



# Town of New Castle

## Addendum to the Garfield County Natural Hazards Mitigation Plan

2012



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## Attachments

- Attachment 1: Action item Forms
- Attachment 2: Risk Assessment Map
- Attachment 3: Critical Infrastructure Map
- Attachment 4: Town Organizational Chart
- Attachment 5: Documentation



# Section 1: Planning Process

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## *Overview*

The Town of New Castle developed this addendum to the Garfield County multi-jurisdictional Natural Hazards Mitigation Plan in an effort to increase the community's resilience to natural hazards. The addendum focuses on the natural hazards that could affect New Castle, which include wildfire, flood, landslide and debris flow, earthquake, and severe weather. The addendum also addresses hazardous materials spills, which are possible secondary hazards resulting from wildfires, landslides, and transport accidents that can affect drinking water, public safety and wildlife habitat.

This addendum has the following attachments:

- Attachment 1 provides detailed action items for risk reduction
- Attachment 2 provides a map which is the output of a risk assessment discussion early in the process of plan development
- Attachment 3 provides critical infrastructure maps, generated by Garfield County Geographic Information Systems (GIS) staff, using best available digital data

It is impossible to predict exactly when disasters may occur, or the extent to which they will affect the city. However, with careful planning and collaboration among public agencies, private sector organizations, and citizens within the community, it is possible to minimize the losses that can result from natural hazards.

The addendum provides a set of actions that aim to reduce the risks posed by natural hazards through education and outreach programs, the development of partnerships, and the implementation of preventative activities through the town's development code, emergency operations plan, and comprehensive plan. The actions described in the addendum are intended to be implemented through existing plans and programs within the town.

## *How was the Addendum developed?*

The Town of New Castle developed this addendum in a collaborative process that Garfield County initiated in April of 2011. At that time, the County Risk Assessment had been completed in draft form, using data that covered many of the County's jurisdictions and all of its unincorporated areas. The County had initiated the process of developing its action items. The County organized an initial outreach meeting, held in April of 2011, and invited all towns and cities, fire districts, school districts, and other overlapping districts. State of Colorado Division of Emergency Management (DEM) and Federal Emergency Management Agency (FEMA) representatives described the mitigation planning process and plan requirements. The Town of New Castle opted to create an addendum to the County Plan after that meeting.

The County then organized an intensive workshop for the jurisdictions developing addendums (including New Castle) and invited a broad range of participation from City staff. The purpose of the workshop, which was held on June 27, 2011, was to identify areas in the jurisdictions where risk was greater than that identified in the County Risk Assessment, and to begin to develop action items. One of the maps that was the output of this workshop and focused on community-level risk is included in this plan addendum as Attachment 2. Participants from New Castle included:

- Mike Edgar, Human Resources Manager
- John Wenzel, Public Works Director
- Tim Cain, Town Planner/Code Administrator

The agenda for the workshop follows:

Agenda item	Topic	Time
Presentation / Intro	<ul style="list-style-type: none"> <li>• What is a multi-jurisdictional plan; requirements from FEMA</li> <li>• County Risk Assessment and Community profile</li> <li>• Questions / Discussion</li> </ul>	9:00 – 10:00
Breakout #1, by jurisdiction	<ul style="list-style-type: none"> <li>• Addendum document: overview and discussion</li> <li>• How is risk in your jurisdiction greater than the risk in the County?</li> </ul>	10:00 – 11:30
Breakout #2, by jurisdiction	<ul style="list-style-type: none"> <li>• Action item development: What steps will we take to reduce risk?</li> </ul>	12:30 to 2:00
Presentation	<ul style="list-style-type: none"> <li>• Plan adoption requirements</li> <li>• Plan maintenance and update process</li> <li>• Outreach at jurisdictional level</li> <li>• Next steps</li> <li>• Discussion / questions</li> </ul>	2:00 to 3:00

Following the workshop, the Town of New Castle further developed its action items by:

- New Castle primary staff meeting on July 19, 2011
- New Castle Management Retreat on July 20, 2011
- New Castle primary staff meeting on July 26, 2011
- New Castle primary staff meeting on August 2, 2011
- New Castle primary staff meeting on October 18, 2011

The primary staff meetings were attended by Police Chief Chris Sadler, John Wenzel, Mike Edgar and Tim Cain; the focus of the meetings was to analyze current data and work on the mitigation plan. These meetings were not publicized.

The Management Retreat was attended by the Town Administrator and department directors; this meeting was not publicized.

The following plans, reports, and studies were reviewed in the development of this addendum:

- Garfield County Risk Assessment
- Census and other demographic and economic data

- Garfield County Community Wildfire Protection Plan

Citizens of New Castle contributed to the development of this plan as follows:

- During plan development:
  - The County developed an on-line survey, which was advertised on its website, and via email in multiple list servs. In the initial distribution, 106 people took the survey. 21 of these respondents lived in Area 2 (the area in which New Castle is located), 11 worked in the Area, and 18 claimed that Area 2 was the area with which they were most familiar (i.e. spend most of their time). Of those 18 respondents who associate most directly with Area 2, nearly 65% of them (11 people) agreed that the County's Risk Assessment of Area 2 was "accurate" or "very accurate".
  - Town Council meeting on July 19, 2011 – Town Planner report on status of preliminary New Castle Hazard Mitigation Plan; this meeting was attended by council members, Town administrator and department directors. The public was invited to attend via various communication outlets e.g. website, 3 neighborhood public posting areas.
  - Town Council Agenda on August 2, 2011 – New Castle staff report on preliminary New Castle Hazard Mitigation Plan; this meeting was attended by council members, Town administrator and department directors. The public was invited to attend via various communication outlets e.g. website, 3 neighborhood public posting areas.
  - August 1, 2011 - New Castle utility bill announcement seeking public input about the NC Hazard Mitigation Plan; over 1600 utility notices were sent to in-town and out-of-town utility users
  - August 1, 2011 – Public cable channel 10 announcement seeking public input about the NC Hazard Mitigation Plan; this channel is available to all cable subscribers in the New castle region.
  - October 19, 2011 – New Castle Senior Citizens weekly luncheon; eleven (11) residents attended. A presentation was made by Tim Cain. They listened and asked questions about possible flooding of Elk Creek and debris flow from Mt. Medaris that occurs routinely after it rains heavily.
  - November 10, 2011 – Villas at the Peak Townhome HOA annual meeting; ten (10) residents attended. A presentation was made by Mike Edgar. Questions were asked about 2002 mitigation efforts to control flood and subsequent debris flow north of the townhomes.
  - Town Council Agenda on November 15, 2011 – New Castle staff report on final New Castle Hazard Mitigation Plan; this meeting was attended by council members, Town administrator and department directors. The public was invited to attend via various

communication outlets e.g. website, 3 neighborhood public posting areas.

- The public was also given an opportunity to comment on the draft addendum document, as follows:
  - The final draft addendum document was posted on the Town's website, and also on the County website, which clearly included a phone number and email address for provision of comments. The City received X comments, which were [addressed, incorporated into document, etc.]
  - A work session was held with the Board of County Commissioners to review the draft County NHMP including the New Castle Addendum and to take public comment on March 13, 2012.
  - The public was provided an opportunity to comment when the plan was adopted via resolution, in a public meeting, on [DATE].

### *Plan Maintenance and Implementation*

The jurisdiction is adopting the plan maintenance and implementation process outlined in the County Natural Hazard Mitigation Plan.

New Castle will participate directly in the update and maintenance schedule outlined in the County Plan by participating on the Public Safety Council subcommittee responsible for ongoing update of the Plan.

### *Adoption*

*This section will be filled out at a later date, following adoption*

FEMA approved the County Plan on [DATE.] The Town of New Castle adopted this addendum to the Garfield County Natural Hazard Mitigation Plan via resolution on [date].



## Section 2: Community Profile

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The following section describes the Town of New Castle from a number of perspectives to define and describe New Castle's sensitivity and resilience to natural hazards. Sensitivity factors can be defined as those assets and characteristics that may be impacted by natural hazards, (e.g., special populations, economic factors, and historic and cultural resources). Resilience factors can be defined as the ability to manage risk and adapt to hazard event impacts (e.g., governmental structure, agency missions and directives, and plans, policies, and programs). The information in this section represents a snapshot in time of the current sensitivity and resilience factors when the plan was developed. The information documented below, along with the risk assessments in Section 3 below, should be used as the local level rationale for the risk reduction actions identified in the plan.

### *Geography and climate*

The Town of New Castle is located in Garfield County, Colorado along Interstate 70 and the Colorado River on the Western Slope of the Rocky Mountains. New Castle is approximately 76 miles east of Grand Junction and 169 miles west of Denver and lies at an elevation of 5,550 feet above sea level. The town's elevation provides a comfortable climate with a mean January temperature of 25°F and a mean July temperature of 70°F. Average annual precipitation is 17.9 inches. The total land area within the municipal boundaries is 2.53 square miles.

The original New Castle townsite is located south of Mt. Medaris and relatively new subdivisions are located on the north side of the mountain within the town jurisdiction. Mt. Medaris is steep and during times of heavy rain and snowmelt can inundate the Town's stormwater system causing flooding of Main Street (Highway 6 & 24).

The town has also recently annexed residential and industrial property on the south side of the Colorado River. This area is partly located within extreme rock fall hazards and can also be prone to flooding by the Colorado River.

New Castle lies on the easterly edge of the natural gas drilling areas and is approximately 25 miles east of rich oil shale deposits between Parachute and Rifle, Colorado. However, with recent technological advances, it has become profitable to explore drilling within a 7 to 10 mile radius west and south of New Castle.

New Castle is located adjacent to the 100-mile long Grand Hogback. The Hogback is a sedimentary rock monocline that extends from Redstone, Colorado, northwest into Wyoming. This iconic formation includes large coal deposits mined during the last century. There are currently no active coalmines in New Castle, but during the last 20 years, mining proposals immediately outside New Castle have been considered by Garfield County. Several of the older mines in New Castle are on fire because of historic mine disaster explosions that killed a number of miners. Occasionally smoke and steam can be seen on the steep sides of the hogback and there are areas that readily melt snow because of the high ground temperature.

## *Population and demographics*

According to the 2010 U.S. Census Bureau the population of New Castle is approximately 4,500 with 1,200 households and an average of 2.9 per household. Families made up 68% of the households in New Castle and this figure includes both married-couples families (52%) and other families (16%). Nonfamily households made up 32% of all households; most nonfamily households were people living alone.

Nineteen percent of the people living in New Castle were foreign born. Eighty-one percent was native, including 38% who were born in Colorado. Among people at least five years old living in New Castle in 2005-2009, 32% spoke a language other than English at home. Of those speaking a language other than English at home, 96% spoke Spanish and 4% spoke some other language; 53% reported that they did not speak English “very well.”

New Castle’ population for the period 2000-2007 increased an average of 241 persons per year with an average annual growth rate of 9.24%. This growth rate made New Castle one of the fastest-growing towns in Colorado. In the past 25 years, much of New Castle’s population increase has been fueled by a down-valley migration from the communities of Aspen, Snowmass, Basalt and Carbondale where the cost of housing has historically been higher.

The most vulnerable components of the population in a disaster are women, children, minorities, and the poor. In comparison to the County, New Castle’s population was:

- **Younger than the County.** The median age of New Castle’s population was 30.2 years old in 2009, compared with the County average of 34.2 years old. The age-distribution of New Castle’s population has remained stable since 2000, when the medium age was 30 years. About 68% of New Castle’s population was under 40 years old in 2009, compared with 59% of the County’s population. New Castle had a smaller proportion of people over 60 years old (8%) than the County (13%).
- **More ethnically diverse.** Since 2000, New Castle grew more ethnically diverse. In 2000, 12% of New Castle’s population was Hispanic (1,170 people). This trend is similar to increasing ethnic diversity in Garfield County, where Hispanic population increased from 17% to 24% of the population between 2000 and 2009
- **In poverty as frequently as the County.** The poverty rate in New Castle (8.3% of people living below the federal poverty line) was similar to the County’s poverty rate (8.1%) in 2009

At the end of 2008, the U.S. and world economies entered a severe economic recession. This economic downturn has fundamentally stopped new development activity in New Castle. Major developers, Village Homes and Lakota Canyon Ranch, filed for bankruptcy and halted construction on all projects. Very few building permits have been issued in New Castle from the third quarter of 2008 to the present time. However, population growth projections in Garfield County are

expected to remain robust through the year 2035 as the energy industry expands in response to demands for natural gas and other fuels. Growth pressures on New Castle are expected to continue in the same timeframe.

### *Employment and economics*

The majority of New Castle residents find employment outside of the community in Glenwood Springs, the Roaring Fork valley, the Eagle Valley and the Rifle area. Employment outside of New Castle requires the need to use Interstate 70 predominantly; highway 6 & 24 can be used for those traveling west to the Rifle area. Accidents occur often on Interstate 70 and occasionally shut down the highway; traffic is then diverted to highway 6 & 24 which travels New Castle Main St. After the Storm King fire east of New Castle near Canyon Creek in 1994 a major landslide occurred that completely shut down Interstate 70 for 24 hours; many New Castle workers did not have access to up-valley jobs. I – 70 was also shut down over a weekend in 2002 due to the Coal Seam fire which started on the south side of I – 70 east of New Castle. This fire was a result of a mine which has been on fire for over a hundred years.

The American Community Survey (ACS) reported that from 2005-2009 for the employed population 16 years and older, the leading industries in New Castle were Construction, 21%, Educational services, and health care, and social assistance, 20%. Other employment by industry included:

- |   |     |  |     |
|---|-----|--|-----|
| ▪ Agriculture, forestry, fishing, hunting, mining | 4%  | ▪ Finance, insurance, real estate, rental leasing                        | 6%  |
| ▪ Manufacturing                                   | 2%  | ▪ Professional, scientific, management, administrative, waste management | 11% |
| ▪ Wholesale trade                                 | 2%  | ▪ Arts, entertainment, recreation, accommodation, food services          | 10% |
| ▪ Retail trade                                    | 11% | ▪ Other services, except public administration                           | 6%  |
| ▪ Transportation, warehousing, utilities          | 3%  |  |     |
| ▪ Information                                     | 2%  |  |     |
| ▪ Public administration                           | 3%  |  |     |

From 2005-2009, the medium income for households in New Castle was \$56,445. This is \$8,000 lower than the County (about \$64,800). Ninety-seven percent of the households received earnings and 7% received retirement income other than social security. Five percent of households received social security. These incomes sources are not mutually exclusive; that is, some households received income from more than one source. In the same timeframe ACS reported that 8% of people were in poverty. Thirteen percent of related children under 18 were below the poverty level, compared with less than 0.5% of people 65 years old and older. Eight percent of all families, and 34 percent of families with a female householder and no husband present, had incomes below the poverty level.

## Housing

By the end of 2008, New Castle potable water service delivery was estimated to include 1,657 housing units; the Town services many out-of town individual dwelling units and larger subdivisions. Very few single-family homes were built after 2008 due to a virtual halt in construction. Since 1990, the vast majority of the new single-family dwelling units were located in two major subdivisions, Castle Valley Ranch PUD and Lakota Canyon Ranch PUD. Both subdivisions lie north of the original New Castle townsite and are separated from the original townsite by Mt. Medaris. The Town has some multifamily units with duplex, triplex, and larger multifamily structures in River Park PUD, Castle Valley Ranch Planning Area – 12, Shibui and Alder Ridge.

Many of the houses in the original New Castle townsite were built in the early 20th century and are mostly stick-built with very few brick homes. Likely, many are not up to present building codes and may be in poor condition and at a much higher risk compared to newer subdivisions mentioned above (River Park, Lakota Canyon Ranch, Castle Valley Ranch, Shibui, etc). There are a few homes and commercial buildings that still stand after over 120 years. Several of the original and newer townsite commercial buildings also house people on the second floor which may or may not put them more at risk possibly due to seismic occurrence. In comparison to Garfield County, New Castle's housing stock was:<sup>1</sup>

- **More owner-occupied.** About three-quarters of New Castle's housing were owner-occupied, compared with about two-thirds of Garfield County.
- **Younger.** The median year build of New Castle's housing stock was 1992, compared with 1984 in Garfield County. New Castle had a larger share of housing stock built since 1990 (57%) than Garfield County (40%). However, New Castle had a larger share of housing built prior to 1950 (25%) than Garfield County (11%)
- **More single-family detached.** More than three-quarters of New Castle's housing was single-family detached, compared with 60% of the County's housing stock. New Castle had a smaller share of mobile and manufactured housing (9%) compared to the County (13%). New Castle also had a smaller share of attached housing of all types (14%) compared with the County (27%). The newer single-family homes and multifamily dwelling units are mostly stick-frame and are up to present building code standards.

The need for housing units in New Castle will increase as the population grows. Assuming an average growth rate of 4% from 2007 to 2030, population is expected to grow to 9,086. Housing demand generated by a population increase will require over 2,000 new residential units based upon an average household size of 2.66 persons. Many of the new dwelling units will be located adjacent to steep

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<sup>1</sup> Based on data from U.S. Census American Community Survey 2005-2009

mountainous terrain. Forest wildfire is perhaps the single most important hazard that New Castle faces.

### *Land use and development*

In New Castle, single-family and multifamily zoning accounts for more than 87% of total available land. The remaining acreage is zoned commercial (9.01%) and industrial (3.17%). Part of the land dedicated to residential development is zoned “multi-use” where a mixture of commercial and residential is authorized. About 56 acres of land is yet to be built in the mixed use zone district. There is approximately 32 acres of undeveloped commercial and industrial land available.

The future land use plan establishes a framework within which development plans must be designed, evaluated by New Castle and ultimately completed if approved. It is not “zoning” per se, but may be used by New Castle to modify existing zoning or to establish new zone districts. Some of the goals of the future land use plan are:

- Ensure a variety and mix of uses that complement the existing New Castle land-use patterns
- Guarantee a balanced mix of housing types that support a broad range of pricing within the market
- Make certain there are adequate open spaces, trails and connected parks
- Allow for feathered-edge community that transitions to rural areas where open lands and agricultural uses predominate
- Offer protection of sensitive natural areas, preservation of older tree stands and conservation of resources
- Promote service delivery efficiency and energy conservation

### *Transportation*

New Castle can be accessed using 5 different routes. They are:

- Exit 105 at the I – 70 interchange
- From north to south using N. Midland Ave. /7th St. to downtown New Castle
- From the north using CR 245 to east using Castle Valley Blvd. which leads to Castle Valley Ranch PUD and Lakota Canyon Ranch PUD and eventually to the highway 6 & 24 at the I – 70 interchange
- From east to west using highway 6 & 24
- From west to east using highway 6 & 24.

There are no bridges owned or maintained by New Castle.

In the event of mass evacuation there are a few notable challenges New Castle and its partners will have to manage. They are:

- The stacking and queuing at the I – 70 interchange is a problem during peak morning and evening hours. Evening traffic queues can extend

down the length of the off-ramp from the access bridge intersection. The vehicle stacking is likely to become more severe as New Castle population increase without substantial intersection improvements or an additional interstate interchange. The overpass is hazardous to pedestrians crossing over the interstate, UP railroad and Colorado River because there are no sidewalks on the bridge. There are two subdivisions and one mobile home trailer park located immediately outside of New Castle boundaries that use this bridge as well.

- The busy intersection at highway 6 & 24 / Castle Valley Blvd. is stressed during morning and evening traffic peaks. The four-way stop and short stacking lanes contribute to frequent congestion. The current level of service (LOS) at highway 6 & 24 / Castle Valley Blvd. intersection is “C” at non-peak hours and “D” during peak hours. Traffic engineers consider a LOS “D” the minimum acceptable LOS and ratings of “E” or “F” are unacceptable because of long intersection wait times. As traffic volume increases due to future commercial and residential development, the LOS will decrease to “E” or “F” unless intersection improvements are completed.
- North-South access from downtown New Castle to Castle Valley Blvd or CR 245 is severely restricted in vehicle movement due to 7th St. which is narrow and winding; it does not have adequate capacity or easy access.
- The single-lane bridge crossing Elk Creek on the west end of town could incur a huge bottleneck if it was the only exit out of town during a mass evacuation. This is a bridge maintained by CDOT and is quite old leading to possible failure in the advent of massive flooding
- Approximately two miles north of New Castle is another single-lane bridge that could see the same scenario as above if it were the only exit out of town as well. This bridge is located at the intersection of CR 245 and CR 241.

## *Critical facilities and infrastructure*

### **Facilities: Government**

#### ***Town Hall***

- The Town Hall is located on the 400 block of West Main Street on the north side. The building houses key administrative personnel, the Town Clerk, support staff, and the police department. The facility is used for a myriad of purposes which include being a public meeting place for numerous commissions and boards, as well as bi-monthly meetings of the Town Council. It functions as the Municipal Court on a bi-monthly basis and houses records related to the Court. The building is equipped with a walk-in vault and is a hub for computer data collection and storage. This structure rests on the southern slope of Mt. Medaris and is potentially threatened by debris flow in the event of soil saturation or

flash flood. It rests in the central west end of the original Town site and is surrounded by older structures which pose a threat of collateral damage in the event of fire. A frequently used railroad track runs east/west, parallel with Main Street and is located within approximately 100 yards of the building. The proximity of the track poses a significant threat to the building as frequently transported cargo on the rail is known to be hazardous in nature. Flooding of the Colorado River does not pose a significant threat. However, in the event of a dam breaking, such as that located upstream from New Castle at Reudi Reservoir, the building and entire downtown area would be at risk. This at-risk area would also include an elementary school site, the Town's waste water treatment plant, and, the main escape routes from the Town to the east and west.

### ***Community Center***

- The Community Center is a large structure, also built on the 400 block of West Main Street, on the south side. The Center is equipped with a large main room, offices, kitchen, restroom facilities, telephones and computer access. In the event of an emergency, this structure could be used as an emergency command center, distribution center or relief shelter. The structure rests approximately twenty yards from the main east/west railroad track. The community center is at risk from high level flooding and at high risk from railroad related incidents. South of the railroad tracks I-70 and the Colorado River run east/west through the Town, roughly parallel to Main Street and the main rail. South-southeast of the community center, on the south side of the river, a large propane storage facility is located. Any incident related to the propane facility could cause collateral damage to the community center, and, the entire downtown area.

### ***800 MHz Radio Tower / Repeater***

- Located near the northern edge of the Town limit at the Highland Cemetery. This station provides uninterrupted radio service for emergency services on a 24/7 basis. It is not a required station for radio service in the overall area and surrounding communities, however, due to the geography, is necessary to provide radio service to the Town of New Castle emergency services, the portion of I-70 adjacent to the Town limits, and the general New Castle lower valley area to the west.

### ***Public Works / Town Maintenance Facility***

- The Public Works facility is located on the 800 block of West Main on the west bank of Elk Creek. This facility/compound consists of two main enclosed buildings known as the public works offices and the maintenance shop, as well as three three-sided structures used for aggregate and equipment storage. The majority of structures on this site are constructed of metal materials. The public works office building consists of two levels, the main floor and basement. The main floor and

roof are constructed of wood and the basement is concrete. The main floor consists of a number of offices, a meeting room and restrooms. The area could serve as a command center in the event of an emergency as it also has phone and computer service access. The basement area is primarily used for general storage. The maintenance shop is a large open single story structure with a number of large bay doors on the south side. Under normal operation the maintenance shop contains numerous vehicles, tools and equipment, available for use on a daily basis. Larger trucks and equipment used for earthmoving are also stationed at the facility. The entire public works compound is at risk from flooding incidents involving Elk Creek, or events of a larger magnitude involving the Colorado River. Fire does not pose a significant risk to the compound; however, it is located at the junction of Hwy 6 on the north edge, Elk Creek on the eastern edge, the railroad track directly to the south, and I-70 slightly more to the south. Other than flood, the greatest risk to the facility would appear to be hazardous materials presented to the site by either rail or vehicular incident. It should be noted the public works facility is currently equipped with a solar array which efficiently produces more energy than can be consumed at the site on a daily basis. Currently there is no equipment in place to store the energy for future use and the purchase of equipment for this purpose may not be economically feasible for some time. However, if New Castle were to lose all electrical power, the solar energy producing equipment currently installed has the potential to provide a substantial amount of emergency energy. In the event of long-term crisis, this solar equipment feature could be critical.

### ***Police Department Garage***

- The Police Department garage is located on the south side of West Main Street on the 600 block. It is bordered by a dirt lot and Kamm Avenue on the east side and the main railroad track on the south. The garage consists of metal construction and provides storage for tools, police equipment and generally houses one police vehicle. The facility is not threatened by general natural hazards except for high magnitude flooding of the Colorado River. It is located immediately adjacent to the railroad tracks and is at greater risk of a rail related incident than most near-rail locations due to being located on the outside of a curve in the rail. The facility also has an older wood construction private dwelling /business immediately to the west. This structure exposes the garage to fire hazards due to its use and age, although in the event of an incident sustained fire exposure to the garage structure is unlikely and potential for loss minimal.



## **Water (raw water, potable water treatment, storage, waste water)**

### ***Waste Water Treatment Plant***

- The waste water treatment plant is located south of the railroad tracks, at the approximate 700 block of West Main Street, lying between and running parallel to the railroad tracks and I-70 at the approximate mile mark 104 I-70. The western border of the plant is marked by Elk Creek. The plant consists of numerous buildings and structures used in the treatment of human waste product. Some of the structures have office spaces and areas used for storage of miscellaneous tools, equipment and chemicals. This facility is at risk of flooding or debris flow from both the Colorado River and Elk Creek, and it is noted that significant water depth will inhibit the facilities ability to discharge treated non-pressurized waste material. Also, there exists potential for collateral damage from an incident originating on I-70 or the rail. The facility has one access point, crossing three active train rails. It is equipped with a diesel generator capable of running the plant independently in the event of electrical grid failure.

### ***Water Storage***

- There are three water storage tanks servicing the Town, all of metal construction. The “Old Town” tank has a 1,000,000 gallon capacity and is located at the North West edge of the Town limits in the area west of Mountain View Drive. The “Castle Valley” tank has an 800,000 gallon capacity and is located outside of the town limits to the north of the Castle Valley area. It is at elevation and out of plain view. The “Lakota” tank has a 1,700,000 gallon capacity and is located to the northeast. Another tank, known as the “Elk Creek” tank, has the capacity to hold 450,000 gallons. This tank services and is located in the Elk Creek subdivision, outside and to the northwest of the Town limits. Fire or flooding pose a minimal threat to the above listed tanks. All are at highest risk from seismic activity, ground shift, sinking or landslide. All locations are subject to unnatural attack focused on mass casualty / terrorism. In the event of water treatment failure, with all tanks full to maximum capacity, it is estimated water would be available for all purposes to all serviced areas for a minimum of one day. If conservation techniques are immediately applied, water availability to all serviced areas could extend to approximately three days.

### ***Potable Water Treatment***

- The potable water treatment plant is located in the Elk Creek Subdivision and receives its raw water from a location on East Elk Creek. In the event of an incident in Elk Creek, the plant also has the capability of obtaining raw water from a pump station located on the Colorado River. The plant structure is surrounded by a chain link fence

which is locked during non-business hours. It is predominantly metal construction and has no back-up power source. The Elk Creek Subdivision is surrounded by non-domestic trees, shrubs and tall growing grasses. This flora is present throughout the subdivision. The plant being located in the approximate center of the subdivision with uncontrolled plant growth exposes it to a great risk of fire or wild fire related incident. Again, seismic activity or perhaps extreme winds pose the greatest natural threats to the plant overall. Plant production is ultimately subject to availability of electricity, conditions in the East Elk Creek basin, and, at the Colorado River lift station. Incidents involving interruption in any of these areas poses a critical threat to potable water production and availability throughout the Town, and, associated service areas.

### ***Raw Water Intake***

- East Elk Creek Head Gate / Colorado River Pump – Lift Station. Raw water intakes are located on East Elk Creek (with associated head gate and retention pond) and on the Colorado River to the southwest of the waste water treatment facility. Fire does not present a significant threat however both locations are subject to damage from flooding and subsequent debris flow. The Elk Creek facilities are also at risk from landslide hazards.

### **Bridges**

#### ***Elk Creek Bridge – 800 block West Main Street – Hwy 6 MM105.5***

- The Elk Creek Bridge is located on the 800 block of West Main Street, which is also known as Highway 6 at the approximate 105.5 mile mark. It is a metal structure originally built in 1931 which spans Elk Creek. Elk Creek flows from north to south, emptying into the Colorado River at approximately the 103.8 mile mark of I-70. Due to the geography, there are limited methods to enter or leave the Town. The Elk Creek Bridge is located at the western edge of the Town limits and is an integral structure when considering a timely and orderly escape route to the west. This bridge could also be used as a main supply access should a problem arise on the east end of Town, denying access from that end. Although the bridge is not owned by the Town, its maintenance and protection is imperative. Extremely high run off may pose some danger to this bridge. Flash flooding, or conditions causing debris flow, would put this bridge at highest risk. The main train track runs close to the bridge and motor vehicle traffic puts the bridge at risk from hazardous material related incident. A motor vehicle accident of magnitude or hazardous material spill could render the bridge impassable for some time.

### ***Bridge/s – Overpass – I-70 MM 105***

- This location actually consists of a series of three bridges arranged end to end, running north / south, which span the main railroad track on the north end, four lanes of I-70 in the center, and the Colorado River at the south. The south end connects to County Road 335 which services the industrial section of New Castle as well as some residential areas. The north end connects to Highway 6 (Main Street) and is the main entrance for most traffic into the Town. These structures are at risk from all hazards dependent on severity, but are most vulnerable to effects of flood waters of magnitude. These bridges are critical to the rapid arrival of emergency responders in the event of an incident and would also be used as a primary evacuation route.

### ***Bridge – Overpass – I-70 MM 109***

- This bridge is located four miles east of the New Castle Town boundary and provides access from Highway 6 to I-70. Highway 6 terminates a short distance east of the MM109 access point and I-70 becomes the only roadway allowing access to the east and to the City of Glenwood Springs. This bridge also spans a railroad track and four lanes of I-70. In the event of a disaster or emergency disabling the I-70 MM 105 bridge and New Castle evacuation routes to the west or north, the I-70 MM 109 bridge would become critical for evacuation and emergency response purposes. This bridge is at risk from all hazards.

### ***Bridge – East Elk Creek – County Road 245***

- The County Road 245 bridge crosses Elk Creek at the approximate intersection of County Road 245 and County Road 241. This bridge is outside of the Town boundary but it would be crucial if evacuation to the north of Town were required. The bridge is at risk from flooding and debris flow hazard. Saturation would likely present landslide hazard on County Road 245 further west of the bridge.

### ***Bridge/s – I-70 MM 104***

- Two bridges at this location span Elk Creek with four lanes of highway at the MM 104 of I-70, paralleled by two train tressels supporting two railroad tracks. Should the I-70 bridges fail, use of I-70 west as a Town evacuation route would be obstructed. The bridges are at risk from extreme flooding and debris flow from Elk Creek. Seismic activity is also a concern.

## **Schools**

### ***Elk Creek Elementary School***

- Elk Creek Elementary School is a mainly brick structure located on the 800 block of West Main, on the west side of Elk Creek. The property is subject to flooding, debris flow, etc. It also has the strong possibility of

being exposed to fire as it is bordered by trees, large bushes, shrubs and grassland on its west and north. The mountain directly to the west of the subject property also displays a vent from an internal coal mine fire, which is a potential ignition source for the surrounding flora.

### ***Kathryn Senior Elementary & Riverside Middle School***

- Both of these schools are located on the east side of Alder Avenue, immediately north of the intersection of Alder Avenue and Castle Valley Boulevard, in the Castle Valley Subdivision. The schools maintain a service population of approximately 1000 students throughout the school year, from mid-August through the beginning of June. The schools are predominately brick construction, are positioned at elevation and have minimal landscape or vegetation in the vicinity. Fire or floods pose minimal risk to the structures. Other natural activity such as seismic events or saturation may present a considerable hazard.

### **Other infrastructure and critical facilities**

- **Gasoline/Fuel storage and delivery** – Stop N’ Save, Kum and Go – These fuel station/convenience stores are typical, dispensing gasoline and diesel fuels. They are located opposite one another on the north and south sides of Highway 6, west of its intersection with Castle Valley Boulevard. This location is also known as the I-70 interchange MM105. These resources are critical if isolated due to disaster.
- **City Market Complex** – The City Market complex is located on the 800 block of East Main Street on the north side. It consists of four main buildings and a parking area large enough to contain approximately 350 vehicles. The buildings consist of a bank, bowling alley, City Market grocery store, and a two story structure containing restaurants and liquor store on the lower level, a gym, doctor’s office and other office space on the upper level. This two-story structure abuts an excavated hillside on its northern edge. This hillside is subject to saturation and has landslide potential. This complex is a resource for food, medical supplies, use as a staging area, and/or helicopter operations.
- **City Market** - Numerous restaurants exist within the Town limits, although duration of food-stocks is unknown. Under normal conditions the City Market contains enough food to sustain, if controlled, the current Town population for a short period.
- **Fire Station – Burning Mountains Fire Protection District**– The fire station is located on the 700 block of Castle Valley Boulevard. This is a new structure containing various fire fighting apparatus and emergency equipment. Availability of this equipment would be critical in any emergency situation. The structure could potentially be used as an emergency operations and staging center. It is located on a sloping hillside with minimal vegetation in the vicinity. Fire poses a minimal danger although potential saturation and landslide hazards exist.

- **County Road 335** – County Road 335 runs parallel to I-70 and the Colorado River at the southern Town limit. It provides access to the west for residential properties outside the Town limits and to an industrially zoned portion of Town which includes businesses involved in the sales of hardware, lumber, stone, flooring materials, propane, individually packaged water, soft drinks, food snacks, etc. To the east County Road 335 provides access to an apartment complex within the Town, a park, and to other residential properties outside the Town limits. The resources contained within the industrial portion of the Town limits would be crucial in the event of large scale disaster. County Road 335 is located at the base of a mountain slope and is subject to rockslide, landslide and slip due to saturation.

### *Historic and cultural resources*

The Town of New Castle’s was incorporated on February 2, 1888. Its Main Street is a designated historic district. Over the years, New Castle’s Historic Preservation Commission, a group of residents and town officials, have been committed to the historic preservation of the Town and the future success of Main Street. Their efforts have focused on “historic style” improvements between 2nd and 8th Streets (old style lamp posts, trees, and benches) and historic landmark designation for selected buildings along Main Street. They sought to embellish Main Street’s existing historic character and building stock.<sup>2</sup>

### *Community organizations and programs*

New Castle is populated by a diverse group of persons of all types, races, beliefs and age ranges. The following are groups or organizations with community interest or stake in a rapid return to “normal” should a natural hazard or disaster present itself. These groups are most likely to assist the community, with or without direction:

- New Castle is the gateway to the Flattops region and White River National Forest. A large variety of year-round sporting opportunities present themselves to the sportsman. A strong percentage of the New Castle population is sport oriented and would respond to assist if called to a hazardous situation within the Town.
- A concerted effort to encourage citizen volunteer efforts has been under way for some time. Volunteer groups can be identified through this effort.
- Numerous churches within the Town have considerable membership. Some citizen oriented non-profit groups are also based in New Castle. The River Center is an example of the former; its mission to determine the needs of the community, recruit volunteers and fulfill those needs.

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<sup>2</sup> *New Castle – Garfield County, Colorado* by Crissy Fanganello, May 1999.

- The police department has a neighborhood watch programs which provides access to several neighborhood citizen groups and/or networks.
- Other organizations include the Boy Scouts and Lions Club.
- New Castle has an extensive recreational program with numerous individuals involved and generally assigned as teams. In the event of disaster team members and respective families could be contacted and assigned as operating units.

### *Administrative structure*

On January 12, 1999, the Town of New Castle adopted a Home Rule Charter. The Charter provides for a Council-Mayor form of government. It includes the requirement of two readings and advanced publication of ordinances before passage by the Council. This Charter also grants the Town the power of eminent domain outside our municipal boundaries. As the Town's needs and desires change, flexibility in our government is enhanced by our ability to institute laws, procedures, and boards and commissions through ordinances. This strengthens the voice of our citizens and their ability to become involved in local government by providing for the electorate's rights of referendum, petition, and recall.

All powers of the Town shall be vested in an elected Mayor and elected Council. The Council determines policies, enacts local legislation, adopts budgets, and appoints the Town Administrator who is delegated executive and administrative functions. The Council also appoints the Town Clerk, and Town Treasure/Finance Director.

The Towns current Organizational Chart is included as an appendix to this plan.

## Section 3: Risk Assessment

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This section expands on Garfield County's Natural Hazards Mitigation Plan by addressing New Castle's unique risks to the following natural hazards:

- Wildfire
- Flood
- Landslide and debris flow
- Earthquake
- Severe Weather
- Hazardous Materials (as a secondary hazard to the natural hazards outlined above)

### *Wildfire*

In general, the County's Risk Assessment does an adequate job of describing the risk from wildfires with the areas surrounding the Town of New Castle, given the data currently available. However, the County is also in the process of updating its Community Wildfire Protection Plan (CWPP), and more accurate and detailed risk assessment data will be available in the early years of implementing this natural hazard mitigation addendum. New Castle will work with the County and the surrounding rural fire protection districts to evaluate and understand the implications of the CWPP to the Town's wildfire risk and action items.

With this mitigation plan addendum, the Town wishes to acknowledge the following geographic areas and related vulnerabilities in which local risk is greater than the risk described in the County's risk assessment, and in which additional actions are warranted to reduce the risk to life and property:

- In general, wildfire risk is greatest in the northern portion of New Castle, from the area north of Mt. Medaris
- More specifically, new development on the northeastern edge of town, accessed via Clubhouse Drive and Faas Ranch Road has had incomplete mitigation to reduce the risk of wildfire, which increases its vulnerability. A new golf course at the northeastern edge of town is expected to experience accompanying development of new higher-end housing in the coming years, in areas that have steep slopes and are at risk from wildfires spreading from the adjacent wildland-urban interface.
- Some nearby coal mines, similar to those in other parts of the County have been smoldering underground for over 100 years and provide possible sources of ignition. The Coal Seam fire resulted from the same ignition source.
- While not inside the Town's boundaries, a large trailer park near the southwestern border for the Town is vulnerable to fire. Many of the park's residents access services and retail opportunities in New Castle.

## **Flood**

With this mitigation plan addendum, the Town wishes to acknowledge the following geographic areas and related vulnerabilities in which local flood risk is greater than the risk described in the County's risk assessment, and in which additional actions are warranted to reduce the risk to life and property from flooding.

- The Town's potable water headgate, located on East Elk Creek, is vulnerable to flood damage. While it is outside of the Town's limits, it is a town-owned facility. Summer 2011
- A bridge crossing on CR 245 at East Elk Creek (a Garfield County controlled facility outside the Town's limits), is critical to the safe and efficient flow of transportation into and out of the Town.
- A wastewater / effluent discharge on the Colorado River could become blocked in a flood, damaging the Town's ability to effectively manage water.
- Grand River Park along the Colorado River in the southeast portion of the Town is subject to flood events.

## **Mitigation successes**

The Town of New Castle is not new to risk reduction and mitigation activities, though this is its first adopted and FEMA-approved mitigation plan. The following projects show a track record of success in implementation:

- 7th Street Project (2001): The Town of New Castle used its own funds and equipment to create a diversion structure to protect residents from storm water flooding during heavy rain. Property owners along 7th Street were suffering repetitive losses. The project included construction of a channel at the western base of Mount Medaris. The channel diverts floodwaters away from private property and into the public right-of way. The project has been tested several times by heavy rainfall since its construction and no losses have been suffered. The diversion structure was constructed with limited funds and should be considered temporary. Future improvements should include channel enlargement, bank armament and construction of a storm water detention basin.
- N. Wild Horse Project (2007): The Town of New Castle used its own funds to contract improvements to the N. Wildhorse drainage area. The project is intended to protect future residential development from large and infrequent flooding and debris flows. The project included channeling flood water under the roadway and into an improved parkland area. The improvements include installation of large galvanized culverts and an armored channel. The improved park land is designed to act as a water and debris basin.
- Hwy 6 Project (2002): At the request of the Town, land developers created a diversion structure to protect businesses and residents from



storm water flooding during heavy rain. Property owners along Hwy 6 were suffering repetitive losses. The project included construction of a channel at the eastern base of Mount Medaris. The channel diverts floodwaters away from private property and into the public right-of-way. The project has been tested several times by heavy rainfall since its construction and no losses have been suffered. The diversion structure was constructed with limited funds and should be considered temporary. Future improvements should include channel enlargement, bank armament and construction of a storm water detention basin.

- C Ave. Drainage Project (2008): A series of detention basins were created above the downtown district that suffered from repetitive flooding. The basins were constructed by land developers and are located in Castle Valley Ranch PUD, above the C Ave. drainage channel. The basins are designed to fill up and hold excess flood waters until the system can recover and drain naturally. The project has been tested several times by heavy winter runoff and no losses have been suffered.

### The National Flood Insurance Program (NFIP)

The Flood Insurance and Mitigation Administration, a component of the Federal Emergency

Management Agency (FEMA), manages the National Flood Insurance Program (NFIP). The three components of the NFIP are: 1) Flood Insurance; 2) Floodplain Management; 3) Flood Hazard Mapping.

The Town of New Castle participates in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Preliminary Flood Insurance Study (FIS) Flood Insurance and Rate Maps (FIRM) are not available for New Castle. There are no repetitive flood loss properties in Town of New Castle.

Town of New Castle – NFIP Participation Information			
Category	Data	Category	Data
Date Joined NFIP	7/22/2004	Number of Policies in force	0
CRS class/discount	N/A	Insurance in Force	0
CAV date	7/22/2009	Number of Paid Losses	0
CAC date	01/04/2010	Total Losses Paid	0
Date of Current FIRM	Never Mapped	Substantial Damage claims since 1978	0

Notes: CAC = Community Assistance Contact; CAV = Community Assistance Visit; CRS = Community Rating System; FIRM = Flood Insurance Rate Map; NFIP = National Flood Insurance Program

### Landslide and debris flow

Several areas within the Town of New Castle experience landslides and debris flows in ways that affect the residents and infrastructure of the Town. The

following geographic areas and related vulnerabilities experience local landslide and debris flow risk that is greater than what is described in the County's risk assessment. Additional actions are warranted to reduce the risk to life and property from landslides and debris flows in these areas:

- Mount Medaris is a small range with steep slopes that runs through the Town of New Castle from east to west. It is located just to the north of the historic downtown area. This area is subject to debris flows and rock fall that impact downtown New Castle and areas in the immediate vicinity.
- The southern boundary of the Town is flanked by steep slopes and is subject to debris flows and rock fall.

### *Earthquake*

The Garfield County Natural Hazard Mitigation Plan adequately describes the causes and characteristics, hazard history, and impacts of earthquakes in the Town of New Castle. In general, the risk is low in Garfield County for this type of event.

However, the historic commercial district near I-70 was constructed around the turn of the last century, and may have unreinforced masonry that could be subject to damage in an earthquake.

### *Severe weather*

The Garfield County Natural Hazard Mitigation Plan adequately describes the causes and characteristics, hazard history, and impacts of severe weather in the Town of New Castle. In general, severe weather events are frequent occurrences in the County that residents are aware of and prepared for. Existing programs target risk reduction and education related to severe weather.

### *Hazardous materials*

The Garfield County risk assessment describes hazardous materials spills as possible secondary hazard events resulting from landslides or debris flows / rock falls, wildfires, or earthquakes that impact storage areas. Additionally, several hazardous materials transfer routes (most notably I-70 and the rail line) bisect the County; spills or accidents along these lines, which also run near the Colorado River, could result in contamination of the source of drinking water for many communities in the County. In New Castle, the railroad tracks run adjacent to the historic downtown area; spills there from accidents could result in economic loss and impact the health and safety of residents and retail patrons in this area. The Town's drinking water source is Elk Creek; as a result, spills upstream on the Colorado would not affect the Town's drinking water source, but would affect wildlife habitat and recreational areas.

## Section 4: Action Items

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### *Mitigation Action Items*

Short and long-term action items identified through the planning process are an important part of the mitigation plan. Action items are detailed recommendations for activities that local departments, citizens and others could engage in to reduce risk.

#### **Multi Hazard**

- Review comprehensive plan and development codes for opportunities to more effectively reduce risks to new development.
- Continue to encourage citizens to prepare and maintain 72-hour kits.

#### **Wildfire**

- Undertake wildfire mitigation for the Castle Valley Ranch and Elk Run Areas, including clearing and maintaining fire breaks and other fire defensive areas.
- Undertake wildfire mitigation for the Lakota Canyon Ranch. Identify, clear, and maintain fire defensive areas and fire breaks.
- Coordinate with Garfield County to review development codes and improve opportunities to mitigate wildfires near the communities.

#### **Flood**

- Survey / map areas of critical concern for stream banks on East Elk Creek above the Town's potable water intake as a first step in fortifying the stream banks to reduce the risk to the intake from flooding.
- Construct a pressurized effluent system to discharge at the wastewater treatment plant.
- Continue compliance with the National Flood Insurance Program (NFIP) through the enforcement of local floodplain ordinances.
- Update the town's Flood Insurance Rate Maps (FIRMs) if funding becomes available.
- Armor the flood banks surrounding the Grand River Park.

#### **Landslides / Debris Flows**

- Construct diversions and barricades to control debris flows from Mt. Medaris and Grand Hogback Mountain.

#### **Severe Weather**

- Continue to educate citizens about ways to weatherize their homes, as well as safe emergency heating equipment.