# Hazard Identification and Mitigation

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A.0 Introduction

Quality of life in Thornton is influenced considerably by the sense of security people have in light of potential hazards that exist in our environment. It is the City’s obligation to take appropriate steps to identify, locate, mitigate, and respond appropriately to such hazards. The purpose of the Hazard Identification and Mitigation appendix is to acknowledge the primary hazards which are of concern to Thornton, recognize what measures are in place to address them, and communicate this information appropriately.

Identifying and describing the means of hazard mitigation in Thornton is beneficial and appropriate so as to inform the public more fully about the environment in which we live, and maintain awareness of the measures that are being taken to enhance safety throughout the community. This analysis also serves as a foundation upon which development decisions will be made. It enables the private development community and the City to plan and approve future improvements so as to avert harm to people and physical assets, and minimize impact on the natural environment. For example, the City would not approve new development in a location identified as being within a floodplain zone or on a site which would cause undue risk of harm to an endangered or threatened species.

Building and maintaining a resilient and sustainable community for the benefit of all stakeholders is important to the City. A key component of sustainability is appropriate management of known hazards in our community. Effective hazard management requires ongoing diligence on the part of the City, as well as a high level of cooperation among other agencies in the area. Cooperating agencies include, but are not limited to, the Denver Regional Council of Governments, the State of Colorado, and Adams County.

The purpose of this component of the Thornton Comprehensive Plan is to provide an overview of the hazards and other concerns known to exist within and near Thornton and thus provide an enhanced level of awareness and understanding.
of these conditions and the measures being taken to address them.

A.1 Requirements and Scope of this Appendix

There are several categories of specific hazards and conditions contained within this document. This appendix first addresses the hazard items required for inclusion by Colorado State Statute. Subsequently, the appendix includes a review of other existing documents, organizations, or processes related to the identification or mitigation of hazards. All of these work together to help ensure the safety of the community and the preservation of the environment we occupy. Colorado State Statute indicates that the City shall identify areas within the following categories:

1. Geological Hazards
2. Areas inhabited by endangered or threatened species
3. Wetlands
4. Floodplains, floodways and flood risk zones
5. Unstable soils and highly erodible land
6. Wildfire hazard areas (1)

It is significant and important to address these items. Some, such as erodible land and wildfire hazards, hold the potential to be harmful to people and structures, while others, such as endangered species and wetlands, could result in harm to the environment by people if they are not adequately identified and protected. In all cases, increasing the level of familiarity and awareness of hazards of all kinds is necessary and appropriate for the community to continue to develop in ways that are sustainable.

In addition to the items listed by the State, this section will address the mitigation of other natural hazards of potential concern to Thornton, and how the City prepares to mitigate and respond appropriately to human-caused hazards. This section does not address the normal operations of the Thornton Police, Fire, and Paramedic services.
An incidence of a serious hazard holds the potential to adversely impact the city’s residents, employees, visitors, and non-human assets. If not managed, prepared for, and responded to properly, such hazards can cause the disruption of critical (hospital, police, and fire protection) services and the interruption of essential (water, natural gas, sewage, electricity, and communications) facilities.

A.2 State Requirements

A.2.1 Geological Hazards

Geological hazards are often large, relatively rare events that hold the potential to cause extensive harm and widespread destruction. More specifically, the U.S. Department of the Interior defines a geological hazard as “a natural geologic event that can endanger human lives and threaten human property. Earthquakes, geomagnetic storms, landslides, sinkholes, tsunamis, and volcanoes are all types of geologic hazards.” (2)

The United States Geological Society (USGS) maps geologic fault lines throughout Colorado. There are currently no fault lines traversing the city of Thornton. The nearest fault lines are located west of the Denver metro area in the Arapaho National Forest roughly between Kremmling and Silverthorne and between Castle Rock and Colorado Springs along the Interstate 25 corridor. (3)

Based on this information, as well as the fact that there are no landslide risk areas, sinkholes or volcanoes in the area, the fact that Colorado is too far from large bodies of water to be impacted by tsunamis, and since geomagnetic storms are global phenomena, there are no images depicting the location of geologic hazards in Thornton.

A.2.2 Endangered or Threatened Species

Heightened awareness of the presence of certain species is key to maintaining habitat necessary for their survival.
According to the Colorado Department of Natural Resources, definitions for endangered and threatened species are as follows:

- **Endangered Species**: An organism in imminent danger of extinction throughout all or a significant portion of its range.

- **Threatened Species**: An organism likely to become endangered within the foreseeable future throughout all or a significant portion of its range. (4)

According to the United States Fish and Wildlife Service, threatened and endangered animals and plants found in Adams County are as follows:

- **Animals**
  - Preble’s Meadow Jumping Mouse
  - Mexican Spotted Owl
  - Mountain Plover
  - Pallid Sturgeon
  - Piping Plover
  - Lest Tern
  - Whooping Crane

- **Plants**
  - Ute Ladies’-tresses Orchid
  - Western Prairie Fringed Orchid (5)

Descriptions of Habitat for endangered and threatened species in Adams County, which may also be found in Thornton:

- **Preble’s Meadow Jumping Mouse**: The typical habitat for Preble’s meadow jumping mouse is comprised of well-developed plains, riparian vegetation with adjacent, relatively undisturbed grassland communities and a nearby water source. (6)

- **Mexican Spotted Owl**: Spotted owls are residents of old-growth or mature forests. Owls are usually found in areas with some
type of water source. Roosting and nesting habitats include large trees, uneven aged tree stands, multi-storied canopy, a tree canopy creating shade over 40 percent or more of the ground, and decadence in the form of downed logs and snags. (7)

**Mountain Plover:** These birds range from being rare to a fairly common summer resident on the eastern plains. The species is a casual fall migrant in the Barr Lake area. They are very rare in fall and winter on the extreme eastern plains. (8)

**Pallid Sturgeon:** This species of fish is native to the Missouri and lower Mississippi River drainages. The South Platte River, which flows along the eastern boundary of Thornton, ultimately flows into the Missouri River. (9)

(No photo of Western Pallid Sturgeon available)

**Piping Plover:** This species of bird inhabits mudflats and shorelines of reservoirs and lakes. Breeding birds are found on sandy open shorelines with pebbles. In Colorado is it a very rare migrant on the eastern plains and west to the foothills. (10)

**Lest Tern:** Breeding Lest Terns nest on bare sandy shorelines of islands in reservoirs. Migrants occur at reservoirs, lakes, and rivers with bare sandy shorelines. They can also be a casual, nonbreeding summer visitor on the northeastern plains. The Lest Tern is a casual to very rare spring and fall migrant on northeastern plains. (11)

**Whooping Crane:** These large birds have been seen in mudflats around reservoirs and in agricultural areas. Its range in Colorado includes the eastern plains and occasionally in the mountains during the summer. (12)
Ute Ladies'-tresses Orchid: This species can be found in locations such as meadows, floodplains, oxbows, seasonally flooded river terraces, lakeshores, irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside borrow pits, reservoirs, and other human-modified wetlands. (13)

Western Prairie Fringed Orchid: This plant is found on the tall grass prairie and is found most often on unplowed meadows. (14)

(No photo of Western Prairie Fringed Orchid available)

A.2.3 Species of Local Concern

In addition to the threatened and endangered species listed above, the City of Thornton pays special attention to three animals which are present in the area and may occupy habitat within the city’s growth area.

Black Tailed Prairie Dogs live on undeveloped land throughout Thornton. Although they are not a threatened or endangered species, in an effort to treat them humanely as additional land develops, the City has established procedures for developers to follow. Individuals or firms intending to build upon land occupied by prairie dogs are required to make reasonable efforts to relocate them prior to construction. In the event that relocation efforts are not possible, the animals may be eliminated via methods permitted by the U.S. Department of Agriculture. In addition to developable land, Thornton’s many acres of open space also provide prairie dog habitat.

The City of Thornton also gives special attention to developments that may impact the local population of Golden Eagles and Bald Eagles. These birds are provided special protection under the Bald and Golden Eagle Protection Act. These birds nest in tall trees which are most commonly found along the South Platte River on the eastern edge of Thornton. In the event that a developer plans to build upon a site where Golden Eagles or Bald Eagles are known to nest and the proposed development would disturb or destroy their habitat, the City routes such development applications to the State of Colorado.
Similarly, if any development is planned for property that is known to be nesting grounds of migratory birds, such development applications are also routed to the State of Colorado Division of Wildlife for comment in response to the Migratory Bird Treaty Act. (16)

Maintaining the environment so as to preserve habitat for endangered, threatened and other species is important to the City of Thornton. Taking reasonable steps to avoid the placement of new development within or near riparian and other sensitive areas will assist in these preservation efforts and maintain the more unique aspects of our natural environment as homes for the plants and animals of concern, as well as their human neighbors.

A.2.4 Wetlands
Hand in hand with preserving the natural environment for native species is that of protecting wetland regions throughout the city. For regulatory purposes under the Clean Water Act, the term wetlands means “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.” (17)

Wetland areas in Thornton are typically environmentally protected and located along the South Platte River, in City parks or open space, and along the many miles of trails throughout the community. These areas are protected from development so as to preserve their unique place in the landscape of our community.

A.2.5 Floodplains
Despite Colorado’s semi-arid climate, the possibility of flooding exists in certain areas. Properties within Thornton have experienced flood damage in the past. Protecting the public through the identification of areas at possible risk of flooding
and taking appropriate measures to prevent development from taking place in flood zones are key hazard mitigation measures employed by the City of Thornton.

The Federal Emergency Management Agency (FEMA) defines a floodplain as the following: “Any land area susceptible to being inundated by flood waters from any source.”

FEMA identifies Special Flood Hazard Areas (SFHA) where detailed studies have shown a higher risk of flooding, typically near streams or lakes. The SFHA areas are commonly known as the “100-year floodplain”, as the calculations have estimated a 1% (or greater) risk that the area may be flooded in any given year. (18) Thornton’s 100 and 500 year floodplain areas are identified in Figure A-1, below.

There are numerous SFHA regions throughout Thornton. If a proposed development project within the city is located within a SFHA area, the developer is required to minimize this hazard to the development.

The City of Thornton participates in the FEMA Community Rating System, which enables property owners holding flood insurance in Thornton to receive a discount on their premiums. (19)
Figure A-1: 100- and 500-year Floodplains within Thornton’s Growth Area Boundary (The area indicated in Weld County is the estimated 100-year floodplain based on best available data.)
Public streets are also subject to temporary flooding in the case of heavy rains or large snow melt. Regarding the design and construction of street infrastructure, the City builds or requires developers to build streets in such a way as to handle 100-year flood events so that runoff does not encroach upon neighboring residential property and so that emergency vehicles are able to operate on the arterial roadways.

### A.2.6 Unstable Soils and Highly Erodible Land

The erosion of soil is a natural and continual process which poses a possible threat to people and structures. Unstable soils are located throughout Thornton and threaten the integrity of structures built upon them. For these reasons, it is appropriate for the City to implement measures to inform and protect people from these concerns.

Soil erosion is described by the Natural Resources Conservation Service of the U.S. Department of Agriculture (USDA) as the following:

> The wearing away of the land surface by running water, waves or moving ice and wind, or by such processes as mass wasting and corrosion (solution and other chemical processes). (20)

Highly Erodible Land is determined by a formula established by the USDA. For more information about the formula used to make this determination, please check with the USDA. (21)

The types of erodible soils found in Thornton have the potential to be impacted by running water and wind. Figures A-2 and A-3 provide information about where such soils are located within Thornton. Please note that these images do not take into account the location of buildings, maintained landscaping, surface infrastructure, or other items which may prevent erosion from taking place.

Soil stability is a factor which must be considered and accommodated to ensure the integrity of structures built upon it and the safety of people occupying those structures. Evaluating the
stability of soils takes place on a property-by-property basis as development projects take place. Soils which are sufficiently stable to provide adequate support for one type of construction may not be sufficient for a different design or construction type. Determining the suitability of soils for any given development is the role of the developer and their contracting engineers.

The Thornton Building Department requires developers to provide a soils report as part of their building permit application. Depending on the information in the soils report, structural engineers are required to design the foundation of buildings in such a way as to ensure stability of the entire structure. As is true for all buildings, construction methods implemented to ensure the stability of buildings for the soil type they are constructed upon must be inspected and approved prior to the issuance of a certificate of occupancy by the City.
Figure A-2: Wind Erodible Soils within Thornton’s Future Growth Boundary
Figure A-3: Water Erodible Soils within Thornton’s Future Growth Boundary

- **Water Erodible Soil**: No, Potentially
- **City Boundary**
- **County Boundary**
- **Railroad**
- **South Platte River**

Legend:
- No Water Erodible Soil
- Potentially Water Erodible Soil

**Miles**
- 0
- 0.5
- 1
- 1.5
- 2

*Figure A-3: Water Erodible Soils within Thornton’s Future Growth Boundary*
A.2.7 Wildfire Risk Areas

Protection from fire is one of the City’s greatest responsibilities to its citizens. Wildfires are a specific category of fires known in the industry as “wildland fires”. The following definitions from the National Wildfire Coordinating Group provide clarification regarding these fires:

- Wildfire: An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

- Wildland: An area in which development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered.

- Wildland Fire: Any non-structure fire that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use, and prescribed fire. (22)

Thornton does not have any Wildland Urban Interface (WUI) (23). Therefore, Thornton has no true risk of wildland fires. Communities at risk of damage from wildland fires are more commonly found on the perimeters of Colorado Front Range cities, particularly along the foothills of the Rocky Mountains.

However, Thornton does have some grassy and small forested areas which are minimally maintained. These areas present a seasonal vegetation fire hazard, depending primarily on the amount of annual precipitation.

The Thornton Fire Department is well trained and appropriately equipped to control and extinguish vegetation fires and therefore minimize the risk of fire hazard to nearby developed areas. Maintaining diligence in this regard is critical to the safety and security of Thornton’s residences and commercial structures.
A variety of naturally occurring hazards pose legitimate and potentially severe threats to Thornton residents and physical assets. Raising awareness of the types of natural events that can bring harm to Thornton and providing information about ways to properly mitigate such concerns is the purpose of hazard mitigation plans.

In November 2010, the City of Thornton adopted the Denver Regional Council of Governments (DRCOG) 2010 Natural Hazard Mitigation Plan. This plan addresses the 14 most common natural hazards in Colorado, which are as follows:

- Avalanches
- Drought
- Earthquakes
- Floods
- Hail
- Heat Wave
- Landslides
- Land Subsidence
- Thunderstorms and Lightning
- Tornados
- Severe Storm and Winds
- Winter Storms and Freezing
- Wildfire
- Public Health Hazards

The DRCOG plan provides a description of each type of hazard and any unique factors or qualities of each hazard as they pertain to the region addressed in the plan. Information is also provided regarding the frequency of such occurrences within the jurisdictions included in the plan in recent years.

For Thornton in particular, Figure A-4 provides information about the frequency of natural hazards addressed by the plan:
<table>
<thead>
<tr>
<th>Natural Hazard</th>
<th>Frequency</th>
<th>Severity</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalanche</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Drought</td>
<td>H</td>
<td>Ex</td>
<td>H</td>
</tr>
<tr>
<td>Earthquake</td>
<td>L</td>
<td>Ex</td>
<td>M</td>
</tr>
<tr>
<td>Flood</td>
<td>H</td>
<td>Ex</td>
<td>H</td>
</tr>
<tr>
<td>Hail</td>
<td>H</td>
<td>S</td>
<td>L</td>
</tr>
<tr>
<td>Heat Wave</td>
<td>M</td>
<td>Ex</td>
<td>L</td>
</tr>
<tr>
<td>Landslide</td>
<td>VL</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Land Subsidence</td>
<td>L</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Thunderstorm (Lightening)</td>
<td>H</td>
<td>Ex</td>
<td>M</td>
</tr>
<tr>
<td>Tornado</td>
<td>H</td>
<td>Ex</td>
<td>M</td>
</tr>
<tr>
<td>Severe Storm/Wind</td>
<td>M</td>
<td>S</td>
<td>M</td>
</tr>
<tr>
<td>Winter Storm/Freezing</td>
<td>M</td>
<td>S</td>
<td>M</td>
</tr>
<tr>
<td>Wildland Fire</td>
<td>L</td>
<td>S</td>
<td>L</td>
</tr>
<tr>
<td>Pandemic Flu/W. Nile Virus</td>
<td>L</td>
<td>S</td>
<td>M</td>
</tr>
</tbody>
</table>

▲ Figure A-4: Natural Hazards in Thornton  (See Key on Page A.18)
### Overall Significance Key

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H</strong> = High</td>
<td>Widespread potential impact; Medium or High Frequency; Serious, Extensive or Catastrophic Severity</td>
</tr>
<tr>
<td><strong>M</strong> = Medium</td>
<td>Moderate potential impact; Medium or High Frequency; Minor, Serious or Extensive Severity</td>
</tr>
<tr>
<td><strong>L</strong> = Low</td>
<td>Minimal potential impact; Very Low or Low Frequency; Minor or Serious Severity</td>
</tr>
</tbody>
</table>

### Frequency and Severity Key

#### Frequency

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H</strong> = High</td>
<td>Recurrence rate of more than 0.1/yr. (once every 10 years)</td>
</tr>
<tr>
<td><strong>M</strong> = Medium</td>
<td>Recurrence rate between 0.1/yr and 0.01/yr. (once every 10 to 100 years)</td>
</tr>
<tr>
<td><strong>L</strong> = Low</td>
<td>Recurrence rate between 0.01/yr and 0.001/yr. (once every 100 to 1,000 years)</td>
</tr>
<tr>
<td><strong>VL</strong> = Very Low</td>
<td>Recurrence rate less than 0.001/yr. (once in more than 1,000 years)</td>
</tr>
</tbody>
</table>

#### Severity

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cat</strong> = Catastrophic</td>
<td>Multiple fatalities; complete shutdown of critical facilities for 30 days or more, more than 50 percent of the property in affected area destroyed or receiving major damage.</td>
</tr>
<tr>
<td><strong>Ex</strong> = Extensive</td>
<td>Fatalities and severe injury or illness, complete shutdown of critical facilities for 14 days or less, more than 25 percent of the property in affected area destroyed or receiving major damage.</td>
</tr>
<tr>
<td><strong>S</strong> = Serious</td>
<td>Injuries or illness not resulting in disability, complete shutdown of critical facilities for 7 days or less, more than 10 percent of the property in affected area destroyed or receiving major damage.</td>
</tr>
<tr>
<td><strong>M</strong> = Minor</td>
<td>First aid injuries, complete shutdown of critical facilities for 1 day or less, no more than 1 percent of the property in affected area destroyed or receiving major damage.</td>
</tr>
</tbody>
</table>

▲ Figure A-5: Key for Natural Hazards in Thornton
Also included in the DRCOG plan is a Natural Hazards Mitigation Plan Community Profile for Thornton. This section describes current development trends, lists major developments, discusses demographics and employment, and provides information about the frequency and severity of the natural hazards addressed in the plan. Finally, this section provides a list of hazard mitigation actions and projects taking place and scheduled to take place within the city of Thornton. The key elements of this list are provided below:

1. 144th Avenue Bridge at Dry Creek
2. Holly Street Hazard Mitigation Project
3. Niver Creek Tributary, Huron and I-25 Detention Facilities

According to the State of Colorado Natural Hazard Mitigation Plan, Adams County has experienced disaster or emergency declarations for a variety of natural events a total of eight times from 2000 through 2006. Figure A-5 provides the latest data available.

<table>
<thead>
<tr>
<th>Year</th>
<th>Declaration</th>
<th>Hazard Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>USDA Disaster</td>
<td>Drought</td>
</tr>
<tr>
<td>2001</td>
<td>State</td>
<td>Severe Weather</td>
</tr>
<tr>
<td>2002</td>
<td>Presidential Disaster</td>
<td>Wildfire</td>
</tr>
<tr>
<td>2002</td>
<td>USDA Disaster</td>
<td>Drought</td>
</tr>
<tr>
<td>2002</td>
<td>Presidential Disaster</td>
<td>Wildfires</td>
</tr>
<tr>
<td>2003</td>
<td>Presidential Emergency</td>
<td>Snow</td>
</tr>
<tr>
<td>2006</td>
<td>USDA Disaster</td>
<td>Drought, Fire, Heat, High Winds</td>
</tr>
<tr>
<td>2006</td>
<td>Presidential Emergency</td>
<td>Snow</td>
</tr>
</tbody>
</table>

Furthermore, the State also provides the information contained in Figure A-6 regarding the frequency and intensity of natural disasters in Adams County. This historical information is directly applicable to Thornton since Thornton is located entirely within Adams County.
<table>
<thead>
<tr>
<th>Natural Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tornadoes</td>
<td>Adams County is second in the State behind Weld County in the number of tornadic events recorded each year. From 01/01/1950 to 12/31/2006 there have been 148 reported tornado events with 43 associated injuries and $33 million in property and crop damage. Several F3s have been reported: an F3 three miles in length and 400 yards wide was reported on 06/12/1982 and an F3 four miles in length and 440 yards wide was reported on 05/18/1975.</td>
</tr>
<tr>
<td>Hail</td>
<td>235 hail storms and five injuries have been reported between 09/19/1955 and 06/12/2006. Through the hazard identification and risk assessment process, over 40,000 residential structures and over 400 businesses are potentially exposed to hail hazards. Four inch hail stones were associated with the 6/2/2005 storm that occurred 38 miles east of Bennett. Estimates of total damages for all storms exceed $240 million.</td>
</tr>
<tr>
<td>Winter Storms</td>
<td>Heavy winter storms affecting the metropolitan area occurred in 1913, 1982, 1997, 2003 and 2006. Heavy snow storms bring a community to a standstill by inhibiting transportation, and by causing structural collapse and power outages. Repair and removal costs are significant. In 2006 Adams County was included in the Presidential Snow Emergency declaration after receiving close to 22 inches of snowfall in a one-day period at the Northglenn station.</td>
</tr>
<tr>
<td>Lightning</td>
<td>Two fatalities, two injuries, and nearly $300,000 in property damage are associated with 17 lightning events (14 days of events) reported from 06/18/1994 to 06/21/2006.</td>
</tr>
<tr>
<td>Flood</td>
<td>There are 14 recorded flood events for Adams County between 1993 and 2004. Descriptions of historic flood events are in the Denver Regional Natural Hazard Mitigation Plan on Page 25. The western part of the county is dominated by the South Platte River and its tributaries. Other drainages include Clear Creek, Big Dry Creek, and Little Dry Creek. There are some intermittent creeks, with broad, shallow floodplains east of Denver International Airport. The hazard identification and risk assessment process identified 3,500 residential properties and over 60 businesses that have potential exposure to flood hazard. Within the last three years flood mitigation has been done for the Erie tributary (tributary for Big Dry Creek that runs from York Street to Big Dry Creek through Wadley Farms subdivision south of 144th Avenue). Plans include the Hoffman Master Plan Update, Big Dry Creek Northern Tributaries Master Plan Update, and 54th and Pecos Street Drainage Master Plan. The western parts of the county are in the Urban Drainage and Flood Control District. The following communities participate in the National Flood Insurance Program: unincorporated Adams County and the Cities of Arvada, Aurora, Brighton, Commerce City, Federal Heights, Northglenn, Thornton and Westminster. According to the 2003 Community Rating System Eligible Communities List, the Cities of Aurora, Thornton and Westminster have ratings of eight and Arvada has seven.</td>
</tr>
<tr>
<td>Drought</td>
<td>2002 was the driest year on record for the Denver region and much of the State. The eastern portion of the county is primarily agricultural, making the area vulnerable to drought.</td>
</tr>
</tbody>
</table>
Complementing the DRCOG Plan with a specific focus on droughts, the City of Thornton has developed a Drought Management Plan. This plan works together with the City’s Water Conservation Plan to achieve overall efficient and prudent use of the City’s water resources. Whereas the Water Conservation Plan promotes long-term water use efficiency, the Drought Management Plan provides guidance to achieve short-term water savings during water supply shortages caused by drought conditions.

The goal of Thornton’s Drought Management Plan is as follows:

To monitor available information to determine the onset and severity of a drought, and to reduce water demand and/or increase water supplies sufficiently to ensure that basic health and safety needs of customers are met during a drought. (26)

Maintaining awareness of natural hazards which have the capacity to cause harm in Thornton and implementing reasonable and prudent measures to reduce the extent of damage that they might cause is all a part of maintaining quality neighborhoods and great amenities for Thornton residents. Implementing these measures requires strong partnerships with other organizations and a commitment to improving those relationships as needs change over time.

### A.4 Building Codes

The City of Thornton strives to provide a safe environment for its citizens, employees, and visitors through the adoption and diligent enforcement of the most recent, applicable building codes. The City implements building codes which are drafted and updated by the International Code Council.

According to the 2009 International Building Code, the intent of the document is as follows:
The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress, facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to firefighters and emergency responders during emergency operations. (27)

In an ongoing effort to remain up-to-date with the latest building techniques and materials, and continually reduce exposure to hazards, the City typically updates the building codes every three years in accordance with the updates generated by the International Code Council.

Adopted building codes are enforced in Thornton by means of a thorough examination of building and construction plans which must be approved prior to the issuance of a building permit. During construction and prior to the issuance of a certificate of occupancy by the City, all new or remodeled structures must pass rigorous inspections performed by the City’s qualified building inspectors.

Diligent updating and enforcement of building codes in Thornton is key to maintaining quality neighborhoods and safe, efficient housing choices for all Thornton residents. Furthermore, ensuring the quality of Thornton’s commercial facilities is vital to expanding the ability of local businesses to offer safe work environments to their employees. Safe environments enable people to live stable lives, operate businesses competitively, and prepare themselves for the economic opportunities of the future.

A.5 Adams County Local Emergency Planning Committee

Thornton is a member of the Adams County Local Emergency Planning Committee (LEPC). Congress mandated the formation of LEPCs to enable community members to address haz-
ards in ways that are appropriate to their community.

Thornton’s participation in the LEPC is necessary and appropriate due to the proximity of Thornton to companies which store, use, and transport potentially hazardous materials, and the fact that both Interstate 25 and a rail transportation line transect the community. Hazardous materials being transported through Thornton have the potential to cause harm to Thornton properties and residents in the event of an accident.

The purposes of LEPCs are as follows:

1. Provide a local forum for discussions about and a focus for action in matters pertaining to hazardous materials planning.
2. Serve as a clearing house which provides local and state government and the public, information about possible hazards in their community.
3. Provide a link to help citizens, government, and industry work together.

Actions taken by LEPCs to accomplish these purposes are as follows:

1. Collect information about hazards.
2. Develop an emergency response plan regarding accidents.
3. Ensure that the plan is implemented and that it works.

In doing these things, the LEPC also has the obligation to assess the prevention, preparedness, and response capabilities of a community, identify facilities in a community that could present a risk, and identify the processes to be used in emergency response situations. Furthermore, LEPCs provide information to the public about hazards within the community, provide copies of the emergency response plan, and provide education to assist people in protecting themselves in the event of an emergency.

The LEPC plays an important role in maintaining the safety of...
all residents and visitors to Thornton. It contributes significantly
to our ability to respond quickly and effectively to hazards
which may be associated with local transportation infrastruc-
ture or industries in the area. It also takes the lead in develop-
ing measures to protect Thornton’s utilities in the event of a
hazardous event. The work of the LEPC also ensures the safety
of work environments for public and private sector employees
throughout the city. (28) (29) (30)
Works Cited


4. **Colorado Department of Natural Resources.** http://wildlife.state.co.us/Pages/Home.aspx. *Colorado Department of Natural Resources.* [Online]


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