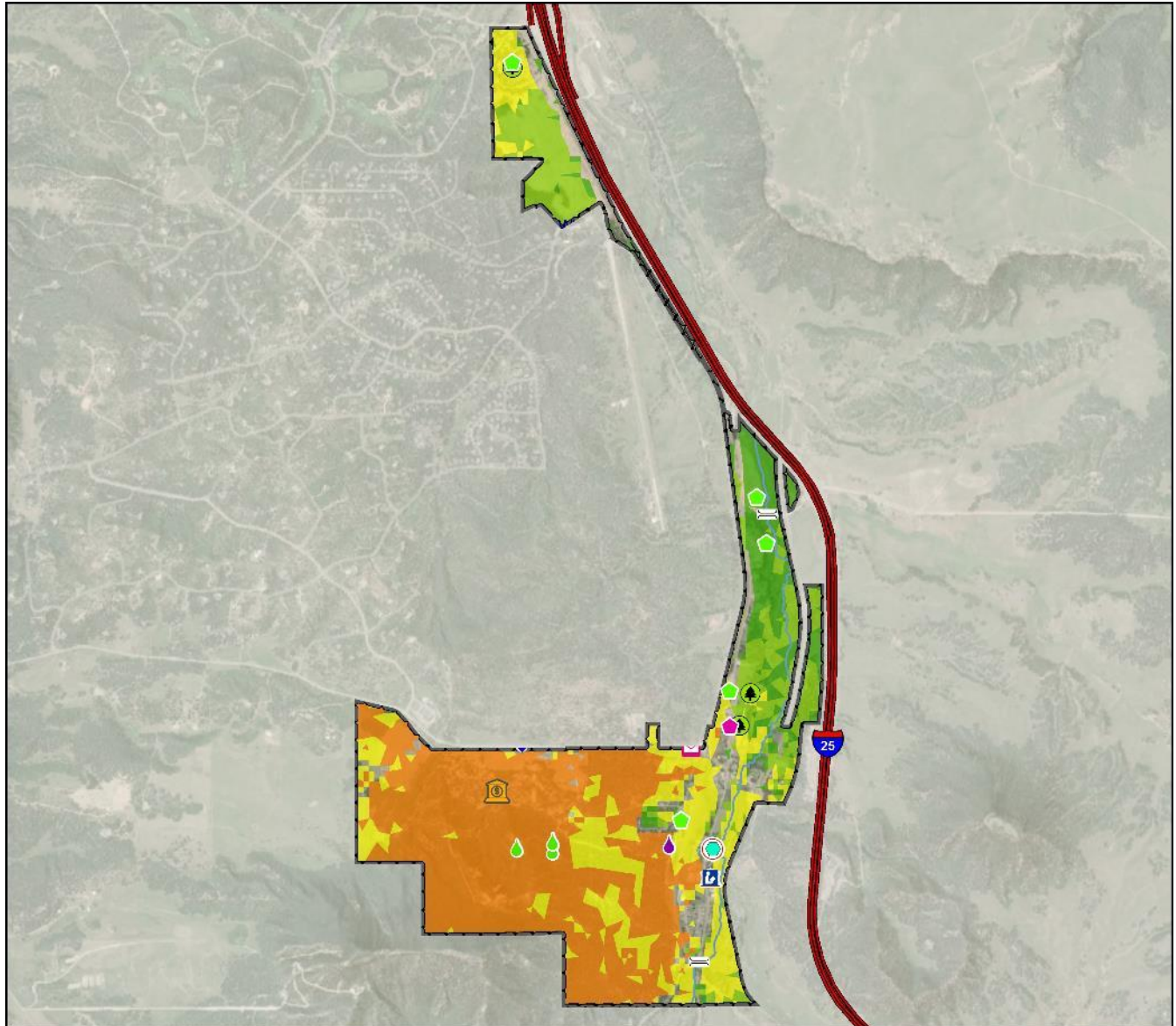
- 1-Percent Annual Chance Flood Event Area
- 0.2-Percent Annual Chance Flood Event Area
- Undetermined (Not Analyzed)

Operated By Water District

- Centennial Water and Sanitation (0)
- Denver Water (0)
- Parker Water & Sanitation (0)



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI - 2002/2020; FEMA 2020



Town of Larkspur

- | | | |
|-------------------------------------|--------------------------|-------------------------------|
| Bridge | Major Business | Potable Water Treatment |
| Fire Station | Polling Site | Recreation Site |
| Government Building | Post Office | Shelter |
| Library | Potable Water Tank | WWT Wastewater Treatment |
| Interstate | City and Town Boundaries | |
| U.S. Highway | Waterbody | |
| State Highway | | |
| Operated By Water District | | |
| Centennial Water and Sanitation (0) | Denver Water (0) | Parker Water & Sanitation (0) |

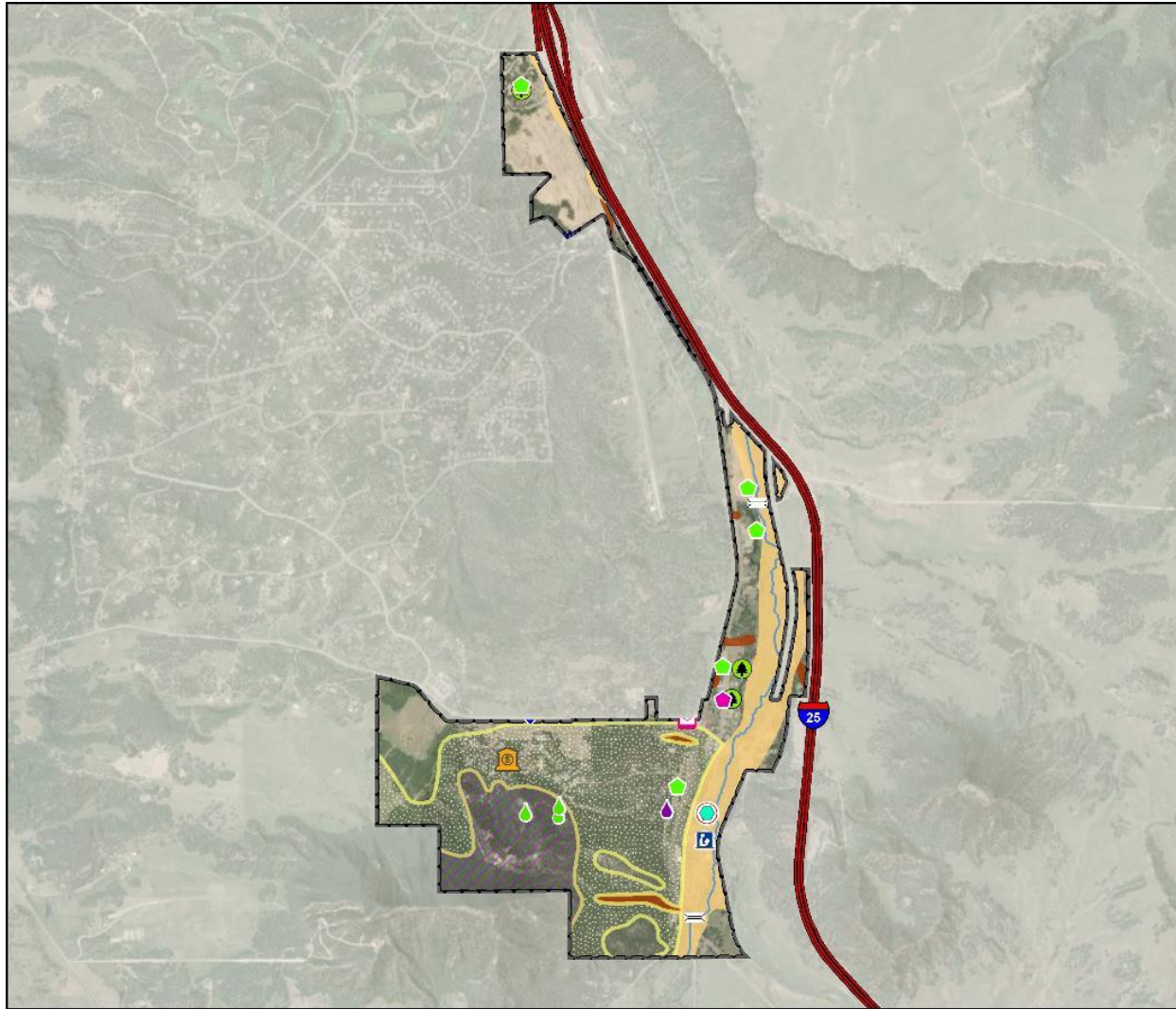
- Wildfire Risk**
- Highest
 - High
 - Moderate
 - Low
 - Lowest

- Potential New Development**
- 2015-Present
 - Anticipated

The map and data depicted are considered approximations, and suitable for more planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not be absolute alpha due to the differing resolution of available data.



Data Sources: DCGIS - 2020; OTIS - n.d.; FSR1 - 2002/2020; Colorado Forest Atlas - 2017



Town of Larkspur

Bridge	Major Business	Potable Water Treatment	Dipping Bedrock Class High Moderate Low
Fire Station	Polling Site	Potable Well	
Government Building	Post Office	Recreation Site	
Library	Potable Water Tank	Shelter	Land Subsidence Carbonate Rock Karst Topography
Interstate	State Highway	WWT Wastewater Treatment	
U.S. Highway	City and Town Boundaries	Potential New Development 2015-Present Anticipated	<p>The map and data depicted are considered approximate and suitable for most planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not absolutely align due to the differing resolution of available data.</p> <p>Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI 2002/2020; Colorado Geological Survey - n.d.; USGS - 1984/n.d.</p>
Waterbody	Debris-Flow Area	Slope-Failure Area	
Erosion Susceptibility Low Erosion-Susceptibility Area Moderate Erosion-Susceptibility Area	Rockfall-Rockslide/Debris Avalanche Area		
Operated By Water District Centennial Water and Sanitation (0) Denver Water (0) Parker Water & Sanitation (0)			

0 0.275 0.55 Miles

9.4.12 Future Needs to Better Understand Risk/Vulnerability

The Town of Larkspur is working to complete the Community Wildfire Protection Plan, as well as a water study through GMS Engineering for our water management plan.

9.5 CITY OF LONE TREE

9.5.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Bill Medina, Administrative Services Director 9220 Kimmer Dr., Suite 100 Lone Tree, Colorado 80124 Telephone: 303-708-1818 e-mail Address: Bill.Medina@cityoflonetree.com	Ron Pinson, Commander of Professional Standards 9220 Kimmer Dr., Suite 100 Lone Tree, Colorado 80124 Telephone: 303-339-8150 e-mail Address: Ron.Pinson@cityoflonetree.com

9.5.2 Jurisdiction Profile

Location

The City of Lone Tree, in northern Douglas County, is located due south of Colorado State Highway 470 and is bisected by Interstate 25. The current boundaries generally extend from Highlands Ranch to the west, the City of Centennial to the north, unincorporated Douglas County and the Town of Parker to the east, and low density residential, open space and undeveloped land in Douglas County to the south.

Lone Tree comprises 9.8 square miles. The land consists of a wide range of topography encompassing mountain vistas, hills, and grass covered plains. Because of the City’s position in the Denver metro area and multi-modal transportation facilities, the area is desirable to new residents.

History

The City of Lone Tree was incorporated in 1995. The City’s website states that “A major impetus for incorporation was resident’s concerns relating to land use, the quality of development along the C-470 corridor, and their desire for greater input over development decisions affecting their future. Through the tireless efforts of dedicated residents, the decision to incorporate was carefully evaluated, and through a vote of the electorate, was determined to be in the best interest of the community. Initially, the City boundary followed that of the Park Meadows Metropolitan District and consisted of the subdivision of Lone Tree and surrounding developments, and some commercial development along C-470. In only a short amount of time, the City has grown and changed in a number of important ways, consistent with its vision for growth.”

Climate

The climate of Douglas County is characterized by a moderate climate and significant sun exposure (more than 300 days per year). The County features low humidity, approximately 18 inches of rain each year, and 71 inches of snowfall. Temperatures range from highs of 85 degrees in July to 45 degrees in January (according to USA.com).

Governing Body Format

The City of Lone Tree operates through five elected officials, including the mayor and four Council Members. While the mayor serves at-large, the Council Members represent one of two districts in Lone Tree. Each elected official serves a four year term and is able to serve two consecutive terms (8 years).

The City of Lone Tree City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation. Development of this annex was carried out by the members of the local mitigation planning team, whose members are listed in Table 9.5-1.

Table 9.5-1. Local Mitigation Planning Team Members

Name	Title
Kelly First	Community Development Director
Justin Schmitz	Director of Public Works and Mobility
Roshana Floyd	Senior Planner
Jacob James	City Engineer

9.5.3 Current Trends

Population

The current population of City of Lone Tree is 14,914. The 2025 population estimate for the City is 20,300; this estimate accounts for the population within proposed annexations, as well as the projected populations for current planned developments and future estimated residential units.

Development

The City of Lone Tree experienced consistent residential and commercial growth between 2015 and 2019. During this time, the City completed five annexations that included a combination of residential, commercial, open space and utility/infrastructure land uses. The City saw continued development and buildout of residential subdivisions and commercial uses, as well as the initial development of a new multi-family project.

Moving into the planning period 2020-2025, the City is expected to see significant residential (and some commercial) development in the RidgeGate Planned Development District east of I-25. Development in this area will contribute to increasing Lone Tree’s population and will also expand the City’s open space and recreational amenities. However, development in this region will also require additional development review processes due to its proximity to Special Flood Hazard Areas, the existence of expansive soils and steep slopes, and the interface between development and natural grasslands and riparian habitats that may present increased wildfire risks.

Table 9.5-2 summarizes development trends in the performance period since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 9.5-2. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the preparation of the previous hazard mitigation plan?	Yes
If yes, give the estimated area annexed and estimated number of parcels or structures.	78 acres; estimated 135 parcels and 75 structures
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No
If yes, describe land areas and dominant uses.	

Criterion	Response					
If yes, who currently has permitting authority over these areas?						
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
If yes, briefly describe, including whether any of the areas are in known hazard risk areas	Approval of a 700 acre residential mixed-use development is anticipated in the first quarter of 2021, buildout of the first two phases of development are anticipated in the next 5 years. This development is in a moderate to high risk wildfire zone and also includes areas of flooding and erosion risk.					
How many permits for new construction were issued in your jurisdiction since the preparation of the previous hazard mitigation plan?		2015	2016	2017	2018	2019
	Single Family	88	34	47	23	21
	Multi-Family	1	0	0	0	0
	Other (commercial, mixed use, etc.)	6	6	1	6	5
	Total	95	40	48	29	26
Provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	Special Flood Hazard Areas: #4 Landslide: #0 High Liquefaction Areas: #0 Wildfire Risk Areas: #0					
Describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Buildout of developable land within the City is currently at approximately 70%. The City has over 700 acres of park, open space and floodplain land inventory that are not considered developable. The majority of the 30% of remaining developable land inventory resides in the RidgeGate Planned Development District, and specifically, in that portion of the planned development area east of I-25.					

9.5.4 Status of Previous Plan Actions

Table 9.5-3 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 9.5-3. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Drought mitigation- As noted in the Chapter 4 Risk Assessment (Section 4.2.10 Drought) write-up, drought is a gradual phenomenon. All development within the City of Lone Tree is serviced by public water systems, with water provided either through Southgate Water District/Denver Water or by Parker Water & Sanitation District. The City cooperates with these water suppliers in terms of water use restrictions if/when such restrictions are implemented. Additionally, City Planning recommends/requires low water use landscaping and water monitoring/conserving irrigation systems for new development	No		X	#LT3
<i>Comment:</i> Waterwise principles are applied in the City's Landscape Design Guidelines and Standards for Areas in and Along Public Rights-of-Way; Zoning Code Chapter 16, Landscaping Requirements; Design Guidelines, Landscaping. Additionally, the City's Zoning Enforcement Officer assesses and cites development for code violations.				
Hazardous materials mitigation- The City of Lone Tree has identified the potential for hazardous materials –transportation incidents as having a potential of medium significance. The City of Lone Tree has two major highways that travel through the community. There are no railroads within the jurisdiction. Hazardous materials are transported on a daily basis along I-25 and C-470, normally in quantities that do not pose a substantial threat to the community. However; there are opportunities that a major incident could occur on a daily basis. Past history indicates the majority of hazardous materials incidents are associated with the fuel spills from accidents and not the actual cargo carried. The City recognizes the need to work in conjunction with the teams designed and trained to address hazardous material should there be an actual or potential incident. Identification of the incident at the onset will be a major priority to ensure safety for the community. The first responders need to be properly trained in recognition of potential events and the proper safety precautions to take. A portion of this training is	No		X	Action #LT4

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
already conducted within individual department yearly training (fire and police). However, there is little cross training that has occurred within this realm to ensure both sides are performing their duties as expected. Therefore, it is recommended that cross training between both groups of first responders be implemented.				
<i>Comment:</i> The Regional Hazardous Materials Board of Arapahoe/Douglas Counties was disbanded in 2019. In 2019 the City of Lone adopted its Emergency Operations Plan which includes plans and processes for HAZMAT Incident response The City will modify its Emergency Operations Plan to designate South Metro Fire and Rescue as its Designated Emergency Response Agency. The City will rely upon Douglas County for any HAZMAT incidence response where evidence collection and preservation is a factor.				
Continue to implement zoning and development regulations and grading/drainage plan reviews to mitigate flooding caused by thunderstorms/heavy rain- High intensity, relatively short duration, rain events are not uncommon during the rainy seasons. Localized surface flooding potential exists from these cloud-burst type events. However, incidents of significant flooding are not frequent (no specific records on file). The City of Lone Tree reviews proposed grading and drainage plans for development within the City through zoning codes, development standards, and engineering plans reviews – with consideration for appropriate drainage management to minimize such drainage hazards.	No		X	#LT5
<i>Comment:</i> Ongoing, Subdivision and Site Plan process through Chapters 15, 16 and 17 of Municipal Code.				
Severe winter weather mitigation- The City of Lone Tree has snow plowing and de-icing procedures in place to address winter storm related events within the City (see City Website). Additionally, the City of Lone Tree Emergency Operations Plan addresses the City’s plan for dealing with Winter Storm related events. Winter Storm impacts on C-470 and/or I-25 are addressed by CDOT.	No		X	Action #LT2
<i>Comment:</i> There is a CDOT Region 1 generated Douglas County I-25 South Traffic Incident Management Plan established which includes addressing winter storm events impacts on I-25. The City of Lone Tree was a participant in development of this Plan, and will cooperate as required in the Plan implementation.				
Wildfire prevention and preparation- The City of Lone Tree has identified the potential for wildfire impacts within portion of the City as having a medium significance. The City of Lone Tree will continue to work with South Metro Fire/Rescue Authority to develop plans to mitigate the impact of future wildfires within our community. In addition, Lone Tree has put into place means of communicating with the community during the time of an actual emergency as well as providing ongoing communication on fire prevention and mitigation strategies for the citizens. The city also works in conjunction with Douglas County to identify situations when the fire danger is higher and incorporate additional restrictions associated with open fires.	No		X	Action #LT3
<i>Comment:</i> The City of Lone Tree developed its Emergency Operations Plan in 2019 which identified wildfires as a potential hazard. The plan, which includes incident specific responses, was coordinated with supporting and partner organizations to include South Metro Fire and Rescue and Douglas County Office of Emergency Management. The adoption of this plan puts the City in a much better position to respond to and mitigate the negative effects of a wildfire. The City also coordinates development referrals with the Douglas County Wildfire Mitigation Specialist in areas of medium to high wildfire risk and requires developers to prepare wildfire mitigation plans when necessary. Additionally, South Suburban Parks and Recreation District manages Lone Tree Open Space areas and the District’s Open Space Maintenance Standards include mowing standards for active open space areas that comply with Douglas County’ recommended mowing standards.				

9.5.5 Capability Assessment

City of Lone Tree performed an assessment of its existing capabilities for implementing hazard mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 9.5-4.
- Development and permitting capabilities are presented in Table 9.5-5.
- An assessment of fiscal capabilities is presented in Table 9.5-6.
- An assessment of administrative and technical capabilities is presented in Table 9.5-7.
- An assessment of education and outreach capabilities is presented in Table 9.5-8.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 9.5-9.

- Classifications under various community mitigation programs are presented in Table 9.5-10.

Findings of the capability assessment were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 9.5.11 identifies these as community capacity building mitigation actions.

Table 9.5-4. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>City of Lone Tree Municipal Code Chapter 18, w/ additional review by South Metro Fire and Rescue Authority and area Metro Districts. It was adopted on December 4, 2018 and became effective on January 1, 2019.</i>			
Zoning Code	Yes	No	No	Yes
<i>Comment:</i>	<i>City of Lone Tree Municipal Code Chapter 16.</i>			
Subdivisions	Yes	No	Yes	Yes
<i>Comment:</i>	<i>City of Lone Tree Municipal Code Chapter 17.</i>			
Stormwater Management	Yes	No	Yes	Yes
<i>Comment:</i>	<i>City of Lone Tree Municipal Code Chapter 15</i>			
Post-Disaster Recovery	No	No	No	Yes
<i>Comment:</i>	<i>The City of Lone Tree Home Rule Charter and Code contains an article (Article XVII, Section 1) addressing Emergency Powers for the Mayor and City Manager to address immediate danger or threat to the preservation of the public health, welfare, peace, safety or property. This applies to the “Recovery” phase as well.</i>			
Real Estate Disclosure	Yes	Yes	No	Yes
<i>Comment:</i>	<i>Select disclosures (i.e. an Avigation Notice) are required for lands in proximity to Centennial Airport, w/ additional oversight provided by the Airport Authority on a parcel, by parcel scenario relative to private purchase agreements.</i>			
Growth Management	Yes	No	No	Yes
<i>Comment:</i>	<i>The City’s Comprehensive Plan addresses growth areas and provides guidance for these planning areas.</i>			
Site Plan Review	Yes	No	No	Yes
<i>Comment:</i>	<i>City of Lone Tree Municipal Code Chapter 16</i>			
Environmental Protection	Yes	No	Yes	Yes
<i>Comment:</i>	<i>City of Lone Tree MS4 Program Description Document and Municipal Code Chapter 15</i>			
Flood Damage Prevention	Yes	Yes	Yes	Yes
<i>Comment:</i>	<i>City of Lone Tree Municipal Code Chapter 15. The City is good standing with the NFIP. In order to remain in good standing, the City updated Chapter 15 of the City of Lone Tree Municipal Code in 2020 which adopted the latest FIS. Chapter 15 of the Code includes all allowable and prohibited activities within the SFHA which complies with the NFIP and State of Colorado requirements. The City’s code also has a few higher regulatory standards as well. This section of the code is administered by the Public Works Department with enforcement assistance by the Community Development Department. The City requires permits for allowable uses in the floodplain and reviews all land use applications vs. applicable sections of the City’s municipal code.</i>			
Emergency Management	Yes	Yes	No	Yes
<i>Comment:</i>	<i>The City of Lone Tree Home Rule Charter and Code contains an article (Article XVII, Section 1) addressing Emergency Powers for the Mayor and City Manager to address immediate danger or threat to the preservation of the public health, welfare, peace, safety or property.</i>			
Climate Change	Yes	No	No	Yes
<i>Comment:</i>	<i>Although not specifically addressed as Climate Change policies, the City’s fee schedule provides for reduced fees for Site Improvement Plan Amendments to permit the addition of solar panels. Ch. 16 of City Code also allows for parking reductions for developments near transit locations to encourage the use of regional transportation. The City’s Forestry Plan focuses on measures to increase the scope of the City’s urban forest and ways to maintain its health and sustainability. Additionally, the City has a staff-led Sustainability Committee and a resident-led Sustainability Team. Additionally, the City’s building code includes energy conservation measures.</i>			
Other: Pandemic Response/Mitigation	No	Yes	Yes	Yes
<i>Comment:</i>	<i>The City Charter grants the Mayor and City Manager authorities to act in the event of a crisis to include a pandemic. The City is currently considering flexible zoning and design guidelines that will support our business community’s ability to respond more flexibly to pandemics in the future.</i>			
Planning Documents				
General Plan	No	No	No	No
<i>Comment:</i>				
Capital Improvement Plan	Yes	Yes	No	Yes
<i>How often is the plan updated?</i>	<i>Annually</i>			
<i>Comment:</i>	<i>The Five Year Capital Projections is part of the annual budget and is approved by the City Council. This plan approves the current year and projects future investments in capital projects as directed by the City Council adopted “Capital Reserve Policy”. Many of the projects in the projection are funded and executed in conjunction with other jurisdictions.</i>			

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Disaster Debris Management Plan	Yes	Yes	No	Yes
Comment:	<i>The City's Emergency Operations Plan dedicates an Annex to Debris removal. The City will rely upon contracted resources initially and will call upon a mutual aid agreement if organic assets are overwhelmed. In the event that a state of emergency is declared the City may call upon state or federal resources.</i>			
Floodplain or Watershed Plan	Yes	Yes	No	Yes
Comment:	<i>Watershed plans are conducted for major drainageways through a partnership with the City and Mile High Flood District</i>			
Stormwater Plan	Yes	No	Yes	Yes
Comment:	<i>City of Lone Tree MS4 Program Description Document</i>			
Urban Water Management Plan	No	No	No	No
Comment:				
Habitat Conservation Plan	No	No	No	Yes
Comment:	<i>The City's Comprehensive Plan identifies policy goals for habitat conservation but there is not yet a standalone plan in place.</i>			
Economic Development Plan	No	No	No	Yes
Comment:	<i>The City attempted to acquire EDA funding to develop an Economic Development Strategy and Response Plan in light of the COVID-19 pandemic and remains interested in developing such a plan in the future.</i>			
Shoreline Management Plan	No	No	No	No
Comment:				
Community Wildfire Protection Plan	No	No	No	Yes
Comment:	<i>The City has required two residential developments to provide wildfire mitigation measures in private covenants, however, no standalone Wildfire Protection Plan yet exists.</i>			
Forest Management Plan	Yes	No	No	Yes
Comment:	<i>The City has a Forestry Plan and a City Forester.</i>			
Climate Action Plan	No	No	No	No
Comment:				
Comprehensive Emergency Management Plan	Yes	Yes	No	Yes
Comment:	<i>This plan was developed and approved by the City Council in 2019. The plan is formally reviewed every three years. This plan was developed and integrated in conjunction with the County as well as South Metro Fire and Rescue who has fire protection and hazardous materials response responsibilities in the City.</i>			
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	Yes	No	Yes
Comment:	<i>The Emergency Operations Plan contains a Threat and Hazard Identification and Risk Assessment. This assessment was developed and integrated in conjunction with the County as well as South Metro Fire and Rescue who has fire protection and hazardous materials response responsibilities in the City.</i>			
Post-Disaster Recovery Plan	Yes	Yes	No	Yes
Comment:	<i>Our Emergency Operations Plan was prepared under the comprehensive emergency management concept including all five phases to include "Recovery".</i>			
Continuity of Operations Plan	Yes	Yes	No	Yes
Comment:	<i>The Continuity of Operations Plan was adopted by City Council at the end of 2019. The plan is reviewed annually. The plan was developed in coordination with plans that exist in Douglas County, South Metro Fire and Rescue and for various service providers in the City.</i>			
Public Health Plan	No	Yes	No	No
Comment:	<i>The City of Lone Tree does not have a Public Health Department. The Local Public Health Authority for the City is Tri-County Health Department. We integrate with that Department to implement any Public Health Plans.</i>			
Other	No	No	No	No
Comment:				

Table 9.5-5. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
If no, who does? If yes, which department?	Community Development Department - Building Division/ Public Works Department
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No

Table 9.5-6. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes via an agreement with Douglas County
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes, but only with voter approval

Financial Resource	Accessible or Eligible to Use?
User Fees for Water, Sewer, Gas or Electric Service	No - the City of Lone Tree does not have stormwater service fees. The city maintains its stormwater system using operational funding approved in the City budget.
Incur Debt through General Obligation Bonds	No
Incur Debt through Special Tax Bonds	Yes - Sales and Use Tax Revenue Bonds but only with voter approval
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

Table 9.5-7. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development: 2 AICP Public Works: 3 PEs and 1 AICP
Engineers or professionals trained in building or infrastructure construction practices	Yes	Community Development: 2 building officials Public Works: 3 PEs
Planners or engineers with an understanding of natural hazards	Yes	Public Works: 1 PE, CFM Community Development: 1 AICP, CFM
Staff with training in benefit/cost analysis	Yes	Finance / Budget Analyst
Surveyors	Yes	Consultant
Personnel skilled or trained in GIS applications	Yes	Public Works / GIS Analyst
Scientist familiar with natural hazards in local area	No	None
Emergency manager	Yes	City Manager's Office / Emergency Manager
Grant writers	Yes	The Lone Tree Arts Center, Public Works Department, Police Department, Community Development Department, City Clerk's Office, and City Manager's Office all have staff with grant writing experience.
Resiliency Planner	No	-
Other	No	-

Table 9.5-8. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes
If yes, briefly describe.	The City has an Emergency Preparedness page on our website. This page links visitors to County, State and Federal Resources for hazard mitigation.
Do you use social media for hazard mitigation education and outreach?	Yes
If yes, briefly describe.	The City actively uses Facebook and Twitter to connect with the Community on various topics to include hazard mitigation.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes

Criterion	Response
If yes, briefly describe.	The City Council, Planning Commission and the Citizen’s Recreation Advisory Committee deal with issues related to hazard mitigation.
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
If yes, briefly describe.	The Police Department reaches out to various populations in the City with our Community Partnership Unit.
Do you have any established warning systems for hazard events?	Yes
If yes, briefly describe.	We encourage the Community to opt in to CodeRed reverse 911 system and the City is covered by the County’s Integrated Public Alert and Warning System.

Table 9.5-9. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Department of Public Works and Mobility
Who is your floodplain administrator? (department/position)	Department of Public Works and Mobility / City Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes 2 CFMs
What is the date that your flood damage prevention ordinance was last amended?	9/4/2020
Does your floodplain management program meet or exceed minimum requirements?	Exceeds
If exceeds, in what ways?	City of Lone Tree Municipal Code Chapter 15, 0 foot floodway and 2 feet of freeboard requirements. The City of Lone Tree does not allow structures in the FEMA Special Flood Hazard Area (SFHA). Therefore, there are not properties in the SFHA that require elevation certificates.
When was the most recent Community Assistance Visit or Community Assistance Contact?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
If so, state what they are.	N/A
Are any RiskMAP projects currently underway in your jurisdiction?	No
If so, state what they are.	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
If no, state why.	N/A
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
If so, what type of assistance/training is needed?	N/A
Does your jurisdiction participate in the Community Rating System (CRS)?	No
If yes, is your jurisdiction interested in improving its CRS Classification?	N/A
If no, is your jurisdiction interested in joining the CRS program?	Yes
How many flood insurance policies are in force in your jurisdiction? ^a	19
What is the insurance in force?	\$5,860,000
What is the premium in force?	\$10,553
How many total loss claims have been filed in your jurisdiction? ^a	4
How many claims are still open or were closed without payment?	0
What were the total payments for losses?	\$4,105

a. According to FEMA statistics as of November 02, 2020

Table 9.5-10. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	-	Date
Building Code Effectiveness Grading Schedule	Yes	N/A	Date
Public Protection	No	-	Date
Storm Ready	No	-	Date
Firewise	No	-	Date

9.5.6 Review and Incorporation of Information for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- City of Lone Tree Comprehensive Plan; January 15, 2019; Used to complete the jurisdiction profile and to explain the development trends.
- City of Lone Tree Strategic Plan 2019-2021; Used to determine where various action items were addressed within the Big Ideas and subordinate objectives.
- City of Lone Tree Emergency Operations Plan; June 17, 2019; Identification of natural, biological and technological hazards and the City’s planned response to various incident types.
- City of Lone Tree Continuity of Operations Plan; September 3, 2019; used to identify critical infrastructure and essential services.
- City of Lone Tree Municipal Code; Used as reference for ongoing regulations for development.
- City of Lone Tree Design Guidelines
- City of Lone Tree Forestry Plan
- Various Planned Development District and Sub-Area Plans for lands within the City.

- City of Lone Tree Five Year Capital Improvements Projection

Existing Integration

- **Emergency Management** – The emergency management powers granted to the Mayor and City Manager within the City Charter and code are sufficient for them to address preservation of the public health, welfare, peace, safety or property for conditions precipitated by the hazards contemplated in this plan. During the 2020 pandemic the Municipal Code was updated to allow for the Lone Tree Police Department to enforce orders promulgated under this authority.
- **Comprehensive Emergency** – The City’s Emergency Operations Plan will undergo a formal review in 2022. While the current plan is integrated with the existing Natural Hazards Mitigation Plan, during the EOP review we will update the hazard specific responses consistent with the new plan.
- **Threat and Hazard Identification and Risk Assessment** – The current Emergency Operations Plan contains a Threat and Hazard Identification and Risk Assessment. When the EOP goes through formal review in 2022 it will be updated with the most recent hazards and risk assessments from this plan.
- **Post Disaster Recovery Plan** – The recovery phase of our EOP will be updated to reflect this plan in the 2022 formal review.
- **Continuity of Operations Plan** – The critical infrastructure list in the COOP will be updated in 2021 once this new plan is published.
- **Building Code and Fire Code** —The City has adopted the 2018 International Building and Fire Code with Amendments. Integration opportunities will be considered as part of the next cycle of code updates planned in 2022. Building Code provides the Building Official with the authority to require additional geologic testing in areas of steep slopes or geological hazards. Within the City of Lone Tree Community Development Department, there is a full time Chief Building Official who manages two other staff members.
- **Zoning Code** – The City’s Zoning Code includes hazard assessment requirements for developments prior to City approval. Zoning Code is evaluated periodically and updates are planned in the next 2-5 years. Integration opportunities, to include direct reference to this Hazard Mitigation Plan, will be evaluated as part of these processes.
- **Subdivision Code** – The City adopted amendments to its Subdivision Code in September 2020. Subdivision Code includes requirements for the identification of known hazards (both natural and man-made), an avigation notice in areas proximal to Centennial airport, as well as requirements for geological reports, and biological and environmental assessments. Additional integration opportunities will be evaluated in future updates to the Subdivision Code.
- **Real Estate Disclosures** – Subdivision Code requires avigation notices be recorded with all plats in areas proximal to Centennial airport. Additional integration opportunities will continue to be assessed.
- **Growth Management** – The City’s Comprehensive Plan was updated in 2019 and includes a Planning and Growth Area identified for its compatibility for future residential and commercial development. Additional integration opportunities exist to refine this area to prevent development in areas of high hazard risk and to protect these areas as open space opportunities.
- **Site Plan Review** – The City’s Zoning Code includes site plan review criteria that require all development sites to be assessed for hazard potential. Additional integration opportunities exist.

- **Climate Change** – As discussed in Table 1-3, the City mitigates aspects of climate change via a variety of Codes and regulations, however, additional integration opportunities exist.
- **Forest Management Plan** – The City’s Forestry Plan was adopted in 2018 and includes measures to expand and protect the City’s urban forest. Additional integration opportunities exist.
- **Disaster Debris Management Plan** – This is not a stand-alone plan but part of the EOP. This plan was developed in conjunction with our contractors and the County.
- **Douglas County Grading Erosion and Sediment Control Manual** - The City of Lone Tree has adopted the Douglas County Grading Erosion and Sediment Control Manual and the City’s erosion/sediment control program is administered through the Construction Control Measure of the City’s MS4 permit.
- **Flood Insurance Study** - The City of Lone Tree is required to have a Flood Insurance Study (FIS) and Flood Insurance Rate Maps to participate in the National Flood Insurance Program. The City of Lone Tree has maintained this information current, and the most recent effective date is September 4, 2020.
- **Maintaining NFIP Requirements** - The City updated Chapter 15 of the City of Lone Tree Municipal Code in 2020 which adopted the latest FIS. Chapter 15 of the Code includes all allowable and prohibited activities within the SFHA which complies with the NFIP and State of Colorado requirements. The City’s code also has a few higher regulatory standards as well. This section of the code is administered by the Public Works Department with enforcement assistance by the Community Development Department. The City requires permits for allowable uses in the floodplain and reviews all land use applications vs. applicable sections of the City’s municipal code.
- Within the City of Lone Tree Public Works and Mobility Department there is a Mobility Manager who develops and implements multi-modal transportation plans. This planner works in concert with regional transportation partners and with other jurisdictions to most efficiently and effectively ensure that multi modal transportation within the City connects and integrates with those transportation networks in other jurisdictions.
- Within the City of Lone Tree Community Development Department there is a Planning Division consisting of three staff members. Their roles include plan development and review that considers resiliency within the City. The City also has a cross-departmental Sustainability Committee that among other things considers how the City Staff and officials can promote resiliency in our community. This Committee meets on a monthly basis and more frequently if required. The Committee will play a pivotal role in reviewing and implementing mitigation projects that are proposed in this plan.

Opportunities for Future Integration

- **Stormwater Management** - The City has a stormwater management program as a part of the MS4 permit and this program can include policies and procedures for responding to flooding events.
- **Capital Improvement Plan**— The Five Year Capital Projections is part of the annual budget and is approved by the City Council. This plan will be evaluated once the Natural Hazards Mitigation Plan is complete to determine if there are hazard mitigation projects that should be included in the five year projection.
- **Environmental Protection** – The City is currently in the process of updating its Zoning Code and is considering integrating requirements for the provision of pet waste management components for

multi-family developments; such a provision will support the City’s MS4 program. The City is also considering refining its requirements for snow storage areas in commercial and residential developments; this will further support the MS4 program.

- **Flood Damage Prevention** - The City has a floodplain code (Chapter 15) that incorporates higher regulatory standards than the National Flood Insurance Program and periodically reviews this code to ensure the health and safety of the public.
- **Pandemic Response/Mitigation** – The City is currently in the process of updating its Zoning Code and is assessing the inclusion of measures that will allow for flexible and/or temporary reuse of commercial buildings in an effort to support the community’s economic resiliency. The City has an Economic Recovery Task Force that provides a variety of business and community support functions, in collaboration with regional partners. Additional integration exists and will be assessed.
- **Floodplain or Watershed Plan** - The City partners with other governmental agencies to prepare and update watershed plans. Integration of natural hazards in watershed plans can take place as these plans are updated.
- **Stormwater Plan** - The City is in the process of creating a Stormwater plan which will in part identify risks and vulnerabilities to the existing storm infrastructure network and put a plan in place to address those areas.
- **Habitat Conservation Plan** – The City’s Comprehensive Plan, as well as several plans specific to Planned Developments in the City, identify habitat conservation goals and policies, however, no stand-alone plan exists and this represents an opportunity for future integration.
- **Economic Development Plan** – In 2020 the City unsuccessfully pursued grant funding to develop an economic development strategy for the City. The City has an Economic Development Director on staff and developing such a plan remains a need for the City, and an area for future integration opportunities.
- **Wildfire Protection Plan** – The City has required subdivisions to provide wildfire mitigation plans as part of their development application, however, the City does not currently have a stand-alone Wildfire Protection Plan and this is an area for future integration and possible collaboration with regional partners.

9.5.7 Jurisdiction-Specific Natural Hazard Event History

Table 9.5-11 lists past occurrences of natural hazards for which specific damage was recorded in City of Lone Tree hazard events that broadly affected the entire planning area, including City of Lone Tree, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.5-11. Past Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Pandemic (COVID-19)	EM-3436/DR-4498	January 20 th , 2020 – Present The Pandemic of 2020 has caused extensive and potentially long-lasting economic damage. The actual impacts are hard to quantify but we can get some	\$-

		<p>indication by referring to common economic indicators. Unemployment across the country reached levels not seen since the Great Depression. While different demographics and sectors were affected differently the year finished out at a rate of 6.7%. Tax revenue is another indicator of the impact on the economy. Local tax collection was down by 27% in 2020 compared to the previous year.</p>	
* Indicates County-wide event			

9.5.8 Hazard Risk Ranking

Table 9.5-12 presents a local ranking for City of Lone Tree of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.5-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Drought	30	Medium
1	Pandemic	30	Medium
2	Wildfire	27	Medium
3	Hail	24	Medium
4	Flood	18	Medium
4	Lightning	18	Medium
4	Severe Thunderstorms	18	Medium
4	Severe Winter Storm	18	Medium
4	Transportation Accidents	18	Medium
5	Earthquake	16	Medium
5	Tornadoes	16	Medium
6	Erosion	12	Low
6	Expansive Soils	12	Low
6	Extreme Temperatures	12	Low
6	Animal Disease	12	Low
6	Land Subsidence	12	Low
6	Landslide	12	Low
18	Slope Failure	12	Low
19	Dam and Levee Failure	6	Low

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

9.5.9 Jurisdiction-Specific Vulnerabilities

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on key vulnerabilities identified by the jurisdiction. Available jurisdiction-specific risk maps of the hazards are provided at the end of this annex.

Repetitive Loss Properties

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: NA
- Number of FEMA-identified Severe-Repetitive-Loss Properties: NA
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: NA

Other Noted Vulnerabilities

The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- The City of Lone Tree has two major highways that travel through the community. There are no railroads within the jurisdiction. Hazardous materials are transported on a daily basis along I-25 and C-470, normally in quantities that do not pose a substantial threat to the community. However; there are opportunities that a major incident could occur on a daily basis. Past history indicates the majority of hazardous materials incidents are associated with the fuel spills from accidents and not the actual cargo carried (LT1).
- Water supply concerns during drought conditions (LT4)

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 9.2.10.

9.5.10 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.5-13 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.5-14 identifies the priority for each action. Table 9.5-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.5-13. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
<p>Action LT1— Hazardous materials mitigation: The City of Lone Tree has identified the potential for hazardous materials –transportation incidents medium risk. The City of Lone Tree has two major highways that travel through the community. There are no railroads within the jurisdiction. Hazardous materials are transported on a daily basis along I-25 and C-470, normally in quantities that do not pose a substantial threat to the community. However; there are opportunities that a major incident could occur on a daily basis. Past history indicates the majority of hazardous materials incidents are associated with the fuel spills from accidents and not the actual cargo carried.</p> <p>The City recognizes the need to work in conjunction with the teams designed and trained to address hazardous material should there be an actual or potential incident. Identification of the incident at the onset will be a major priority to ensure safety for the community. The first responders need to be properly trained in recognition of potential events and the proper safety precautions to take. A portion of this training is already conducted within individual department yearly training (fire and police). However, there is little cross training that has occurred within this realm to ensure both sides are performing their duties as expected. Therefore, it is recommended that cross training between both groups of first responders be implemented. There is additional need to exercise multijurisdictional command and control for a complex HAZMAT incident response.</p>						
<u>Hazards Mitigated:</u>	Transportation Accidents					
Existing	Obj 1, Obj 8, Obj 11, Obj 14,	LTPD	SMFR	\$5,000	City Budget	Short Term

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action LT2—Severe Winter Weather traffic impact mitigation to include protection of people and property: The City of Lone Tree has snow plowing and de-icing procedures in place to address winter storm related events within the City (see City Website). Additionally, the City of Lone Tree Emergency Operations Plan addresses the City’s plan for dealing with Winter Storm related events. Winter Storm impacts on C-470 and/or I-25 are addressed by CDOT. There is a CDOT Region 1 generated Douglas County I-25 South Traffic Incident Management Plan established which includes addressing winter storm events impacts on I-25. The City of Lone Tree was a participant in development of this Plan, and will cooperate as required in the Plan implementation						
<i>Hazards Mitigated:</i> Severe Winter Storm, Transportation Accidents, Extreme Temperatures						
Existing	Obj 2, Obj 5, Obj 8, Obj 9, Obj 11,	PW	LTPD	Staff Time	City Budget	Short Term
Action LT3—Wildfire prevention and protection plan review and implementation: The City of Lone Tree has identified the potential for wildfire impacts within portion of the City as having a medium significance. The City of Lone Tree will continue to work with South Metro Fire/Rescue Authority to develop plans to mitigate the impact of future wildfires within our community. In addition, Lone Tree has put into place means of communicating with the community during the time of an actual emergency as well as providing ongoing communication on fire prevention and mitigation strategies for the citizens. The city also works in conjunction with Douglas County to identify situations when the fire danger is higher and incorporate additional restrictions associated with open fires. The City also coordinates development referrals with the Douglas County Wildfire Mitigation Specialist in areas of medium to high wildfire risk and requires developers to prepare wildfire mitigation plans when necessary. Additionally, South Suburban Parks and Recreation District manages Lone Tree Open Space areas and the District’s Open Space Maintenance Standards include mowing standards for active open space areas that comply with Douglas County’ recommended mowing standards.						
<i>Hazards Mitigated:</i> Wildfire, Lightening, Extreme Temperatures, Drought						
Existing	Obj 1, Obj 2, Obj 5, Obj 8, Obj 9, Obj 14	CMO	LTPD	Staff Time	City Budget	Short Term
Action LT4 – Drought Mitigation: All development within the City of Lone Tree is serviced by public water systems, with water provided either through Southgate Water District/Denver Water or by Parker Water & Sanitation District. The City cooperates with these water suppliers in terms of water use restrictions if/when such restrictions are implemented. Additionally, City Planning recommends/requires low water use landscaping and water monitoring/conserving irrigation systems for new development. Waterwise principles are applied in the City’s Landscape Design Guidelines and Standards for Areas in and Along Public Rights-of-Way; Zoning Code Chapter 16, Landscaping Requirements; Design Guidelines, Landscaping. Additionally, the City’s Zoning Enforcement Officer assesses and cites development for code violations.						
<i>Hazards Mitigated:</i> Drought, Extreme Temperatures						
Existing	Obj 2, Obj 3, Obj 5, Obj 7, Obj 10, Obj 13, Obj 21, Obj 26	CDD	PW	>\$20,000	Grants, City Budget	Ongoing
Action LT5—Mitigate flooding by developing and implementing zoning and development regulations: . High intensity, relatively short duration, rain events are not uncommon during the rainy seasons. Localized surface flooding potential exists from these cloud-burst type events. However, incidents of significant flooding are not frequent (no specific records on file). The City of Lone Tree reviews proposed grading and drainage plans for development within the City through zoning codes, development standards, and engineering plans reviews – with consideration for appropriate drainage management to minimize such drainage hazards.						
<i>Hazards Mitigated:</i> Flood, Severe Thunderstorms, Erosion						
Existing	Obj 3, Obj 5, Obj 7, Obj 9, Obj 10, Obj 19, Obj 21, Obj 23, Obj 26	CDD	PW	>\$25,000	Grants, City Budget	Ongoing
Action LT6 - Lone Tree intends to join the Douglas County Wildfire Partnership (DCWP). Lone Tree Emergency Management and Public Works along with and various state, federal, NGO, and private stakeholders, will work with the Partnership to assess impact from wildfire; identify opportunities to maintain continuity of operations; and develop a comprehensive mitigation strategy to identify projects that will reduce wildfire risk, increase natural resource protection, encourage the incorporation of wildfire management principles into local planning, land use and building codes, and promote public awareness of wildfire risk. review and implementation.						
<i>Hazards Mitigated:</i> Wildfire						
Existing	Obj 1, Obj 2, Obj 5, Obj 8, Obj 9, Obj 14	CMO	LTPD	Staff Time	City Budget	Short Term
Action LT7 - Pandemic preparation, mitigation, and response. The City of Lone Tree was very successful in responding to the 2020 COVID-19 Pandemic. However, we learned many lessons that can improve our response and lessen the effects of future pandemics. We intend to take these lessons learned and document them in the Pandemic Annex of the Emergency Operations Plan. We will archive our Pandemic Specific City Policies that provided for the health and safety of the staff and public by governing the operations of City Facilities. We have several facility upgrades dealing with symptom monitoring, creating natural ventilation, HAVC upgrades, touchless operations, social distancing barriers, and advanced oxidation cell purifications units. We will seek to improve our staff’s remote work capabilities and the capability of the						

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
city to continue the delivery of critical services when faced with extreme social distancing requirements. This may include equipping our City Council Chambers for hybrid public meetings and researching how to move some activities into outdoor spaces at City Facilities.						
<u>Hazards Mitigated:</u>	Pandemic					
New	Obj 2, Obj 3, Obj 5, Obj 7, Obj 10, Obj 13, Obj 21, Obj 26	Emergency Management	PW, City Clerk, CMO	>\$75,000	Grants, City Budget	Ongoing

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing new or existing program with no completion date
See the introduction to this volume for list of acronyms used here.

Table 9.5-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
LT1	4	Medium	Medium	Yes	Yes	Yes	High	Medium
LT2	5	Medium	Low	Yes	Yes	Yes	Medium	Medium
LT3	6	Medium	Low	Yes	Yes	Yes	Medium	Medium
LT4	8	Medium	Medium	Yes	Yes	No	Medium	High
LT5	9	Medium	Medium	Yes	Yes	No	Medium	High
LT6	6	Medium	Medium	Yes	Yes	Yes	Medium	Medium
LT7	8	Medium	Medium	Yes	Yes	Yes	Medium	Medium

a. See the introduction to this volume for explanation of priorities.

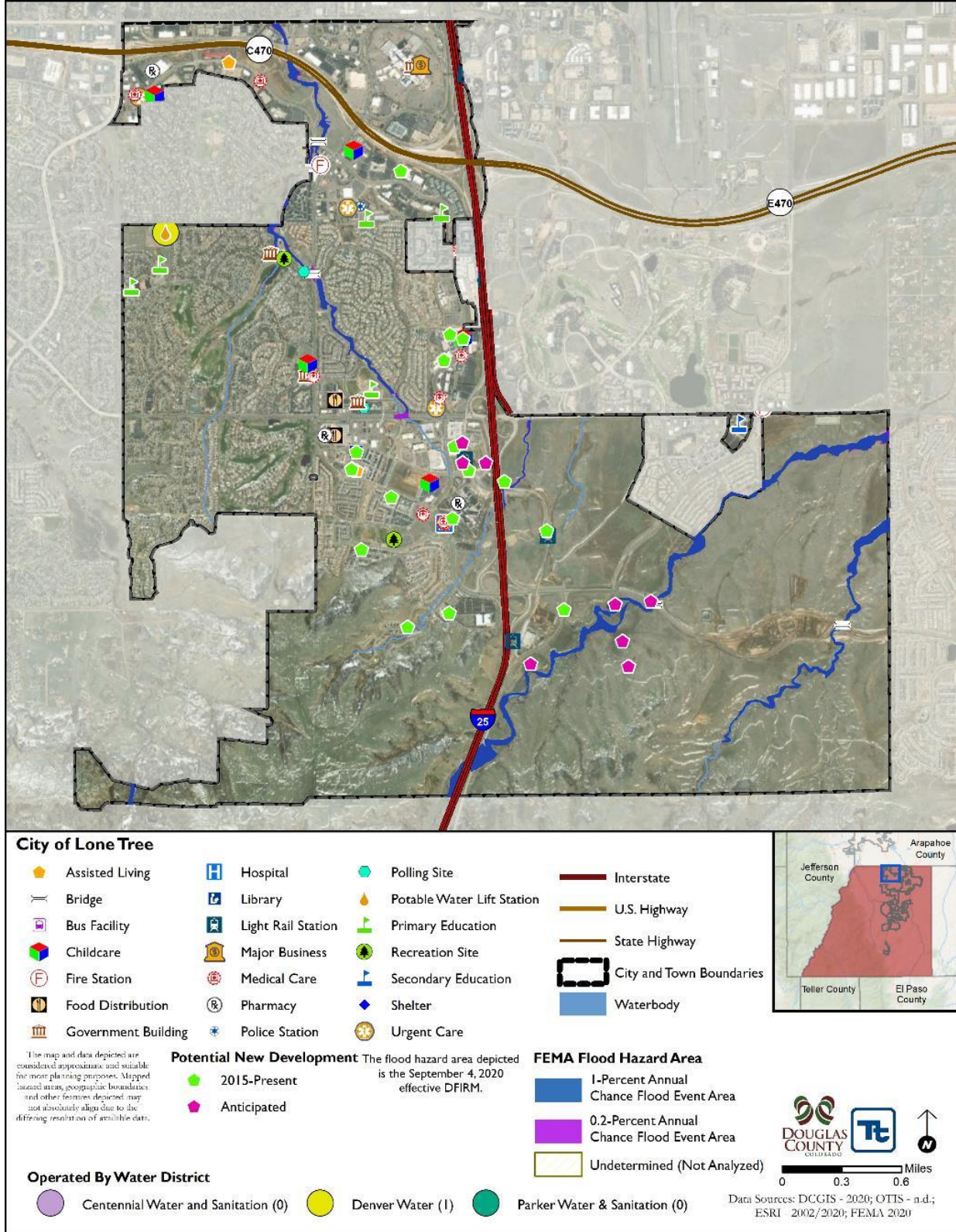
Table 9.5-15. Analysis of Mitigation Actions

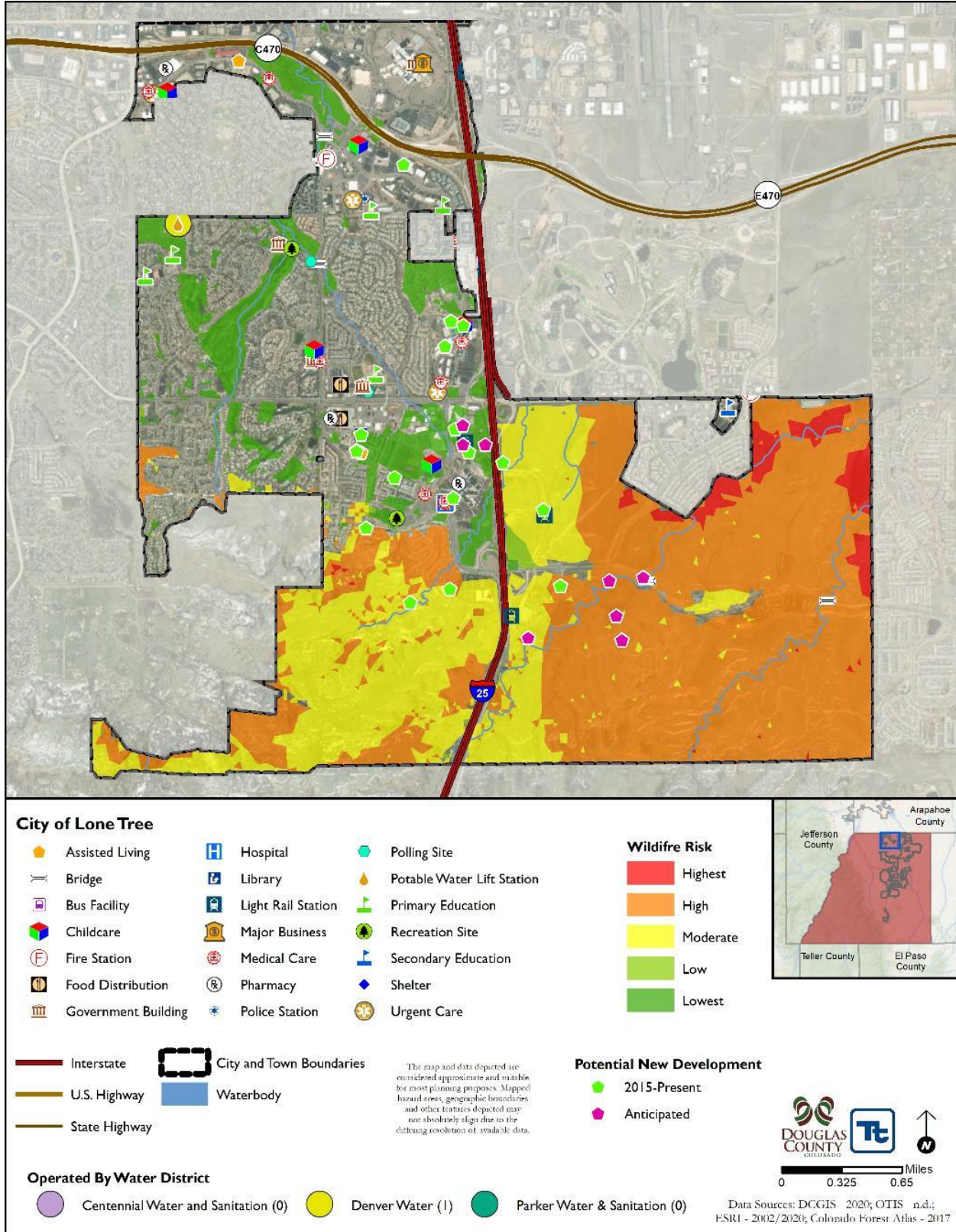
Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
High-Risk Hazards							
Medium-Risk Hazards							
Transportation Accidents		LT1			LT1		LT1
Severe Winter Storm		LT2	LT2		LT2		LT2
Lightening		LT2	LT3	LT3	LT3		LT3
Drought		LT3, LT4	LT3, LT4	LT3, LT4	LT3		LT3
Flood	LT5	LT5	LT5	LT5			
Severe Thunderstorms		LT5	LT5	LT5			
Wildfire	LT6	LT6			LT6		LT6
Pandemic	LT7		LT7		LT7		
Low-Risk Hazards							
Extreme Temperatures		LT2, LT3, LT4	LT2, LT3, LT4	LT3, LT4	LT2, LT3		LT2, LT3
Erosion	LT5	LT5	LT5	LT5			

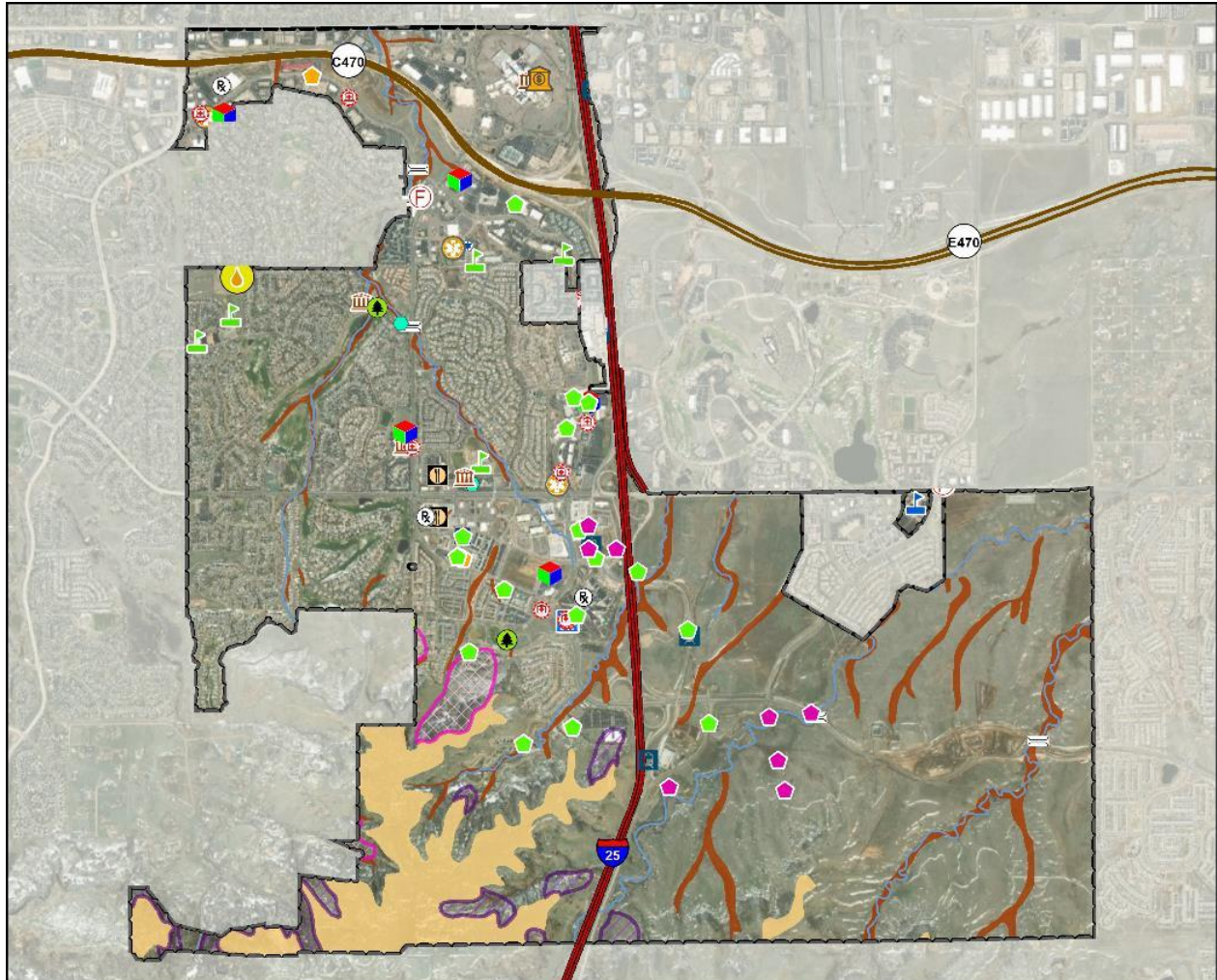
a. See the introduction to this volume for explanation of mitigation types.

9.5.11 Future Needs to Better Understand Risk/Vulnerability

No needs have been identified.







City of Lone Tree

- | | | |
|---------------------|--------------------|----------------------------|
| Assisted Living | Hospital | Polling Site |
| Bridge | Library | Potable Water Lift Station |
| Bus Facility | Light Rail Station | Primary Education |
| Childcare | Major Business | Recreation Site |
| Fire Station | Medical Care | Secondary Education |
| Food Distribution | Pharmacy | Shelter |
| Government Building | Police Station | Urgent Care |

Dipping Bedrock Class

- High
- Moderate
- Low

Land Subsidence

- Carbonate Rock
- Karst Topography

Potential New Development

- 2015-Present
- Anticipated

- Interstate
- State Highway
- U.S. Highway
- City and Town Boundaries
- Waterbody

Erosion Susceptibility

- Low Erosion-Susceptibility Area
- Moderate Erosion-Susceptibility Area
- Debris-Flow Area
- Slope-Failure Area
- Rockfall-Rockslide/Debris Avalanche Area

Operated By Water District

- Centennial Water and Sanitation (0)
- Denver Water (1)
- Parker Water & Sanitation (0)



The map and data depicted are considered approximate and suitable for most planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not absolutely align due to the differing resolution of available data.



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI 2002/2020; Colorado Geological Survey n.d.; USGS - 1984/n.d.

9.6 TOWN OF PARKER

9.6.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Greg Epp, Sergeant 18600 E Lincoln Meadows Pkwy. Parker, CO 80134 Telephone: (303) 841-9800 e-mail Address: gepp@parkeronline.org	Andrew Coleman, Police Commander 18600 E Lincoln Meadows Pkwy. Parker, CO 80134 Telephone: (303) 841-9800 e-mail Address: AColeman@parkeronline.org

9.6.2 Jurisdiction Profile

Location

The Town of Parker’s land consists of a wide range of topography encompassing mountain vistas, dramatic ridgelines, hills, and grass covered plains. Because of the Town’s close proximity to the Denver metro area and multi-modal transportation facilities, the area is desirable to new residents. The lands surrounding Parker include Lone Tree, Castle Pines and open space to the west; Foxfield, Centennial and Aurora to the north; unincorporated residential areas to the east; and The Pinery and Castle Rock to the south.

The current boundaries generally extend from the east side of Interstate 25. Highway 470 and South Parker Road come to a junction in the northern part of the Town ,encompassing an area of 20.8 square miles.

History

The Town of Parker was incorporated in 1981. Parker can trace its colorful recent history to the establishment of the Pine Grove Post Office by Alfred Butters around 1862. Prior to that time, the area was used for hunting by Indians, including the ancient (prehistoric) Indians, the Plains-Woodland Indians and later (circa 1800s) mostly Arapaho, Cheyenne and Ute Indians.

The Town of Parker was incorporated in May of 1981 and included the Rowley Downs subdivision, the downtown area and the Parker Square and Parker Plaza commercial areas. The incorporated area encompassed approximately one square mile and included 285 residents. Soon after incorporation in 1981, the Town adopted zoning and subdivision ordinances. The Town increased from one square mile at incorporation to 20.8 square miles currently. The Town's population has increased from less than 300 at incorporation to more than 57,000 currently. The Town of Parker offers a variety of services to their citizens ranging from police protection to recreation.

Climate

Douglas County is characterized by a moderate climate and significant sun exposure (more than 300 days per year). The County features low humidity, approximately 18 inches of rain each year, and 71 inches of snowfall. Temperatures range from highs of 85 degrees in July to 45 degrees in January (according to USA.com).

Governing Body Format

Parker has a Council/ Administration form of government with Town Council and Mayor elected at large and an appointed Town Administrator who oversees the day-to-day operations of the organization. According to the Town of Parker website <http://www.parkeronline.org/90/Mayor-and-Town-Council> ,

“Councilmembers make policy decisions for the local government and approve the Town budget. They are given the power by the Town Charter to enact and provide for the enforcement of ordinances, which are Town laws. ”

The Parker Town Council assumes responsibility for the adoption of this plan; The Office of Emergency Management, within the Parker Police Department will oversee its implementation. Development of this annex was carried out by the members of the local mitigation planning team, whose members are listed in Table 9.6-1.

Table 9.6-1. Local Mitigation Planning Team Members

Name	Title
Greg Epp	Police Sergeant
Andrew Coleman	Police Commander
Jim Gilbert	Deputy Director of Operations
Bryce Matthews	Planning Manager
Danny Smith	Operations Manager
Chris Hudson	Dep. Director of Engineering
Randy Sale	Chief Building Official

9.6.3 Current Trends

Population

According to the U.S. Census Bureau the population of Town of Parker as of 2019 was 57,706. Since 2010, the population has grown 27.2% percent.

Development

Development trends within the jurisdictional boundaries for the Town of Parker are estimated to continue based on historical trends. Much of the development in the Parker area has been with a focus on residential, including single family and multifamily residences. The areas to the south and west in town are the current areas experiencing the most single family residential building while infill areas throughout town are experiencing multifamily dwelling construction. As the residential base continues to grow bringing additional commercial development into town as well. The Town of Parker has seen growth over the past five years in excess of the predicted models based on the last census numbers. The Town is also currently in the process of updating their Land Development Ordinance.

Table 9.6-2 summarizes development trends in the performance period since the preparation of the previous hazard mitigation plan, as well as expected future development trends.

Table 9.6-2. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the preparation of the previous hazard mitigation plan?	Yes
<ul style="list-style-type: none"> If yes, give the estimated area annexed and estimated number of parcels or structures. 	506 acres

Criterion	Response					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	Yes					
<ul style="list-style-type: none"> If yes, describe land areas and dominant uses. 	Currently Zoned agricultural, and adding current in-fill areas still under Douglas County Jurisdiction.					
<ul style="list-style-type: none"> If yes, who currently has permitting authority over these areas? 	Douglas County					
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
<ul style="list-style-type: none"> If yes, briefly describe, including whether any of the areas are in known hazard risk areas 	Hess Ranch and Anthology North are both large planned developments, floodplains and steep slopes exist on portions of the properties but are preserved as open space and will not be developed upon.					
How many permits for new construction were issued in your jurisdiction since the preparation of the previous hazard mitigation plan?	2015	2016	2017	2018	2019	
	Single Family	312	291	421	294	393
	Multi-Family	454	419	377	824	195
	Other (commercial, mixed use, etc.)	13	27	35	43	321
Total	779	737	833	1,161	909	
Provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	<ul style="list-style-type: none"> Special Flood Hazard Areas: #0 Landslide: #0 High Liquefaction Areas: #0 Wildfire Risk Areas: #0 					
Describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Based on the General land use plan and potential growth, current estimates are for a population of 80,000 to 90,000 residents by 2040. Current zoned projects allow for an additional un-platted or planned dwelling units of 9,330.					

9.6.4 Status of Previous Plan Actions

Table 9.6-3 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 9.6-3. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Creation of Emergency Action Plan (EAP) for significant contamination of stored water in Rueter-Hess Reservoir (RHR)- Analysis and evaluation of various water contamination risks from natural or man- made sources, both intentional and accidental, resulting in an EAP. Due to the “slow-fill” nature of RHR any significant source of contamination must be quickly identified and contained, requiring well-thought out response and remediation plans.		X		
<i>Comment:</i>	<i>Parker Water and Sanitation District in completion of the Risk and Resiliency planning under EPA requirements determined that any type of contamination, based on the volume of water stored in Reuter Hess reservoir would require such a large scale amount or quantity of contaminant that this is very low or negligible as a risk requiring an EAP:</i>			

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Achieving “Storm Ready Community” designation for Parker- Receiving recognition via the National Weather Service (NWS) StormReady program means a community is better prepared for extreme weather events, has planned for infrastructure needs and developed expertise and systems for protecting property and minimizing the potential for loss of life. Continuous maintenance of Parker’s CRS rating of 6 or better is important.	X			
<i>Comment: Completed with final acknowledgement from NOAA/NWS in 2018</i>				

9.6.5 Capability Assessment

The Town of Parker performed an assessment of its existing capabilities for implementing hazard mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 9.6-4.
- Development and permitting capabilities are presented in Table 9.6-5.
- An assessment of fiscal capabilities is presented in Table 9.6-6.
- An assessment of administrative and technical capabilities is presented in Table 9.6-7.
- An assessment of education and outreach capabilities is presented in Table 9.6-8.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 9.6-9.
- Classifications under various community mitigation programs are presented in Table 9.6-10.

Findings of the capability assessment were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 6 identifies these as community capacity building mitigation actions.

Table 9.6-4. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes and No	Yes
<i>Comment:</i>	<i>International Codes adopted through Town Municipal Code and national Electric Code per state. The Town is currently enforcing the 2018 International codes (ICC). They will adopt the 2021 ICC codes on January 1, 2022. The Town updates their codes every 3 years which means the next cycle will be in 2025 with the 2024 codes.</i>			
Zoning Code	Yes	No	No	No
<i>Comment:</i>	<i>Municipal Code section 13</i>			
Subdivisions	Yes	No	No	No
<i>Comment:</i>	<i>Municipal Code section 13</i>			
Stormwater Management	Yes	Yes	Yes	No
<i>Comment:</i>				
Post-Disaster Recovery	No	No	No	No
<i>Comment:</i>				
Real Estate Disclosure	No	No	Yes/No	No
<i>Comment:</i>				
Growth Management	No	No	No	No
<i>Comment:</i>				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Site Plan Review	Yes	No	No	No
<i>Comment:</i>	<i>Municipal Code section 13</i>			
Environmental Protection	Yes	No	No	No
<i>Comment:</i>	<i>Municipal Code section 13</i>			
Flood Damage Prevention	Yes	Yes	No	No
<i>Comment:</i>	<p><i>The Town's floodplain regulations (Ch. 13.05.010 from ordinances 3.171.3 §1, 2016; 1.467 §§31, 32, 2015; 3.01.102 §1, 2013) are currently meeting or exceed current NFIP requirements. The Town is also recognized by FEMA as having automatic adoption language for all new maps and studies to keep the Town in compliance without amending Town Code. Additionally, enforcement exceeds NFIP requirements as all areas of the SFHA are within stream buffer areas as defined by the Town's stream protection standards (Ch. 13.10.220 [Stream Protection Standards] from ordinances 3.171.3 §2, 2016; 1.467 §32, 2015; 3.171.2 §1, 2006; 3.171.1 §1, 2003; 3.171 §1, 2001). All new and redevelopment must comply with these standards to receive any development permits from the Town. The ordinance also prohibits unauthorized camping in designated floodplains (Ch. 13.05.015 from ordinance 3.01.123 §1, 2020).</i></p> <p><i>The Director of Engineering is the Floodplain administrator for the Town of Parker and is responsible for enforcing the code, reviewing permits, determining the base flood elevation as needed, obtaining and maintaining information related to elevations of new or substantially improved structures, variance procedures, and enforcing provisions to reduce flood hazards in the Town.</i></p>			
Emergency Management	Yes	No	No	No
<i>Comment:</i>	<i>EOP adopted in 2020</i>			
Climate Change	No	No	No	No
<i>Comment:</i>				
Other	No	No	No	No
<i>Comment:</i>				
Planning Documents				
General Plan	Yes	No	Yes	No
<i>Comment:</i>	<i>Parker 2035 Master Plan</i>			
Capital Improvement Plan	Yes	No	No	Yes
<i>How often is the plan updated?</i>	<i>Reviewed annually</i>			
<i>Comment:</i>				
Disaster Debris Management Plan	No	No	No	Yes
<i>Comment:</i>				
Floodplain or Watershed Plan	Yes	No	Yes	No
<i>Comment:</i>	<i>Town Ordinances</i>			
Stormwater Plan	Yes	No	Yes	No
<i>Comment:</i>	<i>Town Stormwater Drainage Manual</i>			
Urban Water Management Plan	No	No	No	No
<i>Comment:</i>	<i>N/A</i>			
Habitat Conservation Plan	Yes	Yes	No	No
<i>Comment:</i>	<i>Joint Preble's jumping mouse with Douglas County</i>			
Economic Development Plan	No	No	No	No
<i>Comment:</i>				
Shoreline Management Plan	No	No	No	No
<i>Comment:</i>				
Community Wildfire Protection Plan	No	No	No	Yes
<i>Comment:</i>				
Forest Management Plan	No	No	No	No
<i>Comment:</i>				
Climate Action Plan	No	No	No	No
<i>Comment:</i>				
Comprehensive Emergency Management Plan	Yes	No	Yes	No
<i>Comment:</i>				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	No	Yes
<i>Comment:</i>				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Post-Disaster Recovery Plan	No	No	No	No
<i>Comment:</i>				
Continuity of Operations Plan	No	No	No	No
<i>Comment:</i>				
Public Health Plan	Yes	Yes	Yes	Yes
<i>Comment:</i>	Tri County Health Dept.			
Other	No	No	No	No
<i>Comment:</i>				

Table 9.6-5. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
• If no, who does? If yes, which department?	Community Development and Public Works
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	No

Table 9.6-6. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes (Stormwater Utility – see Chapter 4.08 of the Town code)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 9.6-7. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development & Engineering/Public Works
Engineers or professionals trained in building or infrastructure construction practices	Yes	Community Development, Engineering/Public Works, Building Division
Planners or engineers with an understanding of natural hazards	Yes	Community Development & Engineering/Public Works
Staff with training in benefit/cost analysis	Yes	Community Development & Engineering/Public Works
Surveyors	No	On-call surveying consulting firms (when needed via Engineering/Public Works contract)
Personnel skilled or trained in GIS applications	Yes	Information Technology
Scientist familiar with natural hazards in local area	Yes	On-call geotechnical consulting firms (when needed via Engineering/Public Works contract)
Emergency manager	No	Position to be filled in 2021
Grant writers	Yes	Community Development
Other	No	

Table 9.6-8. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes Be Prepared links
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes Be Prepared link on website and social media updates as needed
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes Planning Commission
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes Weather Spotter Classes
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes Code Red

Table 9.6-9. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering/Public Works
Who is your floodplain administrator? (department/position)	Engineering/Public Works / Director
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	March 7 th 2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceeds - The Town's floodplain regulations (Ch. 13.05.010 from ordinances 3.171.3 §1, 2016; 1.467 §§31, 32, 2015; 3.01.102 §1, 2013) are currently meeting or exceed current NFIP requirements. The Town is also recognized by FEMA as having automatic adoption language for all new maps and studies to keep the Town in compliance without amending Town Code. Additionally, enforcement exceeds NFIP requirements as all areas of the SFHA are within stream buffer areas as defined by the Town's stream protection standards (Ch. 13.10.220 from ordinances 3.171.3 §2, 2016; 1.467 §32, 2015; 3.171.2 §1, 2006; 3.171.1 §1, 2003; 3.171 §1, 2001). All new and redevelopment must comply with these standards to receive any development permits from the Town. The Town also maintains elevation certificates through the Building Department who collects and maintains the certificates in eTRAKit. Currently rated as a Class 5 Community with the Community Rating System (CRS)
When was the most recent Community Assistance Visit or Community Assistance Contact?	March 14 th 2020
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes

Criterion	Response
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
<ul style="list-style-type: none"> If so, what type of assistance/training is needed? 	
Does your jurisdiction participate in the Community Rating System (CRS)?	Yes
<ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? 	No looking to maintain a Class 5 rating
<ul style="list-style-type: none"> If no, is your jurisdiction interested in joining the CRS program? 	
How many flood insurance policies are in force in your jurisdiction? ^a	57
<ul style="list-style-type: none"> What is the insurance in force? 	\$21,859,000
<ul style="list-style-type: none"> What is the premium in force? 	\$28,493
How many total loss claims have been filed in your jurisdiction? ^a	1
<ul style="list-style-type: none"> How many claims are still open or were closed without payment? 	0
<ul style="list-style-type: none"> What were the total payments for losses? 	\$0.00

a. According to FEMA statistics as of October 31, 2020

Table 9.6-10. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	Class 5	October 20 th 2016
Building Code Effectiveness Grading Schedule	Yes	4/3	3/7/2017
Public Protection	No	-	-
Storm Ready	Yes	-	2018
Firewise	No	-	-

9.6.6 Review and Incorporation of Information for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Integration

- **Capital Improvement Plan** - As of review of this document, hazard mitigation is not considered in the capital improvements plan. Going forward, hazard mitigation could potentially be included in the scoring process.
- **General Plan 2030**—Parker 2035 Master Plan
- **Erosion/Sediment Control Program** - as outlined and enforced by Ch. 13.10.040 for development applications and Ch. 11.10 for unpermitted earth movement

Opportunities for Future Integration

- **Zoning Code**— The Town of Parker is conducting a comprehensive update to its Land Development Ordinance. The opportunity to incorporate additional mitigation and abatement measures will be contemplated for inclusion into the Code. The project is at about its mid-point with a projected completion at the end of 2021
- **Capital Improvement Projects** – Town of Parker Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization in the future. As of review of this document, hazard mitigation is not considered in the capital improvement plan. The potential addition of hazard mitigation into the process will be a future committee decision.
- **Post-Disaster Recovery Plan**—Parker does not have a recovery plan and intends to develop one as a mitigation planning action during the next five years. The plan will build on the goals and objectives identified in the mitigation plan.

9.6.7 Jurisdiction-Specific Natural Hazard Event History

Table 9.6-11 lists past occurrences of natural hazards for which specific damage was recorded in the Town of Parker hazard events that broadly affected the entire planning area, including the Town of Parker, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.6-11. Past Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Pandemic (COVID-19)	EM-3436/DR-4498	January 20 th 2020- Present	On going

9.6.8 Hazard Risk Ranking

Table 9.6-12 presents a local ranking for the Town of Parker of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.6-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	39	High
2	Drought	30	Medium
2	Pandemic	30	Medium
3	Hail	24	Medium
4	Animal Disease	18	Medium

4	Lightning	18	Medium
4	Severe Thunderstorms	18	Medium
4	Severe Winter Storm	18	Medium
4	Transportation Accidents	18	Medium
5	Earthquake	16	Medium
5	Tornadoes	16	Medium
6	Erosion	12	Low
6	Expansive Soils	12	Low
6	Extreme Temperatures	12	Low
6	Flood	12	Low
6	Land Subsidence	12	Low
6	Slope Failure	12	Low
7	Dam and Levee Failure	6	Low
7	Landslide	6	Low

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

9.6.9 Jurisdiction-Specific Vulnerabilities

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on key vulnerabilities identified by the jurisdiction. Available jurisdiction-specific risk maps of the hazards are provided at the end of this annex.

Repetitive Loss Properties

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other Noted Vulnerabilities

The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- The current master plan does not include goals or strategies that address natural hazards or mitigation actions (PAR2)
- Bank stabilization projects are needed throughout the Town (PAR5)
- Wildfires (PAR4 and PAR6)

9.6.10 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.6-13 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.6-14 identifies the priority for each action. Table 9.6-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.6-13. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action PAR1 — Maintain current building codes and adopted new codes as they are implemented						
<u>Hazards Mitigated:</u>	All hazards					
Existing	3, 7, 22	Building Division	Staff and Council	3k-5k	Budget Line	3 yrs
Action PAR2 — Update the Parker 2035 Master Plan to add goals and strategies that further address natural hazards and mitigation						
<u>Hazards Mitigated:</u>	Flooding, Slope Failure, and Drought					
Existing	3, 10, 15	Community Development	Staff	50k	Budget Line	3 yrs
Action PAR3 — Update to Land Development Ordinance to further address and preserve areas of natural hazard and mitigate impact associated with natural hazards and update to landscaping code for more drought tolerant plant materials and design						
<u>Hazards Mitigated:</u>	Flooding, landslide, drought					
Existing	3, 10, 15	Community Development	Staff	50k	Budget Line	2 yrs
Action PAR4 — Development of a coordinated wildfire response within town limits between South Metro Fire and Douglas County OEM						
<u>Hazards Mitigated:</u>	Wildfire					
Existing	1	OEM	Staff/ SMFD/ Douglas OEM	3k	Budget Line	3 yrs
Action PAR5 - Identification of bank stabilization projects in drainage areas throughout town limits (Flood mitigation). Prioritization determined based on yearly evaluations. Current stabilization projects identified include.						
<ul style="list-style-type: none"> • Lemon Gulch (4000') bank stabilization • West Stroh Gulch at Anthology (5,100') bank stabilization • Cherry Creek at Dransfeldt (2,500') bank stabilization • Jordan Tributary (3,600') bank stabilization 						
<u>Hazards Mitigated:</u>	Flooding, Severe Weather					
Existing		Building Division	Staff and Council	\$10,000+	Budget Line; HMGP or FMA grants as available	Within 5 years
Action PAR6 - Parker intends to join the Douglas County Wildfire Partnership (DCWP). The Town of Park along with and various state, federal, NGO, and private stakeholders, will work with the Partnership to assess impact from wildfire; identify opportunities to maintain continuity of operations; and develop a comprehensive mitigation strategy to identify projects that will reduce wildfire risk, increase natural resource protection, encourage the incorporation of wildfire management principles into local planning, land use and building codes, and promote public awareness of wildfire risk. review and implementation.						
<u>Hazards Mitigated:</u>	Wildfire					
Existing	1, 2, 5, 8, 9, 14	CMO	LTPD	Staff Time	Town Budget	Short Term

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing new or existing program with no completion date

See the introduction to this volume for list of acronyms used here.

Table 9.6-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
PAR1	3	Low	Low	Yes	No	Yes	Medium	Low
PAR2	3	Medium	Low	Yes	No	Yes	Medium	Low
PAR3	3	Medium	Low	Yes	No	Yes	Medium	Low
PAR4	1	Medium	Low	Yes	No	Yes	Medium	Low

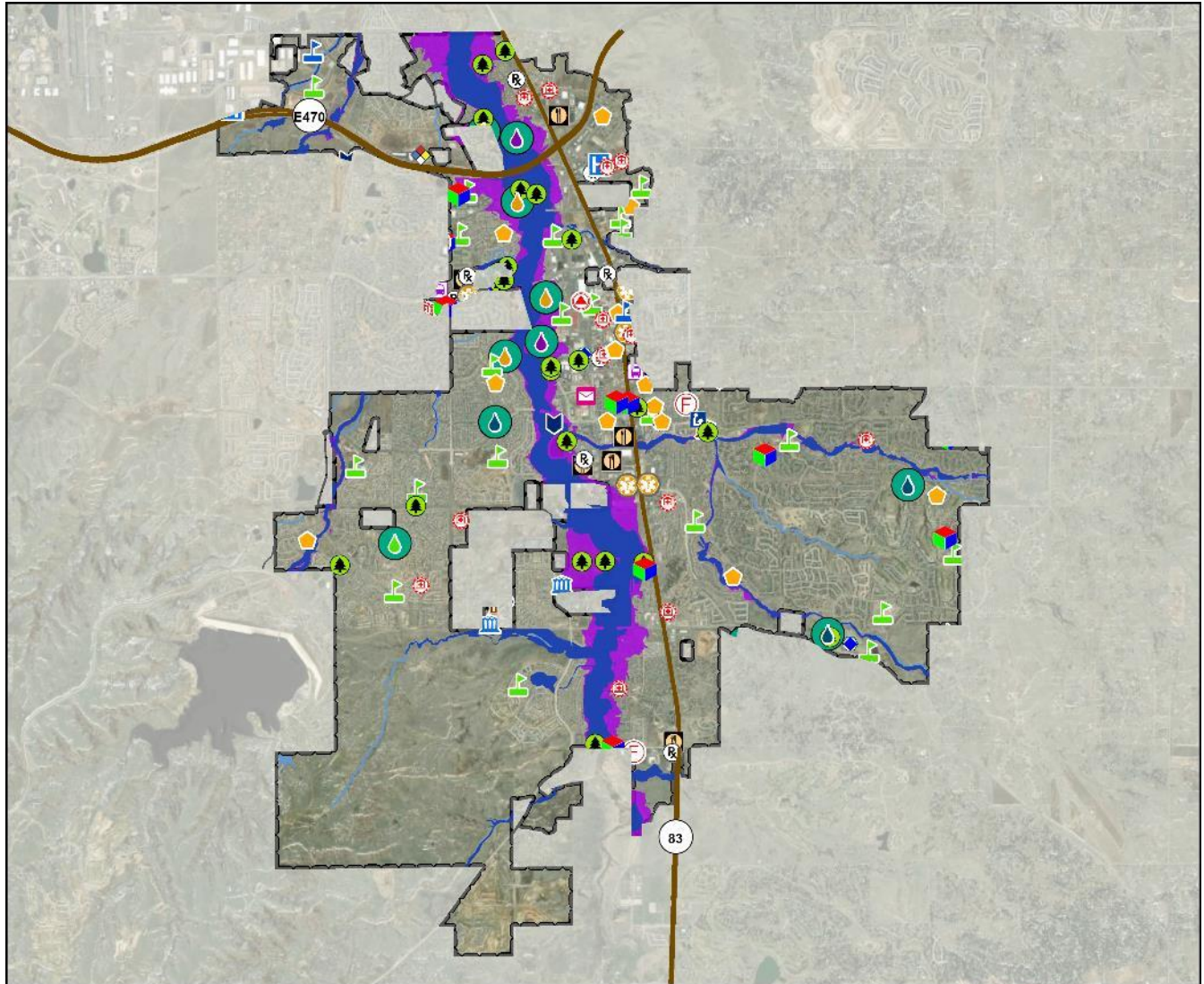
Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
PAR5		Medium	Low	Yes	Yes/No	Yes	Medium	Medium
PAR6	6	Medium	Low	Yes	No	Yes	Medium	Low

a. See the introduction to this volume for explanation of priorities.

Table 9.6-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
High-Risk Hazards							
Wildfire	PAR2 PAR4 PAR6	PAR6	PAR6	PAR6	PAR4 PAR6		
Medium-Risk Hazards							
Drought	PAR2						
Severe Thunderstorms	PAR1	PAR5			PAR5	PAR5	
Low-Risk Hazards							
Slope Failure	PAR2						
Flood	PAR2						

a. See the introduction to this volume for explanation of mitigation types.



Town of Parker

- | | | |
|---------------------|----------------------------|-------------------------|
| Assisted Living | Hospital | Potable Water Tank |
| Bus Facility | Library | Potable Water Treatment |
| Childcare | Medical Care | Potable Well |
| Dam | Municipal Building | Primary Education |
| EOC | Pharmacy | Recreation Site |
| Fire Station | Police Station | Secondary Education |
| Food Distribution | Polling Site | Shelter |
| Government Building | Post Office | Urgent Care |
| Hazardous Material | Potable Water Lift Station | |
| Interstate | City and Town Boundaries | |
| U.S. Highway | Waterbody | |
| State Highway | | |

The flood hazard area depicted is the September 4, 2020 effective DFIRM.

Potential New Development

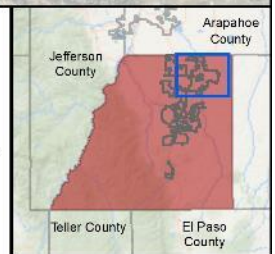
- 2015-Present
- Anticipated

FEMA Flood Hazard Area

- 1-Percent Annual Chance Flood Event Area
- 0.2-Percent Annual Chance Flood Event Area
- Undetermined (Not Analyzed)

Operated By Water District

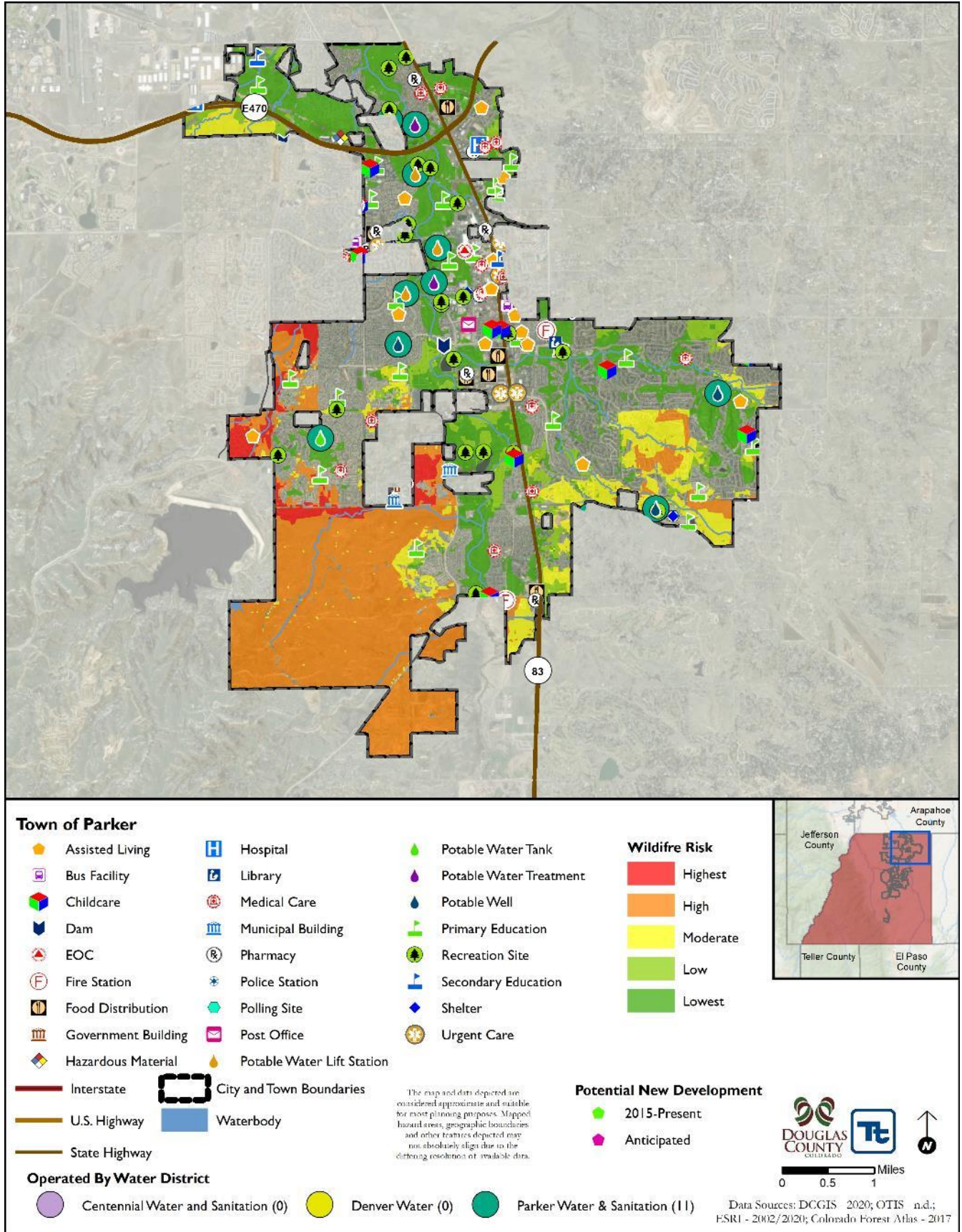
- Centennial Water and Sanitation (0)
- Denver Water (0)
- Parker Water & Sanitation (11)

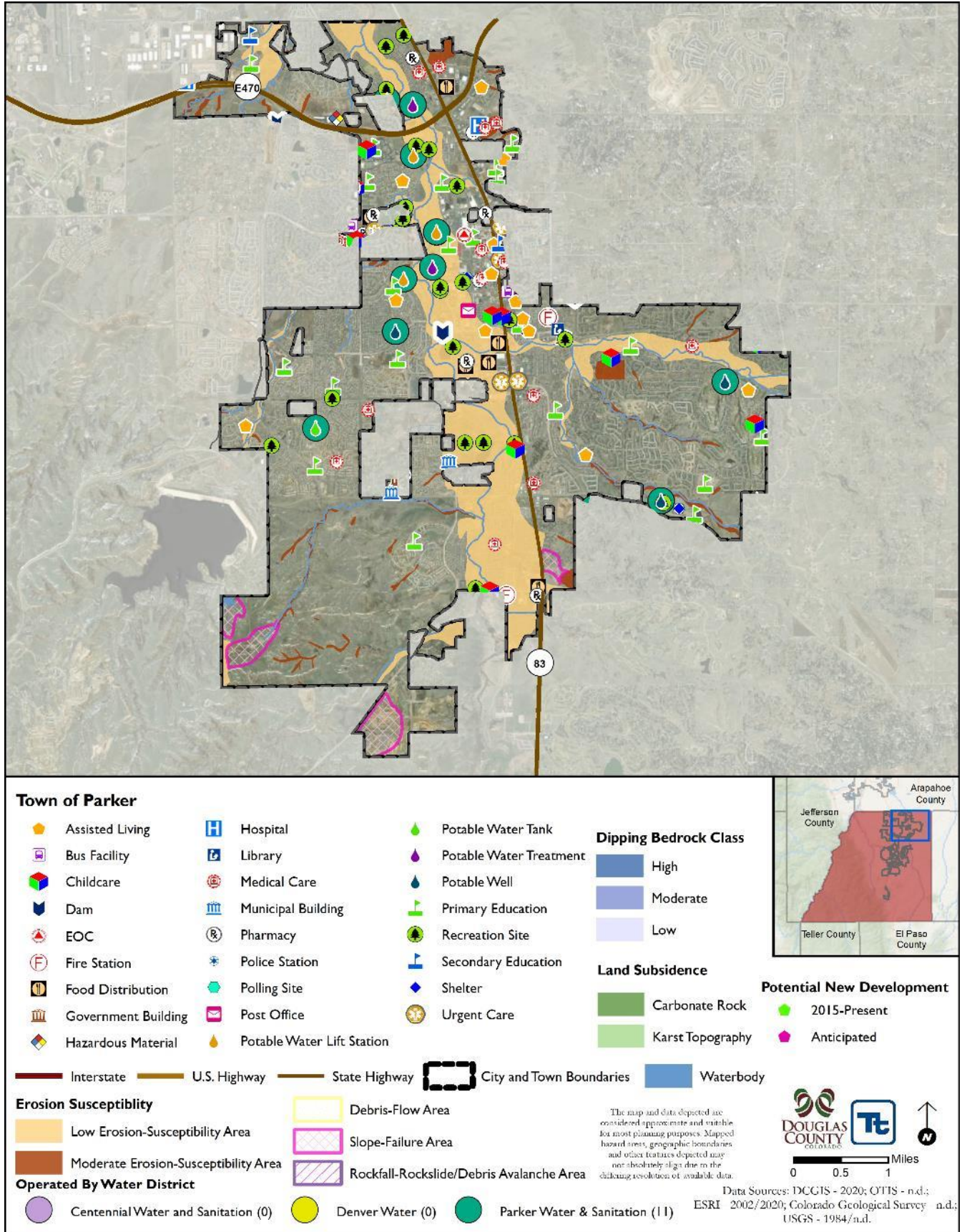


The map and data depicted are considered approximate and suitable for most planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not absolutely align due to the differing resolution of available data.



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI - 2002/2020; FEMA 2020





9.7 CENTENNIAL WATER AND SANITATION DISTRICT

9.7.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Jeff Case, Director of Public Works 62 Plaza Drive Highlands Ranch, CO 80129 Telephone: 720-240-4931 E-mail Address: JCase@highlandsranch.org	Emmalyn White, Contract Administrator 62 Plaza Drive Highlands Ranch, CO 80129 Telephone: 303-791-0430 E-mail Address: EWhite@highlandsranch.org

9.7.2 Jurisdiction Profile

Overview

Centennial Water and Sanitation District, a water and sanitation district organized as a political subdivision of the State of Colorado and as a quasi-municipal corporation created pursuant to Title 32, Colorado Revised Statutes, as amended, was organized in 1980. The District provides wholesale water and sewer service to other Colorado special districts within its' service area. These districts in turn retail these services to the ultimate user. Centennial's current full service customers are:

- Highlands Ranch Metropolitan District ("HRMD"). HRMD, the primary customer, provides service to Highlands Ranch, a master planned community in northern Douglas County, Colorado.
- Northern Douglas County Water and Sanitation District ("Northern Douglas") which serves areas in Douglas County adjacent to Highlands Ranch.
- Mirabelle Metropolitan District (Mirabelle) which serves a future community of 1100 homes adjacent to the south property line of Chatfield State Park.
- The service area, which encompasses Highlands Ranch as its primary area as well as small adjacent areas to the east and west, is located in Douglas County, Colorado which is located at the southern edge of the Denver metropolitan area.

The District operates under a Board - General Manager form of government. Policymaking and legislative authority is vested in the Board, which consists of five non-partisan members elected at large. The Board is responsible, among other things, for passing resolutions, adopting the budget, appointing committees and hiring the District's general manager and the District's attorney. Boardmembers are elected to four-year staggered terms with either two or three Board members elected every two years.

The District's primary revenue sources are rates assessed based on water usage and consumption and reserved capacity fees based on tap fees assessed against new property as it is connected. The rates are designed to fund general operation and maintenance expenses, debt service, major repair reserves and portions of the water acquisition program. Reserved capacity fees pay for capital projects. The district does not receive revenue from property tax.

The Centennial Water and Sanitation District assumes responsibility for the adoption of this plan; Centennial Water and Sanitation District will oversee its implementation.

Service Area and Trends

The district serves a population of 100,000. Its service area covers an area of 36 square miles.

Centennial Water and Sanitation District has seen a substantial growth in population over the past 35 years. Centennial serves the planned community of Highlands Ranch and miscellaneous adjacent properties and is approaching full buildout of the community. The service area is a mix of residential and commercial uses along with the associated municipal and service facilities. Growth of the service population should not increase significantly into the future.

Assets

Table 9.7-1 summarizes the critical assets of the district and their value.

Table 9.7-1. Special Purpose District Assets

Asset		Value
Property		
315 acres of land		\$13.7M
Critical Infrastructure and Equipment		
Treatment Plants		\$71.4M
Raw Water Storage and Wells		\$74.8M
Pumping and Water Tanks		\$40.7M
Transmission and Collection Pipelines		\$76.6M
Offices		\$2.4M
<i>Total:</i>		<i>\$279.6M</i>
Critical Facilities	<i>Address</i>	
Joe Blake Water Treatment Plant	Information withheld from public copy of plan.	\$32.1M
Marcy Gulch Wastewater Plant		\$39.3M
Zone 4C Pump Station		\$8.3M
S. Platte Reservoir		\$51.1M
Big Dry Lift Station		\$3.5M
Zone I Water Storage Tanks		\$5.0M
<i>Total:</i>		<i>\$139.3M</i>

9.7.3 Status of Previous Plan Actions

Table 9.7-2 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared. Centennial Water and Sanitation did not participate in the prior planning process. As a result, there are no previous plan actions for this update.

Table 9.7-2. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
No actions	N/A	N/A	N/A	N/A
<i>Comment:</i>				

9.7.4 Capability Assessment

An assessment of the district’s current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 1.9 identifies these as community capacity building mitigation actions.

Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 9.7-3 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 9.7-3. Planning and Regulatory Capability

	Date of Most Recent Update	Comment
Highlands Ranch Water and Sewer Standard Specifications	May 2020	Updated As Needed
Comprehensive Annual Financial Report – Through 12/31/19	June 2020	Prepared Annually
Centennial W&S District CityWorks Asset Inventory	Continuous	Includes All Facilities
Colorado Department of Health and Environment Regulations	Continuous	Agency that Enforces Safe Drinking Water Act
Annual Budget and Exhibit B to the Rules and Regulations	Annually	Adoption of Capital Plan & Operational Plan; during the preparation of the annual budget, Centennial will review the current hazard mitigation plan and identify opportunities to implement measures to prevent or mitigate identified risks.
Comprehensive Master Plan	1980 and updated regularly	This master plan created the framework for the infrastructure and services that are the responsibility of the district. As the community has grown, Centennial has prepared detailed studies, specifications, rules and regulations, operational plans and annual reports on the many aspects of providing water and wastewater services.

Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction’s ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 9.7-4. Administrative and technical capabilities represent a jurisdiction’s staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 9.7-5.

Table 9.7-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes - Centennial has a capital improvements plan that is updated and adopted in July of each year. Information from this plan is then included in the preparation of annual budgets, long range financial planning and adoption of rates and fees.
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes - Centennial does not charge a stormwater service fee as part of its rate structure, however, the Highlands Ranch Metropolitan District,

Financial Resource	Accessible or Eligible to Use?
	whose boundaries are identical to Centennial's, does charge a stormwater fee. HRMD charges a monthly fee to all properties for costs associated with the maintenance and improvements of drainage channels, including water quality. The residents within Centennial's boundaries are also served by Mile High Flood Control District that provides capital and maintenance funding for drainage channels including Centennial's service area.
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Federal Grant Programs	Yes
Other	NA

Table 9.7-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Public Works Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Engineering
Planners or engineers with an understanding of natural hazards	Yes	Public Works Engineering
Staff with training in benefit/cost analysis	Yes	Public Works Engineering
Surveyors	No	Consultant
Personnel skilled or trained in GIS applications	Yes	Public Works Engineering
Scientist familiar with natural hazards in local area	Yes	Engineering and Operations Staff
Emergency manager	Yes	Public Works Engineering
Grant writers	Yes	Operations/ Regulatory Administrator
Licensed Operators for Water and Wastewater Treatment	Yes	Important Skills for Interim Operations
Resiliency Planner	No	Centennial does not have a full-time resiliency planner; however there is a team consisting of representatives from Public Works, Plant Operations, Collections and Distribution, Finance and IT who meet quarterly for an overall district review in which mitigation concepts and projects are reviewed.

Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 9.7-6.

Table 9.7-6. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	No
<ul style="list-style-type: none"> If yes, please briefly describe 	
Do you use social media for hazard mitigation education and outreach?	Yes
<ul style="list-style-type: none"> If yes, please briefly describe 	Cemtennialwater.org & Highlands ranch.org

Criterion	Response
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly specify	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe	Yes Websites/Mailers/Eblasts
Do you have any established warning systems for hazard events? • If yes, please briefly describe	No

9.7.5 Review and Incorporation of Resources for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- Centennial Water and Sanitation District – Comprehensive Annual Financial Report for the Years ending December 31, 2019 and 2018.
- Centennial Water and Sanitation District 2021 Adopted Budget and Rates - adopted December 16, 2020.
- Centennial Water and Sanitation District 2021 Capital Improvement Plan – adopted December 16, 2020.
- Risk and Resiliency Assessment Summary for Centennial Water and Sanitation District 2020
- Staff and Local Stakeholder Involvement in Annex Development
- Water Treatment Plant Forebay Evaluation; Deere & Ault Engineering dated 1/27/20
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

Existing Integration

- Drought –
 - The Centennial Board of Directors adopted a **Drought Response Plan** on March 29, 2021 for all customers served by Centennial. This extensive plan identifies the key assets of Centennial that are at risk during a drought and establishes criteria for the declaration of different stages

of a drought. These measures are intended to reduce demand within the community while also adding water supply sources that will compensate for the reduction in supply during the drought. This plan has specific actions at each stage of drought for the reduction of demand across all customer classes through voluntary and mandatory restrictions, outdoor irrigation limitations, increased rates and additional enforcement of violations.

- Centennial also has several ongoing programs to offer customers incentives for the conversion of their landscapes to drought tolerant plants, installation of additional low flow fixtures and public outreach programs to encourage conservation. Annual cost \$10,000.
- In order to increase the storage capacity of raw water so that Centennial can mitigate the impacts of drought cycles, an Aquifer Storage and Recovery program was created in 1992 to place potable water into non-tributary wells that may be used when surface reservoirs are at low levels. This program requires the installation of specialized equipment at each well and incurring the cost of treatment for water from which there will not be a near term return of revenue. The specialized equipment requires replacement every 8-10 years and Centennial averages one replacement per year at a cost of \$100,000.

9.7.6 Jurisdiction-Specific Natural Hazard Event History

Table 9.7-7 lists past occurrences of natural hazards for which specific damage was recorded Unincorporated Douglas County. Other hazard events that broadly affected the entire planning area, Unincorporated Douglas County, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.7-7. Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Pandemic (COVID-19)	EM-3436/DR-4498	January 20 th , 2020 - Present	\$5,000
Chatridge Fire		6/29/20	\$10,000
* Indicates County-wide event			

9.7.7 Hazard Risk Ranking

Table 9.7-8 presents a local ranking for the District of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.7-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	30	Medium
2	Drought	18	Medium
2	Severe Winter Storm	18	Medium
3	Transportation Accidents	16	Medium
3	Lightning	16	Low
3	Severe Thunderstorms	16	Low
3	Hail	16	Low
3	Flood	16	Low
3	Extreme Temperatures	16	Low

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
4	Erosion	12	Low
4	Dam and Levee Failure	12	Low
4	Tornadoes	12	Low
4	Pandemic	12	Low
4	Animal Disease	12	Low
4	Earthquake	12	Low
4	Expansive Soils	12	Low
5	Land Subsidence	6	Low
5	Landslide	6	Low
5	Slope Failure	6	Low

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

9.7.8 Jurisdiction-Specific Vulnerabilities

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- Centennial has 22 water supply wells located in the southern portion of Highlands Ranch that is designated as open space. These wells provide a significant amount of water production during the summer months (15%-20% of summer demands). This open space reserve is approximately 8000 acres and populated with native grasses, shrubs and trees. This area has experienced major wildland fires with fires that exceed 10 acres occurring every 2-3 years on average. These fires may damage power supply to the wells and also make them inaccessible during the event.
- Centennial relies on its surface water supplies (primarily the South Platte River Basin) for 85% of its water supply annually. Centennial has developed several surface water storage reservoirs over the past 40 years, but is still vulnerable to a drought that lasts 2 years or longer.
- As noted earlier, parts of Centennial’s water supply network are distributed in areas that can be rendered inaccessible during a major blizzard. Treatment and distribution facilities (pump stations, storage tanks) must run 24 hours a day/ 365 days a year. In the event of a major blizzard, staff may be severely limited in mobility and availability. Loss of power at key facilities due to a blizzard is also a matter of concern.
- Centennial has some essential facilities very close to major transportation corridors. McLellan Reservoir, which is located in Arapahoe County and approximately 2000 feet from our Water Treatment Plant is also immediately downstream of C-470, a 6 lane highway that has a portion of it draining into McLellan. There are portions of C-470 that are within 500 feet at the closest point. In the event of a major accident within that basin, McLellan could be at risk of a hazardous materials spill that could contaminate a portion of McLellan. There have been accidents in the past that have resulted in minor spills, but they have been contained by first responders and did not travel down the drainageway to McLellan, but the risk is present.
- Centennial’s Wastewater Treatment Plant is also within 600 feet, at its closest point, to the Union Pacific and Burlington Northern railroad lines which transport a considerable amount of freight regionally. These corridors can be at risk of a derailment and if the cargo is hazardous, the spill could endanger this facility. This could put the staffing of the plant at risk and require shutdown. Centennial has not experienced such a consequential accident, but has had grass fires on the immediate adjacent property from sparks emitted from the trains. The amount of traffic could place Centennial at risk in the future.

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 1.9.

9.7.9 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.7-9 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.7-10 identifies the priority for each action. Table 9.7-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.7-9. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action CWS1 — Upgrade wells to allow emergency generator hook up after fire event						
<u>Hazards Mitigated:</u>	Wildfire damage to well network and loss of overhead power supply lines to existing wells					
New	Quick Recovery	Operations	-	\$75,000	Internal – Rates	Short term
Action CWS2 —Install additional fire hydrants and open water storage vessels (ponds and stock tanks) to aid firefighting						
<u>Hazards Mitigated:</u>	Wildfire damage to well network and loss of overhead power supply lines to existing wells					
New	Reduce Damage	Operations	Public Works	\$50,000	Internal – Rates	Short term
Action CWS3 —Expand water aquifer storage and recovery production into non-tributary wells to increase seasonal storage						
<u>Hazards Mitigated:</u>	Shortage of water supply due to short term and long term drought					
New and Existing	Reduce impact	Operations	Water Resources	\$500,000	Internal – Rates	Long term
Action CWS4 —Provide emergency power generators at all key facilities such as pump stations, lift stations, administration buildings						
<u>Hazards Mitigated:</u>	Loss of power and accessibility at key facilities due to blizzard					
Existing	Provide power	Public Works	Operations	\$500,000	Internal – Rates	Short term
Action CWS5 - An element of normal operations of a water and wastewater utilities is to perform regularly scheduled inspections and preventative maintenance activities of our assets, including major pipelines, pump stations, reservoirs and groundwater wells. As a result of these inspections, the following measures are taken as risks are identified. Pipelines, manholes and vaults that are within the 100 year floodplain are inspected annually or after a major storm event. Those at risk of exposure or loss of structural support are reinforced with concrete caps, cutoff walls across the channel, and installation of 18”-24” fractured stone (rip-rap) across and around the element to protect from erosion.						
<u>Hazards Mitigated:</u>	Flood, Severe Weather					
New and Existing	9, 12, 14, 23	Operations and Public Works	-	\$25,000-50,000	FEMA HMGP, FMA Annual Budget	Short Term
Action CWS6 - An element of normal operations of a water and wastewater utilities is to perform regularly scheduled inspections and preventative maintenance activities of our assets, including major pipelines, pump stations, reservoirs and groundwater wells. As a result of these inspections, the following measures are taken as risks are identified. The Joe Blake Water Treatment Plant has a 4 acre raw water storage forebay that includes an earthen embankment that is designated as a jurisdictional dam by the State Engineer. Recent inspections of this project have determined that there is a pipeline and some utility conduits that are within the embankment zone and could compromise the integrity of the dam. Work to remove this risk from the embankment zone and install replacement lines is under design and a contract to make these changes is anticipated in 2022.						
<u>Hazards Mitigated:</u>	Flood, Severe Weather					
New and Existing	9, 12, 14, 23	Operations and Public Works	-	\$400,000	FEMA HMGP, FMA Annual Budget	Short Term
Action CWS7 - All District well sites that are not located in developed neighborhoods are at risk of serious damage or being disabled by wildfires that can occur almost any year. Each well site has monthly mowing operations to reduce fuel loads in the						

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
immediate vicinity of the well site. The operational area of the well site that contains electrical cabinets, controls, and wellhead assets are surrounded by large gravel to eliminate the growth of grasses and shrubs which can provide fuel for a wildfire.						
<u>Hazards Mitigated:</u>	Wildfire					
Existing	9, 12, 14, 23	Operations and Public Works	-	\$10,000/annually	Annual Budget	Ongoing
Action CWS8 - Centennial intends to join the Douglas County Wildfire Partnership (DCWP). Centennial along with South Metro Fire Rescue and various state, federal, NGO, and private stakeholders, and will work with the Partnership to assess impact from wildfire; identify opportunities to maintain continuity of operations; and develop a comprehensive mitigation strategy to identify projects that will reduce wildfire risk, increase natural resource protection, encourage the incorporation of wildfire management principles into local planning, land use and building codes, and promote public awareness of wildfire risk.						
<u>Hazards Mitigated:</u>	Wildfire					
Existing	1, 2, 5, 8, 9, 14	Operations and Public Works	-	Staff Time	Annual Budget	Short Term

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing new or existing program with no completion date
See the introduction to this volume for list of acronyms used here.

Table 9.7-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
CWS1	2	High	Medium	Yes	No	Yes	High	Low
CWS2	2	Medium	Low	Yes	No	Yes	Medium	Low
CWS3	2	Medium	High	No	No	Yes	low	Low
CWS4	2	Medium	Medium	Yes	No	Yes	Medium	Low
CWS5	4	Medium	Low-Medium	Yes	Yes	Yes	Medium	Medium
CWS6	4	Medium	Low-Medium	Yes	Yes	Yes	Medium	Medium
CWS7	4	Medium	Low	Yes	No	Yes	Medium	Low
CWS8	6	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 9.7-11. Analysis of Mitigation Actions

Hazard Type	Prevention	Action Addressing Hazard, by Mitigation Type ^a					Community Capacity Building
		Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	
Medium-Risk Hazards							
Wildland Fire	CWS1, 2, 7, 8	CWS2, 7, 8	CWS8	CWS2, 7, 8	CWS1, 7, 8	CWS1,2, 7	CWS1,2, 7, 8
Drought	CWS1,3			CWS1,3,3			CWS1,3

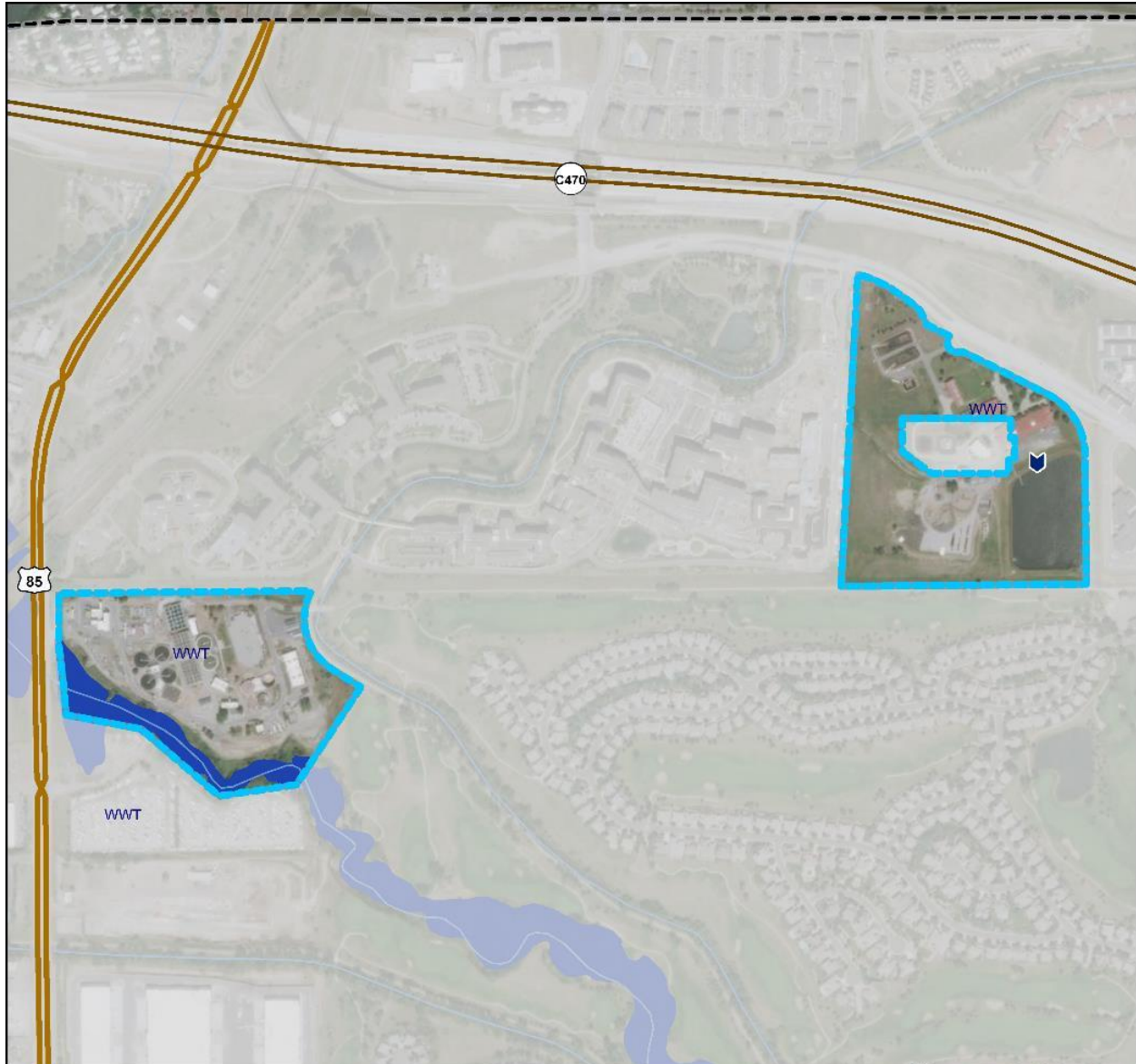
Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
Severe Winter Weather		CWS4			CWS4	CWS4	CWS4
Transportation Accidents	-	-	-	-	-	-	-
Low-Risk Hazards							
Lightning	-	-	-	-	-	-	-
Severe Thunderstorms	CWS5, 6	CWS5, 6			CWS5, 6		
Hail	-	-	-	-	-	-	-
Flood	CWS5, 6	CWS5, 6			CWS5, 6		
Extreme Temperatures	-	-	-	-	-	-	-
Erosion	-	-	-	-	-	-	-
Dam and Levee Failure	-	-	-	-	-	-	-
Tornadoes	-	-	-	-	-	-	-
Pandemic	-	-	-	-	-	-	-
Animal Disease	-	-	-	-	-	-	-
Earthquake	-	-	-	-	-	-	-
Expansive Soils	-	-	-	-	-	-	-
Land Subsidence	-	-	-	-	-	-	-
Landslide	-	-	-	-	-	-	-
Slope Failure	-	-	-	-	-	-	-

a. See the introduction to this volume for explanation of mitigation types.

9.7.10 Review and Incorporation of Resources for This Annex

Staff and Local Stakeholder Involvement in Annex Development




This annex was developed over the course of several months with a review of material from different areas of tasks including operations, budgeting, and the planning sectors. Information was gathered to contribute to the development of the annex, material was reviewed, and collaborated to use the most vital details for the annex. Discussions were held to identify the capability assessment, planning initiatives, hazard assessment and ranking, and future action plans. Once actions had been identified and compiled in the annex, the draft was circulated for review, comments, and adjustments.









Centennial Water Sanitation District

-  Dam
- WWT** Wastewater Treatment

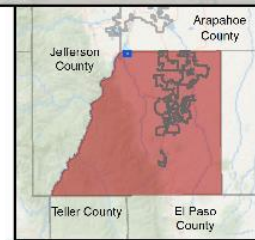
FEMA Flood Hazard Area

-  1-Percent Annual Chance Flood Event Area
-  0.2-Percent Annual Chance Flood Event Area
-  Undetermined (Not Analyzed)

The flood hazard area depicted is the September 4, 2020 effective DFIRM.

-  Interstate
-  U.S. Highway
-  State Highway
-  City and Town Boundaries
-  Water District
-  Waterbody

The map and data depicted are considered approximate and suitable for most planning purposes. Mapped features, geographic boundaries and other features depicted may not be absolute a sign due to the differing resolution of available data.



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI - 2002/2020; FEMA 2020





9.8 DENVER WATER

9.8.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Becky Franco, Emergency Management Manager 1600 W. 12 th Ave. Denver, CO 80204 Telephone: 303-250-1575 cell / 303-607-3160 office E-mail Address: Rebecca.Franco@denverwater.org	Jason Taussig, Director EMSS 1600 W. 12 th Ave. Denver, CO 80204 Telephone: 303.229.1206cell / 303-628-6517 office E-mail Address: Lisa.Ciazza@denverwater.org

9.8.2 Jurisdiction Profile

Overview

Denver Water is an independent, autonomous and non-political agency of the City and County of Denver, organized and existing under the home rule charter of the City. Denver Water is the State’s oldest and largest water utility, established in 1918. It is funded by water rates and new tap fees, as opposed to taxes. Denver Water is run by a five-member Board of Water Commissioners. A designated CEO/Manager is appointed by the Board to execute its policies and orders.

Denver Water owns property and operates water collection facilities throughout the state of Colorado, However, in Douglas County, Denver Water owns critical infrastructure which is part of the Denver Water collection system. Portions of Douglas County receive Denver Water via our distributor agreements. Refer to the countywide maps in Chapter 3 and in Douglas County’s annex (Section 9.1).

The Denver Water Board of Commissioners assumes responsibility for the adoption of this plan; Denver Water Emergency Management will oversee its implementation via the existing Denver Water structure.

Service Area and Trends

The district serves a population of 1.5 million people. Denver Water serves Denver and its surrounding suburbs. The majority of Denver Water’s water comes from rivers and streams fed by mountain snowmelt. The South Platte River, Blue River, Williams Fork River and Fraser River watersheds are Denver Water’s primary water sources, but it also uses water from the South Boulder Creek, Ralston Creek and Bear Creek watersheds.

Denver Water serves about a quarter of the state's population but uses less than two percent of all water, treated and untreated, in Colorado.

- General Service Area Map <https://www.denverwater.org/sites/default/files/2017-05/Service%20Area%20General.pdf>
- Service Area Map – Municipalities <https://www.denverwater.org/sites/default/files/2017-05/Service%20Area%20Map%20-%20Municipalities.pdf>

Assets

Table 9.8-1 summarizes the critical assets of the district and their value.

Table 9.8-1. Special Purpose District Assets

Asset	Value
Property	
60K acres – watershed - undeveloped	N/A
Critical Infrastructure and Equipment	
Cheesman Dam and Reservoir*	\$ 25,743,987.72
Cheesman Dam Valve House	\$ 350,362.61
Conduit 20 Diversion Dam* (Marston Intake Dam)	\$ 6,572,922.93
Conduit 26	\$ 21,525,375.21
Foothills Spray Application Pump Station	\$4,208,547.37
Foothills Treatment Plant	\$103,071,864.8
Foothills Overflow Holding Pond	\$ 20,461,238.21
High Line Canal Diversion Dam	\$ 2,457,824.54
High Line Canal Waterton Canyon‡	\$ 1,778,902.34
Lone Tree Pump Station	\$ 1,605,777.18
Lone Tree Treated Reservoir No. 1	\$ 6,219,469.82
Lone Tree Treated Reservoir No. 2	\$ 8,048,129.47
Platte Canyon Dam and Reservoir	\$4,425,956.1
Strontia Springs Dam and Reservoir*	\$ 28,685,222.64
<i>Total:</i>	\$ 235,155,580.94

9.8.3 Status of Previous Plan Actions

Table 9.8-2 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 9.8-2. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Watershed Protection: Continue with the watershed protection plan with United State Forest Service (USFS). This project entails forest hazardous fuels reduction in the Pike National Forest and is based on contract acreage with the USFS. The Pike National Forest includes Jefferson, Douglas, Teller and Park counties. There will be over 25,000 acres treated in this project.	Continuous		x	1
Comment:				
Training/exercising at Foothills Treatment Plant and Strontia Springs Dam: Roll out emergency response plan training and conduct tabletop and functional exercises with local first response agencies at the Foothills treatment plant.	Continuous		x	4
Comment:				
Public Education and Outreach: Continue with public education and outreach efforts on dam safety, water conservation, drought, etc. Producing presentations, brochures, etc.	Continuous		x	5
Comment:				
Sediment removal from Strontia Springs Dam: Flush sediment from the reservoir. Sediment run-off due to several major forest fires followed by regular storm events has caused a build-up of sediment within the reservoir. Continued sediment inflow without a plan to remove it efficiently can become a long-term Dam Safety and Operational issue if the sediment plume reaches the dam.	Continuous	Remove	NO	3
Comment:				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Post Fire Plan Denver Water would like to increase preparedness for the post-fire recovery process in the watershed. This plan would include recommendations based on the watershed area for infrastructure and water supply protection in Denver Water’s watersheds.	New		x	6
Comment:				

9.8.4 Capability Assessment

An assessment of the district’s current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 1.10 identifies these as community capacity building mitigation actions.

Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 9.8-3 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 9.8-3. Planning and Regulatory Capability

	Date of Most Recent Update	Comment
Engineering Standards	5/2020	Engineering Standards
FERC Regulations for Hydro Dams	7/2015	FERC Regulations for Hydro Dams
State Engineering Regulation for State Dams	1/2020	State Engineering Regulation for State Dams
EPA AWIA Regulations for Treatment Plants	1/2018	EPA AWIA Regulations for Treatment Plants
Integrated Resource Plan (IRP)	-	The Denver Water Integrated Resource Plan (IRP) is an adaptive plan to meet our customers’ water needs for the next 50 years. Through a cross-divisional, cutting-edge process, we continue in our legacy to proactively plan for the future. The IRP provides the necessary strategic framework to address important long-term questions

Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction’s ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 9.8-4. Administrative and technical capabilities represent a jurisdiction’s staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 9.8-5.

Table 9.8-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes – Denver Water has a comprehensive capital improvement plan in place

Financial Resource	Accessible or Eligible to Use?
Authority to Levy Taxes for Specific Purposes	Yes – Water rates only; Denver Water is not responsible for stormwater
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes
Other	N/A

Table 9.8-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	NA	-
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering
Planners or engineers with an understanding of natural hazards	Yes	Planning
Staff with training in benefit/cost analysis	Yes	Finance
Surveyors	Yes	Engineering
Personnel skilled or trained in GIS applications	Yes	GIS
Scientist familiar with natural hazards in local area	Yes	Planning
Emergency manager	Yes	Emergency Management
Grant writers	No	
Other	No	-

Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 9.8-6.

Table 9.8-6. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? <ul style="list-style-type: none"> If yes, please briefly describe 	Yes - For internal planning usage only.
Do you use social media for hazard mitigation education and outreach? <ul style="list-style-type: none"> If yes, please briefly describe 	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? <ul style="list-style-type: none"> If yes, please briefly specify 	No
Do you have any other programs already in place that could be used to communicate hazard-related information? <ul style="list-style-type: none"> If yes, please briefly describe 	No
Do you have any established warning systems for hazard events? <ul style="list-style-type: none"> If yes, please briefly describe 	Yes - Internal systems only

9.8.5 Review and Incorporation of Resources for This Annex

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
- The **Denver Water Integrated Resource Plan (IRP)** is an adaptive plan to meet our customers' water needs for the next 50 years. Through a cross-divisional, cutting-edge process, we continue in our legacy to proactively plan for the future. The IRP provides the necessary strategic framework to address important long-term questions
- **Sustainability Program** - Under Environmental Stewardship, Denver Water conducts the following:
 - Best practices and compliance with environmental requirements - Denver Water will comply with all applicable environmental laws, regulations and standards, and will develop and adhere to environmental best practices and performance standards to achieve environmental sustainability beyond minimum legal requirements.
 - Leading by example - Denver Water will be a leader and engage with environmental communities, government, industry and academic research agencies to learn and further develop the environmental stewardship programs and share our experience and expertise. We will develop progressive positions on evolving environmental issues impacting the interests of the organization and our customers.
 - Healthy built environment - Denver Water is committed to workforce safety, health, wellness and quality of work life through buildings and grounds integrated with the natural environment and promotion of indoor environmental quality.
 - Responsible operations - Denver Water is committed to the responsible management and sustainable growth and operation of all our assets. We recognize the impacts to the environment from our operations and will take active measures to minimize this footprint. Denver Water will continue to improve environmental best practice standards and will include such standards in procurement and contract processes. Employees will work to recognize and resolve environmental impacts within Denver Water facilities, operations and policies.
 - Waste diversion and pollution prevention - Denver Water is steadfast in our commitment to responsible solid and electronic waste management. This includes reuse, recycling and compost programs, and the careful and proper use, tracking, storage and disposal of hazardous materials.

- Climate adaptation and mitigation - Denver Water is a nationally recognized leader in understanding and preparing for the complex challenges of climate change. A multi-faceted approach focuses on partnerships, knowledge generation and transfer, research, long-range planning and operationalizing adaptation practices across the organization. Denver Water will minimize our own climate impacts by measuring and tracking goals for the reduction of climate changing emissions, including updating an annual greenhouse gas inventory and incorporating climate adaptation and mitigation into current and future operations, plans and policies.
- Environmental management system - Annually, and considering internal and external stakeholder input, the environmental compliance section will conduct a review of the environmental management system and Denver Water's compliance. The environmental compliance section will recommend changes in Denver Water's operations to achieve better environmental performance.
- Environmental education and awareness – New employee orientation will include a review of the commitments, related policies, introduction to the environmental management system and best sustainability practices.

Existing Integration

- Emergency Management – we follow FEMA CPG planning guidelines, EPA Water/Waste Water Planning, FERC/State Engineering Requirements (See how our plans are fully integrated to support our water operations in attachment). Master plans include the EOP, COOP, Crisis Communications, Safety and Security Plan (all developed under designated regs/requirements)
- Resiliency Planner – we have a Certified Business Continuity Planner (CBCP) under EM that developed the COOP plans. The COOP plans have been tested for the past five years and went into full operational mode in 3/2020 due to Covid all without water interruption.
 - Denver Water also has watershed scientists who work on their watershed management programs. Due to the fires from 2020, our focus for 2021 in these burn areas will be the debris impact/sediment management.
 - Cyber Security SMEs on board – Denver Water participated in regional Cyber Security exercises and continue to build out this capability.
 - Drought Planners on board – manage/maintain the drought plan
- Lead Reduction Program - <https://www.denverwater.org/your-water/water-quality/lead/lead-service-lines>

Opportunities for Future Integration

- Denver Water follows EPA AWIA processes. During scheduled updates of plans, Denver Water will review the current hazard mitigation plan and integrate portions of the plan where applicable.

9.8.6 Hazard Risk Ranking

Table 9.8-7 presents a local ranking for Denver Water of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Denver Water utilizes their own internal risk management threat assessment. We have contingency plans to respond to various types of hazards that could impact our water system.

Table 9.8-7. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	30	Medium
2	Drought	18	Medium
2	Severe Winter Storm	18	Medium
3	Hazardous Materials	16	Low
3	Lightning	16	Low
3	Severe Thunderstorms	16	Low
3	Hail	16	Low
3	Flood	16	Low
3	Extreme Temperatures	16	Low
4	Erosion	12	Low
4	Dam and Levee Failure	12	Low
4	Tornadoes	12	Low
4	Pandemic	12	Low
4	Animal Disease	12	Low
4	Earthquake	12	Low
4	Expansive Soils	12	Low
5	Land Subsidence	6	Low
5	Landslide	6	Low
5	Slope Failure	6	Low

9.8.7 Jurisdiction-Specific Vulnerabilities

Other Noted Vulnerabilities

- Flood, Drought, Severe Weather - Working to identify ways to reduce sediment transport to Strontia Springs Reservoir, which provides drinking water to parts of Douglas County (DW-1).
- All Hazards - Need to increase training and education for Denver Water employees (DW-4)
- Wildfire - Watersheds and the numerous associated reservoirs in the county could be significantly impacted by high severity wildfire, which could have cascading impacts on water quality and Denver Water infrastructure. For example, the damage to Strontia Springs Reservoir caused by siltation from the 1996 Buffalo Creek Fire took fifteen years to complete and cost Denver Water over \$30 million (DW-2, 3).

9.8.8 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.7-9 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.7-10 identifies the priority for each action. Table 9.7-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.8-8. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action DW-1: Watershed Sediment Protection Plan: Denver Water is developing a sustainable watershed sediment management plan to explore partnerships and identify projects that reduce sediment transport to Strontia Springs Reservoir. The focus area for projects in Douglas County will be the watersheds draining to the South Platte upstream of Strontia Springs Reservoir and below Cheesman Reservoir.						
<u>Hazards Mitigated:</u>						
Existing	3, 7, 18, 20	Denver Water	-	\$220,000	Denver Water	Ongoing
Action DW2: Denver Water intends to join the Douglas County Wildfire Partnership (DCWP). Denver Water and various state, federal, NGO, and private stakeholders, and will work with the Partnership to assess impact from wildfire; identify opportunities to maintain continuity of operations; and develop a comprehensive mitigation strategy to identify projects that will reduce wildfire risk, increase natural resource protection, encourage the incorporation of wildfire management principles into local planning, land use and building codes, and promote public awareness of wildfire risk.						
<u>Hazards Mitigated:</u>						
Existing	1, 2, 5, 8, 9, 14	Denver Water	-	Staff Time	Denver Water	Short Term
Action DW-3: Proactive Forest Management (From Forests to Faucets Program and DW Forest and Land Management Services Agreement) - Continue proactive forest management with the United States Forest Service (USFS), Colorado State Forest Service (CSFS), and the Natural Resources Conservation Service (NRCS). This project entails forest hazardous fuels reduction on the Arapaho National Forest, private properties, and Denver Water property to advance wildfire risk reduction.(Watershed Protection Program: Forest to Faucets).						
<u>Hazards Mitigated:</u>						
N/A	2, 5, 7, 10, 15	Denver Water	U.S. Forest Service, Colorado State Forest Service, and the Natural Resources Conservation Service.	\$2 million	Denver Water, USFS, CSFS, and NRCS	2023
Action DW-4: Training & Exercise Program - Denver Water is a complex water system that falls under several federal/state regulating agencies all with differing requirements, training, qualifications, and exercise requirements etc. Denver Water has eight divisions all focusing on their specified requirements. Our Training and exercise program interfaces with local emergency management, LEPCs, and regional planning efforts to ensure that training and exercise efforts by/between the water agency is occurring with local first responders.						
<u>Hazards Mitigated:</u>						
N/A	2, 5, 10, 15	Denver Water	N/A	\$40,000	Denver Water	Ongoing
Action DW-5: Public Education and Outreach - Denver Water is a complex water system that falls under several federal/state regulating agencies all with differing requirements, training, qualifications, and exercise requirements etc. Denver Water has eight divisions all focusing on their specified requirements. Our External Affairs division is responsible for interfacing with the local entities for media, public affairs, stakeholder relations and crisis management coordination.						
<u>Hazards Mitigated:</u>						
N/A	2, 5, 10, 15	Denver Water	N/A	N/A	Denver Water	Ongoing
Action DW-6: Post Fire Plan - Denver Water would like to increase preparedness for the post-fire recovery process in the watershed. This plan would include recommendations based on the watershed area for infrastructure and water supply protection in Denver Water’s watersheds.						
<u>Hazards Mitigated:</u>						
Existing	1, 2, 8, 9	Denver Water	N/A	Low	Denver Water	Ongoing

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing new or existing program with no completion date

See the introduction to this volume for list of acronyms used here.

Table 9.8-9. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
DW-1	4	High	Low	Yes	Yes	Yes	High	High
DW-2	6	Medium	Low	Yes	No	Yes	High	Low
DW-3	5	Medium	High	Yes	Yes	Yes	High	High
DW-4	4	High	Low	Yes	No	Yes	Low	Low
DW-5	4	Medium	Medium	Yes	No	Yes	Low	Low
DW-6	4	High	Low	Yes	Yes	Yes	High	High

a. See the introduction to this volume for explanation of priorities.

Table 9.8-10. Analysis of Mitigation Actions

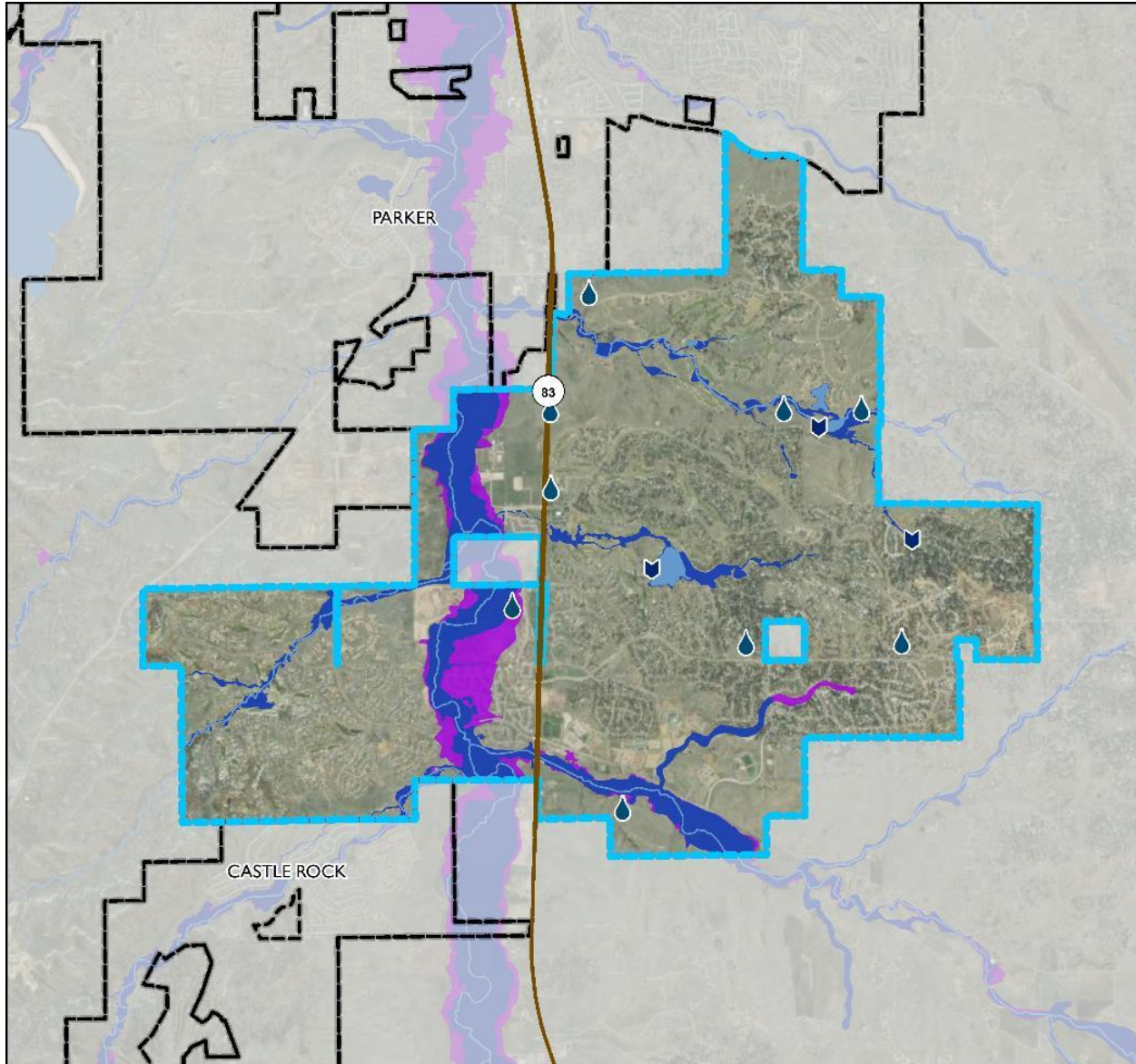
Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
Medium-Risk Hazards							
Wildfire	DW-1; DW-2; DW-3; DW-4; DW-5; DW-6	DW-2 and 3	DW-4; DW-5	DW-2 and 3; DW-6	DW-2		DW-2; DW-6
Drought	DW-1; DW-4; DW-5	DW-1; DW-4; DW-5	DW-1; DW-4; DW-5		DW-1; DW-4; DW-5		DW-1; DW-4; DW-5
Low-Risk Hazards							
Dam and Levee Failure	DW-4; DW-5	DW-4; DW-5	DW-4; DW-5		DW-4; DW-5		DW-4; DW-5
Severe Thunderstorms	DW-4; DW-5	DW-4; DW-5	DW-4; DW-5		DW-4; DW-5		DW-4; DW-5
Severe Winter Weather	DW-4; DW-5	DW-4; DW-5	DW-4; DW-5		DW-4; DW-5		DW-4; DW-5

a. See the introduction to this volume for explanation of mitigation types.

9.8.9 Review and Incorporation of Resources for This Annex

Staff and Local Stakeholder Involvement in Annex Development

This annex was developed over the course of several months with a review of material from different areas of tasks including operations, budgeting, and the planning sectors. Information was gathered to contribute to the development of the annex, material was reviewed, and collaborated to use the most vital details for the annex. Discussions were held to identify the capability assessment, planning initiatives, hazard assessment and ranking, and future action plans. Once actions had been identified and compiled in the annex, the draft was circulated for review, comments, and adjustments.



Denver Water District

- Dam
- Potable Well

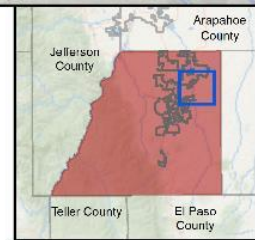
FEMA Flood Hazard Area

- 1-Percent Annual Chance Flood Event Area
- 0.2-Percent Annual Chance Flood Event Area
- Undetermined (Not Analyzed)

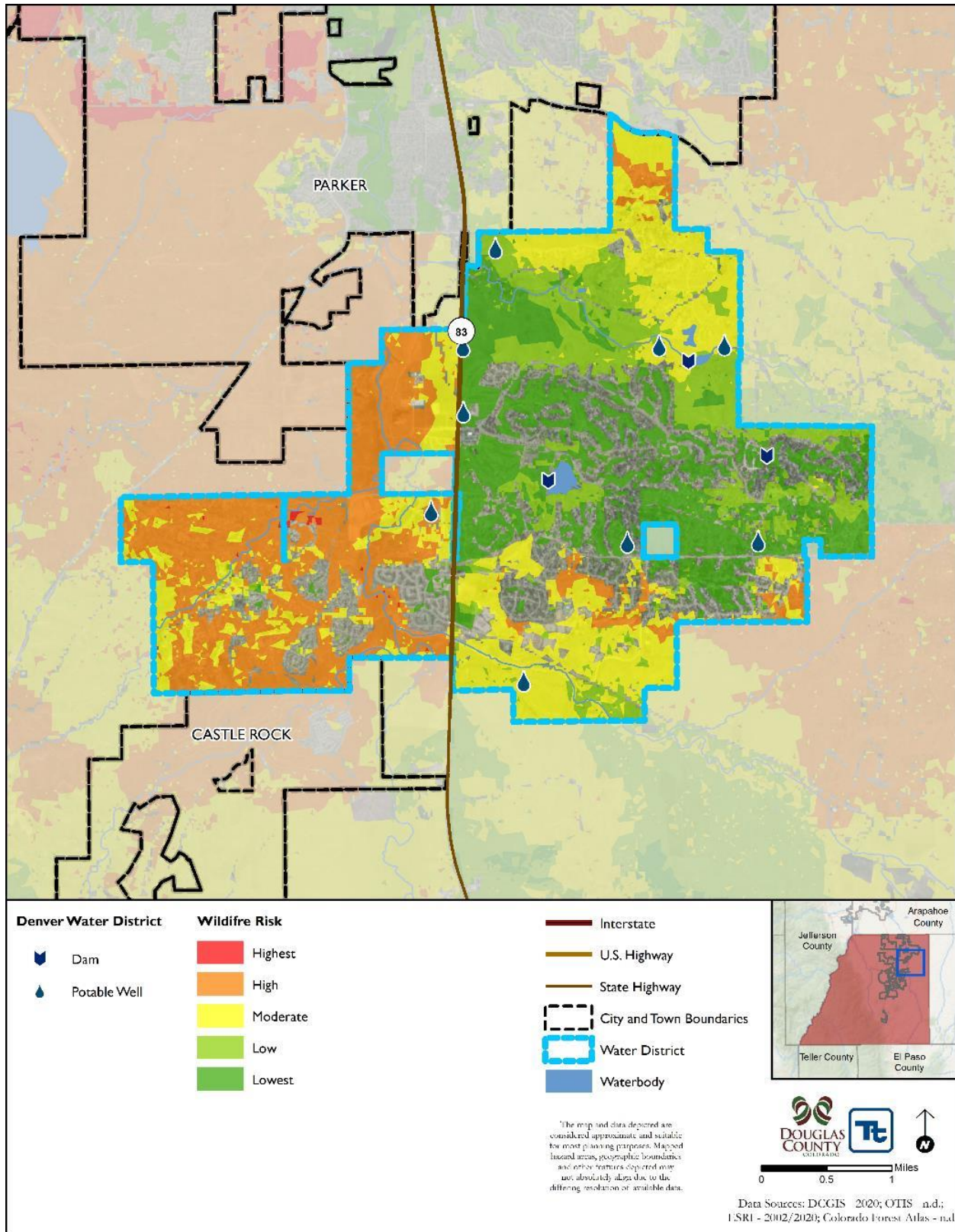
The flood hazard area depicted is the September 4, 2020 effective DFIRM.

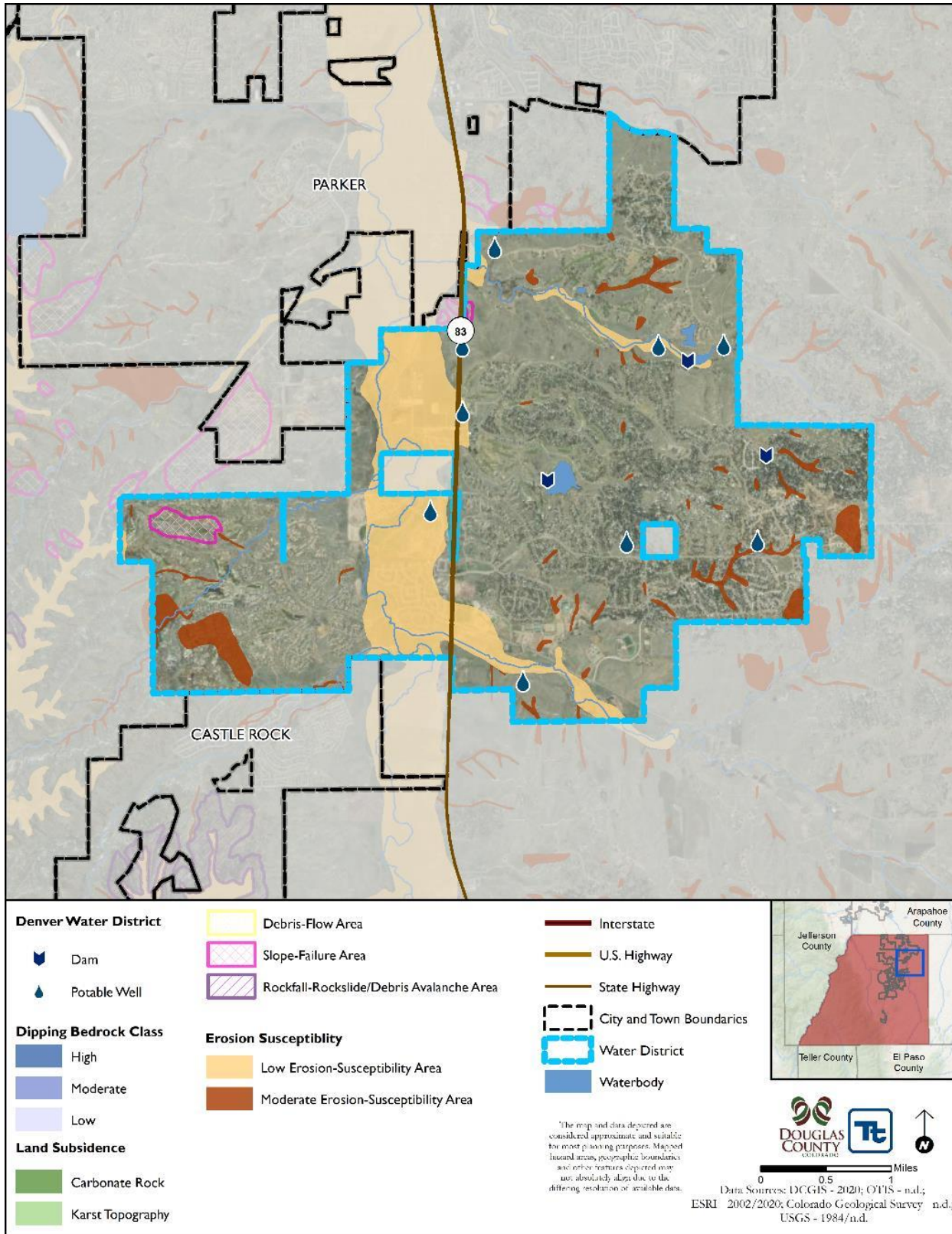
- Interstate
- U.S. Highway
- State Highway
- City and Town Boundaries
- Water District
- Waterbody

The map and data depicted are considered approximate and suitable for most planning purposes. Mapped features, geographic boundaries and other features depicted may not be absolute a sign due to the differing resolution of available data.



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI - 2002/2020; FEMA 2020





9.9 MILE HIGH FLOOD CONTROL DISTRICT

The Mile High Flood Control District did not participate in the 2021 plan update. The District can seek inclusion in the plan pursuant to the Linkage Procedures in Appendix H.

9.10 PARKER WATER SANITATION DISTRICT

9.10.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact	Alternate Point of Contact
Angelo Carrieri, Safety & Security Manager 18100 E. Woodman Drive Parker, CO 80134 Telephone: 303-842-4257 E-mail Address: acarrieri@pwsd.org	Ron Redd, District Manager 18100 E. Woodman Drive Parker, CO 80134 Telephone: 303-841-4627 E-mail Address: rredd@pwsd.org

9.10.2 Jurisdiction Profile

Overview

The Parker Water & Sanitation District is a special district created in 1962 to provide water and sewer service to the Town of Parker and unincorporated areas. The District's designated service area expanded throughout the years to include Lone Tree, Castle Pines and Parker. A five-member elected Board of Directors governs the District. As of August 28, 2020, the District serves 17,485 water connections and 16,874 sewer connections, with a current staff of 103. Funding comes primarily through rates, tap fees, and revenue bonds.

The Board assumes responsibility for the adoption of this plan; the District Manager will oversee its implementation.

Service Area and Trends

The district serves a population of 56,000. Its service area covers an area of 43.5 square miles. Residential and Commercial services are increasing at 4% per year

Assets

Table 9.10-1 summarizes the critical assets of the district and their value.

Table 9.10-1. Special Purpose District Assets

Asset		Value
Property		
The acreage of land value is covered in the Critical Facilities values.		See facility values
Critical Infrastructure and Equipment		
Total miles of distribution piping (342 miles)		\$ 288,921,600
Total miles of collections piping (249 miles)		\$210,355,200
16 Emergency Generators located at critical facilities		\$ 4,020,000
Rueter Hess Reservoir and Dam		\$ 246,425,760
<i>Total:</i>		\$ 749,722,560
Critical Facilities	<i>Address</i>	
Rueter Hess Water Purification Facilities	Information removed from public plan.	\$ 66,914,400
Regional Well House/Pump Station		\$ 22,034,8800
Rueter Hess Well House		\$ 9,313,920
South Water Reclamation Facility		\$ 22,181,600
North Water Reclamation Facility		\$ 96,647,840

Asset	Value
Hess Tank	\$ 3,534,720
Bradbury Tank	\$ 4,933,000
Butterfield Tank	\$ 448,000
Crestview Tank	\$ 169,120
Singing Hills tank	\$ 3,277,120
Clarke Farms Lift station	\$ 1,004,640
Lincoln Meadows Lift station	\$ 463,680
Challenger Park Lift Station	\$ 948,640
Cottonwood South Lift station	\$ 629,440
Sierra Ridge Lift station	\$ 1,079,680
Newlin Lift station	\$ 5,111,165
West Newlin Lift station	\$ 5,111,165
Reata North Well House	\$ 7,669,760
Parker Ridge Well House	\$ 4,539,360
<i>Total:</i>	<i>\$ 256,012,730</i>

9.10.3 Status of Previous Plan Actions

Table 9.10-2 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared. Parker Water was not involved in previous years. No previous plans exist.

Table 9.10-2. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update Check if Yes Enter Action #
No prior actions.			
Comment:			

9.10.4 Capability Assessment

An assessment of the district’s current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The “Analysis of Mitigation Actions” table in Section 9.10.9 identifies these as community capacity building mitigation actions.

Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 9.10-3 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 9.10-3. Planning and Regulatory Capability

	Date of Most Recent Update	Comment
PWSD Emergency Response Plan	2018	Reviewed every 2 years; during the review, PWSD incorporates the HMP as applicable
PWSD Emergency Action Plan – Rueter Hess Reservoir	2019	Reviewed every 2 years
PWSD Physical Security Master Plan	2018	Reviewed every 2 years
PWSD Rules & Regulations	2020	Annual Review
PWSD Water and Wastewater Master Plan	2020	Reviewed every 3 years
Environmental, Regulatory and Legislative Strategies	2020	Annual review, support/advisors from Brownstein Hyatt Farber Schreck
PWSD Master Plan	2020	-
PWSD Facilities Master Plan	2020	-

Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction’s ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 9.10-4. Administrative and technical capabilities represent a jurisdiction’s staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 9.10-5.

Table 9.10-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes – the current HMP is incorporated in to PWSD’s 10-year Capital Improvement Plan
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes – for water; stormwater is done through the Town of Parker
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Federal Grant Programs	Yes
Other	Yes. “The District has the ability to take advantage of grants through FEMA and The Colorado Special Districts Fund for qualified expenses”

Table 9.10-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering department (Engineers with knowledge in planning, engineering technicians who perform development review)
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering department (Construction inspectors)
Planners or engineers with an understanding of natural hazards	Yes	Engineering department (Engineers with knowledge of dam safety)
Staff with training in benefit/cost analysis	Yes	Finance department(?)
Surveyors	No	N/A
Personnel skilled or trained in GIS applications	Yes	Engineering department (GIS coordinator, GIS analyst)
Scientist familiar with natural hazards in local area	No	N/A
Emergency manager	Yes	Emergency Preparedness Committee
Grant writers	No	N/A

Staff/Personnel Resource	Available?	Department/Agency/Position
Other	N/A	N/A

Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 9.10-6.

Table 9.10-6. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	No
If yes, please briefly describe	
Do you use social media for hazard mitigation education and outreach?	Yes
If yes, please briefly describe	We use social media as a tool to communicate with the public about potential hazards on an as-needed basis. Our communications channels include Twitter, Facebook and Nextdoor.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
If yes, please briefly specify	
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
If yes, please briefly describe	Reverse 911 is available as needed.
Do you have any established warning systems for hazard events?	Yes
If yes, please briefly describe	We will use social media and reverse 911 if an event requires public notification.

9.10.5 Review and Incorporation of Resources for This Annex

Existing Reports, Plans, Regulatory Tools and Other Resources

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
- **Capital Improvement Projects** – PWSD is currently working on four projects:
 - Cheery Creek Interceptor
 - North Water Reclamation Facility
 - Water Purification Facility Residuals Ponds Expansion
 - Long-Term Water Supply Plan
- **2018 Rueter-Hess Reservoir Watershed Management Plan** – the purpose of this plan is to server as a comprehensive plan of action for achieving high level of water quality in the Rueter-Hess Reservoir.

Existing Integration

PWSD conducts the following:

- Mitigation of vegetation is conducted regularly by our District Services Department to include grasses, trees, bushes, etc.
- Structural inspections are conducted every five years or after any significant weather event (or other) in the area.
- Access to all sites is maintained regularly – pavement, road base, grating, plowing, etc.
- Capital purchases of generators in 2021/2022 for high priority locations (major producers and pumping stations)
- Generator hook up equipment being installed over the next 5 years. To enable immediate “plug in” of a generator to power the location
- Dams
 - The Rueter-Hess Dam is inspected by PWSD staff monthly and the state dam engineer conducts a comprehensive inspection annually. Vegetation and animal control is also conducted regularly. PWSD conducts continuous monitoring of the dam’s integrity is done using piezometers, crack and joint measuring devices, weir boxes for seepage, etc.
 - Twice a year measurements are taken and compared using inclinometers, PWSD also has a yearly first order survey – highest accuracy survey – dam/tower/terminal building (includes the top of the dam, water side slope, upstream slope, spillway, elevation, position, density, etc.).
 - The EAP for the dam is reviewed each year for POCs, action items, procedures, and regulation updates.

Staff and Local Stakeholder Involvement in Annex Development

This annex was developed with input from many district departments including operations, finance, and engineering. Each department was met with to discuss information required. Each provided information which has been included in this annex. No previous action plan exists since Parker Water & Sanitation is just joining this plan. Any follow up or action requirements will be presented through the proper channels within Parker Water’s managers and directors.

9.10.6 Jurisdiction-Specific Natural Hazard Event History

Table 9.10-7 lists past occurrences of natural hazards for which specific damage was recorded Unincorporated Douglas County. Other hazard events that broadly affected the entire planning area, Unincorporated Douglas County, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9.10-7. Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Pandemic (COVID-19)	EM-3436/DR-4498	January 20 th , 2020 - Present	\$106,000.00

COVID-19 Impacts

Parker Water and Sanitation was impacted by COVID-19 and experienced losses totaling \$106,000 due to expenses for virus contact mitigation, including disinfecting efforts, material supplies, modification of work spaces, labor, infection testing, and lost time by employees.

9.10.7 Jurisdiction-Specific Vulnerabilities

Other Noted Vulnerabilities

The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- Lack of backup power for several critical facilities owned by PWS (PWS1, PWS2, PWS3, PWS4, and PWS5).
- Need to identify different ways to enable water delivery from northeastern Colorado to the Town of Parker (PWS6).

9.10.8 Hazard Risk Ranking

Table 9.10-8 presents a local ranking for Park Water Sanitation District of all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 9.10-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	48	High
2	Drought	30	Medium
2	Pandemic	30	Medium
3	Hail	24	Medium
4	Animal Disease	18	Medium
4	Lightning	18	Medium
4	Severe Thunderstorms	18	Medium
4	Severe Winter Storm	18	Medium
4	Transportation Accidents	18	Medium
5	Earthquake	16	Medium
5	Tornadoes	16	Medium
6	Erosion	12	Low
6	Expansive Soils	12	Low
6	Extreme Temperatures	12	Low
6	Flood	12	Low
6	Land Subsidence	12	Low
6	Landslide	12	Low
6	Slope Failure	12	Low
7	Dam and Levee Failure	6	Low

9.10.9 Hazard Mitigation Action Plan and Evaluation of Recommended Actions

Table 9.10-9 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 9.10-10 identifies the priority for each action. Table 9.10-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9.10-9. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline ^a
Action PWS1 — Install emergency generator connections and power transfer switches in Canyons and Ridgegate Well Houses.						
Hazards Mitigated:	Enable to connect portable generators to mitigate the loss of power causing loss of water production, distribution and treatment.					
New	#13, #15	PWSD Engineering	PWSD Maintenance	>\$365K	Capital budgeting within PWSD	Short term
Action PWS2 — Install generator(s) for backup power at Rueter Hess Well House and Canyons Pump Station.						
Hazards Mitigated:	Loss of power causing loss of water production, distribution and treatment.					
Existing	#13, #15	PWSD Engineering	PWSD Maintenance	>\$1.25m	Capital budgeting within PWSD	Short term
Action PWS3 — Install generator(s) for backup power at Regional Pump Station and Reata Well House.						
Hazards Mitigated:	Loss of power causing loss of water production, distribution and treatment.					
Existing	#13, #15	PWSD Engineering	PWSD Maintenance	>\$2.0m	Capital budgeting within PWSD	Short term
Action PWS4 — Install generator(s) for backup power at Parker North and Rowley Downs.						
Hazards Mitigated:	Loss of power causing loss of water production, distribution and treatment.					
Existing	#13, #15	PWSD Engineering	PWSD Maintenance	<\$1.0m	Capital budgeting within PWSD	Short term
Action PWS5 — Install emergency generator connections and power transfer switches in Parker Ridge and Clarke Farms Well Houses.						
Hazards Mitigated:	Enable to connect portable generators to mitigate the loss of power causing loss of water production, distribution and treatment.					
Existing	#13, #15	PWSD Engineering	PWSD Maintenance	>\$365K	Capital budgeting within PWSD	Short term
Action PWS6 — Conduct a feasibility study to determine ways to enable bringing water from Northeastern Colorado to Parker. Once study is complete, PWSD will determine the best solutions and implement those projects.						
Hazards Mitigated:	Drought causing water supply loss locally within Parker Water’s District.					
New	#2, #7, #13, #15	PWSD Engineering	Private Engineering TBD	\$100,000 for the study	Bonds, levies, loans, capital budgeting	Long term
Action PWS7 - PWSD intends to join the Douglas County Wildfire Partnership (DCWP). PWSD and various state, federal, NGO, and private stakeholders, and will work with the Partnership to assess impact from wildfire; identify opportunities to maintain continuity of operations; and develop a comprehensive mitigation strategy to identify projects that will reduce wildfire risk, increase natural resource protection, encourage the incorporation of wildfire management principles into local planning, land use and building codes, and promote public awareness of wildfire risk.						
<u>Hazards Mitigated:</u>	Wildfire					
Existing	1, 2, 5, 8, 9, 14	Operations and Public Works	-	Staff Time	Annual Budget	Short Term

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing = Continuing new or existing program with no completion date

See the introduction to this volume for list of acronyms used here.

Table 9.10-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
PWS1	2	Medium	Low	Yes	No	Yes	Medium	Low
PWS2	2	High	Medium	Yes	No	Yes	Medium	Low
PWS3	2	High	Medium	Yes	No	Yes	Medium	Low
PWS4	2	High	Medium	Yes	No	Yes	Medium	Low
PWS5	2	Medium	Low	Yes	No	Yes	Low	Low
PWS6	4	High	High	Yes	No	No	Medium	Low
PWS7	6	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 9.10-11. Analysis of Mitigation Actions

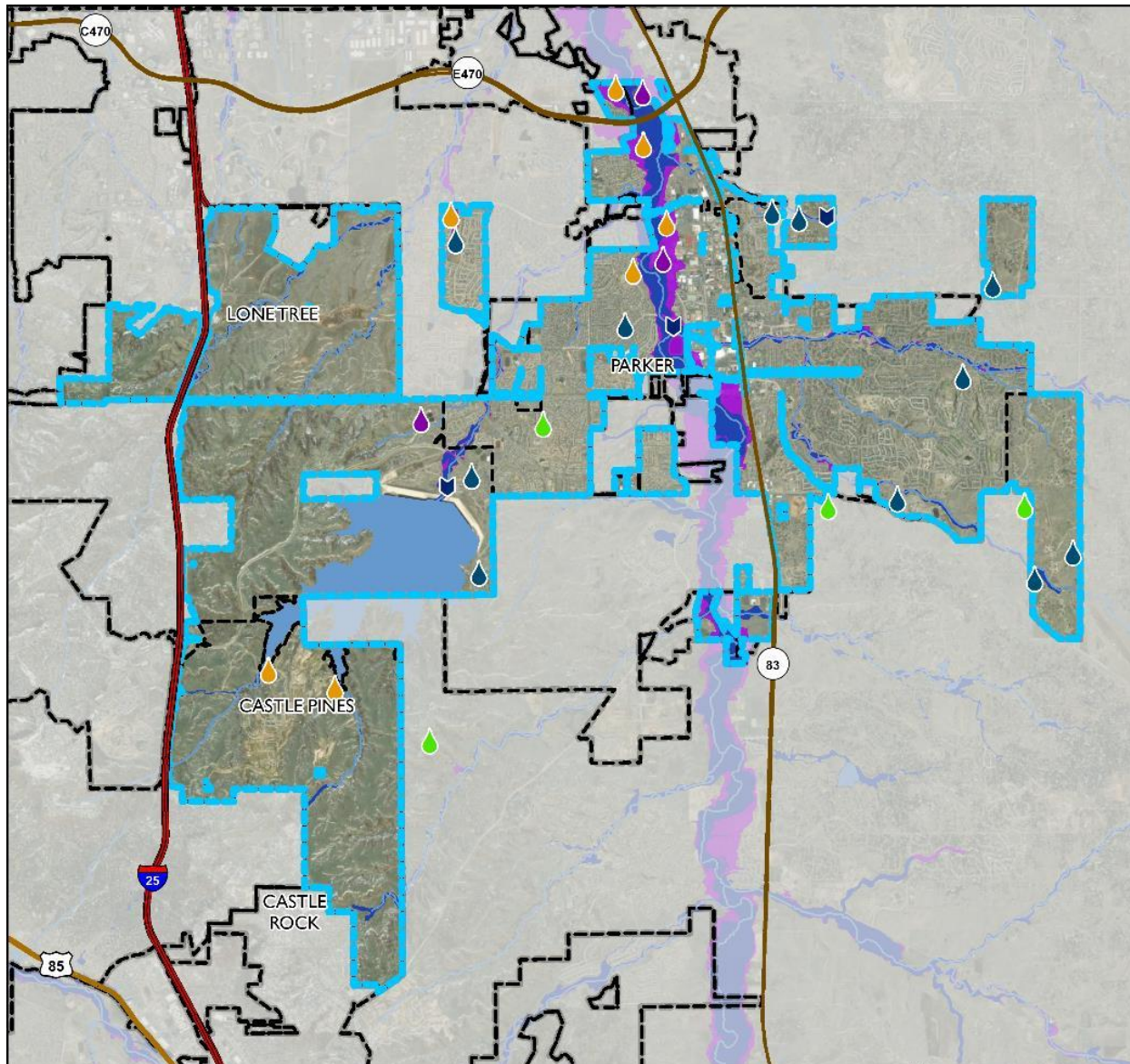
Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
High-Risk Hazards							
Wildfire	PWS-1,2,3,4,5, 7	PWS-7	PWS-7	PWS-7	PWS – 1 thru 7	-	PWS-7
Low-Risk Hazards							
Erosion	-	-	-	-	-	-	-
Expansive Soils	-	-	-	-	-	-	-
Extreme Temperatures	-	-	-	-	-	-	-
Flood	PWS-1,2,3,4,5	-	-	-	PWS – 1 thru 6	-	-
Land Subsidence	-	-	-	-	-	-	-
Landslide	-	-	-	-	-	-	-
Slope Failure	-	-	-	-	-	-	-
Dam and Levee Failure	-	-	-	-	-	-	-
Medium-Risk Hazards							
Drought	PWS – 1 thru 6	PWS – 6	-	PWS – 6	PWS – 1 thru 6	PWS – 6	-
Pandemic	-	-	-	-	-	-	-
Hail	-	-	-	-	-	-	-
Animal Disease	-	-	-	-	-	-	-
Lightning	PWS-1,2,3,4,5	-	-	-	PWS – 1 thru 6	-	-
Severe Thunderstorms	PWS-1,2,3,4,5	-	-	-	PWS – 1, 2, 3, 4, 5	PWS – 1, 5	-
Severe Winter Storm	PWS-1,2,3,4,5	-	-	-	PWS – 1 thru 6	-	-
Transportation Accidents	-	-	-	-	-	-	-
Earthquake	-	-	-	-	-	-	-
Tornadoes	-	-	-	-	-	-	-

a. See the introduction to this volume for explanation of mitigation types.

9.10.10 Review and Incorporation of Resources for This Annex

Staff and Local Stakeholder Involvement in Annex Development

This annex was developed over the course of several months with a review of material from different areas of tasks including operations, budgeting, and the planning sectors. Information was gathered to contribute to the development of the annex, material was reviewed, and collaborated to use the most vital details for the annex. Discussions were held to identify the capability assessment, planning initiatives, hazard assessment and ranking, and future action plans. Once actions had been identified and compiled in the annex, the draft was circulated for review, comments, and adjustments.



Parker Water & Sanitation District

- Dam
- Potable Water Lift Station
- Potable Water Tank
- Potable Water Treatment
- Potable Well

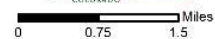
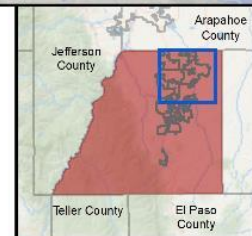
FEMA Flood Hazard Area

- 1-Percent Annual Chance Flood Event Area
- 0.2-Percent Annual Chance Flood Event Area
- Undetermined (Not Analyzed)

The flood hazard area depicted is the September 4, 2020 effective DFIRM.

- Interstate
- U.S. Highway
- State Highway
- City and Town Boundaries
- Water District
- Waterbody

The maps and data depicted are considered approximate and suitable for general planning purposes. Mapped hazard areas, geographic boundaries and other features depicted may not absolutely align due to the differing resolution of available data.



Data Sources: DCGIS - 2020; OTIS - n.d.; ESRI - 2002/2020; FEMA 2020

