2023

City of Ontario
Local Hazard Mitigation Plan

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Atlas Planning Solutions

Public Review Draft

4/20/2023

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Chapter 1 – Introduction

Plan Purpose and Authority

Hazard events can lead to injuries or death, affect a community's overall health and safety, damage or destroy public and private property, harm ecosystems, and disrupt key services. Although the hazard event itself often gets the most attention, it is only one part of a larger emergency management cycle.

Emergency planners and responders can take steps during the response, recovery, mitigation, and preparedness phases of the cycle to minimize the harm caused by a disaster. This Local Hazard Mitigation Plan (LHMP) focuses on optimizing the mitigation phase of the cycle. Mitigation involves making a community more resilient to disasters so that when hazard events do ultimately occur, the community suffers less damage and can recover more effectively. It differs from preparedness, which involves advanced planning for how best to respond when a disaster occurs or is imminent. For example, a policy to make homes structurally stronger so they suffer less damage during an earthquake is a mitigation action, while fully equipping shelters to accommodate people who lose their homes in an earthquake is a preparedness action. Some activities may qualify as both.

HAZARD EVENT: an emergency due to a natural or human-caused event that has the potential to cause harm.

HAZARD MITIGATION: any sustained action taken to reduce or eliminate long-term risk to people and property from natural or human-caused hazards and their effects.

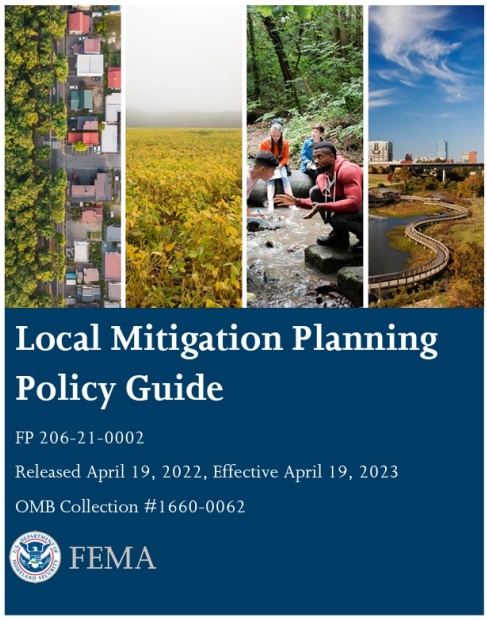
RESILIENCE: the capacity of any entity (an individual, a community, an organization, or a natural system) to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.

Like other communities, the City of Ontario (City) could potentially suffer severe harm from hazard events. Although large disasters may cause widespread devastation, even smaller disasters can have substantial effects. The City cannot make itself completely immune to hazard events, but this LHMP can help make the community a safer place to live, work, and visit. This LHMP provides a comprehensive assessment of the threats that the City faces from natural and human-caused hazard events and a coordinated strategy to reduce these threats. It identifies resources and information that can help community members, City staff, and local officials understand local threats and make informed decisions. The LHMP can also support increased coordination and collaboration

between the City, other public agencies, local employers, service providers, community members, and other key stakeholders.

Federal Authority

The City is not required to prepare an LHMP, but state and federal regulations encourage it. The federal Robert T. Stafford Disaster Relief and Emergency Act, amended by the Disaster Management Act of 2000, creates a federal framework for local hazard mitigation planning. It states that jurisdictions that wish to be eligible for federal hazard mitigation grant funding must prepare a hazard mitigation plan that meets a certain set of guidelines and submit this plan to the Federal Emergency Management Agency (FEMA) for review and approval. The following regulations and guidelines apply to this plan:



FEMA Local Mitigation Planning Policy Guide provides the official policy and interpretation of the applicable statutes and mitigation planning regulations in 44 Code of Federal Regulations

Federal Laws

- Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended.

Federal Regulations

- 44 CFR Part 201 Mitigation Planning.
- 44 CFR, Part 60, Subpart A, including § 60.3 Flood plain management criteria for flood-prone areas.
- 44 CFR Part 77 Flood Mitigation Grants.
- 44 CFR Part 206 Subpart N. Hazard Mitigation Grant Program.

Federal Guidance

- FEMA Local Mitigation Planning Policy Guide (FP 206-21-0002), effective April 19, 2023

State Authority

California Government Code Sections 8685.9 and 65302.6

California Government Code Section 8685.9 (also known as Assembly Bill 2140) limits the State of California's share of disaster relief funds paid out to local governments to 75 percent of the funds not paid for by federal disaster relief efforts unless the jurisdiction has adopted a valid hazard mitigation plan consistent with the Disaster Management Act of 2000 and has incorporated the hazard mitigation plan into the jurisdiction's general plan. In these cases, the State may cover more than 75 percent of the remaining disaster relief costs.

All cities and counties in California must prepare a general plan, including a safety element that addresses various hazard conditions and other public safety issues. The safety element may be a stand-alone chapter or incorporated into another section, as the community wishes. California Government Code Section 65302.6 indicates that a community may adopt an LHMP into its safety element if the LHMP meets applicable state requirements. This allows communities to use the LHMP to satisfy state requirements

for safety elements. As the General Plan is an overarching long-term plan for community growth and development, incorporating the LHMP into it creates a stronger mechanism for implementing the LHMP.

California Government Code Section 65302 (g)(4)

California Government Code Section 65302 (g)(4), also known as Senate Bill (SB) 379, requires that the safety element of a community's general plan address the hazards created or exacerbated by climate change. The safety element must identify how climate change is expected to affect hazard conditions in the community and include measures to adapt and be more resilient to these anticipated changes.

Because the LHMP can be incorporated into the safety element, including these items in the LHMP can satisfy the state requirement. SB 379 requires that climate change be addressed in the safety element when the LHMP is updated after January 1, 2017, for communities that already have an LHMP, or by January 1, 2022, for communities without an LHMP.

This LHMP is consistent with current standards and regulations, as outlined by the California Office of Emergency Services (Cal OES) and FEMA. It uses the best available science, and its mitigation actions/strategies reflect best practices and community values. It meets the requirements of current state and federal guidelines and makes the City eligible for all appropriate benefits under state and federal law and practices. Note that while FEMA is responsible for reviewing and certifying this LHMP, and Cal OES is responsible for conducting a preliminary review, it does not grant FEMA or Cal OES any increased role in the governance of the City or authorize either agency to take any specific action in the community.

Plan Organization and Use

The Ontario LHMP is both a reference document and an action plan. It has information and resources to educate readers and decision-makers about hazard events and related issues and a comprehensive strategy that the City and community members can follow to improve its resilience. It is divided into the following chapters:

- **Chapter 1: Introduction**. This chapter describes the background of the Plan, its goals and objectives, and the process used in its development.
- **Chapter 2: Community Profile**. This chapter discusses the history of Ontario, its physical setting and land uses, its demographics, and other important community characteristics.
- **Chapter 3: Hazard Assessment**. This chapter identifies and describes the hazards that pose a threat to Ontario and discusses past and future events and the effects of climate change.
- **Chapter 4: Vulnerability Assessment**. This chapter describes the threat of each hazard on Ontario's key facilities and community members, including socially vulnerable individuals.

- **Chapter 5: Mitigation Strategy**. This chapter lists the mitigation actions to reduce Ontario's vulnerability to hazard events and provides an overview of the community's existing capabilities to improve hazard resilience.
- **Chapter 6: Plan Maintenance**. This chapter summarizes the process for implementing, monitoring, and updating the LHMP and opportunities for continued public involvement.

Previous Ontario LHMP

The 2018 Ontario LHMP was adopted by the Ontario City Council on December 4, 2018. This plan is currently active and is set to expire on December 28, 2023. An active plan allows the City to maintain its eligibility for FEMA hazard mitigation grant funding sources, which occur annually through FEMA Hazard Mitigation Grant Programs budgeted by Congress or periodically as a part of a federally declared disaster.

Key updated elements from the previous Ontario LHMP include the following:

- Updated Plan Goals
- Integration of the recently updated General Plan, Housing Element, and Climate Adaptation Vulnerability Assessment into the Community Profile, Hazards Assessment, and Vulnerability Assessment chapters of the plan
- Expanded historic events discussions within the plan
- Updated Capabilities Assessment
- Updated Mitigation Actions and Strategies, which includes progress on previous actions

Plan Goals

This Plan was developed to broadly increase resilience in Ontario. The following key goals were developed for the City's LHMP:

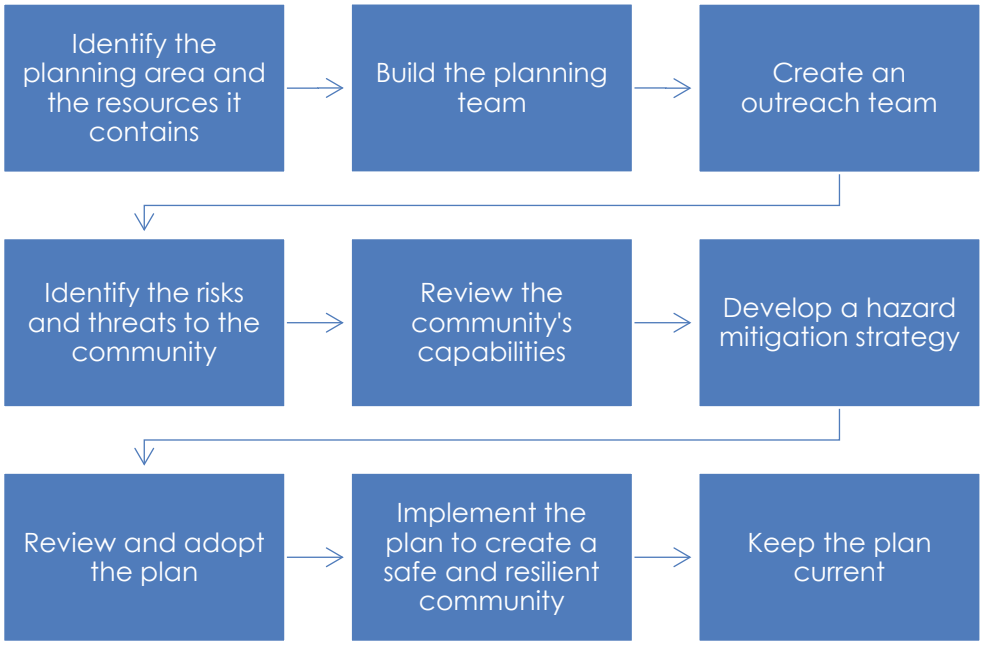
- Increase readiness for all hazards.
- Continue to reduce fire hazards.
- Minimize exposure to structural and content damage from geologic and seismic conditions.
- Provide adequate protection to minimize damage from flooding and dam inundation.
- Use anti-terrorism strategies to discourage terrorism and protect the people, infrastructure, and assets from these effects.
- Reduce the impacts of climate change on the city and limit human activities that change the atmosphere's makeup.
- Reduce the risk of injury, property damage, and economic loss resulting from wind-related hazards.

These goals are very similar to the 2018 goals; however some modifications were made to streamline the language, ensure greater consistency with the City's General Plan

Safety Element, and align with the community's priorities identified during the TOP 2050[1] process.

Planning Process

State and federal guidance for LHMPs do not require that jurisdictions follow a standardized planning process. FEMA encourages communities to create their own planning process that reflects local values, goals, and characteristics. FEMA does suggest a general planning process that follows these general milestones:



For the City of Ontario, the planning process used to create this plan is described below.

Hazard Mitigation Planning Committee

The City established a Hazard Mitigation Planning Committee (hereafter referred to as the HMPC). The HMPC comprises representatives from key City departments and stakeholder members, including representatives from local and regional agencies and companies that are key to hazard mitigation activities. **Table 1-1** identifies the members that were invited and/or attended HMPC meetings.

Table 1-1: Ontario HMPC Members

Name	Title	Department
Sagar Patel (Project Manager, POC)	Emergency Manager	Office of Emergency Management
Nick Gonzalez	Recreation & Community Services Director	Community Life & Culture (Recreation)

[1] The Ontario Plan 5050 (TOP 5050) is the comprehensive update to the City's General Plan.

Kelly Zackman	Library Services Manager	Community Life & Culture (Library)
Michelle Sifuentes	Museum Curator	Community Life & Culture (Museum)
Matt Montieth	Supervising Building Inspector	Community Development (Building)
Angela Magana	Community Improvement Director	Community Development (Community Improvement)
Khoi Do	City Engineer	Community Development (Engineering)
Peter Pallesen	Senior Project Coordinator	Community Development (Housing)
Kim Ruddins	Sustainability Program Manager	Community Development (Planning)
Charity Hernandez	Principal Project Manager	Economic Development
Angelica Mora	Purchasing Manager	Financial Services
Paul Ehrman	Senior Deputy Chief, Fire Marshal	Fire Department
Reed Sigler	Departmental Administrator	Human Resources/Risk Management
Colin Fernandes	Executive Director	Information Technology
Claudia Isbell	Assistant City Clerk	Management Services (Records Management)
Jimmy Chang	Broadband General Manager	Management Services (Broadband)
Albert Gastelum	Utilities Assistant General Manager	Ontario Municipal Utilities Company (OMUC)
Eric Quinones	Detective	Police Department
Joshua Blessingham	Fleet Services Coordinator	Public Works (Municipal Services)
David Coote	Park & Maintenance Supervisor	Public Works
Scott Ochoa	City Manager	Management Services
Darlene Sanchez	Assistant City Manager	Management Services
Dan Bell	Communications & Community Relations Director	Management Services

The HMPC held three meetings throughout the plan development process to lay out the methods and approach for the Plan, draft and review content, make revisions, and engage members of the public.

HMPC Meeting #1 (September 7, 2022): The HMPC members confirmed the project goals and the responsibilities. They revised the community engagement and outreach strategy, confirmed and prioritized the hazards to be included in the Plan, and identified critical facilities for the threat assessment.

HMPC Meeting #2 (October 5, 2022): Members held a detailed discussion about the results of the hazards assessment and mapping that showed the areas facing an elevated risk. The HMPC also reviewed the hazard prioritization results.

HMPC Meeting #3 (October 27, 2022): The HMPC reviewed the results of the risk assessment to identify the populations and assets that may face greater harm in a hazard event. The HMPC also discussed potential hazard mitigation actions to address vulnerabilities.

Invitations to HMPC meetings, as well as agendas/materials, were provided via email. **Appendix A** contains copies of HMPC meeting materials including meeting agendas, sign-in sheets, and other relevant materials distributed to attendees for these meetings.

Public Engagement

Under FEMA guidelines, local hazard mitigation planning processes should create opportunities for members of the public to be involved in plan development—at a minimum, during the initial drafting stage and during plan approval. The HMPC chose to go beyond minimum standards and conduct more extensive community outreach to help ensure that the LHMP reflects community values, concerns, and priorities. The HMPC developed a community engagement and outreach strategy to guide all public engagement activities. To ensure all residents were aware of the project, Ontario staff promoted and included a description of the project and ways to get involved on the City's website; this is discussed in more detail in the online engagement section.

Stakeholder Engagement

The City conducted a virtual stakeholder meeting with representatives from surrounding cities (City of Chino Hills and City of Rancho Cucamonga), the Ontario Convention Center, and the Ontario International Airport. Information regarding this opportunity to include key members from surrounding communities are located in **Appendix B**.

Public Engagement Opportunities

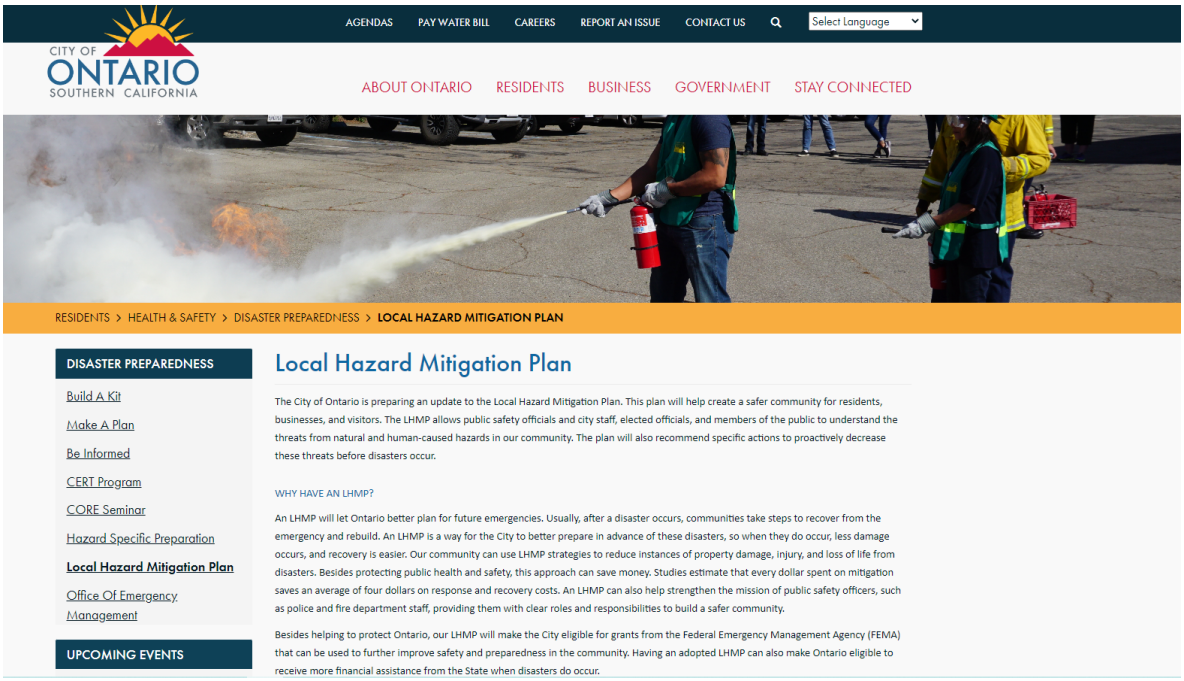
In-person engagement opportunities were a central component of the City's engagement efforts. These meetings provided an opportunity for members of the public to learn about the hazards of concern identified by the HMPC during this update. City staff presented the LHMP information and survey at the CERT Monthly Volunteer Meeting. Additionally, City staff advertised the survey at two other public events. Notices of each meeting were widely distributed in advance in accordance with City notification requirements, the engagement strategy, legal requirements, and best practices.

Public Engagement Opportunity #1 October 2022: This engagement opportunity was conducted at a Health and Safety Fair, reaching approximately 120 people.

Public Engagement Opportunity #2 December 2022: This engagement opportunity was conducted at the Reindeer 5k Run, reaching approximately 200 people.

Appendix B includes a copy of the materials used to promote these engagement opportunities.

Online Engagement



City of Ontario LHMP Webpage

The City recognized that not all community members are able to attend public meetings and conducted public engagement through social media and online platforms. To assist with engagement, the City set up a project website as a simple, one-stop location for community members to learn about the LHMP. The website included information about what an LHMP is and why the City prepared one. It had links to materials and Plan documents as they became available and allowed members of the public to receive notifications about upcoming events.

The City also promoted the planning process through the following online methods:

- Ontario's City Website
- Social Media (Facebook, NextDoor, Twitter)
- Community E-newsletter (LHMP information was sent to 10,865 subscribers in the November 2022 and January 2023 newsletters)
- Distribution of information to their extensive CERT Member List

Based on analytics tracked by the City, the combined Facebook, Twitter, and Instagram impression rate was 18,756.

Online Survey

A central part of the engagement strategy was an online survey. This survey asked community members about their experience and familiarity with emergency conditions, their level of preparedness for future emergencies, and preferred actions for the City to take to increase resiliency. The survey was distributed to over 12,000 individuals from the

City's notification lists and had responses from 133 individuals. A summary of these responses is provided here:

- Nearly 40% of respondents live in Ontario, with an additional 18% that live and work in Ontario.
- Approximately 64% of respondents have not been impacted by a disaster in their current residence.
- The top three hazards of concern for respondents were Extreme Weather (High winds, Extreme Heat Days, Severe Rainstorms), Earthquake/Geologic Hazards, and Human-caused Hazards (Transportation Incidents, Communications Failure, Terrorism).
- Approximately 90% of respondents showed concern regarding climate change affecting future hazards.

As part of the outreach strategy a QR code was created that could be used on promotional materials and handouts at fairs and booths used by City staff at community events. This QR Code provided quick access to the City's Online Survey

Appendix B contains copies of all materials used for public outreach, including the full results of the community survey.

Public Review Draft

On (insert date), the City released a draft copy of the LHMP for public review and comment. The document was posted electronically on the City's website as well as at the following locations for community members to review a hard copy:

Location 1

Location 2

Notifications about the public review draft were provided through social media accounts and other online sources.

Plan Revision and Adoption (to be completed after public review)

The City received public comments on the plan; however, none of the comments required edits or modification to the plan content. Following public comment, the City submitted the plan to Cal OES and FEMA. The City then made additional revisions to incorporate comments from state and federal agencies, as appropriate, and submitted the final draft to City decision-makers. The Ontario City Council adopted the final LHMP on [DAY MONTH, YYYY]. **Appendix C** contains a copy of the adoption resolution.

Plan Resources

The City used several different plans, studies, technical reports, datasets, and other resources to prepare the hazard assessment, mapping, threat assessment, and other components of this Plan. **Table 1-2** provides some of the primary resources the HMPC used to prepare this Plan.

Table 1-2: Key Resources for Plan Development		
Section	**Key Resources Reviewed**	**Data Incorporated from Resource**
Multiple	• Cal-Adapt • California Department of Conservation • California Geological Survey • California Office of Emergency Services • California State Hazard Mitigation Plan • 2018 City of Ontario Hazard Mitigation Plan. • 2050 Ontario Plan (General Plan) • FEMA Local Hazard Mitigation Plan Guidance • National Oceanic and Atmospheric Administration • National Weather Service • US Geological Survey	• Science and background information on different hazard conditions • Records of past disaster events in and around Ontario • Current and anticipated climate conditions in and around Ontario • Projections of future seismic conditions and events
Community Profile	• 2020 US Census Bureau Decennial Census • US Census Bureau 2016-2020 American Community Survey • 2050 Ontario Plan (General Plan) • 2050 Ontario Plan Background Reports • California Energy Commission	• Demographic information for Ontario and San Bernardino County • History of the region • Economic trends in Ontario • Commute patterns in Ontario • Local land-use patterns • Background information on utilities serving Ontario
Hazard Assessment (Dam Failure)	• California Department of Water Resources • San Bernardino County Flood Control District • US Army Corps of Engineers	• Mapping of dam failure inundation areas • Profiles and conditions of dams in and around Ontario
Hazard Assessment (Flood Hazards)	• FEMA Map Service Center • San Bernardino County Flood Control District	• Records of past flood events in and around Ontario

		• Locations of flood-prone areas in Ontario
Hazard Assessment (Human-Caused Hazards)	• Global Terrorism Database	• Historical records of terrorism
Hazard Assessment (Hazardous Materials Release)	• Department of Toxic Substances and Control • Environmental Protection Agency	• Location and dates of past hazardous materials release • Effects of hazardous materials release
Hazard Assessment (Seismic Hazards)	• California Geological Survey • United State Geological Survey	• Science and background information on seismic hazards • Historical record of seismic hazard events in and around Ontario
Hazard Assessment (Severe Weather Hazards)	• NOAA • National Weather Service	• Records of past weather events
Note: Sections not individually identified in this table relied primarily on sources identified in multiple sections.		

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Chapter 2 – Community Profile

The Community Profile section of the LHMP is a summary of Ontario, including information about the community's physical setting, history, economy and demographics, current and future land uses, and key infrastructure. The Community Profile helps to establish the baseline conditions in Ontario, which inform the development of the hazard mitigation actions in Chapter 5.

Setting and Location

The City of Ontario is located in the Inland Empire in Western San Bernardino County, approximately 35 miles east of Los Angeles and 20 miles west of San Bernardino on a flat alluvial plain at the base of the San Gabriel Mountains. The City is bordered by the neighboring cities of Upland, Montclair, Chino, Rancho Cucamonga, and Fontana.

Ontario Quick Facts
Elevation: 925 ft above sea level
Area: 49.8 square miles
Incorporated: 1891
Government Type: City Council/City Manager
Population (2022 Census estimate): 178,194
Nearest cities: Upland, CA – 4.7 miles Chino, CA – 4.9 miles Montclair, CA – 4.9 miles Rancho Cucamonga, CA – 5.9 miles Claremont, CA – 7.4 miles Chino Hills, CA – 8.5 miles Pomona, CA – 8.8 miles Fontana, CA – 14.2 miles
Nearest city with population 200,000+*: Riverside, CA (17.5 miles, pop. 317,847)
Nearest city with population 1,000,000+*: Los Angeles, CA (51.5 miles, pop. 3.820 million)
*** California Department of Finance**

Figure 2-1: City of Ontario Location

History

In the first week of August 1881, George Chaffey, a Canadian engineer, viewed the wastes known as the Cucamonga Desert and decided that this patch of land, if properly watered, could become productive and profitable. George and his brother William bought the "San Antonio lands," 6,218 acres with water rights, for $60,000. This was the nucleus of their new model colony. They subsequently expanded to the Southern Pacific Railroad tracks on the south. On the north, they took in the Kincaid Ranch at San Antonio Canyon, an all-important source of water.

The Ontario Colony lands were quickly surveyed and went on sale in November 1882. The centerpiece was Euclid Avenue, eight miles long and two hundred feet wide, the twin "driveways" separated by a parkway that was seeded in grass and lined with pepper trees. George named Euclid Avenue after the great Greek mathematician whose book Elements of Geometry had been a favorite subject for George in school. The primary requirement, which had to be met before the land could be utilized, was that water had to be found and brought to the town. Chaffey laid miles of cement pipe for this purpose, and later the San Antonio Water Co. drove a tunnel into the head of the canyon to tap the underground flow—then an innovation in the field. The need for electric power to lift water from deep wells led to the establishment of the Ontario Power Co.

Another innovation in the settlement of Ontario was the provision whereby purchasers of land automatically received shares in the water company. This would ensure purchasers that a share of water proportional to their acreage would be piped to their land. This eliminated many problems that faced settlers elsewhere, where land and water rights were kept separate.

Charles Frankish became the guiding force during Ontario's early years. No matter what activity he undertook, Frankish always threw himself into his work and was determined to do the best possible job.

In 1887, Ontario's unique "gravity mule car" made its first run on Euclid Avenue. Charles Frankish and Godfrey Stamm established the Ontario and San Antonio Heights R.R. Co. Engineer John Tays of Upland added the pull-out trailer that allowed the mules to coast downhill after each laborious pull from Holt to Twenty–Fourth Street. The mule car served until 1895 when it was replaced by an electric streetcar and returned temporarily when a flood damaged the electrical generator in the powerhouse.

On December 10, 1891, Ontario was incorporated as a city of the sixth class under the California Constitution. It adopted a City Council-City Manager form of government. The mayor was at first called the "President of the chosen by the Council, or the Board of Trustees as it was then called, from among their number. Subsequently, the law was changed to allow the people to elect the mayor directly.

Ontario first developed as an agricultural community, largely but not exclusively devoted to citrus. A few of the lovely Victorian "grove houses" still survive, relics of the days when

growers could pretend that they were living the graceful lives of the old Spanish dons—until it came time for harvest.

Chaffey College, located where the Chaffey brothers established it until 1960, originally emphasized agricultural subjects to give the growers a hand. It was there that Prof. George Weldon developed the Babcock peach, an adaptation to California's mild winters. The college has moved to Rancho Cucamonga now, but Chaffey High School is still on what was originally a joint campus.

A reminder of the heyday of the San Bernardino groves, the Sunkist plant remains to this day. Even though the groves have gone from the West End, Ontario is still close to the "ton-mile center" of the industry. In addition to oranges, the production of peaches, walnuts, lemons, and grapes was also important to the growth of Ontario and the adjoining City of Upland.

In 1923, Judge Archie Mitchell, Waldo Waterman, and other airplane enthusiasts established Latimer Field. From that time on, the town became increasingly aviation conscious. Urban growth pushed the fliers progressively east until they took up their present location, the Ontario International Airport. During World War II, this was a busy training center for pilots of the hot Lockheed P-38 "Lightning" twin-boom fighter.

Since World War II, Ontario has become a much more diversified community with an approximate population of 175,518 (2020 Decennial Census). The city has expanded from the 0.38 square mile area incorporated back in 1891 to almost 50 square miles. The economy now reflects an industrial and manufacturing base. Ten thousand acres are zoned for industrial use. With three major railroads, the San Bernardino, Pomona, and Devore Freeways (I-10, SR 60, and I-15), and the Ontario International Airport, Ontario is well provided with major transportation resources. Its proximity to Los Angeles ensures that Ontario will continue to grow in the years ahead.[2]

Demographics

The data used in this section comes from the most comprehensive American Community Survey (ACS 5-Year Estimates 2016-2020), administered by the United States Census Bureau (US Census) completed in 2020, the 2020 Decennial Census, and 2022 Census estimates. Based on these datasets, Ontario's 2020 population was estimated to be 175,518, with a median age of 32.3, which is 1.3 years younger than the rest of San Bernardino County (33.6 years old). Comparatively, the number of senior residents aged 65 and older is less than the rest of San Bernardino County, while Ontario residents are slightly wealthier. In addition, a higher proportion of Ontario residents rent compared to San Bernardino County. **Table 2-1** shows the basic demographics for Ontario and San Bernardino County. It should be noted that more recent population estimates place the city's population at 178,194 residents, which is an increase of about 7.9% from the last census in 2010, showing us the city has experienced population growth over the last

[2] City of Ontario Website, https://www.ontarioca.gov/FactsAndHistory

decade. According to the 2022 San Bernardino County Continuum of Care Homeless Count and Survey, the city has a homeless population of 193 people (105 unsheltered and 88 sheltered). The 2022 count shows an 89% increase in homeless population from 2020. It can be assessed that the number of homeless people in the city are likely to be higher than reported, as it is extremely difficult to count people living in cars, abandoned buildings, and other deserted places. Additionally, some of the homeless population may not wish to be found.

Table 2-1: Basic Demographics, Ontario, and San Bernardino County

Demographics	Ontario	San Bernardino County
Total Population	175,518	2,181,654
Percent of children who are less than 10 years old	14.2%	14.3%
Percent of residents who are senior citizens (65+)	9.5%	12.1%
Median Age	32.3	33.6
Total households	50,599	640,090
Median household income	$67,357	$65,761
Percent of rental households	45.4%	39.9%

Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 2016-2020

In terms of its racial and ethnic composition, Ontario is a racially diverse city, with 38% percent of all Ontario residents identifying as some other race alone. The second-largest population is white, with 24.2% percent of all residents identifying as such. This population makeup mirrors greater San Bernardino County due to a high proportion of white and some other race alone populations. **Table 2-2** shows the racial and ethnic composition for all groups in Ontario and San Bernardino County.

Ontario residents have attained slightly lower higher education levels in comparison to San Bernardino County. Comparatively, a smaller proportion of the population has attained bachelor's and professional degrees, 18% of the city's residents versus roughly 21.3% of the County's residents. Other categories also differ, such as a larger percentage of people not having education past 9th grade and a slightly larger percentage of people not having graduated high school. **Table 2-3** shows all levels of educational attainment of residents 25 years of age or older in both Ontario and San Bernardino County.

Table 2-2: Racial and Ethnic Composition, Ontario and San Bernardino County

Race or Ethnicity	Ontario		San Bernardino County	
	Population	Percentage	Population	Percentage
White	42,332	24.2%	782,691	35.9%
Black	11,045	6.3%	184,558	8.6%
American Indian and Alaskan Native	4,184	2.4%	41,663	1.9%
Asian	16,243	9.3%	182,287	8.4%
Native Hawaiian and Other Pacific Islander	549	0.3%	7,461	0.3%
Some Other Race Alone	66,663	38.0%	621,140	28.5%
Two or more races	34,249	19.5%	361,854	16.6%
Lantinx (of any race) *	124,808	71.2%	1,224,685	56.1%
Total	**175,265**	**100%**	**2,181,654**	**100%**

*** The US Census Bureau does not currently count persons who identify as Latinx as a separate racial or ethnic category. Persons who identify as Hispanic or Latinx are already included in the other racial or ethnic categories**
Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 2016-2020

Table 2-3: Educational Attainment of Residents 25+ Years of Age

Educational Attainment	Ontario		San Bernardino County	
	Number	Percentage	Number	Percentage
Less than 9th grade	13,770	12.2%	116,664	8.5%
9th grade to 12th grade (no diploma)	13,590	12.1%	147,371	10.8%
High school graduate or equivalent	30,176	26.8%	361,289	26.4%
Some college (no degree)	25,075	22.3%	332,044	24.3%
Associate degree	9,624	8.6%	118,673	8.7%
Bachelor's degree	14,844	13.2%	190,544	13.9%
Graduate or professional degree	5,397	4.8%	101,693	7.4%
Total	**112,476**	**100%**	**1,368,278**	**100%**

Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 2016-2020

Ontario has a wide range of non-English languages spoken at home among its residents, with varying levels of proficiency. Generally, Spanish is the second most-spoken language at home other than English in Ontario, with approximately 37.4% who are not fluent in English and speak it less than "very well." This is approximately 3.7% higher than the countywide population of Spanish language speakers. Asian and Pacific Islander languages are the third most-spoken languages in Ontario, with almost half, 48.4% of these speakers unable to speak English fluently. This is like the rest of San Bernardino

County, where approximately 46.8% of Asian and Pacific Islander language speakers are unable to speak English fluently. **Table 2-4** shows the most spoken languages in Ontario and the levels of fluency among speakers aged five and older in Ontario and San Bernardino County.

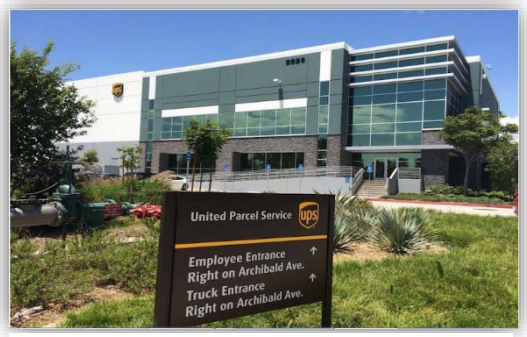
Table 2-4: English Proficiency and Languages Spoken at Home (2020)

Languages	Ontario		San Bernardino County	
	Number of Speakers	Speak English Less Than "Very Well"	Number of Speakers	Speak English Less Than "Very Well"
English only	73,709	-	1,171,425	-
Spanish	82,176	30,713 (37.4%)	689,338	232,270 (33.7%)
Indo-European*	1,660	335 (20.2%)	27,134	7,379 (27.2%)
Asian and Pacific Islander*	7,428	3,595 (48.4%)	104,417	48,824 (46.8%)
All other languages	921	314 (34.1%)	17,498	6,487 (37.1%)
Total	165,894	34,957**	2,009,812	294,960**

***Census data does not break down the specific languages for languages spoken in these regions**
****Due to these figures only being a percentage of the overall number of speakers, they will not add up to 100%.**
Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 2016-2020

Economy and Commute Patterns

Ontario has a diverse economy of employers from various sectors, including distribution, retail/wholesale trade, manufacturing, administrative support, construction, hotels and entertainment, health services, and education. With a total employment base of 119,230 employees. The top employer in the city is United Parcel Service. The second-largest employer is Workforce Personnel, Inc., with more than 5,000 employees. The next top three employers are Ontario Montclair Elementary School, Chaffey Union High School, and FedEx. **Table 2-5** shows the top five employers in Ontario in 2021.



UPS air and ground sorting facility at Ontario International Airport. Image from Connectcre.com

As of 2019, 75,283 Ontario residents are employed, with approximately 11,107 (14.8%) working within the city. This local workforce accounts for 8.8% of the entire workforce, approximately 126,883 employees (2019), with the remaining workforce coming from surrounding cities throughout the region. **Table 2-6** shows the top five cities that

contribute to Ontario's workforce, which accounts for over 28% of those employed within the city.

Table 2-5: Top Employers in Ontario	
Employer	**Number of Employees**
United Parcel Service	5,000 - 9,999
Workforce Personnel, Inc.	5,000 – 9,999
Ontario Montclair Elementary School	1,000 – 4,999
Chaffey Union High School	1,000 – 4,999
FedEx	500 - 999

***Per EDD, employment numbers are confidential; therefore, only the data for the range of numbers of employees are available.**
Source: City of Ontario Annual Comprehensive Financial Report Fiscal Year Ended June 30, 2021

Table 2-6: Top Five Cities-of-Origin for Ontario's Workforce (2019)		
Cities-of-Origin for Ontario's Workforce	**Number of Employees**	**Percentage**
Ontario	11,107	8.8%
Fontana	7,546	5.9%
Rancho Cucamonga	7,052	5.6%
Riverside	5,043	4.0%
Los Angeles	5,011	3.9%
Total	**35,759**	**28.2%**

Source: https://onthemap.ces.census.gov/

While the majority of Ontario's residents commute outside the city for work, most of those residents (41.1%) travel less than 10 miles to reach their place of employment. Approximately 9.4% of commuters traveled 50 miles or more, with most of those trips heading into the Los Angeles area. The city boasts convenient freeway, rail, and international air access to Los Angeles, Orange, San Diego, and Riverside Counties. **Table 2-7** shows the outflow of workers from Ontario to other regional worksites.

Table 2-7: Work Commute Distances for Ontario's Residents (2019)		
Work Destinations for Ontario's Residents	**Number**	**Percentage**
Less than 10 miles	30,921	41.1%
10 to 24 miles	20,091	26.7%
25 to 50 miles	17,171	22.8%
Greater than 50 miles	7,100	9.4%
Total	**75,283**	**100%**

Source: https://onthemap.ces.census.gov/

Development Trends

Ontario is located within a dense part of San Bernardino County that has experienced significant growth and development over the past 30 years. The population of the City has grown by approximately 15,600 residents since 2010. With land still available and

numerous active developments ongoing within the City, population growth is expected to continue throughout the City.

The Regional Housing Needs Assessment (RHNA) is mandated by State Housing Law as part of the periodic update of General Plan housing elements. Through the RHNA process a community decides how to address existing and future housing needs resulting from population, employment, and household growth.[3]

The City recently completed a comprehensive update to the city's General Plan called The Ontario Plan 2050 (TOP 2050). This collection of documents will help guide the development and conservation of the City over the next 30 years. According to TOP 2050, the city is anticipating major growth in both the number of residential units and corresponding population. **Table 2-8** depicts this anticipated growth and development that will meet the City's RHNA allocation requirements.

Table 2-8: Comparison of Approved TOP and TOP 2050

Scenario	Units	Population	Nonresidential Square Feet	Employment
Existing 2021 Conditions	52,466	179,597	156,065,382	131,999
Approved TOP	104,163	357,957	260,399,271	313,067
Proposed TOP 2050	129,562	410,492	261,491,779	296,002
Net Difference (Proposed TOP 2050 – Approved TOP)	**25,399**	**52,535**	**1,092,508**	**-17,065**

Source: The Ontario Plan 2050 Draft Supplemental Environmental Impact Report, City of Ontario

Based on this the TOP 2050 update projects an increase in residential dwelling units, growth in both population, and non residential development, however this anticipated development is expected to result in a reduction in employment.

These proposed changes would see strictly commercial and office use areas converted to mixed-use or residential areas, as well as intensification of residential density in certain key sites to higher density uses. The proposed changes in TOP 2050 will also have long term effects which reflect anticipated market trends including an increase in residential development, reduced office growth, and a small increase in commercial development. Changes to housing and population characteristics include a reduction trend in household sizes, and a residential occupancy rate which includes a 4-5% vacancy of all housing units (turnover, sales, etc.). Changes to the employment generation rates assumed in TOP 2050 were designed to reflect the national employment trends, such as the reduction in office space required for employees as work from home options increase, changes in industrial jobs as robotic automation increases in both the large

[3] What is RHNA? https://scag.ca.gov/rhna

warehousing and logistic centers decreasing the number of jobs per square foot, and an increase in the demand for commercial and hospitality jobs.[4]

Figure 2-2 displays the areas of proposed land use changes that will accommodate the adopted land use changes within TOP 2050. A majority of the new development anticipated in the City will occur in Ontario Ranch area as well as four key growth areas (Downtown Growth Area, the West Holt Growth Area, the East Holt Growth Area, and the Ontario Airport Metro Center [OAMC]).

Vulnerability and Risk Reduction

All new development occurring in the areas of change identified in Figure 2-2 will provide hazard vulnerability and risk reduction for the city. This reduction will occur due to the anticipated improvements and investments implemented in the older parts of the City as a result of TOP 2050. In addition, the new developments that will be built will comply with the most up-to-date building codes and use the latest techniques, further reducing vulnerabilities throughout the City.

Major Community Elements

Institutional Uses

Education is a major component of the city's identity. The city boasts multiple universities, vocational and trade schools, and community colleges, such as the University of La Verne College of Law, University of Phoenix, American Career College, UEI College, DeVry University, and San Joaquin Valley College to name some of these institutions. With thousands of students enrolled and attending classes, the daytime population of Ontario can increase significantly. The vast majority of these schools are located along the I-10 freeway corridor, which bisects the city.

Ontario International Airport

Ontario International Airport is a public airport approximately two miles from downtown Ontario in San Bernardino County, CA. It has been owned and operated under a joint-powers agreement between the city of Ontario and the County of San Bernardino since 2016, when control was transferred from Los Angeles World Airports. The airport covers approximately 1,741 acres and has 2 parallel runways. The airport boasts 2 terminals with 27 gates and a separate adjacent international arrival-only facility with 2 more gates for a total of 29 gates. It is the West Coast air and truck hub for UPS Airlines and a major distribution point for FedEx Express. The airport serviced over 4.4 million passengers in 2021 and shipped or received over 890,000 tons of freight.[5]

[4] The Ontario Plan 2050 Draft Supplemental Environmental Impact Report, City of Ontario
[5] https://www.flyontario.com/

Ontario Convention Center

A 225,000 square foot venue of flexible column-free exhibit, meeting, and function space, the Ontario Convention Center accommodates conventions, trade shows, exhibits, and meetings. Located approximately two miles from Ontario International Airport with access to a variety of hotel and dining options within walking distance.

Toyota Arena

Toyota Arena, built and owned by the City of Ontario, and operated by ASM Global, can accommodate over 11,000 guests. Located on a 37-acre parcel in the northeastern portion of the City. The 225,000-square-foot venue features 36 luxury suites on two levels and a continuous concourse hosting a variety of concession and refreshment stands, merchandise kiosks, the VIP Club, and other fan amenities. Toyota Arena hosts over 125 events annually, including concerts, family shows, and sporting competitions. The Arena is home to several sports teams, including Ontario Reign (American Hockey League), Ontario Fury (Major Arena Soccer League), Aqua Caliente Clippers of Ontario (G League Basketball), and LA Temptation (Legends Football League). Since opening in 2008, Toyota Arena is the biggest and most modern arena within the Inland Empire, an area with over 4.3 million people.[6]

Ontario Mills

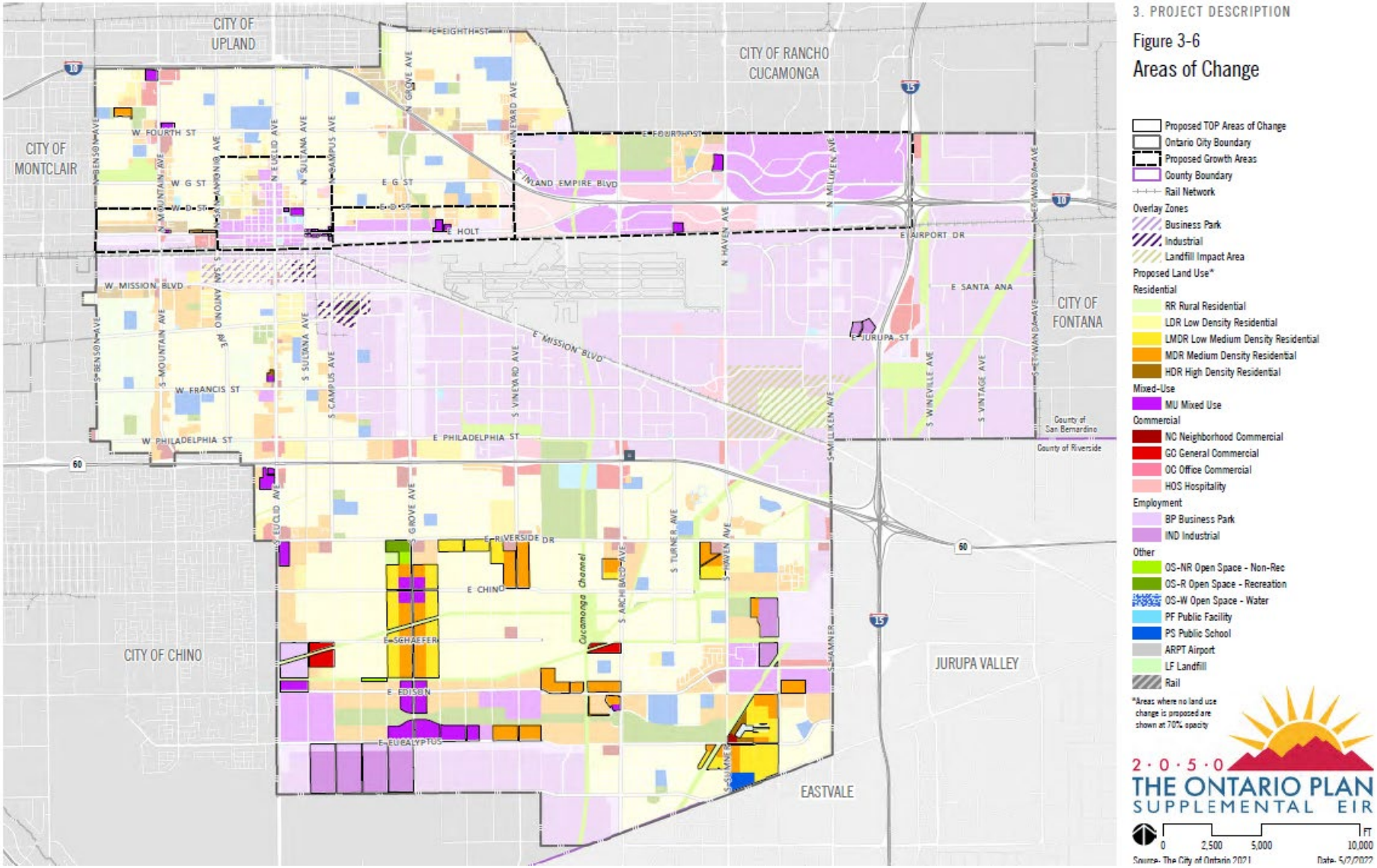
Ontario Mills, California's largest outlet and value retail shopping destination, is an indoor climate-controlled shopping center that provides the ultimate shopping experience with more than 200 stores. In addition to shopping, Ontario Mills offers dining and entertainment venues. Located at the intersection of I-10 and I-15, the Ontario Mills is located in close proximity to the Ontario International Airport, the Toyota Arena - and less than an hour from downtown Los Angeles and the Orange County coast.[7]

Ontario Ranch

Ontario Ranch is a Master-Planned Community (MPC) currently in development with a buildout horizon over the next 20 years. Currently ranked as the #7 ranked MPC in the nation and #1 in the Inland Empire. It will span over 8,000 acres and cover 13 square miles, offering beautiful neighborhoods with abundant resort-style recreation, parks, and family-oriented living. Described as a visionary model for California growth, it is the first gigabit community in Southern California featuring ultra-high bandwidth home-data services. It will also boast an expansive system of both trails and parks (Ontario Great Park), a proposed 8 new schools and independent sources of water. Once complete, Ontario Ranch will have some 47,000 homes and 162,000 residents, with a projected 16 million square feet of retail, office, medical, and residential space.[8]

[6] https://www.toyota-arena.com/arena-info/about
[7] https://www.simon.com/mall/ontario-mills/about
[8] https://www.ontarioca.gov/news/ontario-ranch

Figure 2-2: Areas of Proposed Land Use Changes within Ontario



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Open Space / Ontario 'Great' Park

Ontario is currently home to 30 recreational parks of various sizes, the West Cucamonga Creek Trail System, and a public golf course. Ontario has recently undertaken a massive project to begin constructing The Ontario 'Great' Park, which is located in the in the Ontario Ranch planning area, generally bounded by Ontario Ranch Road on the north, Eucalyptus Avenue on the south, Haven Avenue on the east, and Campus Avenue on the west. The Ontario 'Great' Park is approximately 3.7 miles long (east to west) and 340 acres in size. The Ontario 'Great' Park is envisioned as a focal point for the region, serving the City of Ontario's recreational and open space needs.[9]

Infrastructure Assessment

Infrastructure plays a vital role in mitigating the effects of hazard events. When infrastructure fails, it can exacerbate the extent of certain hazards or create complications for rescue workers trying to reach victims. For example, fallen utility poles, because of strong winds or seismic activity, can obstruct roadways and prevent emergency vehicles from reaching affected areas. The following are electrical, fossil fuel, hydrologic, and transportation infrastructure networks in Ontario.

Electricity

Ontario receives its electrical supply from Southern California Edison (SCE). Eight substations are located within the City, connecting 220kV and 66 kV powerlines that run east to west and north to south, circumventing Ontario Airport. These lines bring power to Ontario and the surrounding cities and connect to other regional power sources. These connections help Ontario access auxiliary electricity sources should any of its immediate infrastructure fail. However, a larger and more regional failure of the power grid would likely disrupt power transmission to Ontario for an extended time until power can be restored.

Natural Gas

Ontario receives its natural gas from Southern California Gas Company (SoCalGas). To ensure sufficient natural gas transmission throughout the region, SoCalGas owns and operates transmission lines that transect the City. The pipeline splits as it enters the city and traverses the northern section of the city before it enters Montclair and turns south, while the other pipeline branch runs along the eastern section of Ontario before exiting the southwest portion of the city. If these lines are damaged, there is a potential to interrupt the flow and delivery of natural gas throughout the City. Additionally, natural gas ignites very easily, and any rupture in a transmission line could cause additional damage to properties in the vicinity of the leak due to fire from the escaped natural gas. The presence of this infrastructure creates unique challenges for the city from an emergency management perspective. Including hazards associated with damage to

[9] City of Ontario Website, Ontario Great Park

this infrastructure is an important element of an effective response to future incidents involving natural gas use and transmission.

Public Safety Power Shutoff

The State's investor-owned utilities have general authority to shut off electric power to protect public safety under California law. Utilities exercise this authority during severe wildfire threat conditions as a preventative measure of last resort through Public Safety Power Shut offs (PSPS).[1]

The City began preparation for PSPS events by understanding the potential circuits that could be impacted (**Figure 2-3**) and the city needs and special populations that may be affected by these events. These incidents typically occur during high fire threat conditions (i.e., dry conditions and strong winds) and may affect communities located far away from any fires that are actively occurring. Although the few SCE circuits located within the city have not been de-energized during past PSPS events, the city must be prepared in the event that a future PSPS event does affect one of those circuits. Residents and businesses in these areas are sure to feel the impacts of these events if they do not have alternative options for electricity at their homes and places of business.

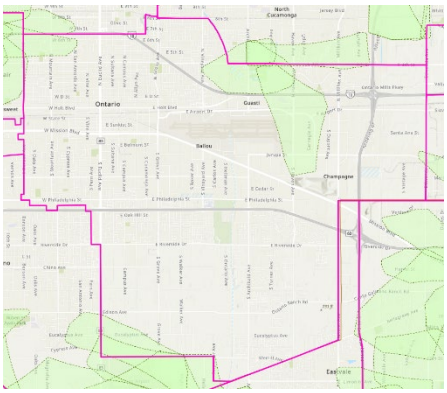

Figure 2-3: SCE Public Safety Power Shutoff Circuits surrounding the City

These events are anticipated to affect City resources as well since some City facilities rely on electricity to function. As a result, the City has prioritized back up power generation at City facilities in these affected areas to ensure residents have a safe place to seek refuge if needed, during these events.

Ontario Municipal Utilities Company

Ontario Municipal Utilities Company (OMUC) provides water, sewer, and assists in trash collection services for the city.

The city's water service area encompasses an area of approximately 49 square miles. According to the 2020 OMUC Urban Water Management Plan, they provide water service to a population of approximately 178,409 people, with a projected population of over 362,000 people by the fiscal year of 2044-45. OMUC serves a large group of families with special housing needs, including severely low-income earners, single-parent families, large families, seniors, people with disabilities, and homeless persons. The city historically has relied on groundwater pumped from the Chino Basin; treated groundwater from the Chino Basin produced by the Chino Basin Desalter Authority; treated, imported water purchased from Metropolitan Water District (MWD) through Water Facilities Authority;

groundwater and/or surface water purchased from San Antonio Water Company; and recycled water purchased from Inland Empire Utilities Agency.[10]

OMUC is also responsible for the operation and maintenance of an extensive wastewater collection system and is tasked with ensuring proper and efficient operation of the system. Ontario's service area is located within the city limits, with a small portion of the city in the northeast that is serviced by Cucamonga Valley Water District (CVWD). The City's wastewater collection system consists of approximately 425 miles of gravity lines, 9,400 associated maintenance holes and cleanouts, three city-owned lift stations, one privately owned/city-maintained lift station, over 24,200 feet of associated force mains, and 11 siphons. The system is divided into seven service areas, also referred to as sewer sheds, primarily based on the outlet points where the City's system ties into a downstream facility operated by the Inland Empire Utilities Agency (IEUA). The development and implementation of a wastewater collection system operations and maintenance program ensure that the system is routinely and properly maintained to minimize failures and extend the system's longevity.[11]

Trash services are provided by the Integrated Waste Department within the Public Works agency, which is committed to providing reliable, timely, safe, and affordable refuse collection services to the residents and businesses in the City of Ontario. Billing services and information on programs promoting waste minimization and locations for recycling efforts are provided by OMUC on the City's website.[12]

Transportation

Much of the transportation infrastructure in Ontario consists of roadways for automobiles, but there are many modes of travel into and out of the city. In total, there are freeways, buses/shuttles, local commuter trains, longer-distance trains, and air travel supporting mobility in and out of the City. For non-motorized travel, the city has an extensive network of pedestrian trails and bicycle paths.

There are 4 freeways/highways, I-10, I-15, and State Route (SR) SR-60 and SR-83 (primarily referred to as Euclid Ave) that connect Ontario to the greater Southern California region. The interchanges from these freeways and highways connect to major thoroughfares within the City. **Table 2-9** identifies these major routes that connect to the City's local transportation network.

[10] City of Ontario 2020 Urban Water Management Plan Link To Plan
[11] Ontario Municipal Utilities Company Sewar System Management Plan Link to Plan
[12] Recycling/Environmental Programs https://www.ontarioca.gov/OMUC/Recycling

Table 2-9: City of Ontario Transportation Infrastructure

Freeways/Highways in Ontario	Direction	Exits Serving the City of Ontario
I-10	East-West	Exit (53) 4th St, (54) Vineyard, (55) Archibald Ave; Holt Blvd; Ontario Airport, (56) Haven Ave, (57) Milliken Ave, (59) Etiwanda Ave; Valley Blvd
1-15	North-South	Exit (110) 4th St, (108) Jurupa St
SR-60	East-West	Exit (36) Grove Ave-Ontario Airport, (37) Vineyard Ave, (38) Archibald Ave, (40) Milliken Ave, Hamner Ave.
SR-83	North South	Traverses the City connecting it to I-10 in the North, and SR-71 in the South.

Source: **iExitapp.com**

Public transportation options within Ontario are provided by two public transit agencies that operate local bus and train services, Omnitrans and Metrolink, which are all regulated by the San Bernardino County Transportation Authority (SBCTA). Serving more than 2.1 million residents of San Bernardino County, the SBCTA is responsible for cooperative regional planning and furthering an efficient multi-modal transportation system countywide. The SBCTA administers Measure I, the half-cent transportation sales tax approved by county voters in 1989, and supports freeway construction projects, regional and local road improvements, train and bus transportation, railroad crossings, call boxes, ridesharing, congestion management efforts, and long-term planning studies.[13]

Omnitrans provides six routes servicing local Ontario neighborhoods, neighboring cities in San Bernardino County, and one express service route that connects Ontario with the cities of Montclair, Colton, and San Bernardino.

Metrolink's East Ontario Station, located in the City of Ontario. Photo Courtesy of Metrolink

The Metrolink provides local and regional train service in Ontario, out of the East Ontario Station located south of the Ontario International Airport at 3330 E. Francis Street. East Ontario Station provides the Metrolink Riverside Line with a connector in the City of Ontario. This line connects Riverside to Downton

[13] San Bernardino County Transportation Authority

Los Angeles and runs along the Union Pacific Railroad, featuring seven daily trains on weekdays only. The East Ontario station also provides a shuttle service to Ontario International Airport, served by Omnitrans. Ontario International Airport is discussed above in an earlier section.

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Chapter 3 – Risk Assessment

This chapter discusses the types of hazards that might reasonably occur in Ontario. It describes these hazards and how they are measured, where in Ontario they may occur, a history of these hazards in and around Ontario, and the future risk they pose. The discussion of future risks includes any changes to the frequency, intensity, and/or location of these hazards due to climate change. This chapter also discusses how the HMPC selected and prioritized the hazards in this Plan.

Hazard Identification

FEMA guidance identifies several hazards that communities should evaluate for inclusion in a hazard mitigation plan. Communities may also consider additional hazards for their plans. The HMPC reviewed the previous hazards in the 2018 plan and discussed other potential hazards, excluding ones that do not pose a threat or are not a significant concern to Ontario. **Table 3-1** lists the hazards considered and explains the reasoning for inclusion/exclusion. For context, this table also shows if a hazard is recommended for consideration by FEMA, if it is included in the 2018 California State Hazard Mitigation Plan (SHMP), and if it is included in the San Bernardino County Hazard Mitigation Plan (SBC HMP).

Table 3-1: Hazard Evaluation for Ontario LHMP

Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Agricultural Pests	SHMP	No	While historically agricultural activities have occurred within the southern portion of the City, these areas are moving out of the community and being replaced by new residential, commercial, and industrial developments. Without the presence of these large agricultural areas in the community, the HMPC did not identify this as a hazard of concern for the City.
Air Pollution	SHMP	No	Air pollution is a state and regional issue that is addressed through plans and regulations administered by the South Coast Air Quality Management District and/or California Air Resources Board. Since the City does not regulate these resources, the HMPC did not identify this as a hazard of concern that could be addressed in this plan.
Aircraft Incident	SHMP	No	Ontario International Airport is located within the City. This facility is operated under a Joint Powers Agreement that the City is party to, however the JPA conducts all planning activities for the

			facility. Given the lack of control over this asset and few past incidents associated with aircraft incidents have occurred, the HMPC determined that this hazard should not be included in the plan.
Aquatic Invasive Species	SHMP	No	There are no major riparian environments in Ontario where aquatic invasive species could endanger the community.
Avalanche	FEMA guidance SHMP	No	Ontario is not located within potential avalanche zones.
Civil Disturbance or Riot	SHMP	No	The HMPC determined that the City includes a number of areas where large populations visit/congregate (Ontario International Airport, Toyota Arena, Ontario Mills, Ontario Convention Center, etc.), however these locations have not experience significant issues associated with civil disturbance. For this reason, the HMPC did not identify this as a hazard of concern.
Climate Change	SHMP SBC HMP	Yes	Climate change is discussed as a function of each relevant hazard and is mentioned throughout the Plan.
Coastal Flooding and Storm	FEMA guidance SHMP	No	Ontario is not located along the coast of California. Coastal flooding and storms are not anticipated to impact the community.
Cyber Threats	SHMP	Yes	With the increase in cyber threats occurring throughout California and the nation, the HMPC is concerned about their effects on communications. This hazard is addressed as a function of communications failure.
Dam Failure	FEMA guidance SHMP SBC HMP	Yes	Ontario is located downstream of dams that could inundate the community. Due to City's location downstream of these facilities, the HMPC identified dam failure as a hazard of concern.
Drought	SHMP SBC HMP	No	The HMPC is confident in the current hydrologic infrastructure and supply for the City. The HMPC does not consider drought to be a local issue alone, but rather a regional one. It is addressed in both the State and San Bernardino County HMP's.
Energy Shortage	SHMP	No	While energy shortage has the potential to occur in Ontario, the risk associated with this is similar to surrounding communities. While loss of power could occur, the bigger concern for the City is the effects this could have on communications infrastructure.

Epidemic, Pandemic, Vector-Borne Disease	SHMP	No	Ontario is in San Bernardino County, which has experienced several health-related incidents in the past. The City, along with the rest of the country, has recently responded to the COVID-19 pandemic, which has impacted staff and resources. However, the HMPC felt it was best to address this issue in the City's Emergency Operations Plan (EOP).
Erosion	FEMA guidance SHMP	No	Due to its relatively flat nature and lack of hills, the HMPC did not identify erosion as a hazard of concern for the City.
Expansive Soil	FEMA guidance	No	Expansive soils were not identified by the HMPC as a hazard of concern. While they could exist, the City requires compliance with the California Building Code, which is intended to mitigate hazards associated with this condition.
Extreme Cold	FEMA guidance SHMP	No	Temperatures in Ontario do not fall to a level that would be considered a danger to public safety. Due to this the HMPC did not identify this as a hazard of concern.
Extreme Heat	FEMA guidance SHMP	Yes	Extreme heat has occurred in Ontario and is expected to be a future recurring issue. This issue was identified by the HMPC as a hazard of concern and included in the Extreme Weather profile.
Fault Rupture	FEMA guidance SHMP SBC HMP	No	There are no known Alquist-Priolo fault zones located within Ontario. As a result, the HMPC did not identify this as a hazard of concern to the City.
Flooding	FEMA guidance SHMP	Yes	Several watercourses transect the City and are identified within FEMA flood hazard zones. While significant flooding events have not significantly affected properties within the City recently, the presence of these flood zones indicates the potential for future hazards. The HMPC identified flooding as a hazard of concern included in the Flooding profile.
Fracking	SHMP	No	Fracking does not occur in Ontario.
Hail	FEMA guidance	No	Hail that is severe enough to pose a threat to people and property is too rare in Ontario to be included.
Hazardous Materials release	SHMP	Yes	The presence of uses for storing, manufacturing, disposing, and transporting hazardous materials was identified as a concern for the HMPC. In addition, several major roadways, freeways, and rail lines transecting the City allow for the transport of these materials that could endanger the

			community if a release into the environment were to occur.
Hurricane	FEMA guidance SHMP	No	Hurricanes do not occur in Ontario.
Infrastructure Failure	SHMP	No	Infrastructure failure can pose a threat to people and property in Ontario. A discussion of infrastructure failure is discussed as a function of other hazards.
Landslide	FEMA guidance SHMP	No	No areas within the City of Ontario have existing landslides or the potential for landslides to occur. As a result, the HMPC did not identify this as a hazard of concern to the city.
Levee Failure	SHMP	No	While levees are located within the City, they were not deemed a significant concern. These levees are owned and managed by San Bernardino County and the City does not have the authority to address these facilities but coordinates with the County on issues and upgrades. Based on this, the HMPC did not include Levee failure as a hazard of concern.
Lightning	FEMA guidance	No	Although lightning does occasionally occur in Ontario, it does not pose a significant threat to people or property.
Liquefaction	FEMA guidance SHMP SBC HMP	No	According to mapping prepared by the California Geological Survey, the City is not located within liquefaction prone areas. The HMPC did not identify this as a hazard of concern.
Methane-containing Soils	SBC HMP	No	The City does not have methane-containing soils that pose a threat to the public health and safety of residents and businesses. The HMPC did not identify this as a hazard of concern to the City.
Natural Gas Pipeline Hazards	SHMP	No	Natural gas pipelines traverse Ontario, posing a danger to people and property if they were to breach and release their contents. This condition is discussed in the Community Profile in Chapter 2 and is discussed in the vulnerability assessment where applicable.
Oil Spills	SHMP	No	There is no history of oil drilling and extraction within the City. Based on this, the HMPC did not identify this as a hazard of concern to the City.
Power Failure	SHMP	No	While power loss events can occur in the City, the HMPC determined that this hazard shouldn't be addressed within the LHMP and is better suited as a hazard addressed in the City's EOP.

Radiological Accidents	SHMP	No	There are no known major sources of radiation in Ontario or the immediate surrounding area that could pose a serious threat to the community.
Sea-level Rise	FEMA guidance SHMP	No	The City is not located along the coast or near any large bodies of seawater. The HMPC did not identify this as a hazard of concern for the City
Seiche	FEMA guidance SHMP	No	There are no major bodies of water in Ontario that could be subjected to seiche.
Seismic Shaking	FEMA guidance SHMP SBC HMP	Yes	Ontario is in a seismically active area where shaking can be severe enough to damage property or cause loss of life. For this reason, the HMPC determined it should be addressed in this plan.
Severe Wind	FEMA guidance	Yes	Severe Weather includes discussions regarding extreme heat, severe wind, and rain, which are weather-related hazards that are most common in Ontario.
Severe Weather and Storms	FEMA guidance SHMP SBC HMP	Yes	Severe Weather includes discussions regarding extreme heat, severe wind, and rain, which are weather-related hazards that are most common in Ontario.
Storm Surge	FEMA guidance	No	Ontario is not a coastal community. The HMPC did not identify this as a hazard of concern to the City.
Subsidence	FEMA guidance	Yes	The HMPC believed that subsidence could occur with significant groundwater pumping. Subsidence is not discussed as a stand-alone hazard but rather is a function of the geologic hazards profile.
Terrorism	SHMP	Yes	The HMPC was concerned about terrorism incidents posing a threat to public safety given the number of significant locations that could be considered targets within the City. A discussion of this is in the Human-Caused Hazards profile.
Thunderstorm	SHMP	No	Thunderstorms that cause damage and endanger public safety are rare in the Southern California region. The HMPC did not identify this as a hazard of concern.
Tornadoes	FEMA guidance SHMP	No	No tornadoes are known to have occurred in Ontario. The HMPC did not identify this as a hazard of concern.
Transportation Accidents	SHMP	Yes	Due to the presence of major freeways, roadways, railroad lines, and the Ontario International Airport located in and

			around the City, transportation accidents could endanger public safety. A discussion of this is in the Human-Caused Hazards profile.
Tree Mortality	SHMP	No	The HMPC noted that the City's has a significant number of trees, however the City currently manages these resources effectively and did not feel it was necessary to profile as a hazard of concern.
Tsunami	FEMA guidance SHMP	No	Ontario is not a coastal community. The HMPC did not identify this as a hazard of concern to the City
Urban Fire	SHMP SBC HMP	Yes	The HMPC identified urban fires as a risk to property and life in Ontario.
Volcano	SHMP	No	There are no volcanoes near Ontario to reasonably pose a threat. The HMPC did not identify this as a hazard of concern to the City
Wildfire	FEMA guidance SHMP	No	The city does not have any high fire hazard severity zones, nor is it located next to a wildland-urban interface area. Because of this, the HMPC did not identify this as a hazard of concern to the City; Urban Fire is the main risk to Ontario.

After hazard evaluation and the organizational changes made by the HMPC, this Plan discusses seven broad hazard types with their respective sub-categories:

Hazard Type	Sub-Categories
Earthquake/Geologic Hazards	Seismic Shaking Subsidence
Flooding	
Extreme Weather	Severe Winds Extreme Heat Severe Rainstorm
Dam Failure/Inundation	
Urban Fire	
Hazardous Materials Release	
Human-Caused Hazards	Terrorism Transportation Incidents Communications Failure
Climate Change	*Discussed in all Hazard Categories*

Hazard Scoring and Prioritization

Once the hazards for Ontario have been identified, the hazards are then given a priority ranking. In the Hazard Assessment Matrix below, the "Red" zone represents the highest priority hazards, the "Yellow" zone represents middle priority, and the "Green" zone represents the lowest priority hazards. As shown in Hazard Assessment Matrix, the two hazards considered the greatest threat to the City of Ontario are earthquake and flood, followed closely by extreme weather (EW) events. The hazard profiles and risk assessment that follows describes these hazards in-depth, reviews the exposure of assets to these hazards, and estimates losses or assesses risk for significant events associated with these hazards.

Ontario Hazards Assessment Matrix

2023 LHMP		IMPACT		
		High	**Medium**	**Low**
PROBABILITY	**High**	Earthquake / Geologic Hazards Flooding	EW-High Winds EW-Extreme Heat	
	Medium		EW-Severe Rain Storm Hazardous Materials Release Urban Fire HCH - Transportation Incidents	
	Low	Dam Inundation HCH-Terrorism	HCH- Communications Failure	
Climate Changes addressed under each hazard				

In addition to the simple prioritization exercise, the HMPC followed FEMA guidance for hazard mitigation plans and prioritized each of the hazards identified. In the initial step, it assigned a score of 1 to 4 for each of the hazards for the following criteria:

- **Probability:** The likelihood that the hazard will occur in Ontario in the future.
- **Location:** The size of the area that the hazard would affect.
- **Maximum probable extent:** The severity of the direct damage of the hazard to Ontario.
- **Secondary impacts:** The severity of indirect damage of the hazard to Ontario.

The HMPC assigned a weighting value to each criterion, giving a higher weight to the criteria deemed more important, and multiplied the score for each criterion by weighing the factor to determine the overall score for each criterion. These weighting values were recommended by FEMA:

- Probability: 2.0
- Location: 0.8
- Maximum probable extent: 0.7
- Secondary impacts: 0.5

Table 3-2 shows the Criterion Scoring used to assign a score for each criterion.

After calculating the total impact score for each hazard (sum of the location, maximum probable extent, and the secondary impact). FEMA guidance recommends multiplying the total impact score by the overall probability to determine the final score for each hazard. A final score between 0 and 12 is considered a low-threat hazard, 12.1 to 42 is a medium-threat hazard, and a score above 42 is considered a high-threat hazard. This final score determines the prioritization of the hazards.

In compliance with the Disaster Mitigation Act (and as further specified by Interim Final Rule 44 CFR Section 206.401(c)(2)(i)) this LHMP addresses, in substantial detail, the primary hazards facing the City. Lower priority hazards are addressed at a lesser level of detail due to their relatively reduced impacts, as identified in the hazard assessment discussion.

Table 3-2: Ontario Hazard Prioritization Worksheet

Hazard Type	Probability	Impact			Total Score	Hazard Planning Consideration
		Location	Primary Impact	Secondary Impacts		
Earthquake / Geologic Hazrds	4	4	4	4	64.00	High
Flood	4	3	2	3	42.40	High
High Winds	3	4	2	2	33.60	Medium
Extreme Heat	2	4	2	2	22.40	Medium
Severe Rainstorm	2	3	2	2	19.20	Medium
Hazrdous Materials Release	2	3	2	2	19.20	Medium
Urban Fire	2	3	2	2	19.20	Medium
Transportation Incidents	2	3	1	2	16.40	Medium
Dam Inundation	1	4	4	4	16.00	Medium
Terrorism	1	3	3	4	13.00	Medium
Communications Failure	1	4	2	2	11.20	Low

* Climate Change considerations discussed as appropriate within this hazard.

Probability	Importance
Based on estimated likelihood of occurrence from historical data	**2.0**
Probability	Score
Unlikely	1
Occasional	2
Likely	3
Highly Likely	4

Secondary Impacts	Importance
Based on estimated secondary impacts to community at large	**0.5**
Impact	Score
Negligible - no loss of function, downtime, and/or evacuations	1
Limited - minimal loss of function, downtime, and/or evacuations	2
Moderate - some loss of function, downtime, and/or evacuations	3
High - major loss of function, downtime, and/or evacuations	4

Location	Importance
area of community affected by hazard	**0.8**
Affected Area	Score
Negligible	1
Limited	2
Significant	3
Extensive	4

Impact)	Importance
Based on percentage of damage to typical facility in community	**0.7**
Impact	Score
Weak - little to no damage	1
days	2
months	3
conditions	4

Total Score = Probability x Impact, where:

Probability = (Probability Score x Importance)

Impact = (Affected Area + Primary Impact + Secondary Impacts), where:

Affected Area = Affected Area Score x Importance

Primary Impact = Primary Impact Score x Importance

Secondary Impacts = Secondary Impacts Score x Importance

Hazard Planning Consideration

Total Score	Range	Distribution	Hazard Level
0.0	12.0	7	Low
12.1	42.0	11	Medium
42.1	64.0	4	High

The probability of each hazard is determined by assigning a level, from unlikely to highly likely, based on the likelihood of occurrence from historical data. The total impact value includes the affected area, primary impact and secondary impact levels of each hazard. Each level's score is reflected in the matrix. The total score for each hazard is the probability score multiplied by it's importance factor times the sum of the impact level scores multiplied by their importance factors. Based on this total score, the hazards are separated into three categories based on the hazard level they pose to the communities: High, Medium, Low.

Hazard Profiles

Earthquake / Geologic Hazards

Earthquake and geologic hazards of concern in Ontario include seismic shaking and subsidence.

DESCRIPTION

An earthquake is a sudden slip on an active fault, and the resulting shaking and radiated seismic energy caused by the slip (USGS, 2009). The majority of major active faults in the Ontario area are strike-slip faults. For this type of fault, during an earthquake event, one side of a fault line slides past the other. The rupture from this type of fault extends almost vertically into the ground.

Earthquakes are a significant concern to the City of Ontario. The area around Ontario is seismically active since it is situated on the boundary between two tectonic plates. Earthquakes can cause serious structural damage to buildings, overlying aqueducts, transportation facilities, and utilities and can lead to loss of life. In addition, earthquakes can cause collateral emergencies, including dam and levee failures, fires, and landslides.

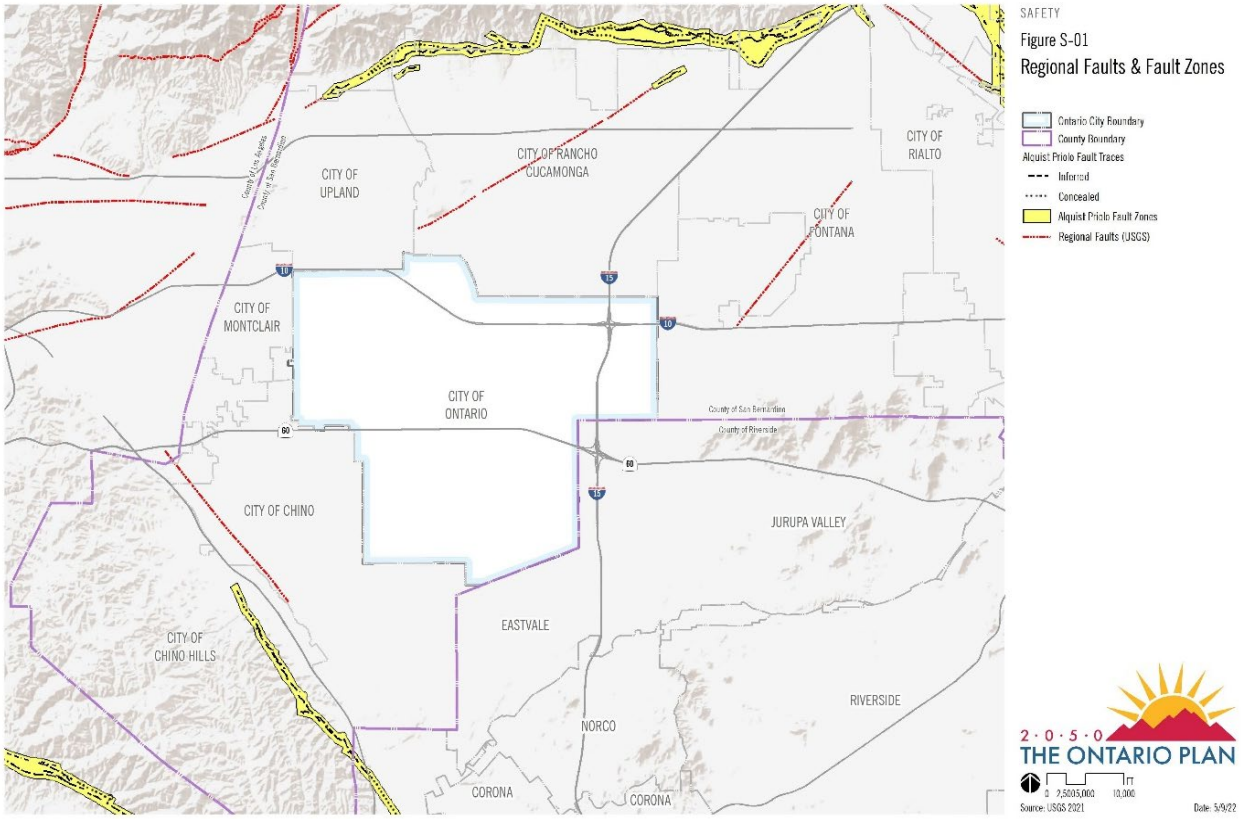
SEISMIC SHAKING

Seismic shaking is the shaking felt on the surface caused by an earthquake. In most cases, earthquakes are not powerful enough to feel the shaking. However, powerful earthquakes can generate significant shaking, causing widespread destruction and property damage. As previously discussed, earthquakes are considered a major threat to the City of Ontario due to the proximity of several regional fault zones. Major fault zones in the region include the San Andreas Fault, located approximately 14 miles northeast of the city, the San Jacinto Fault, located approximately 7 miles northeast of the city, the Elsinore Fault, located approximately 3 miles southeast of the city, and the Cucamonga Fault, located approximately 5 miles north of the city. All of these faults are capable of producing earthquakes of magnitude 6.7 or greater. A significant earthquake along one of the major faults could cause substantial casualties, extensive damage, and other threats to life and property. The shaking of the ground can also damage or destroy underground utilities or pipelines, potentially leading to a loss of power, conceivable fires should any natural gas pipelines be damaged, and possible release of hazardous materials and flooding if water lines are breached. These regional fault zones are displayed in **Figure 3-1** from the City's recently updated General Plan.

SUBSIDENCE

Subsidence occurs when the ground level decreases as if the surface is sinking. Subsidence can either be sudden (as in a sinkhole) or happen gradually over time. It can be caused by mining, groundwater pumping, or fossil fuel extraction, creating empty underground spaces that can collapse and cause the soil above to drop in elevation. Erosion, natural cave collapses, and seismic activity can also cause subsidence.

Figure 3-1: Regional Faults and Fault Zones



Location and Extent

Seismic Shaking

The intensity of seismic shaking occurs in relation to the amount of energy discharged by the seismic event, which is dictated by the length and depth of the fault. The longer and nearer the surface the fault rupture is, the greater the seismic shaking. In most cases, areas nearest to the fault rupture experience the greatest seismic shaking, while areas more distant experience less shaking. Seismic shaking can damage or destroy structures leading to partial or even total collapse. The shaking of the ground can also damage or destroy underground utilities or pipelines, potentially leading to releases of hazardous materials and flooding if water lines are breached.

Southern California is a highly seismic area because of the major faults that run through the region and the frequency of seismic events in the region. The intensity of seismic shaking is usually measured with the Modified Mercalli Intensity (MMI) scale based on the amount of observed damage. Seismic shaking may also be measured using the more widely known moment magnitude scale (MMS, denoted as M_w or sometimes M), which measures the amount of energy the earthquake releases. The MMS begins at 1.0 and increases as more energy is released. This scale is based on a logarithmic scale, meaning that the difference in energy between two measurements is substantially greater than the difference between the measurements themselves. For example, a M_w 6.5

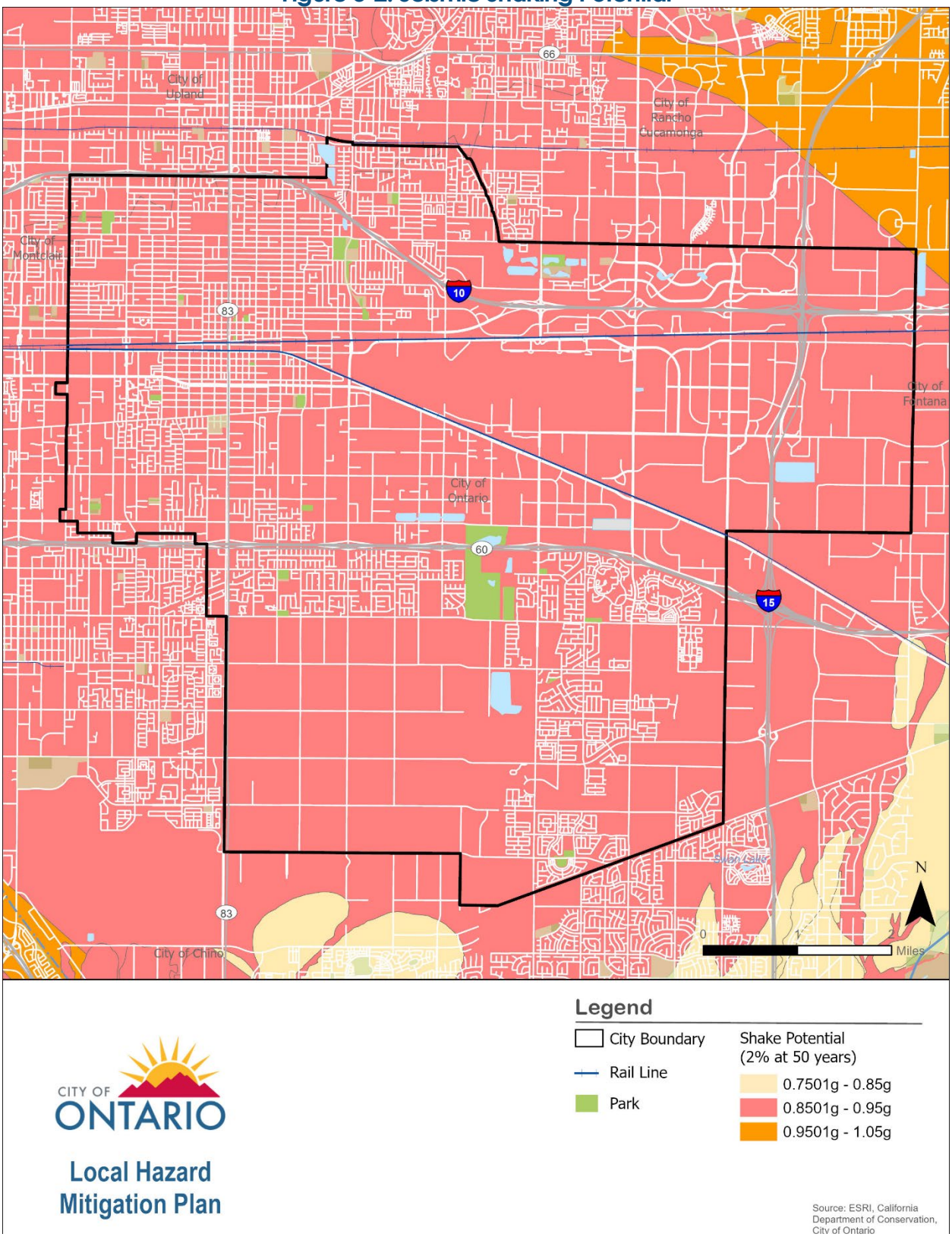
earthquake releases approximately 1.4 times as much energy as a M_w 6.4 earthquake and 1,000 times as much energy as a M_w 4.5 earthquake. The MMS replaces the Richter scale, which is similar but less reliable when measuring large earthquakes. Since the degree of shaking and consequential damage generally decreases as the seismic energy travels farther away from the event's point of origin, different sections of a city or region can report different MMI measurements in different locations. Given Ontario's size, it is likely that different sections of the city would report different MMI measurements. The MMI scale depicted in **Table 3-2** uses Roman numerals on a 12-point scale to measure and describe the effects of the shaking event. **Figure 3-3** shows seismic shaking potential within the city.

Table 3-3: Modified Mercalli Intensity Scale[14]

Intensity	Description	Description
I	Instrumental	Felt only by very few people under especially favorable conditions.
II	Feeble	Felt only by a few people at rest, especially on the upper floors of buildings.
III	Slight	Noticeable by people indoors, especially on upper floors, but not always recognized as an earthquake.
IV	Moderate	Felt by many indoors and by some outdoors. Sleeping people may be awakened. Dishes, windows, and doors are disturbed
V	Slightly Strong	Felt by nearly everyone, and many sleeping people are awakened. Some dishes and windows broken, and unstable objects overturned.
VI	Strong	Felt by everyone. Some heavy furniture is moved, and there is slight damage.
VII	Very Strong	Negligible damage in well-built buildings, slight to moderate damage in ordinary buildings, and considerable damage in poorly built buildings.
VIII	Destructive	Slight damage in well-built buildings, considerable damage and partial collapse in ordinary buildings, and great damage in poorly built buildings.
IX	Ruinous	Considerable damage in specially designed structures. Great damage and partial collapse in substantial buildings, and buildings are shifted off foundations.
X	Disastrous	Most foundations and buildings with masonry or frames are destroyed, along with some well-built wood structures. Rail lines are bent
XI	Very Disastrous	Most or all masonry structures are destroyed, along with bridges. Rail lines are greatly bent.
XII	Catastrophic	Damage is total. The lines of sight are distorted, and objects are thrown into the air.

[14] United States Geological Survey. 2019. The Modified Mercalli Intensity Scale. https://earthquake.usgs.gov/learn/topics/mercalli.php

Figure 3-2: Seismic Shaking Potential



Subsidence

The City identified that due to the significant amount of groundwater pumping that occurs within the City, subsidence in parts of the community are a concern. The portions of the City where active groundwater pumping is occurring are the most likely locations for subsidence. Other sections of the city could also be potentially subject to subsidence in the event of a major earthquake (M_w 5.0 or greater). In terms of extent, subsidence is typically measured by the distance that the ground has sunk from its original elevation (i.e., in feet or inches) or by using the rate of subsidence (i.e., inches or centimeters per year). According to the California Geological Survey (and United States Geological Survey), in California, large areas of land subsidence were first documented in the first half of the 20th century. Most of this was the result of excessive groundwater pumping, some of which has decreased by water conveyance projects from around the state that have allowed some groundwater aquifers to recover. However, subsidence continues at varying rates (some rates as high as <1 foot/year). **Figure 3-3** shows areas of subsidence within the city.

Past Events

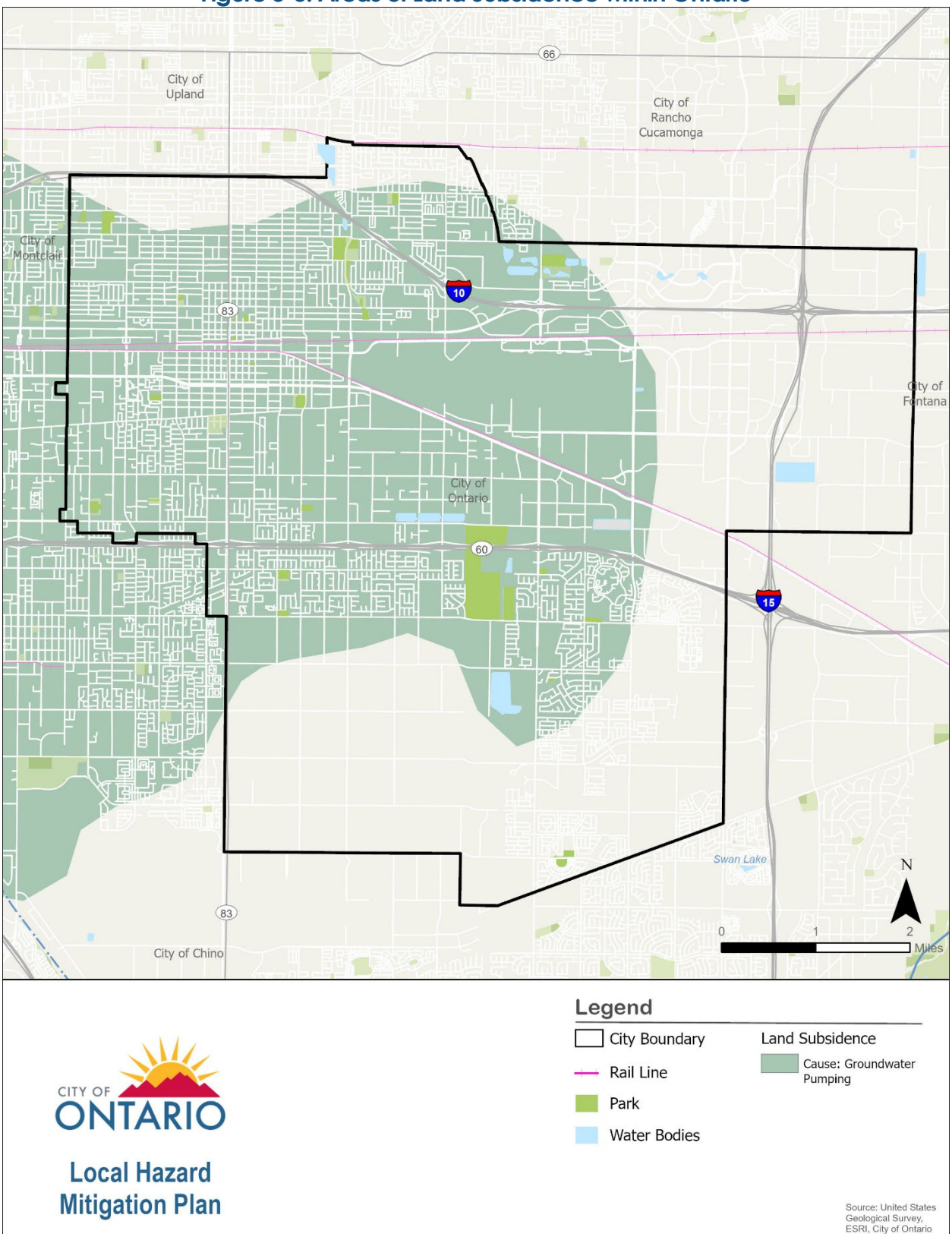
Seismic Shaking

While no significant earthquake has originated within Ontario within the last 100 years, the city has felt the shaking of regional earthquakes. The most recent major seismic shaking event near Ontario was the Ridgecrest Sequence of Earthquakes on July 4, 2019. The event was a sequence of multiple earthquakes registered as an M_w 6.4 followed by an M_w 7.1.[15] The event caused over 25 injuries, resulted in one death, and caused over $5 billion in damage.[16] The next most recent event occurred on January 17, 1994, in Northridge, registering as an M_w 6.7[17] causing 57 deaths, more than 8,700 injuries, and approximately $20 billion in damage costs, plus an additional economic loss of $40+ billion.

On June 6, 1992, there were multiple large events in Big Bear and Landers, California, with a rating of M_w 6.5 and M_w 7.3, respectively. These events resulted in 3 deaths, nearly 500 injuries, and approximately $1.52 billion in damages.[18]

[15] California Earthquake Authority. 2020. List of Notable and Major California Earthquakes. https://www.earthquakeauthority.com/California-Earthquake-Risk/California-Earthquake-History-Timeline
[16] National Centers for Environmental Information. 2020. Global Significant Earthquake Database, 2120 B.C. to present. https://www.ngdc.noaa.gov/hazard/earthqk.shtml
[17] California Department of Conservation. N.d. Northridge Earthquake, January 17, 1994. https://www.conservation.ca.gov/cgs/earthquakes/northridge
[18] National Centers for Environmental Information. 2020. Global Significant Earthquake Database, 2120 B.C. to present. https://www.ngdc.noaa.gov/hazard/earthqk.shtml

Figure 3-3: Areas of Land Subsidence within Ontario



Many major faults are located throughout Southern California, including some well-known ones like the San Andreas and San Jacinto Fault Zones. Proximity to a variety of active faults ensures that seismic hazards will continue to be a major concern for the city. **Table 3-4** identifies the major earthquakes that have occurred within 100 miles of the City. While populations may have felt the 2019 Ridgecrest earthquakes within the city, these events were located over 100 miles away and thus were not added to **Table 3-4**. **Table 3-5** identifies earthquakes, M_w 4.0+, which have occurred in San Bernardino County. The LHMP Planning Team noted the following regional and local events for seismic activity in the City of Ontario. Although no significant damage resulted from the earthquakes which occurred in the City, it is only a matter of time before a sizeable damaging earthquake will strike the area

Table 3-4: Significant Earthquakes (6.0+M_w) Within 100 Miles of Ontario

Event Name	Magnitude
9/12/1970	M_w 5.2 - Lytle Creek
2/28/1990	M_w 5.4 - Upland
6/28/1992	M_w 7.3 - Big Bear/Landers
10/16/1999	M_w 7.1 - Hector Mine
7/29/2008	M_w 5.4 - Chino Hills
***Distance between the epicenter and Ontario.**	

Table 3-5: Earthquakes (Greater then 4.0+M_w) In San Bernardino County (Up to 2022)

Date	Name	Magnitude
9/14/2011	Calimesa	M_w 4.1
1/15/2014	Fontana	M_w 4.4
7/5/2014	Running Springs	M_w 4.6
3/29/2014	Brea	M_w 5.1
7/25/2015	Fontana	M_w 4.2
9/16/2015	Big Bear Lake	M_w 4.0
12/30/2015	Muscoy	M_w 4.4
1/6/2016	Banning	M_w 4.4

It should be noted that hundreds of smaller (<M_w 4.0) earthquakes within San Bernardino County were not listed.

Subsidence

Monitoring for subsidence by the City occurs on a regular basis. Based on City measurements, historic groundwater extraction in the region has contributed to subsidence rates of 0.8 to 2.5 feet.

Risk of Future Events

Seismic Shaking

Ontario is in a seismically active area with many faults in the surrounding area and region-at-large. There will be an ever-present danger, of course, posed by any seismic shaking, which could potentially cause damage to buildings and/or infrastructure. It is almost inevitable that an earthquake will occur along one of the adjacent or regional fault lines and cause a major seismic event. The Third Uniform California Earthquake Rupture Forecast (UCERF3) was released in 2015 and is the most recent assessment of the probability of a major earthquake on various faults between 2015 to 2044. **Table 3-6** shows the results for nearby and regional fault lines for Ontario.

In addition to UCERF3 forecasts, which project the odds of a major earthquake on local and regional faults, the U.S. Geological Survey forecasts the severity of seismic shaking in different locations for various plausible earthquake scenarios. **Table 3-7** shows the anticipated shaking in Ontario from some of these scenarios.

The U.S. Geological Survey scenarios show that the Newport-Inglewood and San Joaquin Hills faults could cause the strongest seismic shaking in Ontario. However, the largest magnitude events are anticipated to come from the more distant San Jacinto and San Andreas faults, which could cause earthquakes that have an overall higher magnitude than the San Jose, Cucamonga, or Fontana faults. Due to the former faults' distance from Ontario, the shaking intensity felt in Ontario would be reduced compared to the shaking that would be felt nearer the earthquakes' epicenters. The overall magnitude of potential earthquake scenarios occurring along the San Jose, Cucamonga, or Fontana faults is lower than some of the more regional faults, but their proximity to Ontario means that the city would be subjected to high intensity shaking from these earthquakes. In other words, these lower-magnitude earthquake scenarios may be more destructive in Ontario than higher-magnitude earthquake scenarios that are more distant. As noted in **Table 3-6**, however, the likelihood of a powerful earthquake occurring along these faults within the next 25 years is exceptionally low.

Table 3-6: Earthquake Probabilities for Key Faults near Ontario (2015-2044)

Fault	Distance (Miles)*	Probability			
		6.7+ M*	7.0+ M*	7.5+ M*	8.0 M*
San Jose	4.42	0.30	0.20	0.03	Negligible
Cucamonga	5.83	1.09	0.97	0.61	0.03
Fontana	6.79	0.23	Negligible	Negligible	Negligible
Chino Alt 1	8.43	1.42	0.15	0.08	Negligible
San Gabriel	11.61	0.46	0.42	0.18	<0.01
Sierra Madre	11.94	1.10	1.06	0.72	0.03
Whittier Alt 1	13.82	1.45	1.26	0.66	<0.01
San Jacinto (Lytle Creek)	14.43	1.13	1.13	1.12	0.49
Elsinore (Glen Ivy)	18.00	3.19	1.68	0.89	<0.01
San Jacinto (San Bernardino)	18.91	5.15	5.14	5.09	2.77
San Andreas	22.32	19.02	15.55	11.78	4.06
Elsinore (Temecula)	23.20	2.16	1.75	0.94	<0.01
Palos Verdes	41.62	3.09	2.79	0.10	Negligible

Table 3-7: Selected Shaking Scenarios for Ontario

Fault	Magnitude	Distance to Epicenter (Miles)*	MMI Range in Ontario
San Jose	6.66	8.70	7.0 - 8.0
Cucamonga	6.88	11.91	7.0 - 8.0
San Jacinto (Lytle Creek)	6.72	14.62	6.0 – 7.0
San Jacinto (San Bernardino)	6.96	17.41	6.5 – 7.0
San Andreas	9.09	24.08	7.0 – 7.5

Note: UCERF3 results consist of two individual models (3.1 and 3.2), each of which provides rupture probabilities for each segment of the fault. This table shows the maximum probability for a section of the fault in either model.

Subsidence

Since Ontario has not experienced acute subsidence events, and the City is monitoring groundwater elevations and overproduction of their groundwater aquifer, it seems unlikely that subsidence will become a significant issue in the future. The most likely cause of a future event would be linked to an extreme drought in the future that leads to intensified groundwater withdrawals from the groundwater aquifer. In addition, the city's proximity to seismically active faults suggest the potential for a significant earthquake exists, which could lead to seismically induced subsidence in the future.

Climate Change Considerations

Seismic Shaking

There is no direct link between climate change and seismic activity that could impact Ontario, so climate change is not expected to cause any changes to the frequency or intensity of seismic shaking. Some research indicates that climate change could result in "isostatic rebounds," or a sudden upward movement of the crust because of reduced downward weight caused by glaciers[19]. As glaciers are known to melt when overall global temperatures increase, climate change could indirectly lead to an increase in seismicity in Ontario and the Southern California region.

Subsidence

The relationship between climate change and subsidence is not well established. Nevertheless, it is possible that climate change could indirectly influence subsidence in Ontario. While more intense rainstorms could potentially recharge underground aquifers, adequate infrastructure would need to be available to accommodate this water, allowing for greater recharge. If this recharge could occur, it could reduce the risk of subsidence. On the other hand, more severe and prolonged periods of drought may encourage more groundwater withdrawals and increase the risk of subsidence.

Flood

Description

Floods are a common hazard in many parts of California, including Ontario. Ultimately, a flood occurs when there is too much water on the ground to be held within local water bodies, causing water to accumulate in naturally dry areas. They are often caused by heavy rainfall, though floods can also occur after a long period of moderate rainfall or if unusually warm weather causes mountain snow to melt faster than expected. Floods that develop quickly, known as flash floods, are especially dangerous because there may be little warning that one is occurring, but floods can also build over a more extended period.

A flood, as defined by FEMA's National Flood Insurance Program (NFIP), is: "A general and temporary condition of partial or complete inundation of two or more acres of normally

[19] Ibid., 47.

dry land area or of two or more properties (at least one of which is the policyholder's property) from:

- Overflow of inland or tidal waters, or
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- Mudflow, or
- Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels."

Floods can be slow or fast rising but generally develop over a period of hours or days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation measures now, such as: engaging in floodplain management activities, constructing barriers such as levees, and purchasing flood insurance will help reduce the amount of structural damage and financial loss from other types of property damage should a flood or flash flood occur.

Floods are dangerous for several reasons. The floodwaters can be deep enough for people to drown and moving fast enough to sweep people away. The moving water can damage buildings with its force (in extreme cases, it may move entire structures) or carry large debris that damages objects with which it collides. When water gets into buildings, it can cause extensive damage to personal property, ruining building materials, furniture, electronics, and numerous other items. Both standing and moving water can be barriers to movement, isolating people and hindering evacuation, rescue, or relief efforts.

Location and Extent

Flood events are measured by their likelihood of occurrence. For instance, a 100-year flood is a flood that has a 1 in 100 (1.0 percent) chance of occurring in any given year. A 500-year flood is a flood that has a 1 in 500 (0.2 percent) chance of occurring in any given year. The 100-year flood has been designated as the benchmark for major flood events. Thus 100-year floods are referred to as "base floods."

Floodplains are areas that are prone to flooding and often experience frequent flooding. While it is possible for areas outside of these designated floodplains to experience flooding, the most likely locations to experience future flooding are low-lying areas near bodies of water. FEMA is the governmental body responsible for designating which areas of the United States can be classified as floodplains.

The three most common designations are:

- Special Flood Hazard Area: The area within a 100-year floodplain.
- Moderate Flood Hazard Area: The area outside the 100-year floodplain but within the 500-year floodplain.

- Minimum Flood Hazard Area: The area outside of the 500-year floodplain.

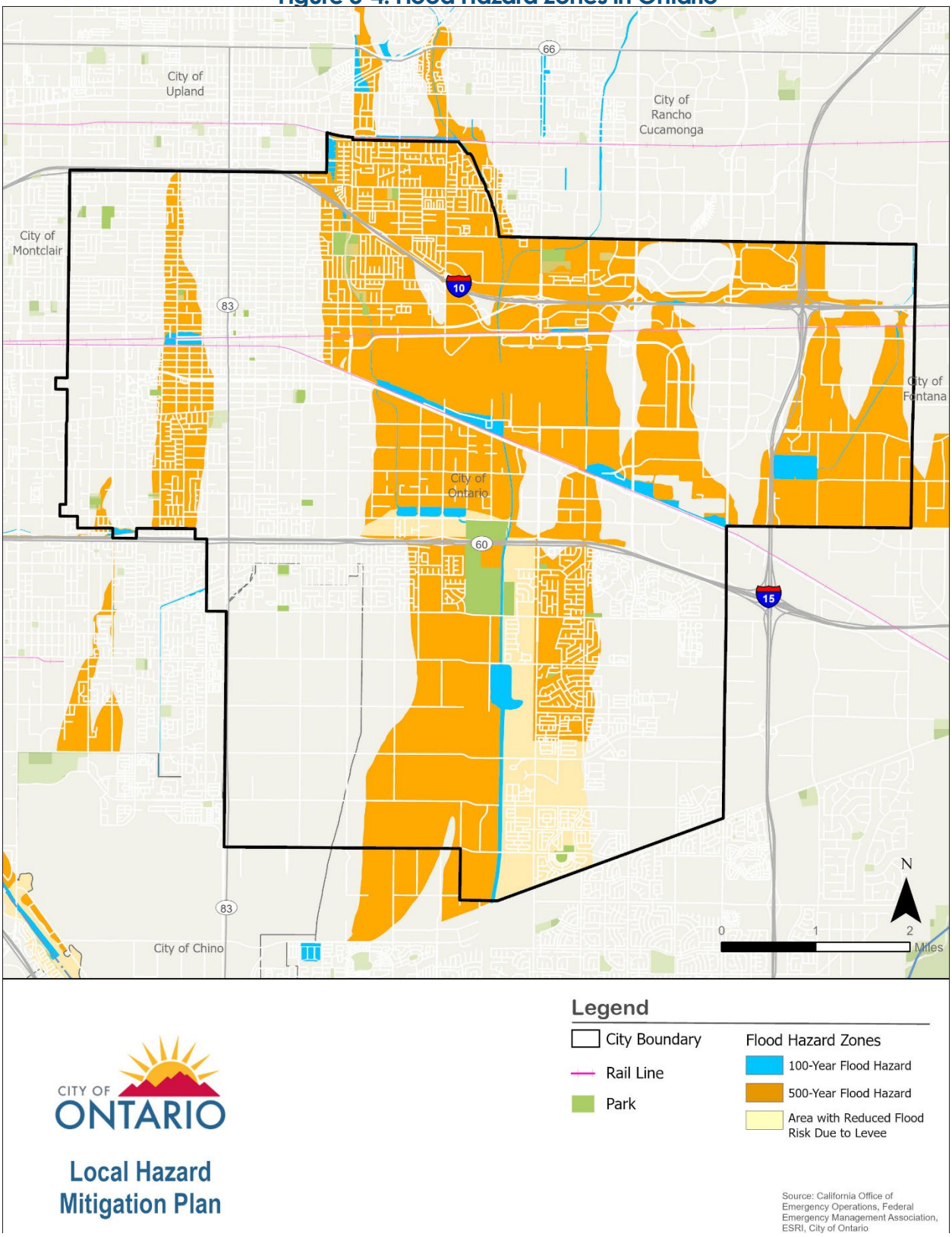
FEMA has multiple floodplain categories for each unique environment within these three designations. **Table 3-8** shows these detailed floodplain categories. FEMA classifies Ontario under four floodplain categories: A, AO, X, and AH; the location of these floodplains can be seen on the FEMA Flood Hazard Zone Map depicted in **Figure 3-4**.

Flooding hazards can potentially impact a significant amount of the community; however, less than 10% of this area is subject to a 100-year event. Development within flood hazard areas is expected to comply with flood protection standards that reduce vulnerability to flood impacts and ensure safe use and occupation of structures.

Table 3-8: FEMA Floodplain Categories

Category	Description
A	Within a 100-year floodplain, but the water height of the 100-year flood is not known.
A1-30 or AE	Within a 100-year floodplain and the water height of the 100-year flood is known.
AO	Within a 100-year floodplain, and the water height of the 100-year flood is between one and three feet but not specifically known.
A99	Within a 100-year floodplain, it is protected by flood protection infrastructures such as dams or levees.
AH	Within a 100-year floodplain, and the water height of the 100-year flood is between one and three feet and is specifically known.
AR	Within a 100-year floodplain, it is protected by flood protection infrastructure that is not currently effective but is being rebuilt to provide protection.
V	Within a 100-year floodplain for coastal floods, but the water height of the flood is not known.
V1-30 or VE	Within a 100-year floodplain for coastal floods and the water height of the flood is known.
VO	Within a 100-year floodplain for shallow coastal floods with a height between one and three feet.
B	Within a 500-year floodplain, or within a 100-year floodplain with a water height less than one foot (found on older maps).
C	Outside of the 500-year floodplain (found on older maps).
X	Outside of the 500-year floodplain (found on newer maps).
X500	Within a 500-year floodplain or within a 100-year floodplain with a water height less than one foot (found on newer maps).
D	Within an area with a potential and undetermined flood hazard.
M	Within an area at risk of mudslides from a 100-year flood event.
N	Within an area at risk of mudslides from a 500-year flood event.
P	Within an area at risk of mudslides from a potential and undetermined flood event.
E	Within an area at risk of erosion from a 100-year flood event.
Source: 24 CFR, Section 64.3	

Figure 3-4: Flood Hazard Zones in Ontario



The City has also identified a number of locations where flooding can occur during precipitation events. **Table 3-9** identifies these locations, which include storm drains requiring cleanings weekly, storm drains considered problems during heavy rains, and storm drains that require sandbags to avoid water damage to adjacent properties or to divert water flows more effectively during a rain event.

Table 3-9: Flooding Hotspots in Ontario

Location	Cleaned Once a Week	Problem Draining During Heavy Rains	Problem Spot Requiring Sandbag Delivery
Grove/Walnut- N/W Corner and N/E Corner	X	X	
2620 S. Cucamonga Ave	X		
S. Cucamonga Ave/Walnut	X	X	
S. Cucamonga Ave/Francis	X		
1900 S. Cucamonga Ave - N/W corner	X		
S. Cypress/Francis - S/W Corner	X		
Palmetto/Francis- West side of street	X		
Mountain/Phillips – West side of street	X		
Mountain/Francis – South side of street	X		
San Antonio Ave/Philadelphia -S/E Corner	X		
Fern/Philadelphia – S/E corner	X		
Campus/Philadelphia	X	X	
Grove/Walnut		X	
900 E Princeton		X	
Mountain/Mission		X	
San Antonio Ave/Holt		X	
Campus/Philadelphia		X	
Campus/Walnut		X	
S Cucamonga/Walnut		X	
S. Parco/Walnut		X	
S. Cucamonga/Walnut		X	
Hope/Hawthorn		X	
S. Parco/Philadelphia		X	
960 E. Princeton			X
412 E J Street			X
426 E. Francis			X

Past Events

Table 3-10 identifies past events of flooding in the city.

Table 3-10: History of Flooding in Ontario

Date	Description and Effect
1/14/1916 **1/21/1916**	Severe rainstorms in Southern California, over 8.5" in San Bernardino County, led to regional flooding, including massive flooding along Euclid Ave in Ontario. The city was one of several that were cut off and isolated by floodwaters, as roads, railroads, and bridges were washed out.
10/13/1942	A midnight thunderstorm hit Upland with 2.25" of rain in just over one hour. Mud and debris washed down Euclid Avenue and flooded at least one home. Four calves at an Ontario dairy were washed away.
2/6/1950	Heavy rainfall leads to the inundation of Chino Creek and the subsequent flooding of Hwy 71 from Ontario all the way to Corona.
1/13/1952 **1/18/1952**	Heavy rain hits Southern California in a few waves of storms. 5.52" fell in San Bernardino County over six days. Flooding is reported in Ontario and neighboring Upland.
11/30/1952	Heavy rain dropped almost one inch in neighboring Upland, which led to the flooding of homes in Ontario.
7/23/1956 **7/28/1956**	Strong monsoon flow hit the region with thunderstorms each day, even west of the mountains. On 7/25, flash flooding struck the City of Ontario and San Bernardino County.
1/21/1962 **1/22/1962**	The heaviest winter storm in 13 years struck the San Bernardino area with 2.93 inches in Ontario resulting in the flooding of streets and neighborhoods in the City.
3/6/1968 **3/8/1968**	Heavy rains led to local flooding, damaging homes, buildings, and schools in Ontario and surrounding cities. Debris flows closed several highways in the region.
2/8/1978 **2/10/1978**	Heavy rains in the region, including 5" of water in Ontario led to widespread flooding, flash floods, and mudslides; numerous homes were washed away as a result.
5/7/2016	Heavy rains over Southern California led to flooding in Ontario. Cars were partially submerged near the Ontario International Airport; intersections were closed at Grove Ave/Francis St and Walnut St/Cucamonga Ave, and a roof collapsed at a container business due to the severity of the weather.
12/14/2021	Pounding rain and winds led to the collapse of a tree that toppled and crushed two apartment building units, trapping a woman inside. Over 3" of rain also led to flooding in some parts of the city.
11/8/2022	Heavy rains over Southern California led to flooding in Ontario. Ten people were washed away in the 1200 block of E. 4th Street, near North Grove Avenue.

Source: A History of Significant Weather Events in Southern California

Risk of Future Events

There is no indication that the severe rainfall that leads to flooding will abate in the future, either in Ontario or the greater region of Southern California. While Ontario may experience prolonged periods of dry or wet years, flood events will likely continue to

impact the city. For areas within the 100-year and 500-year flood hazard zones, the likelihood of flooding to occur annually is 1% and 0.2%, respectively.

Because the City is vulnerable to flooding during the winter storm season, it is an active participant in the FEMA National Flood Insurance Program (NFIP). Through this program, "Special Flood Hazard Areas" within the city are identified and mapped on Flood Insurance Rate Maps (FIRMs), identifying the areas that require flood insurance. FIRMs generally describe flooding in terms of a 100- or 500-year flood event, which translates into the probability (1.0% or 0.2%, respectively) that flooding could occur within the designated zone in any given year. In addition to the federal requirements within the NFIP, the City has adopted flood protection standards requiring minimum building elevation, flood-proofing, and anchoring of buildings in areas prone to flooding. **Figure 3-4** identifies the FEMA Flood Hazard Zones mapped within the City.

Since its incorporation, Ontario has worked with San Bernardino County on flood management and mitigation projects. The City also takes steps on an annual basis to maintain and prepare for flood events, ensuring the existing infrastructure can effectively convey floodwaters. Flood events within the City can occur either due to large storms and flash flooding that overwhelms infrastructure or the failure of flood control facilities that inundate downstream communities.

Climate Change Considerations

Climate change is expected to affect California's precipitation patterns, which are likely to influence future flood events. A 2017 study found that the number of very intense precipitation days in California is projected to more than double by the end of the century, increasing 117 percent, making it likely that flood events will become more frequent[20]. More flood events could increase the frequency of maintenance and repair activities and require operational changes to City function. Much of the City's infrastructure may require modification and retrofit to better accommodate changes anticipated from climate change. As a result, significant investment in future infrastructure may be necessary.

Extreme Weather (Severe Winds, Extreme Heat, Severe Storms)

Description

Severe Winds

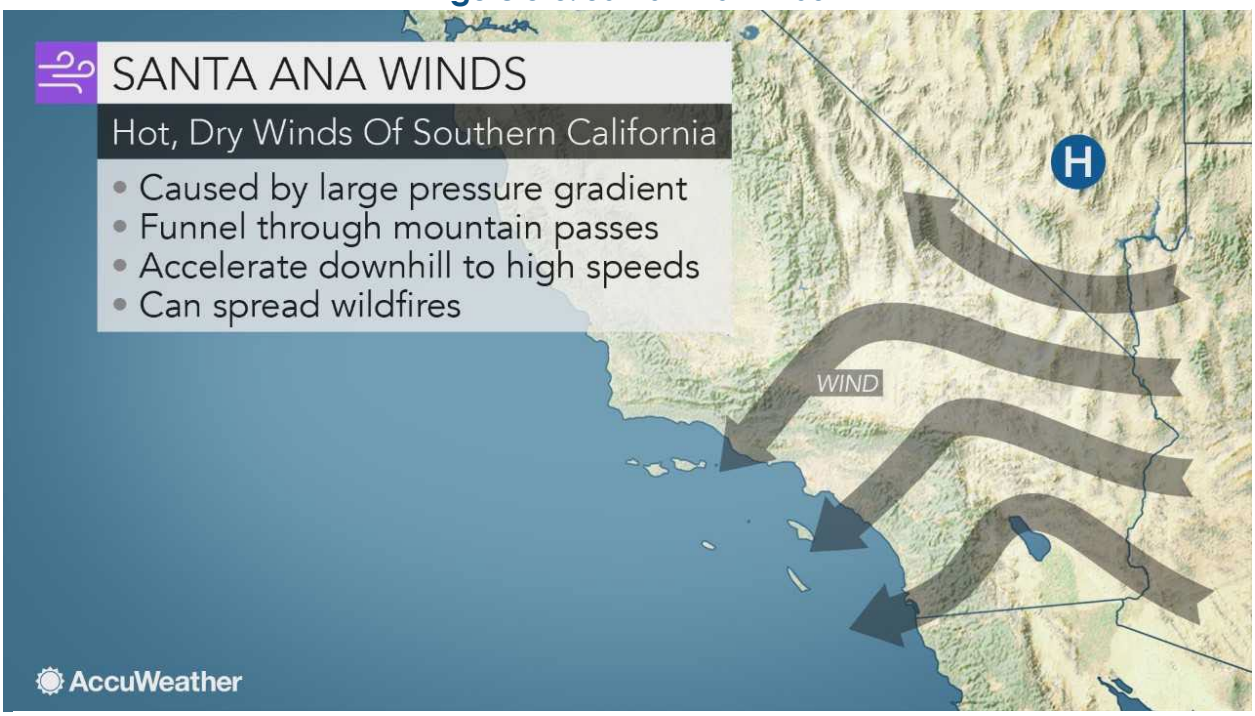
Wind is simply the movement of air caused by differences in atmospheric pressure and temperature. High-pressure air will naturally move to areas of low pressure. Usually, the distance between these high- and low-pressure zones is far; however, these low- and high-pressure zones occasionally may be near one another. When this happens, air will flow dramatically, creating high-speed winds. The most common wind events in southern

[20] Polade, S.D., Gershunov, A., Cayan, D.R., Dettinger, M.D., & Pierce, D.W. 2017. Precipitation in a warming world: Assessing projected hydro-climate changes in California and other Mediterranean climate regions. *Scientific Reports.* https://www.nature.com/articles/s41598-017-11285-y

California are the "Santa Ana" winds. **Figure 3-5** depicts the typical conditions that occur in the fall and winter to create these events.

When winds are fast enough, they can damage homes, public facilities, utilities, and other infrastructure. They can also uproot or topple mature trees, pick up debris, and send it careening through the air. This debris can injure or even kill bystanders who may find themselves stranded outside. High-speed winds can deposit this debris in the middle of rights-of-way, such as roads, freeways, and railways, blocking exit routes for would-be evacuees or impeding access to first responders trying to reach wounded people.

Figure 3-5: Santa Ana Winds



Source: https://www.accuweather.com/en/weather-news/what-are-santa-ana-winds-2/343027

Extreme Heat

Extreme heat is a period when temperatures are abnormally high relative to the normal temperature range. There are generally three types of extreme heat events:

- Extreme Heat Days: a day during which the maximum temperature surpasses 98 percent of all historic high temperatures for the area, using the time between April and October from 1950 to 2005 as the baseline.
- Warm Nights: a day between April and October when the minimum temperature exceeds 98 percent of all historic minimum daytime temperatures observed between 1950 and 2005.
- Extreme Heat Waves: a successive series of extreme heat days and warm nights where extreme temperatures do not abate; while no universally accepted minimum length of time for a heatwave event exists, Cal-Adapt considers four successive extreme heat days and warm nights to be the minimum threshold for an extreme heatwave.

Severe Storms

During severe weather events such as strong storms, rain can fall at such a high rate that it cannot drain away fast enough. The resulting heavy rain can cause flooding, leading to inundation and potential damage to buildings, road networks, public areas, utilities, and other critical pieces of infrastructure. In California, heavy rainfall events are often short, intense bursts of rain, but in some cases, heavy rain can persist for multiple days

Location and Extent

Severe Wind

In Southern California, the most common type of severe wind event is called the Santa Ana winds. High pressure over Nevada and Utah, often during the fall and winter months, forces air down from the high desert toward the ocean. As the winds descend, they heat up and increase in speed, sometimes carrying particulate matter and aggravating the respiratory health of those who have allergies. Ontario is often affected by Santa Ana winds blowing through the San Gabriel and San Bernardino Mountain ranges via the Cajon Pass. Santa Ana winds are a contributing factor to the threat and spread of wildfires in California. Santa Ana winds can damage the electrical distribution infrastructure, creating wildfire ignitions due to arcing or downed power lines. Santa Ana winds can also result in rapid fire spread from ordinarily contained or small fires such as vehicle fires or fires caused by discarded smoking materials. Depending on the severity of the wind event, any part of the city can be affected by severe winds.

Generally, winds are measured using the Beaufort scale, developed in 1805, which categorizes wind events on a force scale from 0 to 12 using their speed and impacts. Any wind classified as force nine or above is generally considered a severe wind event. **Table 3-11** identifies the Beaufort scale, which classifies wind events in detail.

Table 3-11: Beaufort Scale		
Force	**Speed (mph)**	**Description**
0	0 to 1	Calm: Smoke rises vertically
1	1 to 3	Light air: The direction of the wind is shown by smoke drift but not wind vanes.
2	4 to 7	Light breeze: Wind is felt on the face, leaves rustle, and wind vanes are moved.
3	8 to 12	Gentle breeze: Leaves and small twigs are in motion, and light flags are extended.
4	13 to 18	Moderate breeze: Dust and loose paper become airborne, and small branches are moved.
5	19 to 24	Fresh breeze: Small trees begin to sway
6	25 to 31	Strong breeze: Large branches are in motion, and using an umbrella becomes difficult.
7	32 to 38	High wind: Whole trees are in motion and walking against the wind can be hard.
8	39 to 46	Strong wind: Walking is difficult, and twigs break off trees.
9	47 to 54	Severe wind: Slight structural damage.
10	55 to 63	Storm: Trees are uprooted and considerable damage to structures.
11	63 to 72	Violent storm: Widespread damage.
12	73 and above	Hurricane: Devastating damage.
Source: https://www.weather.gov/mfl/beaufort		

Extreme Heat

Extreme heat events will feel different from region to region since different areas have different historic high temperatures. For example, an extreme heat day on the coast will feel different than an extreme heat day in the High Desert. The reason for this is how humidity affects the perceived heat that people feel. Humid conditions will make a day feel hotter than non-humid conditions, even though the temperature may be the same. The difference between the perceived and actual temperatures is known as the "heat index." To illustrate the effect of the heat index, a 90-degree day with 50 percent humidity feels like 95°F, whereas a 90°F Day with 90 percent humidity feels like 122°F. **Figure 3-6** illustrates the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service Heat Index.

Extreme heat events are not limited to any part of the city. They occur with the same intensity and duration at the same time across all locations in Ontario. For Ontario, an extreme heat day involves a temperature that exceeds ***103.2°F***, and a warm night involves a temperature that exceeds ***68.6°F***.[21] These thresholds are based on a 2% probability event.

[21] https://cal-adapt.org/tools/extreme-heat

Figure 3-6: NOAA's National Weather Service Heat Index

NWS Heat Index

Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution | Extreme Caution | Danger | Extreme Danger

Severe Storm

The location and size of a rain event vary depending on regional geography and regional and global weather events. For example, small precipitation events may occur in only one section of Ontario. In contrast, a large rain event could inundate a majority of San Bernardino County and other parts of southern California.

California's precipitation varies from year to year, depending on how much moisture the state receives from atmospheric rivers. Atmospheric rivers are corridors along which wet air travels from the tropics to continents. When the moisture arrives in California, it may precipitate as rain or snow. One of California's most known atmospheric rivers is the "Pineapple Express," which brings moist air from the ocean surrounding Hawaii to California. An immense amount of moisture may be transported along the atmospheric rivers that cross over California during certain years, leading to severe rains.[22]

Another weather phenomenon influencing rainfall in southern California is "El Niño," officially referred to as the "Southern Oscillation" or "El Niño-Southern Oscillation (ENSO)." ENSO can cause increased rainfall, particularly during the winter months, caused by warming of the surface of the eastern tropical Pacific Ocean, leading to the evaporation of warm, moist air into the atmosphere. Winds bring this moisture to the eastern Pacific and the American continents, where it falls as rain. ENSO does not always lead to

[22] "What are atmospheric rivers?" https://www.noaa.gov/stories/what-are-atmosphericrivers

increased rainfall by default, but in general, it can increase the chances of winter with higher-than-usual precipitation.[23, 24]

Rain events are usually measured by the amount of precipitation that falls.[25] **Table 3-12** categorizes rain events by the amount of precipitation per hour.

Table 3-12: Measuring Heavy Rain Events

Rain Type	Description
Heavy Rain	More than 4 mm per hour but less than 8 mm per hour
Very Heavy Rain	Greater than 8 mm per hour
Moderate Shower	Greater than 2 mm, but less than 10 mm per hour
Heavy Shower	Greater than 10 mm per hour, but less than 50 mm per hour
Violent Shower	Greater than 50 mm per hour

Source: https://water.usgs.gov/edu/activity-howmuchrain-metric.html

Past Events

Severe Wind

Severe wind incidents are a common occurrence in the city. Annually the city is subjected to Santa Ana Wind conditions that can cause significant damage to trees, buildings, and vehicles. While the effects of Santa Ana Winds are often overlooked, it should be noted that in 2003, two deaths in Southern California were directly related to the fierce condition. A falling tree struck one woman in San Diego. The second death occurred when a passenger in a vehicle was hit by a pickup truck cover launched by the Santa Ana Winds.

The following are significant events that have affected the city and region in the past:

- **January 11, 1989 -** Gusts between 80-100 mph hammered the inland empire, and winds shredded a blimp that was moored at Ontario International Airport.
- **December 24, 1994 -** Santa Ana wind gusts reached speeds of 74 mph in Ontario.
- **October 26, 1993 -** Gusts of over 62 mph were reported in the city and exacerbated fires in the Southern California region.
- **December 9, 1998 -** Strong 83 mph Santa Ana winds tipped over big rigs, snapped power lines, and shut down the Ontario International Airport because the dust was so bad.
- **December 25-26, 2000 -** Santa Ana winds caused damage and injuries in Ontario, where gusts of over 60 mph were reported.

[23] NOAA. 2014. "What Is the El Niño–Southern Oscillation (ENSO) in a Nutshell? https://www.climate.gov/news-features/blogs/enso/what-el-ni%C3%B1o%E2%80%93southern-oscillation-enso-nutshell
[24] NOAA. 2016. "El Niño and La Niña: Frequently Asked Questions." https://www.climate.gov/news-features/understandingclimate/el-ni%C3%B1o-and-la-ni%C3%B1a-frequently-asked-questions.
[25] https://www.climate.gov/enso

- **December 28, 2006 -** A strong Santa Ana wind event knocked down trees and power lines throughout the region.
- **October 14 and 15, 2008 -** A prolonged Santa Ana Wind event knocked down trees and blew a truck over in Ontario.
- **January 06 07, 2003 -** Widespread regional Santa Ana winds in the region resulted in 2 dead, 11 injured, and widespread property damage, road closures, downed trees, crop damage, wildfires, and power outages. Gusts reached 90 mph in the city.
- **November 29, 2006 -** Winds were sustained at almost 60 mph in the city, resulting in property damage and power outages due to downed power lines and trees.
- **November 01, 2011 -** A Santa Ana Wind event caused downed trees; trucks were blown off the freeway in Ontario.
- **December 01, 2011 -** A Santa Ana Wind event caused wind speeds of more than 65 mph, knocking down hundreds of trees, downing power lines, and overturning trucks throughout the San Bernardino Valley and Ontario.
- **January 07- 08, 2012 -** A storm that hit the region caused wind gusts over 60 mph in the city, knocking down power lines and blowing containers off semi-trucks.
- **November 2014 -** A Santa Ana wind event caused winds of approximately 50 mph, with damage reported throughout the region.
- **January 2017 -** A series of three storms caused strong winds that knocked down hundreds of trees throughout the region, causing millions of dollars in damage.
- **October 9, 2017 -** A strong Santa Ana wind event caused wind gusts of 70 mph.
- **October 26, 2020 -** Santa Ana winds reached speeds of 80 mph, causing trees to topple and rip out of the ground along Euclid Ave in the city. The winds blew down powerlines and were severe enough to cause the shutdown of all runways and taxiways at Ontario International Airport, forcing arrival flights to be diverted or delayed while departing flights were delayed or canceled.
- **November 25, 2021 -** Santa Ana winds caused trees in the city to topple and uproot.
- **January 21, 2022 -** A Santa Ana wind event causes a massive tree to topple and crush a 100-year-old duplex apartment building, causing minor injuries.

Extreme Heat

Based on Cal Adapt's historical information (1950 through 2005), the city experiences four extreme heat days per year. During this same period, the city experienced a 4-day heatwave, approximately every four years. Over the past 16 years (2005-2021), the city has experienced an extreme heat event (103° F or higher) every year except 2005. During this period, the temperature reached an average of 108.4° F. The four highest temperatures occurred in 2006 (114°F), 2017 (114°F), 2018 (117°F), and 2020 (118F).[26] In 2022, California experienced one of the worst heatwaves it has ever experienced. From September 1st through September 9th, 2022, temperature records for September were

[26] NOAA National Centers for Environmental Information, https://www.ncdc.noaa.gov/cdo-web/datasets/GSOY/stations/GHCND:USW00003102/detail

shattered across the western portion of the United States, including Ontario, where temperatures reached 108° F.

Severe Storms

Ontario and San Bernardino County have experienced heavy rain events that have inundated many communities. Some significant historical events include (it should be noted that past events of major flooding in the region are generally directly tied to severe storms):

- **January 14 – 21, 1916 -** Severe rainstorms in Southern California, over 8.5" in San Bernardino County, which led to regional flooding, including massive flooding along Euclid Avenue in Ontario. The city was one of several that were cut off and isolated by floodwaters, as roads, railroads, and bridges were washed out.
- **February 6, 1950 -** Heavy rainfall led to the inundation of Chino Creek and the subsequent flooding of Hwy 71 from Ontario to Corona.
- **January 13-18, 1952 -** Heavy rain hits Southern California in a few waves of storms. Approximately 5.52" fell in San Bernardino over the six days. Flooding was reported in Ontario as a result.
- **July 23 -28, 1956 -** Strong monsoon flow hit the region with thunderstorms each day, even west of the mountains. On 7/25, flash flooding struck the City of Ontario and San Bernardino County.
- **January 21-22, 1962 -** The heaviest winter storm in 13 years struck San Bernardino County, with 2.93 inches in Ontario, resulting in the flooding of streets and neighborhoods in the City.
- **February 7 -26, 1962 -** A very wet period for Southern California resulted in 20" + in the wettest mountain locations. Twenty were killed, and fifteen were injured in flooding and mudslides. Property damage, trees down, boats damaged. On 2/19, severe flooding was reported in Ontario and San Bernardino County.
- **March 6 -8, 1968 -** Heavy rains led to local flooding, damaging homes, buildings, and schools in Ontario and surrounding cities. There was one drowning death, and debris flows closed several regional highways.
- **February 8 -10, 1978 -** Heavy rains in the region, including almost 5" of water in Ontario, led to widespread flooding, flash floods, and mudslides, and numerous homes were washed away.
- **April 26, 1994 -** A strong thunderstorm produced large hail up to 0.75 inches in diameter in Ontario. One to two inches of accumulating hail forced the closure of a section of I-215.
- **May 7, 2016 -** Heavy rains over Southern California led to flooding in Ontario. Cars were partially submerged near the Ontario International Airport; intersections were closed at Grove Ave/Francis St and Walnut St/Cucamonga Ave, and a roof collapsed at a container business due to the severity of the weather.
- **December 14, 2021 -** Pounding rain and winds led to the collapse of a tree, which toppled and crushed two apartment building units, trapping a woman inside. Over 3" of rain also led to flooding in some parts of the city.
- **December 27, 2022 through January 14, 2023** – Numerous back-to-back storms impacted various parts of California over the course of several weeks. While

Ontario wasn't impacted significantly, parts of Ventura and Santa Barbara Counties received significant amounts of rain causing flooding and evacuations.

Risk of Future Events

Severe Wind

Given Ontario's history of severe wind events, it is very likely that wind events will continue to impact the city. The most probable source of these events in the future will likely originate from the Santa Ana winds or extreme storms. All expectations are that the probability they will occur again in the future is highly likely.

Extreme Heat

According to Cal-Adapt data, which relies on NOAA data sources, Ontario experiences extreme heat days. The city historically (1950-2005) experiences, on average, four extreme heat days annually based on this historic period. That number of days increased to 9 days annually from 2006-2021. According to Cal-Adapt's projections, the city is projected to experience between 22 and 35 extreme heat days annually from 2050 to 2099.[27] As temperatures rise throughout California, the number of extreme heat days will also increase.

Severe Storms

There is no indication that rainfall or severe rain hazards will abate either in Ontario or the greater region of Southern California in the future. While Ontario may experience prolonged periods of dry or wet years, all expectations are that the probability they will occur again in the future is highly likely and anticipated to increase in the future.

Climate Change Considerations

Severe Wind/ Severe Storms

It is anticipated that the atmospheric rivers that deliver storms to Southern California may intensify because of climate change. While the average number of storms in Southern California will remain the same, storms are expected to increase by 10 to 20 percent.[28] This increase in storm intensity may also bring more intense winds to the Southern California region, including Ontario.

Regarding Santa Ana winds, however, studies indicate that these events may be affected in varying ways. According to one study that examined two global climate models, there is a projected increase in future Santa Ana events. However, other studies have found that the number of Santa Ana events may decrease by about 20% in the future.[29] Given the anticipated increases in temperatures throughout the region, future

[27] Cal Adapt, City of Ontario, https://cal-adapt.org/tools/extreme-heat

[28] Atmospheric Rivers to Soak California as Climate Warms. https://www.livescience.com/49225-atmospheric-rivers-double-climate-change.html

[29] Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles_ADA.pdf

events are anticipated to become more severe in some cases, even if the total number of events decreases.

Regarding severe storms, climate change is expected to alter rainfall patterns in Southern California, including Ontario. As the climate warms, rain events are predicted to become more intense. Ontario will likely experience more rain inundation events that lead to flooding and increase the potential threat of dam failure, tree mortality, and other potential hazards.

Extreme Heat

The primary effect of climate change is warmer average temperatures. The hottest years on record have occurred since 2000, with 2016 and 2020 being tied.[30] As climate change accelerates in the 21st century, it is anticipated that extreme heat events will become more frequent and intense in the city. With the projection that extreme heat days could increase between 22 and 35 days annually by 2100, the city can expect a shift in residential and business needs for cooling and addressing heat-related issues.

Hazardous Materials Release

Description

Hazardous materials release refers to a hazard event whereby harmful concentrations of hazardous or toxic substances are released into the environment. This occurs when storage containers of hazardous materials leak or fail. It can happen due to industrial accidents, vehicle crashes, as a direct result of other disasters (e.g., a flood or earthquake), or as a deliberate act.

The threat that hazardous materials pose to human health depends on the type of material, frequency, and duration of exposure, and whether chemicals are inhaled, penetrate the skin, or are ingested, among other factors. Exposure to hazardous materials can result in short- or long-term effects, including major damage to organs and systems in the body or death. Hazardous waste is any material with properties that make it dangerous or potentially harmful to human health or the environment. Hazardous materials can also cause health risks if they contaminate soil, groundwater, and air, potentially posing a threat long after the initial release.

As part of this analysis, the City also identified the potential environmental justice issues associated with hazardous materials. The mapping prepared in this analysis uses the CalEnviroScreen data set from the California Environmental Protection Agency (Cal EPA).[31] This dataset helps identify California communities most affected by many pollution sources and where people are often especially vulnerable to pollution's effects. The dataset uses environmental, health, and socioeconomic information to produce scores for every census tract in the state that is mapped using a scale based on the

[30] Rebecca Hersher and Lauren Sommer. 2020. "2020 May be the Hottest Year on Record. Here's the Damage it did." NPR. https://www.npr.org/2020/12/18/943219856/2020-may-be-the-hottest-year-on-record-heres-the-damage-it-did

[31] California Office of Environmental Health Hazard Assessment. 2018. CalEnviroScreen 3.0 (updated June 2018). https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30

location's pollution burden. The higher the percentage, the greater the burden and the higher likelihood of environmental justice concerns.

Location and Extent

Hazardous materials and chemicals are used daily in households and businesses throughout Ontario. In addition to the locations of large industrial uses, sources of hazardous materials can originate from seemingly harmless places such as service stations, dry cleaners, medical centers, and almost any industrial business. Hazardous waste can take the form of liquids, solids, contained gases, or sludge, and can be the by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids and pesticides. **Figure 3-7** identifies the locations of the hazardous material facilities within the City registered in the Environmental Protection Agency's Facility Registry Service (FRS). The FRS is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. These facilities include anything from grocery stores to gas stations. These locations have been overlayed on the CalEnviroScreen dataset that identifies California communities by census tracts disproportionately burdened by and vulnerable to multiple pollution sources. **Figure 3-8**, taken from the 2050 Ontario Plan Safety Element, displays the current hazardous material cleanup sites with open cases in Ontario, including sites with an active or unresolved status.

In severe situations, Ontario may also be at risk of hazardous materials release events regionally. With the right prevailing wind conditions, airborne toxic material could spread to and impact various parts of the air basin, including Ontario areas.

Past Events

Ontario has experienced an average of 66.82 hazardous materials spills annually (2010-2021), reported to the Cal OES Spill Release Reporting database. Most of these incidents involve sewage and petroleum products. **Table 3-13** identifies the yearly releases reported to Cal OES during this period.

Table 3-13: Ontario Spill Release Reporting

Year	Reported Releases
2010	29
2011	35
2012	34
2013	28
2014	42
2015	75
2016	132
2017	106
2018	99
2019	87
2020	68
2021	28
Annual Avg	**66.82**

Source: https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting

Risk of Future Events

Most of the release events within Ontario have occurred due to human error, malfunctioning equipment, or deliberate acts. Given this, it is anticipated that future events within the City will include minor incidents like the past occurrences identified. Based on the historical average data provided by Cal OES in **Table 3-13**, the City can expect approximately 5.6 reported spills per month.

Figure 3-7: Hazardous Material Locations in the City of Ontario

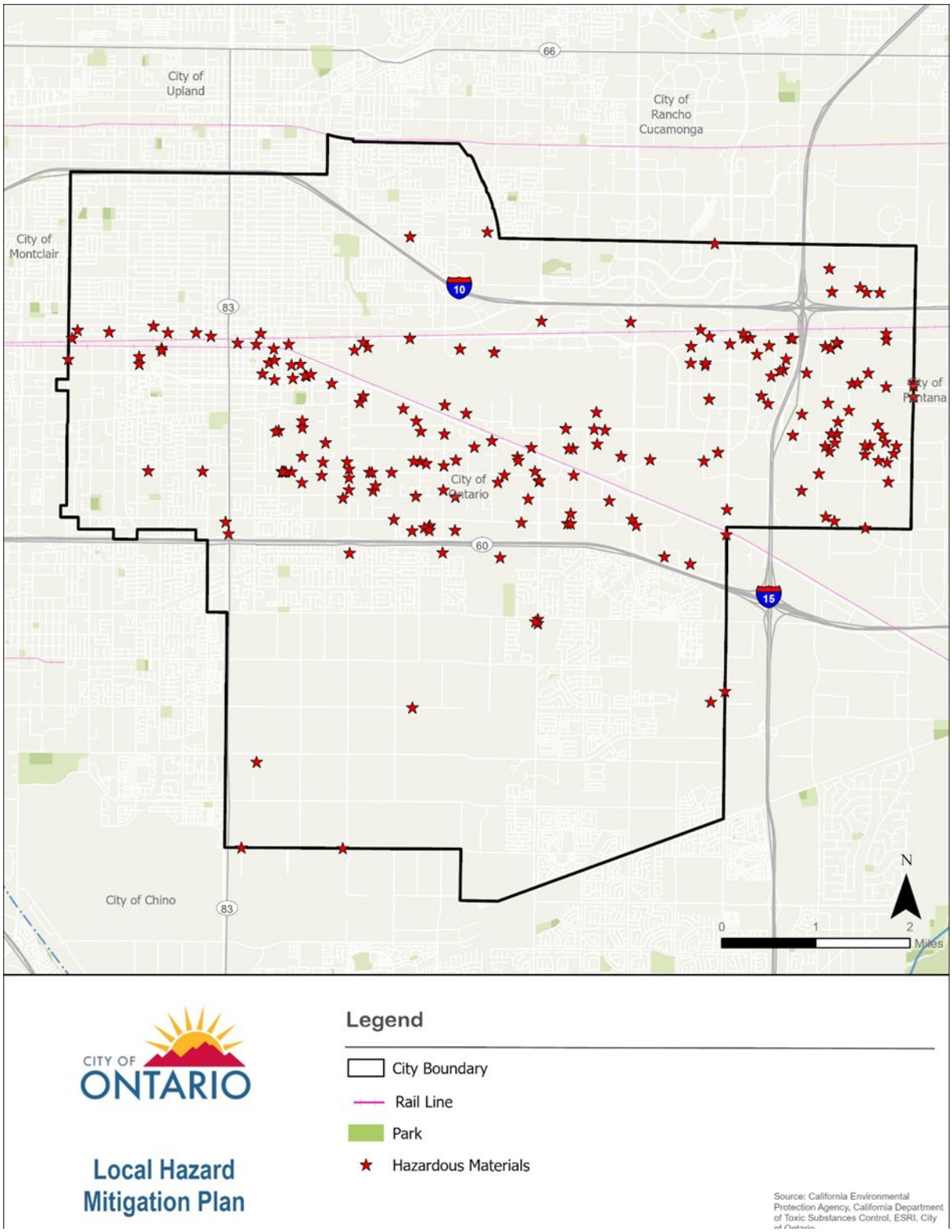
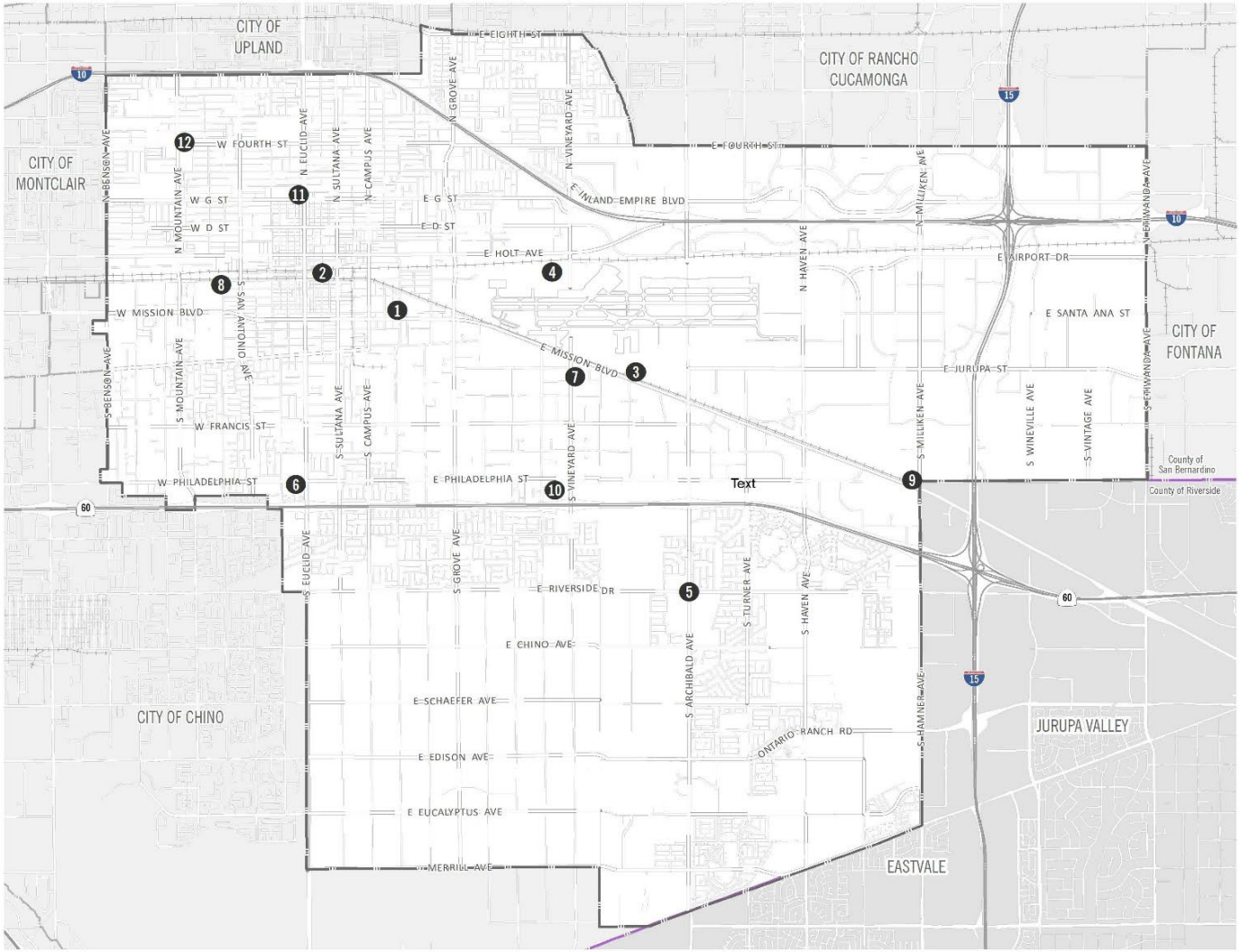


Figure 3-8: Hazardous Material Cleanup Sites in Ontario



SAFETY

Figure S-07

Hazardous Material Cleanup Sites

Ontario City Boundary
County Boundary
Rail Network

Hazardous Material Cleanup Sites (Open Cases)

1, Alger Manufacturing Company Inc.
2, General Electric – Flat Iron
3, General Electric Co – Jet Engine Test Cell Facility
4, Ontario International Airport Joint Investigation
5, South Archibald TCE Plume
6, Sunshine Cleaners
7, 1425 South Vineyard Avenue
8, Aluminum – Art Plating Company Inc.
9, American Metals Recycling
10, Danco
11, Mission Cleaners
12, Ontario Plaza

Cleanup sites include those where soil or groundwater has been affected or is suspected to be affected by a chemical release from past or present land uses (referred to as "environmental cases") and are identified on federal, state, and local regulatory agency lists. These lists are developed to document and record disturbance activities on identified sites.
The status of each environmental case varies and can be either active (with ongoing investigations or remediation), closed (remediation or clean-up completed and approved by the regulatory agency), or unresolved (usually indicating that efforts toward remediation have stalled or been suspended).

This exhibit shows cleanup sites with open cases in Ontario which include sites with an active or unresolved status.

2·0·5·0 THE ONTARIO PLAN

0 2,500 5,000 10,000 FT

Source: Envirostar 2021, GeoTracker 2021 Date: 5/9/22

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Climate Change Considerations

Climate-related natural hazard events, such as an intense flood, could cause hazardous materials releases. These releases could occur due to traffic accidents associated with inclement weather, flooded roadway conditions, or leakage from storage containers due to intense weather events. Climate-related hazards could also exacerbate the effects and impacts of such events. For example, heavier rains could lead to more runoff from contaminated sites. Extreme heat could affect the storage of hazardous materials and is also a concern for the combustibility of these materials. These issues should be monitored during the 5-year implementation period of this plan.

Urban Fire

Description

An urban fire is a fire that causes damage to buildings or infrastructure in an urbanized area. In some minor situations, the fire prompts the evacuation of the building's occupants, and the fire is contained within a short amount of time by firefighting teams or the building's fire suppression systems. In severe cases, the fire destroys the building and can spread to other surrounding properties. Common causes of urban fires include stoves that are accidentally left on, short-circuited electrical equipment, improper storage of combustible materials, or mishandling household tools. Breaches in gas pipelines, large transportation accidents, or downed electrical transmission wires may cause larger urban fires. Fires can also be intentionally started by arsonists.

Location and Extent

Most of Ontario's buildings consist of wooden-frame construction, which is susceptible to catching fire. Even structures that do not have wooden frames, such as large medical facilities or office towers, are at risk of urban fires. These locations contain furniture, papers, plant material, textiles, and other objects that can be ignited. Given that significant portions of the City are developed, urban fires can occur almost anywhere where structures and vegetation can burn.

Fires are also likely to occur where there are major pieces of infrastructure, such as gas pipelines, power lines, or highways. SoCalGas operates large high-pressure gas pipelines within the city. The northernmost pipeline roughly parallels 4th Street, while the other pipeline enters the northeast corner of the city boundary and crosses under the I-10, I-15, and SR-60 as it exits the city to the southwest, finally crossing under Euclid Ave. If this pipeline were to breach and the released gas ignites, any structures located along the extent of the breach would likely catch fire.

SoCal Edison also owns and operates above-ground, high-voltage transmission lines strung from poles within rights-of-way through the city. While there are no structures directly beneath these utility poles in most cases, there are still adjacent structures, trees/ vegetation, vehicles, and areas that contain items that could ignite if a downed power line encountered them. If any of these locations sparked a fire, it could spread to surrounding homes and buildings or produce cinders that could be transported to other locations igniting new fires. Fires could also occur along major transportation routes like

many of the large roadways within the City or the I-10, I-15, and SR-60 that run through the city carrying thousands of vehicles daily. While most fires occurring on these transportation routes could be destructive, it is not likely that these types of incidents would impact neighboring properties or spread great distances away from the point of origin. However, in areas of the City where vegetation is located along the edge of transportation routes, the possibility for fire spread increases.

For a fire to occur, the following three elements are required: heat, fuel, and oxygen. If any one of these elements is removed, the fire will extinguish itself. In Ontario, there is abundant fuel given the thousands of structures and flammable objects contained in each of them, and oxygen is nearly always present in most situations. Activity that creates intense heat that is unmonitored or unregulated may lead to the ignition of a fire. The National Institute of Fire and Technology has developed a scale that measures the temperature increase and the kind of fire response that develops. **Table 3-14** shows the progression of temperature relative to fire response.

Once a fire has been ignited, it could conceivably grow to an indefinite size if abundant fuel and oxygen are available. For example, a fire that ignites in one house could hypothetically continue to expand and even spread to other adjacent houses if there was enough fuel to link the structures together. Fires in confined spaces may occasionally burn so intensely that they consume all the oxygen available to them and burn out before expanding.

Table 3-14: Fire Susceptibility Based on Temperature Increase

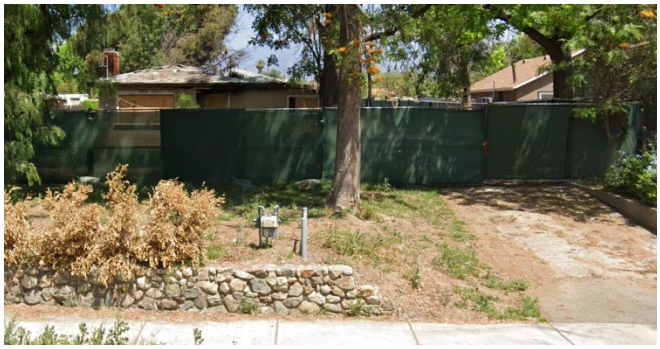
Temperature (°F)	Response
98.6 °F	Average normal human oral/body temperature.
101 °F	Typical body core temperature for a working firefighter.
109 °F	Human body core temperature that may cause death.
111 °F	Human skin temperature when pain is felt.
118 °F	Human skin temperature causing a first-degree burn injury.
130 °F	Hot water causes a scald burn injury with a 30-second exposure.
131 °F	Human skin temperature with blistering and second-degree burn injury.
140 °F	Temperature when burned human tissue becomes numb.
162 °F	Human skin temperature at which tissue is instantly destroyed.
212 °F	Temperature when water boils and produces steam.
482 °F	Temperature when charring of natural cotton begins.
>572 °F	Modern synthetic protective clothing fabrics begin to char.
≥752 °F	Temperature of gases at the beginning of room flashover.
≈1832 °F	Temperature inside a room undergoing flashover.

Source: National Institute of Fire Technology. July 2018. *Fire Dynamics*

Past Events

The following are some of the major urban fires that have occurred in the past in Ontario:

- **2007 Walker Fire –** 166 acres of mainly dairy pasture is burned in the city.
- **October 2016, JC Horizon Recycling Center Fire –** Major blaze burned for three days at the JC Horizon recycling facility when the large store of paper and cardboard caught fire, billowing black smoke into the sky.
- **April 2019, JC Horizon Recycling Center Fire #**2 **–** Another major blaze burned for two days at the JC Horizon facility, the cause of this second fire was undetermined. This facility sits near train tracks, and rail traffic was diverted around.
- **August 2019, Commercial Fire –** a large fire ripped through a commercial building in Ontario, prompting firefighters to respond and contain the blaze.
- **March 16, 2021, Fireworks Explosion** – a cache of illegal fireworks stored at a house in Ontario exploded, resulting in two deaths, $3.2 million in damages to 40 homes, and causing fires in the affected and surrounding structures.



- **January 2022, Warehouse Fire –** Large tire warehouse catches a blaze in Ontario; most of the building was considered a total loss, as well as the majority of contents inside.
- **August 2022, Commercial Fire –** a fire began outside of a large commercial building, quickly spreading to the interior of the building, where workers managed to escape without injury after they heard explosions. Wooden pallets and raw plastic materials fueled the fire.

Risk of Future Events

If the conditions for an urban fire exist in Ontario, the city will forever be at risk of experiencing an urban fire event. Given how each fire event has unique origins, it is impossible to predict the precise location or likelihood of an urban fire emerging in the city. Some areas, however, are at an increased risk of an urban fire igniting, such as areas where structures are poorly maintained, locations where vegetation is overgrown, properties storing materials improperly, and/or structures located in close proximity to infrastructure and assets that may be at risk of ignition.

Climate Change Considerations

While climate change has been linked to a potential increase in wildfire events, it is unclear exactly how climate change could influence the ignition or behavior of urban fires in Ontario. Extreme heat events could be linked to increase ignition either due to hotter conditions within the City that lead to drier vegetation or use of infrastructure that could become overloaded and fail (causing sparks). If these conditions occur, urban fire risk could increase over time.

Dam Failure/Inundation

Description

Dam and levee failure can result from several causes, such as earthquakes, rapidly rising floodwaters, and structural design flaws. These hazards can occur instantaneously or very gradually, depending on the source of the failure. Inundation associated with these events can potentially cause loss of life, damage property, and other ensuing hazards, as well as the displacement of persons residing in the inundation path.

According to the California Division of Safety of Dams (DSOD), a dam falls under their jurisdiction if its height is greater than 6 feet and impounds more than 50 acre-feet of water or its height is greater than 25 feet and impounds 15 acre-feet of water. Based on these criteria, 1,537 dams fall under DSOD jurisdiction, 39 of which are located within San Bernardino County.

Location and Extent

There are dams that provide flood protection and water storage north of the City. Failure of these dams would potentially inundate parts of the City as depicted **Figure 3-9. Exhibit A** depicts the location of these dams in relation to the city. These dams include:

Jurupa Basin, which is a 29-foot-high earthen dam built in 2001 by the County of San Bernardino Department of Public Works. With a 7,000-foot crest length, this dam impounds up to 1,680-acre feet of water and is considered to have an extremely high downstream hazard classification.

Hickory Basin, which is a 19-foot-high earthen dam built in 2001 by the County of San Bernardino Department of Public Works. With a 4,600-foot crest length, this dam impounds up to 220-acre feet of water, a significant downstream hazard, built in 2001.

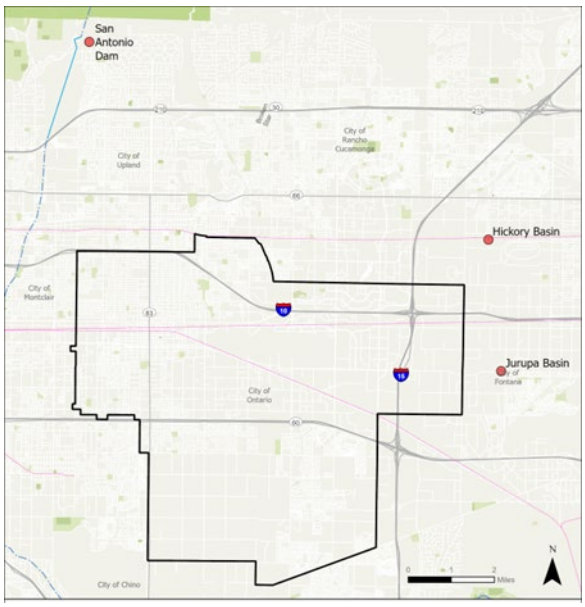


Exhibit A: Location of Dams in Relation to Ontario

San Antonio Dam - is an embankment flood control and debris dam located along San Antonio Creek in San Bernardino County, approximately 6.5 miles northwest of Ontario. Dam construction was completed in 1956 and is owned and maintained by the U.S. Army Corps of Engineers (USACE), which continues to monitor and improve the structure. The dam is 3,850 feet long, 160 feet above the foundation, and 130 feet above the riverbed. The main embankment contains 6,050,000 cubic yards of material. The reservoir behind the dam is usually dry but can fill with up to 11,880 acre-feet of water after large flooding events. Dams owned and maintained by the USACE use the Dam Safety Action Classification (DSAC) rating system, displayed in **Table 3-16**. San Antonio Dam is classified as a High Urgency of Action dam by the USACE.

Table 3-15 identifies the significance of these downstream classifications.

Table 3-15: California Department of Water Resources Division of Safety of Dams – Downstream Hazard Classifications

Downstream Hazard Potential Classifications	Potential Downstream Impacts to Life and Property
Low	No probable loss of human life and low economic and environmental losses. Losses are expected to be principally limited to the owner's property.
Significant	No probable loss of human life but can cause economic loss, environmental damage, impacts to critical facilities, or other significant impacts.
High	Expected to cause loss of at least one human life.
Extremely High	Expected to cause considerable loss of human life or would result in an inundation area with a population of 1,000 or more.

Table 3-16: Dam Safety Action Classification (DSAC) Rating System

URGENCY OF ACTION (DSAC)	ACTIONS FOR DAMS IN THIS CLASS***	CHARACTERISTICS OF THIS CLASS
VERY HIGH (1)	Take immediate action to avoid failure. Communicate findings to sponsor, local, state, Federal, Tribal officials, and the public. Implement interim risk reduction measures, including operational restrictions. Ensure the emergency action plan is current and functionally tested for initiating event. Conduct heightened monitoring and evaluation. Expedite investigations to support remediation using all resources and funding necessary. Initiate intensive management and situation reports.	CRITICALLY NEAR FAILURE: Progression toward failure is confirmed to be taking place under normal operations. Dam is almost certain to fail under normal operations to within a few years without intervention. OR EXTREMELY HIGH INCREMENTAL RISK**: Combination of life or economic consequences with likelihood of failure is very high. USACE considers this level of life-risk to be unacceptable except in extraordinary circumstances.
HIGH (2)	Communicate findings to sponsor, local, state, Federal, Tribal officials, and the public. Implement interim risk reduction measures, including operational restrictions as warranted. Ensure the emergency action plan is current and functionally tested for initiating event. Conduct heightened monitoring and evaluation. Expedite confirmation of classification. Give very high priority for investigations to support the need for remediation.	FAILURE INITIATION FORESEEN: For confirmed and unconfirmed dam safety issues, failure could begin during normal operations or be initiated as the consequence of an event. The likelihood of failure from one of these occurrences, prior to remediation, is too high to assure public-safety. OR VERY HIGH INCREMENTAL RISK**: The combination of life or economic consequences with likelihood of failure is high. USACE considers this level of life-risk to be unacceptable except in extraordinary circumstances.
MODERATE (3)	Communicate findings to sponsor, local, state, Federal, Tribal officials, and the public. Implement interim risk reduction measures, including operational restrictions as warranted. Ensure the emergency action plan is current and functionally tested for initiating event. Conduct heightened monitoring and evaluation. Prioritize investigations to support the need for remediation informed by consequences and other factors.	MODERATE TO HIGH INCREMENTAL RISK**: For confirmed and unconfirmed dam safety issues, the combination of life, economic, or environmental consequences with likelihood of failure is moderate. USACE considers this level of life-risk to be unacceptable except in unusual circumstances.
LOW (4)	Communicate findings to sponsor, local, state, Federal, Tribal officials, and the public. Conduct elevated monitoring and evaluation. Give normal priority to investigations to validate classification, but do not plan for risk reduction measures at this time.	LOW INCREMENTAL RISK**: For confirmed and unconfirmed dam safety issues, the combination of life, economic, or environmental consequences with likelihood of failure is low to very low and the dam may not meet all essential USACE guidelines. USACE considers this level of life-risk to be in the range of tolerability but the dam does not meet all essential USACE guidelines.
NORMAL (5)	Continue routine dam safety activities and normal operations, maintenance, monitoring, and evaluation.	VERY LOW INCREMENTAL RISK**: The combination of life, economic, or environmental consequences with likelihood of failure is low to very low and the dam meets all essential USACE guidelines. USACE considers this level of life-safety risk to be tolerable.

*At any time for specific events a dam, from any action class, can become an emergency requiring activation of the emergency plan.
** INCREMENTAL RISK is used to inform the decision on the DSAC assignment; NON-BREACH RISK is not reflected in this table.
***DSAC 1 and 2 dams with no life loss will be referred to the appropriate business line program and are given lower priority in the dam safety program.

Past Events

Despite some significant flooding events in the late 1800s and early 1900s, including one in 1862 that wiped out the tiny Santa Ana River hamlet of Agua Mansa near present-day Colton, regional flood management and mitigation wasn't given a great deal of

consideration in San Bernardino County until the Great Flood of March 1938. That deluge claimed 14 lives, left hundreds homeless, and caused an estimated $12 million ($220 million in 2020 dollars) in property damage.

In 1939, the State Legislature passed the San Bernardino County Flood District Act, which empowered the County to begin developing regional flood protection facilities to protect life and property. Today, San Bernardino County Flood Control operates and maintains 14 dams, 119 basins, 82 levees, and more than 250 miles of flood control channels. The dams, levees, and channels are designed to convey runoff around homes and businesses in the valley safely.[32]

Risk of Future Events

With the adoption of SB 92 in 2017, new dam safety requirements mandate that dam owners map the downstream inundation areas for dams governed by the California Department of Water Resources (DWR). In addition to the mapping, owners must prepare Dam Emergency Action Plans that identify the emergency management plans and procedures in place for these facilities. **Figure 3-9** identifies the inundation areas mapped for dams upstream from the City. For inundation to occur, as depicted in this map, it is assumed the reservoirs behind these dams are full, and failure occurs suddenly, releasing water in a relatively short amount of time. Failures typically occur from an earthquake, erosion, design flaw, or water overflow condition during intense storms.

Climate Change Considerations

Overall, engineers say that most dams that were built decades ago in the United States are unsuited to a warmer world and stronger storms.[33] Some recent dam episodes have been shown to have a climate change link. In February 2017, at Oroville Dam in California, the tallest in the nation, heavy mountain runoff into the reservoir led to an emergency spillway near failure and severe damage to the main spillway. Nearly 200,000 people were evacuated as a precaution, and repairs cost more than $1 billion. A later study found that an increase in early-season Sierra Nevada runoff contributed to the dam's high-water levels. This early season runoff can be attributed to human-caused warming. [34]

In addition to short-duration extreme precipitation, rainfall of longer duration but less intensity—an overall wetter climate, which climate models forecast for parts of the United States in the coming decades—can contribute to the risk.[35] Overall, the main consideration will be the weather patterns and how rainfall will affect the city and the

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[32] Ibid.

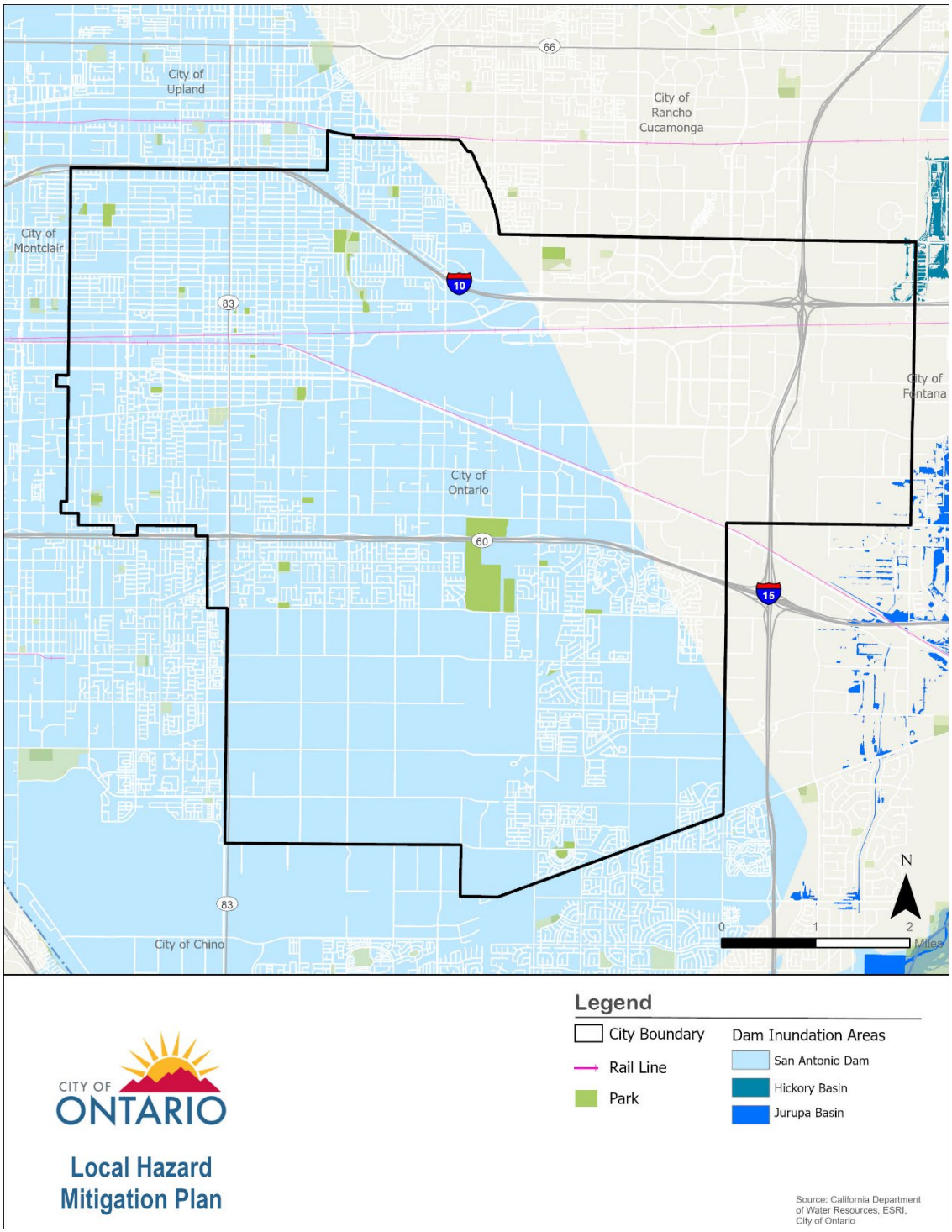
[33] Fountain, H. 2020. "'Expect More': Climate Change Raises Risk of Dam Failures." New York Times. https://www.nytimes.com/2020/05/21/climate/dam-failure-michigan-climate change.html#:~:text=the%20main%20story,'Expect%20More'%3A%20Climate%20Change%20Raises%20Risk%20of%20Dam%20Failures,warmer%20world%20and%20stronger%20storms.&text=The%20dam%20that%20failed%20in,It%20was%20overwhelmed%20by%20water

[34] Fountain, 2020.

[35] Fountain, H. 2020. 'Expect More': Climate Change Raises Risk of Dam Failures. *The New York Times.* https://www.nytimes.com/2020/05/21/climate/dam-failure-michigan-climate-change.html

county, as many of the catch basins and dams in the region connect multiple cities and counties.

Figure 3-9: San Antonio Dam Inundation Zones



Human-Caused Hazards

(Terrorism, Transportation Incident, Communications Failure)

Description

Terrorism

Terrorism is the use or threat of force to achieve a particular social or political outcome. The goals of terrorism may sometimes be overturning a government, the reversal of a public policy, political prisoners' release, and other such motives. Acts of terror may overlap with acts of war or hate crimes. Generally, terrorism involves an attempt to kill or seriously harm people or disrupt civil society by destroying property or infrastructure, attacking government operations at all levels, interrupting essential public services, creating chaos, or a combination of some or all these goals. Firearms and explosives are the most common weapons used among terrorists. In extreme situations, terrorists may gain access to mass destruction weapons, including bioweapons, chemical agents, radioactive materials, or high-yield explosives. It should be noted that these events are infrequent. While incidents of terror caused by foreign individuals or groups receive significant media and public attention, most acts of terror in the United States have been caused by domestic terrorists.

A mass casualty incident describes an incident within the United States where emergency medical service resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties. The more commonly recognized events of this type include building collapses, train and bus collisions, plane crashes, earthquakes, and other large-scale emergencies. The most common types are generally caused by terrorism, mass transportation accidents, or natural disasters. Events such as the Oklahoma City bombing in 1995, the September 11 attacks in 2001, and the 2017 Las Vegas Shooting are well-publicized examples of mass casualty incidents.

Transportation Incident

A transportation incident is a crash or other failure involving a vehicle, including a car, truck, or train. This can result from the vehicle operator making an error or environmental conditions preventing the vehicle from being safely maneuvered. Examples of transportation accidents include automobile crashes, freight truck collisions, and train crashes or derailments. It should be noted that small-scale incidents, such as minor collisions between automobiles, would not count as a hazard. Large-scale collisions involving multiple vehicles that shut down a freeway interchange or key underpass could present a hazard to Ontario as it could hinder first responders from reaching victims or prevent residents from evacuating quickly.

Communications Failure

The complete or partial failure of a component or components in a communications network because of malfunction (system, equipment, or infrastructure failure/degradation), natural hazards, or human-caused hazards.

Modern communications systems, such as fiber optic broadband, keep communities connected. In times of crisis, it is even more important for communities to have efficient

and effective abilities to communicate information and resilient communications systems in the wake of natural and human-caused hazards or disasters.

- Before a disaster (such as forecastable extreme weather events), these systems can broadcast warning information about what is happening and allow residents and businesses to act and potentially mitigate the effects of the hazard.
- During an emergency or disaster, these systems allow essential communications services to keep critical local and government services such as first responder dispatch, evacuation instructions, and situational update reports, and allow health care services to keep running effectively.
- After a disaster, communications systems can provide a way for people to connect to important resources or declare their safety through emergency calls, text messages, or even social media updates.

Location and Extent

Terrorism

Mass Casualty Incidents can occur anywhere, although public spaces and locations where many people congregate (parks, schools, places of worship, government facilities, shopping centers, and public gathering areas) are most common. Critical locations in Ontario may be the Ontario International Airport, large shopping centers (i.e., Ontario Mills), governmental facilities (i.e., City Hall), Toyota Arena, universities and colleges, schools, medical facilities (i.e., Kindred Hospital), parks (i.e., Cucamonga-Guasti Regional Park), and large employers within the city.

Acts of terrorism may be located at the locations listed above; however, the perpetrators may also choose high-value targets such as electric-generating facilities, water treatment plants, dams or reservoirs, railroads, highways, and other facilities that could impact governmental operations and services. Mass Casualty Incidents and acts of terrorism are typically measured by the fatalities, injuries, and destruction they cause, but there is no universally used scale for measuring these events.

Transportation Incident

Major arterial streets like Euclid Ave (US-83), Mission Blvd, Milliken Ave, Haven Ave, Grove Ave, Archibald Ave, and 4th St accommodate a large amount of traffic circulation through the city. These roadways, in addition to the major interstates/ state routes (SR-60, I-10, I-15), accommodate the local and regional transportation needs throughout Ontario and San Bernardino County. The system of railroad infrastructure, which includes both passenger and commercial transportation, are also potential sites for accidents and hazardous materials release. The presence of the Ontario International Airport, which serves as a passenger destination and doubles as the West Coast air hub for delivery services (i.e., UPS, FedEx, and Amazon Air), only increases the potential for transportation incidents. Any one of these major transportation corridors and locations could be the site of transportation accidents that could affect the community and the surrounding areas. Generally, the scale used to measure transportation accidents is the amount of damage to the vehicle, buildings, or infrastructure and the level of injury and/or death caused to people.

Communications Failure

Communication systems connect the entire city, and because of this, no portion of the city is more or less vulnerable to a communications system failure. The exception is any portion of the city where communications system infrastructure isn't as prevalent or established. Any failure of communications systems could affect the entire city, however depending on the type of failure impacts could be isolated to certain systems or locations. Natural hazards such as earthquakes, flooding, and wildfires can jeopardize communications systems by compromising their infrastructure and power supplies. Human-caused hazards such as terrorism, hazardous material releases, or cyber-attack could have the same effect on systems infrastructure. Considering such impacts in hazard mitigation planning and projects can bolster a community's communications systems before the next disaster hits.

Past Events

Terrorism

The city has been fortunate not to have experienced any acts of terrorism directly. However, the following acts of terrorism/mass casualty incident events have occurred within San Bernardino County, California, and the Country:

- **1970** - Bombing of the Stanford Research Institute facility, which caused approximately $500,000 in property damage. No injuries or deaths occurred during this incident.[36]
- **1970** - Bombing of a Bank of America Branch, which caused approximately $500,000 in property damage. No injuries or deaths occurred during this incident.[37]
- **April 1995** - Timothy McVeigh detonated a bomb outside the Alfred P. Murrah Federal Building in Oklahoma City, OK. The blast was so powerful that the Federal Building was destroyed, and more than 300 nearby buildings were damaged or destroyed. The bombing killed 168 people, including 19 children. Timothy McVeigh's motive for bombing the Federal Building was to inspire a revolution against the federal government.[38]
- **September 11, 2001** -Terrorists hijacked four commercial airliners. The hijackers flew two planes into the twin towers at the World Trade Center in New York City and one into the Pentagon in Arlington, VA. The fourth plane crashed in a field in rural Pennsylvania. The attacks on 9/11 killed 2,976 people and injured thousands more.[39]
- **April 15, 2013** - Two bombs detonated near the finish line of the Boston Marathon. The explosion killed 3 spectators and wounded more than 264 other people. Police captured 19-year-old Dzhokhar Tsarnaev in connection with the bombing; the second suspect, Tamerlan Tsarnaev, died following a shootout with law

[36] Global Terrorism Database. 2020. "1970-10-18". https://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=197010180001
[37] Global Terrorism Database. 2020. "1970-10-26". https://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=197010260001
[38] Federal Bureau of Investigation. Famous Cases and Criminals. https://www.fbi.gov/history/famous-cases/oklahoma-city-bombing
[39] Federal Bureau of Investigation. Famous Cases and Criminals. https://www.fbi.gov/history/famous-cases/911-investigation

enforcement. Investigators concluded that the Tsarnaev brothers planned and carried out the attack independently and were not connected to any specific terrorist group.[40]

- **2014** - A teenager who had reportedly threatened terrorist action against the U.S. Open of Surfing event attendees was arrested.[41]
- **May 2015** - Two Anaheim-based men were arrested at a Transportation Security Administration checkpoint at the Los Angeles International Airport who had reportedly sworn allegiance to the Islamic State of Iraq and Syria (ISIS). One of these men, Muhanad Badawi, was a student at Fullerton College.[42]
- **December 2015** - A mass shooting and terrorist attack committed by a married couple who had reportedly sworn allegiance to ISIS killed 14 people at a medical facility in the city of San Bernardino.[43]
- **October 2017** - Stephen Paddock opened fire on the Route 91 Harvest Festival concert from an elevated position at the Mandalay Bay Hotel in Las Vegas. The attack resulted in 58 people killed and 851 injured. Paddock shot and killed himself before responding officers reached him. The FBI Behavioral Analysis Unit determined no clear motivation for the attack. Although this attack did not occur in California, many California residents were affected by the event as more than half the 58 people killed were from California. Off-duty Ontario Police Officer Michael Gracia, who was critically injured after being shot in the head; thankfully he survived and has since returned to duty.[44]
- **May 2022** – Payton S. Gendron opened fire with an illegally modified semi-automatic rifle at the Tops grocery store in Buffalo, New York. Ten people were killed and three were wounded in the attack. Gendron plead guilty to terrorism and murder charges in the attack and was sentenced to life without the chance of parole. According to a document written by Gendron, the shooting was racially motivated, and he chose the location because it was in a particular area of the city that had the highest percentage of African Americans.[45]

Transportation Incident

The city experiences vehicle transportation incidents daily; however, the severity and resulting injuries and fatalities vary. According to statistics gathered by City-Data.com, there is an average of 14 fatal motor vehicle accidents per year in the city. The following are examples of some transportation incidents in the city:

- **December 1993** – A man was struck and killed by a Metrolink train while walking on the tracks near the Ontario International Airport.

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[40] History.com Editors. June 2019. Boston Marathon Bombing. https://www.history.com/topics/21st-century/boston-marathon-bombings

[41] Connelly, L., and S. Emery. 2014. "Teen Arrested for Terrorist Threats Toward US Open." Orange County Register. July 26.

[42] Winton, R. 2016. "Two O.C. Men Convicted of Conspiring to Fight with Islamic State." Los Angeles Times. June 21.

[43] Global Terrorism Database. 2020. "2015-12-02." https://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=201512020012

[44] Los Angeles Times Staff. "Las Vegas Shooting Victims: Portraits of the Fallen." October 2017. https://www.latimes.com/projects/la-na-las-vegas-shoot

[45] Morales, M., Levenson, E., and Sgueglia, K. "Buffalo Grocery Store Mass Shooter Pleads to Terrorism and Murder Charges in Racist Attack." CNN. November 2022. https://www.cnn.com/2022/11/28/us/buffalo-tops-grocery-shooting-payton-gendron-plea/index.html

- **June 2011** – a female pedestrian was struck and killed by a Union Pacific train.
- **May 2017** – a man was struck and killed by a train while sitting on a cement curb next to the Union Pacific tracks under the Euclid Ave overpass.
- **July 2021** – A man was killed when he collided with a tractor-trailer and another vehicle on the I-15 in Ontario.
- **June 2020** – A semi-truck collided with a vehicle forcing it into the rear end of another semi-truck, fatally injuring a man, woman, and minor passenger.
- **September 2021** - One person was killed when a semi-truck collided with the rear of another semi-truck on the SR-60 freeway.
- **October 2022** – A woman was killed after a collision between her vehicle and a semi-truck on SR-60.
- **August 2021** – A pilot was taken to the hospital with minor injuries after making an emergency landing in an empty field near Ontario Ranch.

Transportation incidents can also include the release of hazardous materials depending upon the materials being transported through and within the City.

Communications Failure

No incidents of past communications failure have occurred within the City. While this may be the case today, there is always a risk that future failures may occur, which could significantly impact City functions and operations.

Risk of Future Events

Terrorism

Given that mass casualty incidents and acts of terrorism stem from a variety of factors: economics, societal pressures, mental health, global geopolitics, warfare, religion, etc.—it is impossible to predict when and where an incident could occur. Ontario International Airport is a significant facility with state and national importance. While important, it is anticipated that any future incidents would likely originate domestically and are less likely to attract the attention of international terrorist groups. Incidents of these types are more likely to be conducted by smaller organizations or individuals aligned with greater-known organizations, although the effects may be no less significant. Given the presence of this facility as well as a convention center, sports arena, large shopping center, numerous schools, and large employers within the city, the potential does exist for mass-casualty incidents/acts of terrorism.

Transportation Incidents

It is a certainty that transportation accidents will continue. While it is possible to guard against such events and implement safety measures, it is impossible to prevent all future events. Due to the presence of Ontario International Airport, as well as the large volume of traffic on streets, highways, and railroad tracks in and around the City, the likelihood of future incidents is high. All of these incidents can occur with the potential to cause delays or detours to traffic in and around the city, cause damage to critical roadways/infrastructure, and, more importantly, injure or kill people.

Communications Failure

The potential for a communications failure will exist as long as the City relies on systems for these communication purposes. The risk of failure is anticipated to increase during emergency events. Infrastructure failure due to either natural or human-caused hazards will not diminish as infrastructure ages and the City's population increases. As technology advances, so too have the dependence upon modern communications systems, making this hazard a more prevalent concern for the City.

Climate Change Considerations

Terrorism

The link between mass casualty incidents/terrorism and climate change is not well understood. It has been suggested, however, that the impacts of a changing climate may exacerbate existing social, political, religious, and ethnic tensions. For example, longer, more intense droughts may restrict food supply or place limits on economic growth for cities, regions, or even whole countries. Nevertheless, the likelihood of climate change impacting mass casualty incidents/acts of terrorism in Ontario is negligible since these changes are more likely to impact developments on the national or international level.

Transportation Incidents

Climate change is not likely to impact transportation accidents in the future within Ontario.

Communications Failure

Climate change is not anticipated to directly impact communications failure. However, as previously mentioned, as technology advances and our dependence upon it grows, climate change could degrade unhardened infrastructure, potentially causing system failures to occur.

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Chapter 4 – Threat and Vulnerability

The threat assessment process looks at the potential harm of each hazard event discussed in Chapter 3.

Threat Assessment Process

The threat assessment process analyzes the harm Ontario may experience from a hazard event but does not consider its likelihood, thus giving equal consideration to hazards that are more likely (e.g., earthquakes, flood) and less probable hazards (e.g., dam failure).

The threat assessment examines three aspects of each hazard: the physical threat to facilities, the social threat to vulnerable populations, and the threat to any other assets that may be affected.

Critical Facilities and Facilities of Concern

Critical facilities (CF) consist of properties and structures that play important roles in government operations and the services they provide to the community. Examples of CFs include local government offices and yards, community centers, public safety buildings like police and fire stations, schools, and other properties a city has deemed essential for its operations. Critical Facilities may also serve dual roles if a city designates them as public assembly points during an emergency. Critical Facilities are often owned by the City, but some may also be owned and operated privately, such as some utilities and telecommunication infrastructure. Facilities of concern (FOC) are similar to critical facilities, however they may not be owned by the City or their purpose and function is not as important to the function of the City after a disaster. These facilities are identified to ensure the City understands their potential vulnerability to the hazards of concern.

The HMPC identified a total of 195 facilities [118 CFs and 77 FOC] in Ontario that fall into 7 categories based on their function or characteristics. **Table 4-1** shows the number of CFs and FOC in each category, the total estimated replacement value for these facilities, and examples of the type of facility in each category. **Appendix D** has a complete list of the CFs and FOC used in this analysis. **Figure 4-1** shows the locations of CFs and FOC in Ontario that were mapped, however due to security concerns, some facilities were not mapped as part of this process.

The potential loss values identified in subsequent tables are based on the City's total insured value using the City's Insured Asset Inventory. It is intended to provide an estimate of the replacement cost if the property/ structure is completely or severely damaged. The actual costs of repair could be smaller or larger than the provided estimate. Since the data comes from the City's Insured Asset Inventory, any facilities not owned by the City will not have a replacement value listed. Where this occurs, "N/A" has been used within the table.

Based on the available data provided by the City, there is a minimum of $723,662,462 worth of City-owned assets that were analyzed. The total potential loss value of all City-owned and non-City-owned assets is much higher but is unknown due to data limitations.

The greatest potential for loss among City-owned assets comes from the Water and Wastewater Infrastructure inventory, which includes but is not limited to, reservoirs, pump stations, pump houses, and holding tanks located throughout the city. The next critical facility category with the greatest potential for loss would be Emergency Operations, which includes Police and Fire Department facilities and equipment, while Government Operations is the third highest potential loss among critical facilities.

The city owns and operates both Toyota Arena and the Ontario Convention Center; while not considered critical facilities to city function, they are major facilities of concern for the city, and combined, they represent a significant portion of insured assets. Both facilities could be used in emergency situations, such as evacuation centers, relief/aid stations, first responder staging points, or other facilities to assist with City operations. Another major facility of concern would be the Ontario International Airport which the City owns partially with San Bernardino County as part of the Ontario International Airport Authority.

To better understand the magnitude of impacts, this plan identifies representative percentages of potential impact based on the total valuation of City assets. For planning purposes, we identified different tiers of impact that could occur. It is reasonable to assume that impacts would not exceed 50% of the total asset value city-wide during a single event. The following are parameters to help understand how much a proposed investment/improvement compares to the existing assets within the City:

- 1% Impact - $7,236,624
- 5% Impact – $36,183,123
- 10% Impact – $72,366,246
- 20% Impact - $144,732,492
- 50% Impact - $361,831,231

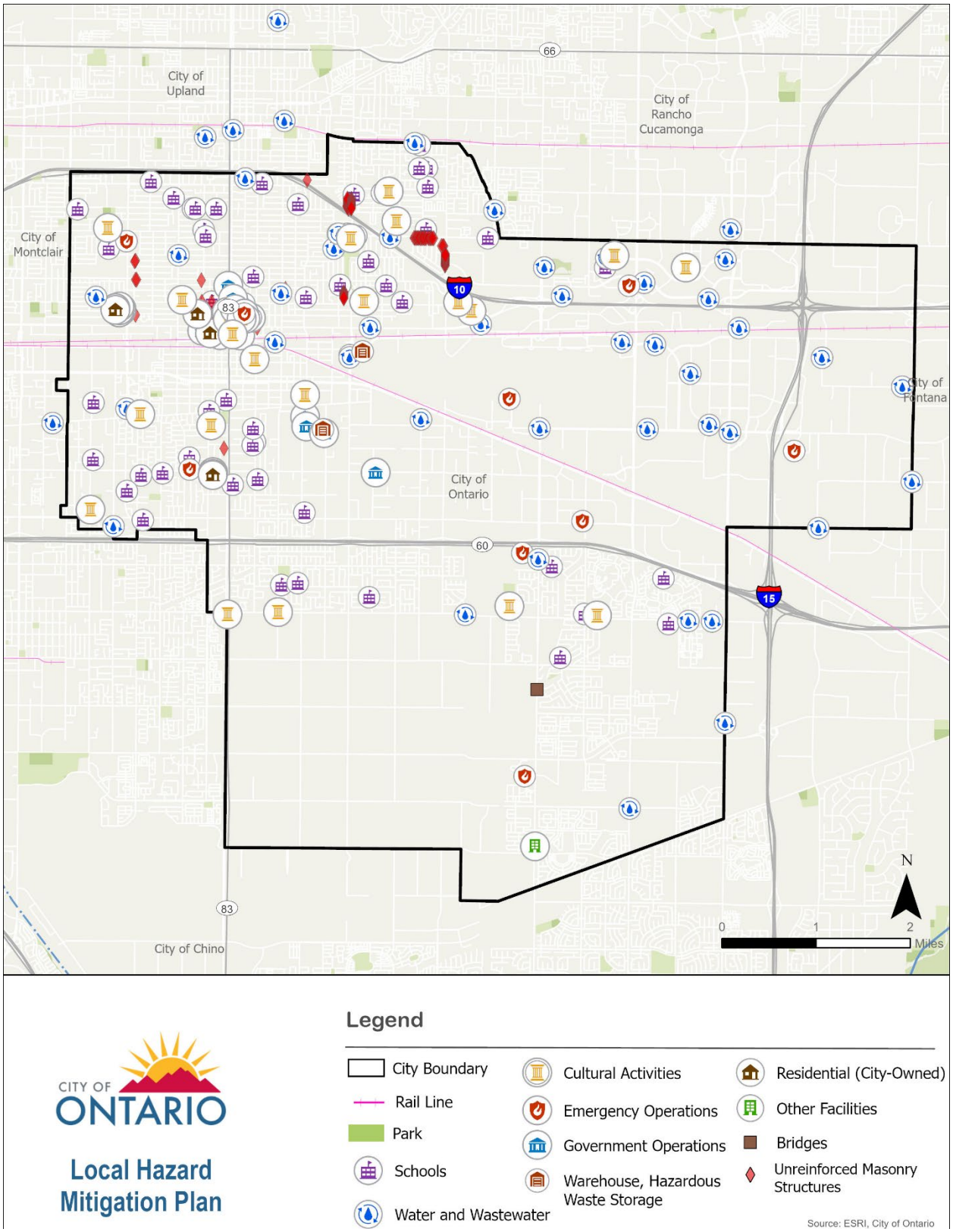
The possibility that all facilities will be completely damaged simultaneously is extremely rare. Based on the hazard, most impacts are anticipated to be isolated to certain locations. This estimate does not include the value of underground infrastructure and surface drainage facilities owned and operated by the City.

Table 4-1: Critical Facilities and Facilities of Concern in Ontario

Category	Number of Facilities		Examples	Potential Loss
	Critical	Concern		
Government Operations, Modular	16	6	City Hall, City Hall East, City Hall Annex, Support Buildings, Corporate Yard, Hazardous Waste Facility, Modular Buildings	$32,427,589
Emergency Operations	19	0	Police Station, Fire Stations, Fire Equipment (Engines)	$101,685,766
Water and Wastewater Infrastructure, Pressure Reducing Systems	78	0	Reservoirs, Holding Tanks, Pump Houses/Stations, Booster Stations, Pressure Reducing Systems, etc.	$144,246,194
Recreational, Cultural, and Community Centers	4	43	Toyota Arena, Ontario Convention Center, Museums, Parks, Community Centers, etc.	$350,837,881
Warehouse, Household Hazardous Waste Storage	0	2	Fiber Optic Equipment, Warehouses, Various Buildings and Equipment.	$30,000,000
Residential	0	20	Residential Properties	$10,134,845
Other (Ontario International Airport, Fiber Optics, Various Equipment)	1	6	Partial Ownership with County of San Bernardino as part of Ontario International Airport Authority (No Value Provided), Fiber Optics, Various Equipment.	$54,330,187
Total	**118**	**77**	**---**	**$723,662,462**

*** Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.**

Figure 4-1: Critical Facilities and Facilities of Concern



Vulnerable Populations

Factors such as age, physical and/or mental condition, socioeconomic status, access to key services, and many other factors affect the ability of people to prepare for and protect themselves and their property from a hazard event. Even though some hazard events may impact all parts of Ontario with equal severity, different people may experience the impacts differently. Higher-income households, for instance, are likely more able to afford the cost of retrofitting their homes to resist flooding or, alternatively, move to a location that is less prone to flooding than a lower-income household. As a result, the higher-income household is less likely to experience significant damage during a flood event than the lower-income household, even if the same amount of rain falls on both.

A social threat analysis examines how hazard events are likely to impact different demographic populations in Ontario and where these different demographic populations live in the city. This includes assessing whether the people in an area of an elevated hazard risk are more likely than the average person to be considered a threatened population. The social threat analysis uses the following criteria to assess the threat to vulnerable populations:

- **Disability status**: Persons with disabilities may often have reduced mobility and experience difficulties living independently. As a result, they may have little or no ability to prepare for and mitigate hazard conditions without assistance from others.

- **Income levels**: Lower-income households are less likely to have the financial resources to implement mitigation activities on their residences. They may also struggle with having the necessary time to find and access educational resources discussing hazard mitigation strategies. Furthermore, lower-income households are less likely to be able to move to safer areas that are less at risk of being impacted by a hazard. The national poverty limit standard for the U.S. for a four-person family is approximately an income of $26,500 or less. For San Bernardino County, the FY 2021 Low-Income Limit for a four-person family, according to the 2050 Ontario Plan Housing Element (HUD), is $63,200.

- **Seniors (individuals at least 65 years of age):** Seniors are more likely to have reduced mobility, physical and/or mental disabilities, and lower-income levels, all of which may decrease their ability to prepare for and mitigate a hazard event.

Table 4-2 shows the amounts of people in Ontario who meet at least one of the criteria for threatened, vulnerable populations. For more detailed demographic information, please refer to **Chapter 2**.

The social threat analysis also shows the threat other populations may encounter. For example, people experiencing homelessness or people without access to lifelines

(vehicles or communication networks) may experience greater hardship in evacuating or recovering from a disaster. Since data for these groups are not readily available, there is no definitive way to determine the amount of these persons in areas of elevated risk, so this assessment will discuss how these other threatened groups may be affected on a general level.

Table 4-2: Ontario Threatened-Population Metrics

Threatened Population Metric	Community-Wide Data
Population	178,194
Households	50,599
Median household income	$77,788
Renter Households	42.2%
Percentage of households with at least one person living with a disability	24.6%
Percentage of households living under the poverty limit	12.4%
Percentage of households with one-member aged 65+	24.9%
Source: US Census Bureau, 2016-2020 American Community Survey and 2022 Estimates	

Data Limitations and Notes on Vulnerability Tables

Due to data limitations, the data comparing the hazard zone population with the citywide population comes from two separate sources. The citywide data comes from the US Census Bureau's American Community Survey, and the hazard zone population data comes from ESRI's Business Analyst reports. As a result, there may be minor discrepancies in comparing the two data sets. The data that should be considered correct for this plan is the ACS data reported in Chapter 2.

Other Assets

In addition to the City's designated inventory of CFs/FOC and vulnerable populations, hazard events could threaten other important assets to Ontario. These assets may include services, artistic or cultural landmarks, or local economic activities. The threat assessment describes the potential harm to these other assets based on available information.

Threat Profiles

Seismic Hazards/Geologic Hazards

Physical Threat

Seismic Shaking

Many physical assets in the city are estimated to experience the same seismic shaking intensity, ranging from 85 to 95% g (shaking intensity in relation to the earth's gravity). Therefore, all facilities could be damaged during a significant seismic event, which would be extremely costly for the City. If all facilities were damaged at the same time during a

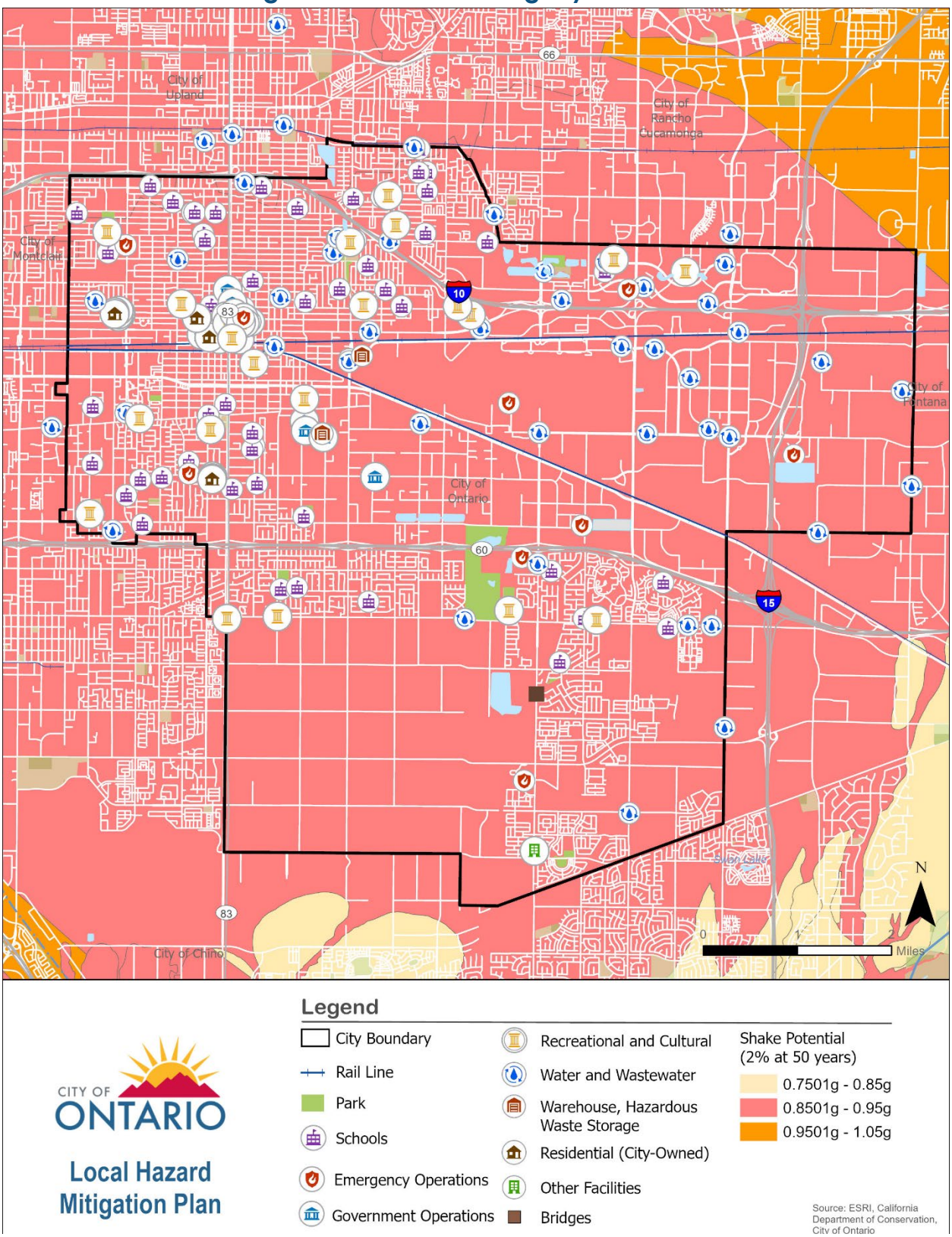
seismic shaking event, it can be assumed that the City would incur a percentage of the maximum potential loss of its physical assets. Assuming 20% of the City's assets are impacted, this potential loss could amount to over $144 million. Underground physical assets, like pipelines or utilities, could be damaged if seismic shaking were strong enough to cause a rupture. In such a scenario, natural gas and water delivery service to Ontario homes and businesses would be incapacitated until repairs are completed. **Table 4-3** displays these potential scenarios and losses that could incur should shaking reach the described threshold. **Figure 4-2** displays the CFs and FOCs within the city's seismic shaking potential hazard zones.

Table 4-3: Critical Facilities and Facilities of Concern (Seismic Shake 0.85 to 0.95G)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Government Operations, Modular	16	6	$32,427,589
Emergency Operations (Police, Fire)	19	0	$101,685,766
Water and Wastewater Infrastructure, Pressure Reducing Systems	78	0	$144,246,194
Recreational, Cultural, Community Centers	4	43	$350,837,881
Warehouse, Household Hazardous Waste Storage	0	2	$30,000,000
Residential	0	20	$10,134,845
Other (Ontario International Airport, Fiber Optics, Various Equipment)	1	6	$54,330,187
Total	118	77	$723,662,462

***Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.**
**** Based on the City of Ontario insured replacement values**

Figure 4-2: Seismic Shaking Physical Threat



Subsidence

Subsidence can influence both the built and natural environment. Because water lines are gravity-driven, a change in elevation due to subsidence could make the system more inefficient. Structures built in areas experience subsidence may require retrofitting or relocation. Subsidence could also irreversibly decrease an aquifer's capacity to store water. **Table 4-4** shows 76 CF, and 70 FOC could be affected by land subsidence in the city, resulting in a loss of almost $394 million. **Figure 4-3** displays the CFs and FOC within the city's land subsidence hazard zones.

Table 4-4: Critical Facilities and Facilities of Concern (Land Subsidence)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Government Operations, Modular	16	6	$32,427,589
Emergency Operations (Police, Fire)	16	0	$88,309,578
Water and Wastewater Infrastructure, Pressure Reducing Systems	40	0	$56,043,956
Recreational, Cultural, Community Centers	4	41	$172,484,509
Warehouse, Household Hazardous Waste Storage	0	2	$30,000,000
Residential	0	18	$9,371,914
Other (Ontario International Airport, Fiber Optics, Various Equipment)	0	3	$5,062,608
Total	**76**	**70**	**$393,700,154**

***Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.**
**** Based on the City of Ontario insured replacement values**

Social Threat

The risk of a seismic event is a danger to all groups in Ontario though some are more threatened than others.

Seismic Shaking

Seniors, pregnant women, and persons with disabilities are more threatened by seismic shaking since they may have limited mobility and may be unable to reach shelter in time. Even if these groups reach shelter in time, they may find themselves trapped if furniture or building components have fallen around them. Renters and low-income persons are also more threatened by seismic shaking since these groups may live in homes that are not properly retrofitted to survive the stresses of a seismic event. These groups may not be able to absorb the costs associated with repairing their homes or looking for new housing should their existing one be too damaged for occupancy. **Table 4-5** displays the threatened populations in Ontario associated the seismic shaking scenarios.

Figure 4-3: Land Subsidence Physical Threat

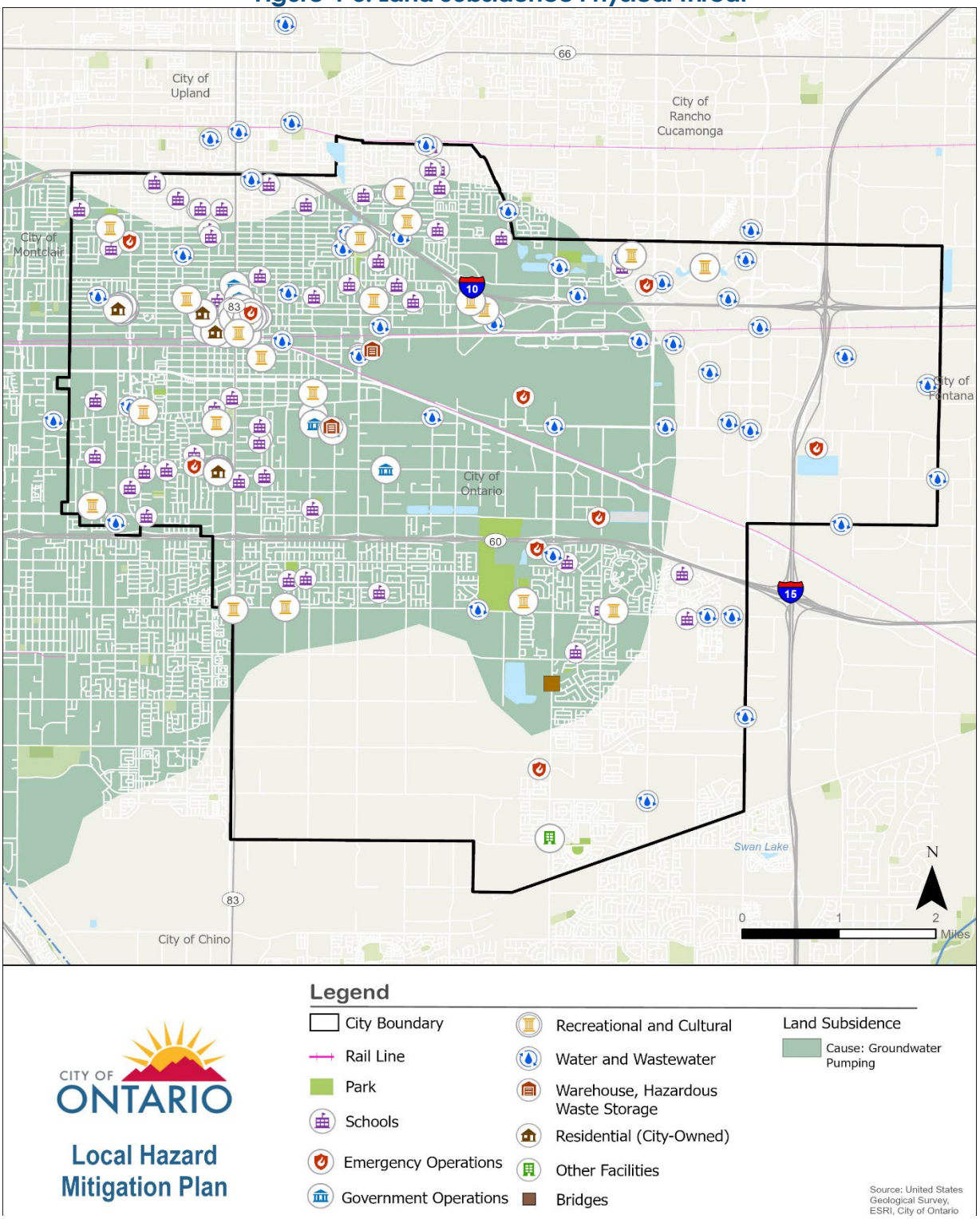


Table 4-5: Seismic Shaking Threatened Populations		
Threatened Population Metric	**Seismic Shake Threshold 0.85 to 0.95g**	**City of Ontario**
Population	178,194	178,194
Households	50,599	50,599
Median household income	$77,788	$77,788
Renter Occupied Households	42.2%	42.2%
Percentage of households with at least one person living with a disability	24.6%	24.6%
Percentage of households living under the poverty limit	12.4%	12.4%
Percentage of households with one-member aged 65+	24.9%	24.9%

Subsidence

While subsidence can cause significant issues with physical infrastructure, many of the social impacts can be related to where people live and work. Subsidence can impact the safety of homes and businesses. Buildings could gradually sink due to subsidence, causing minor issues such as cracks or misalignments of doors and windows or more costly problems such as sinkholes. These issues could impact residents living in older homes, which may not have been built with foundations reinforced with steel. Because insurance companies may not cover damages caused by subsidence or other geologic hazards, lower-income households may find it financially difficult to cope with subsidence. **Table 4-6** displays the populations characteristics of those in Ontario threatened by land subsidence. Approximately 80% of the city's residents live in an area with land subsidence and share similarities with the demographics of the entire City.

Table 4-6: Land Subsidence Threatened Populations		
Threatened Population Metric	**Land Subsidence**	**City of Ontario**
Population	144,159	178,194
Households	41,652	50,599
Median household income	$74,452	$77,788
Renter Occupied Households	42.2%	42.2%
Percentage of households with at least one person living with a disability	25.5%	24.6%
Percentage of households living under the poverty limit	13.0%	12.4%
Percentage of households with one-member aged 65+	25.8%	24.9%

Other Threats

Seismic Shaking

As early earthquake warning systems become operational soon, it can be expected that utilities will take advantage of these advance warnings to shut off gas, water, and power transmission to control any potential leaks following the seismic shaking. Authorities may have enough time to halt the use of infrastructure or move workers to safe locations away from hazardous conditions. Workers could cease their activity and take shelter until they can be safely evacuated. Therefore, all services could be non-operational during the shaking event and remain inactive until authorities are confident that it is safe to reactivate utilities and return employees to their workplaces. The length of this time would vary depending on the magnitude of the event. A significant earthquake would likely put utilities out of commission and halt any employment activity in the city for a few hours or several days. The city and the region would experience reduced economic activity during the outage period, which would not be felt for weeks, months, or years later. Structures such as telephone poles or power transmission towers felled by the shaking could block roadways and prevent emergency response teams from reaching victims or evacuees who need assistance.

Subsidence

If subsidence occurred in Ontario causing impacts to homes and businesses, the City would need to identify the locations of impact and potential triggering event. While groundwater extraction is currently being managed to prevent further subsidence, other events like earthquakes could exacerbate these conditions. Damage to roads, rail lines, and underground pipes (water, wastewater, and natural gas) are likely to be impacted during a subsidence event. As a result, the areas impacted by these effects could experience loss of city services, and potential congestion if roadways are impacted.

Flood

Physical Threat

Portions of the city are located within the 100-year flood zone (1.0% Annual Chance of Flooding) and the 500-year flood zone (0.2% Annual Chance of Flooding). Any physical assets within these mapped boundaries can potentially be inundated if enough precipitation falls, exceeding the storm drain infrastructure design capacity in these areas. Electronic or mechanical equipment on the ground could be impacted causing it to fail. **Table 4-7** identifies that no physical assets within the City are located in the 100-year flood zone. **Table 4-8** identifies the physical assets within the City located in the 500-year flood zone, which includes 39 CF and 26 FOC. In total, these facilities are valued at over $187 million. **Figure 4-4** depicts the locations of CFs and FOCs located in FEMA-designated flood zones, which include the 100-Year Flood Hazard (blue), 500-Year Flood Hazard (orange), and Areas with Reduced Flood Risk Due to Levee (yellow).

Table 4-7: Critical Facilities and Facilities of Concern (100-Year Flood)

Category	Number of Facilities		Potential Loss*
	Critical	Concern	
Government Operations, Modular	0	0	-
Emergency Operations	0	0	-
Water and Wastewater Infrastructure, Pressure Reducing Systems	0	0	-
Recreational, Cultural, Community Centers	0	0	-
Warehouse, Household Hazardous Waste Storage	0	0	-
Residential	0	0	-
Other (Ontario International Airport, Fiber Optics, Various Equipment)	0	0	-
Total	0	0	-

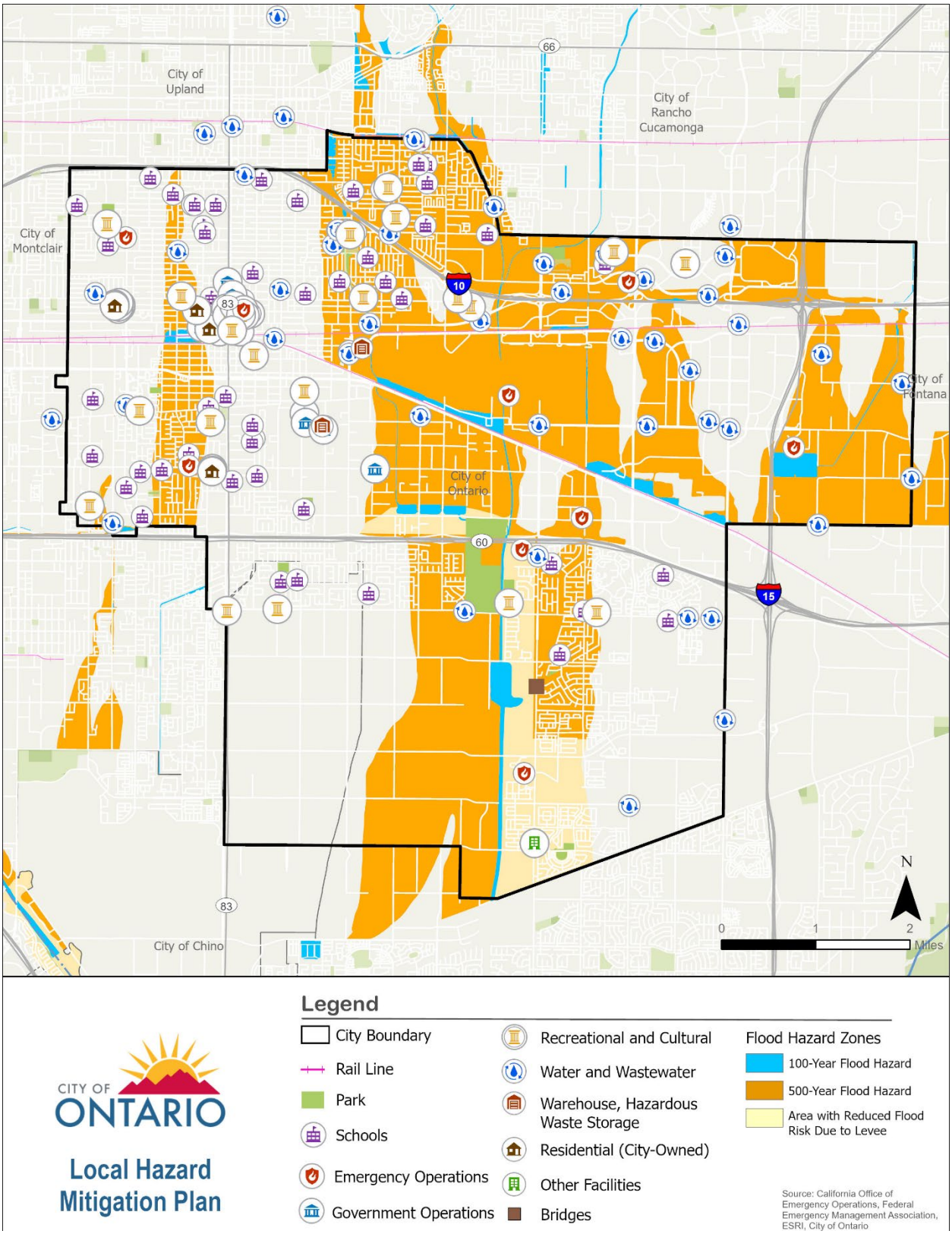
* Based on the City of Ontario insured replacement values

Table 4-8: Critical Facilities and Facilities of Concern (500-Year Flood)

Category	Number of Facilities		Potential Loss*
	Critical	Concern	
Government Operations, Modular	1	1	$501,923
Emergency Operations	8	0	$9,424,389
Water and Wastewater Infrastructure, Pressure Reducing Systems	30	0	$53,488,676
Recreational, Cultural, Community Centers	0	21	$93,464,816
Warehouse, Household Hazardous Waste Storage	0	1	$30,000,000
Residential	0	3	$508,862
Other (Ontario International Airport, Fiber Optics, Various Equipment)	0	0	-
Total	39	26	$187,388,666

* Based on the City of Ontario insured replacement values

Figure 4-4: Critical Facilities and Facilities of Concern in FEMA Flood Zones



Social Threat

Floodwaters in both the 100-year zone and the 500-year zone are anticipated to rise to a depth of no more than one foot above the base flood elevation. Flooding of this type would likely inundate curb cuts and sidewalks to some extent. People who walk or bike as their primary form of transportation may encounter difficulties if they do not have access to an alternative means of transportation. Seniors, persons with disabilities, and low-income persons are also likely to be impacted during these events. **Table 4-9** shows the proportion of Ontario's vulnerable populations that face a greater threat from a flood event. Based on the information in **Table 4-9**, the median household income in both the 100-year and 500-year flood zones is lower than the citywide average. The threat of flood hazards is especially a concern for those living in the 500-year flood zone, as this affects approximately 39% of the city's population.

Persons experiencing homelessness who are outside during flood conditions may experience property damage or be unable to access shelter. Though floodwaters in Ontario are not expected to exceed a depth of one foot in many areas, six inches of floodwater may render any makeshift structures uninhabitable during a flood event. Possessions such as sleeping bags or electronic devices may be damaged or swept away by these floodwaters.

Additionally, the 2022 Vulnerability Assessment has identified the following populations as flood-threatened populations[46]:

- Households with financial instability.
- Persons that spend an extended amount of time outdoors.
- Persons with existing health conditions or limited mobility.
- Persons with language barriers and citizenship uncertainty.
- Persons living in mobile homes.
- Overcrowded households.

Other Threats

Flooding may temporarily stop any type of transportation in the City. Debris from floodwaters can block roadways, hinder vehicle access, and potentially affect emergency response services. One foot of rushing water is enough to carry small vehicles depending on the velocity. A severe flood situation may prevent people who own smaller vehicles from driving to work, leading to reduced economic activity. Severe flooding that causes serious damage to homes and businesses may also reduce economic activity until repair work is completed.

[46] Placeworks. 2022. Vulnerability Assessment Report for the Ontario Plan 2050 Update. https://www.ontarioca.gov/sites/default/files/Ontario-Files/Planning/The%20Ontario%20Plann/Safety/TOP_27_Ontario_VAReport_Final.pdf

Table 4-9: Flood-Threatened Populations			
Threatened Population Metric	**Flood Hazards (100 Years)**	**Flood Hazards (500 Years)**	**City of Ontario**
Population	841	70,193	178,194
Households	248	19,061	50,599
Median household income	$50,681	$75,200	$77,788
Renter Occupied Households	64.1%	49.6%	42.2%
Percentage of households with at least one person living with a disability	27.8%	23.3%	24.6%
Percentage of households living under the poverty limit	31.4%	12.2%	12.4%
Percentage of households with one-member aged 65+	12.4%	22.5%	24.9%

Extreme Weather (Severe Winds, Extreme Heat, Severe Storms)

Physical Threat

Severe Winds

Intense winds likely present the greatest threat to physical structures, particularly from trees or branches that fall on buildings/vehicles causing substantial damage. Older structures that have deferred maintenance or have not been retrofitted for high wind conditions may suffer greater damage than newer/updated structures. Utility lines and wooden utility poles face an elevated threat from wind, as do buildings without reinforced roofs. Often utility poles and trees suffer impacts during high wind events if they occur after a significant rain event. During these events, saturated soils around the base of the tree/pole may be unable to hold up to the strains placed on it by strong winds causing it to fall over.

Trees, tree branches, and other objects have the potential to fall on powerlines and other electrical infrastructure during a severe windstorm, causing power outages throughout the city. Another physical threat of severe wind is wildfire impacts and electric utilities' current practice of conducting Public Safety Power Shutoff activities. During high wind events, these shutoffs may impact structures that rely on electricity for normal operations. See social threats for population impacts that may also occur because of these events.

Extreme Heat

Extremely high temperatures can cause roads to deform and buckle as the pavement expands in the heat, especially in areas that have not been maintained well. Power lines and other electrical grid components become less effective in higher temperatures and may be damaged due to stress during extreme heat events. Urban heat islands occur when natural land cover is replaced with concentrations of pavement, buildings, or other surfaces that absorb and retain heat. Buildings with dark pavement will absorb more heat than surfaces with vegetation or lighter materials that are better at reflecting the sun's

energy. This urban heat island effect is strongest during the summer when solar radiation is strongest.

Severe Rainstorms

Physical threats associated with severe rainstorms is similar in nature to those identified in the Flood discussion above.

Social Threat

Severe Wind

Severe wind events can harm people throughout Ontario but have a greater effect on the safety of people experiencing homelessness and those working outdoors. Populations that work outside or have respiratory illnesses may be impacted by severe wind event as they can generate dust and other contaminants that can affect the health of residents and workers. Lower-income residents, who may not have the financial resources to purchase homes (or are renting homes) that are not built or retrofitted to withstand powerful winds, could also have difficulty recovering from wind events.

Extreme Heat

Whereas a heat event can be relatively harmless for those with a reliable means of staying hydrated and cool, the event can be deadly for others. Young children, the elderly, or people suffering from serious medical conditions are physiologically more vulnerable to heatstroke. Some senior citizens also take medicines that can make it harder for their bodies to maintain a safe internal temperature, creating an additional threat from extreme heat events. Young children may not be aware of the signs of dehydration or ways of protecting themselves from heatstroke.

People living in homelessness are at a high risk of health complications during heat waves, especially if they are unsheltered. According to San Bernardino County homeless counts, in 2022, there were approximately 3,333 individuals experiencing homelessness in the county, with 71.7% percent unsheltered.[47] Of the 3,333 individuals experiencing homelessness within the county, approximately 193 individuals are experiencing homelessness within the city. This population is very vulnerable to heatstroke during a heatwave, especially if they cannot reach a cooling center.

Sudden spikes in heat can catch people by surprise. Stores can rapidly sell out of fans, air-conditioning units, or drinking water during a heatwave. Many lower-income households live in older, poorly insulated, and energy-inefficient housing and cannot afford to run their air conditioning, which can be further compounded by the threat of power outages due to heat/rolling blackouts. During these events, extreme heat impacts may affect larger portions of the city and populations that would not be viewed as vulnerable under normal circumstances.

[47] San Bernardino County. 2022. Homeless Count and Subpopulation Survey. https://www.sbcounty.gov/uploads/sbchp/SBC-2022-Homeless-Count-Report.pdf

Severe Rainstorms

Social threats associated with sever rainstorms is similar in nature to those identified in the Flood discussion above.

Additionally, the 2022 Vulnerability Assessment has identified the following populations as populations most vulnerable to severe weather[48]:

- Households with financial instability.
- Persons that spend an extended amount of time outdoors.
- Persons with existing health conditions or limited mobility.
- Persons with language barriers and citizenship uncertainty.
- Persons living in mobile homes.
- Overcrowded households.

Other Threats

Severe Wind

Southern California and the City of Ontario all suffer from seasonal Santa Ana Winds and will for the foreseeable future. Extreme wind events can worsen other risks, such as wildfires. It could affect the take-off and landing of small aircraft at nearby airports, leading to an increased risk of possible aircraft incidents.

Extreme Heat

Extreme Heat for any length of time can also affect other hazards and risks within the city. For example, it can create a spike in electricity demand leading to power loss/failure, food insecurities, and a rise in vector-borne disease transmission. Coupled with extreme wind, it can cause or spread urban fires and jeopardize additional neighborhoods/communities.

Severe Rainstorms

Other threats associated with sever rainstorms is similar in nature to those identified in the Flood discussion above.

Dam Failure

Physical Threat

Various factors, such as the amount of water released, the distance between the dam failure site, and the topography of the surrounding land, will influence the extent to which physical assets in Ontario are threatened. The San Antonio Dam has large storage capacities that could cause widespread inundation in Ontario if the reservoir waters are released due to a dam breach. **Table 4-10** identifies the physical assets in Ontario that are threatened by the potential failure of the San Antonio Dam. The Hickory and Jurupa Basins while close in proximity to the City, do not impact residential populations. As a result, these two dams are not identified in Table 4-10. Based on this analysis, dam

[48] Placeworks. 2022. Vulnerability Assessment Report for the Ontario Plan 2050 Update. https://www.ontarioca.gov/sites/default/files/Ontario-Files/Planning/The%20Ontario%20Plann/Safety/TOP_27_Ontario_VAReport_Final.pdf

inundation would affect 94 CFs and 54 FOCs within the city, with the potential to cause approximately $437 million in damages, based on available information.

Figure 4-5 shows the location of the identified CFs and FOCs within these dam inundation zones.

Table 4-10: Critical Facilities and Facilities of Concern (Dam Failure)

Category	Number of Facilities		Potential Loss**
	Critical	Concern	
Government Operations, Modular	16	6	$32,427,589
Emergency Operations	17	0	$97,309,578
Water and Wastewater Infrastructure, Pressure Reducing Systems	47	0	$89,522,798
Recreational, Cultural, Community Centers	4	41	$172,484,509
Warehouse, Household Hazardous Waste Storage	0	2	$30,000,000
Residential	10	0	$10,134,845
Other (Ontario International Airport, Fiber Optics, Various Equipment)	0	5	$5,062,608
Total	94	54	$436,941,927

*** Replacement Values Unavailable**
**** Based on the City of Ontario insured replacement values**

Social Threat

Dam failure hazards in the city would impact various downstream properties and the residents that live there. **Table 4-11** identifies these potential dam failure impacts caused by the San Antonio Dam. Failure of the San Antonio Dam would affect almost 93% of the population and inundate 38% of the acreage in the City of Ontario. Failure of the other two dam facilities upstream from the City would impact limited areas of the City that do not contain residential uses. No populations metrics for these two dam inundation zones were available based on the uses located in this part of the City.

Figure 4-5: Critical Facilities and Facilities of Concern in Dam Inundation Zones

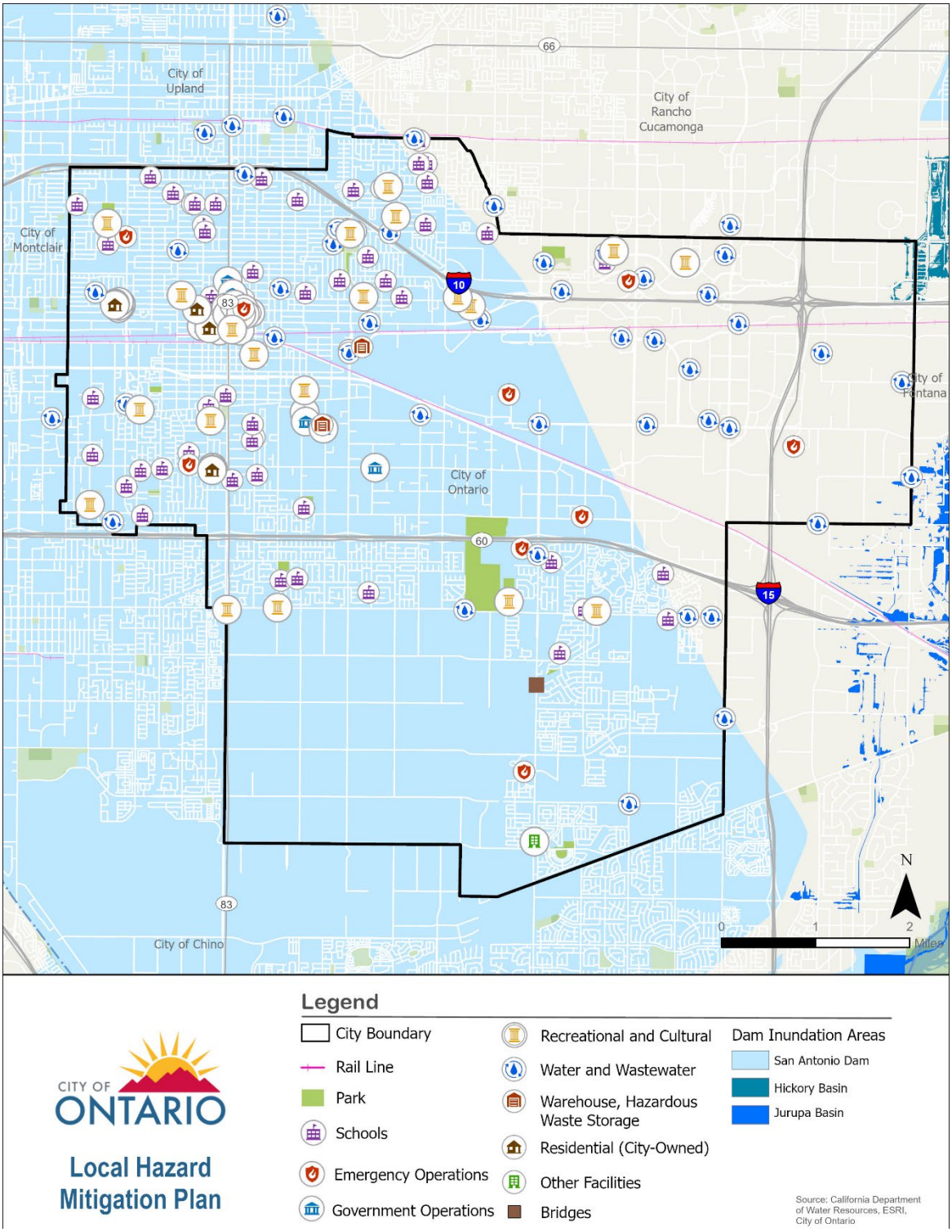


Table 4-11: Dam Failure Threatened Populations		
Threatened Population Metric	**San Antonio Dam**	**City of Ontario**
Population	165,339	178,194
Households	46,220	50,599
Median household income	$77,919	$77,788
Renter Occupied Households	40.2%	42.2%
Percentage of households with at least one person living with a disability	25.0%	24.6%
Percentage of households living under the poverty limit	12.8%	12.4%
Percentage of households with one-member aged 65+	30.8%	24.9%
Percentage of Ontario potentially inundated (acres)	37.7%	38.0%

Other Threats

Dam failures are often triggered by other events (e.g., seismic shaking, intense rainstorms, etc.). There would most likely be service disruptions in Ontario if this type of event occurred. Floodwaters could quickly inundate the city, disrupting utilities such as water, power, heating, and other services (communications or transportation infrastructure). Residents may find street lighting and traffic signals are temporarily disabled. Debris may be carried in the rapid inundation of water, blocking roads and impeding traffic flow. Water would most likely inundate roadways and other low-lying, flat areas, such as parking lots, open spaces, and schoolyards. In severe scenarios, people's mobility in these areas would likely be restricted or even impossible. Any unprotected or unhoused mechanical or electronic equipment that is not properly elevated could be damaged or inoperable until crews can conduct repairs or replacements.

Hazardous Materials Release

Physical Threat

Hazardous materials can cause damage to physical assets in Ontario if they are released into the environment. Corrosive hazardous materials can damage the exteriors of buildings or structures. Flammable hazardous materials can be ignited and cause damage to nearby structures. Generally, sites closer to the origin of the release of the hazardous materials are more at risk than those further away.

Table 4-12 identifies the number of physical assets in Ontario threatened by a hazardous materials release within 500 feet of a site storing or using hazardous materials. A total of 30 assets are located near hazardous materials sites within the city. The total potential losses associated with these assets are over $59 million based on replacement costs.

Table 4-13 identifies the number of facilities located within areas of increased pollution (Census Tracts in the 50th percentile or greater), as indicated by Cal EPA's Cal Enviro

Screen dataset. These census tracts indicate a higher concentration of sites that use, store, or dispose of hazardous materials. Facilities and populations located near these areas with higher concentrations are at a greater risk of exposure. The entire city falls in the 50th percentile or greater for the Cal Enviro Screen dataset; therefore, all of the City's CF and FOC inventory could potentially be impacted. This analysis shows potential losses of approximately $723 million could occur based on facilities that are located in these higher percentile census tracts.

Table 4-12: Critical Facilities and Facilities of Concern (HazMat Buffer 500 ft)

Category	Number of Facilities		Potential Loss*
	Critical	Concern	
Government Operations, Modular	12	4	$18,198,542
Emergency Operations	2	0	$1,495,309
Water and Wastewater Infrastructure, Pressure Reducing Systems	6	0	$7,278,468
Recreational, Cultural, Community Centers	0	3	$1,234,158
Warehouse, Household Hazardous Waste Storage	0	1	$30,000,000
Residential	0	1	$888,925
Other (Ontario International Airport, Fiber Optics, Various Equipment)	0	1	$62,608
Total	**20**	**10**	**59,158,010**

***Based on the City of Ontario insured replacement values**

Table 4-13: Critical Facilities and Facilities of Concern (Cal Enviro Screen – 50% or Above)

Category	Number of Facilities		Potential Loss*
	Critical	Concern	
Government Operations, Modular	16	6	$32,427,589
Emergency Operations	19	0	$101,685,766
Water and Wastewater Infrastructure, Pressure Reducing Systems	78	0	$144,246,194
Recreational, Cultural, Community Centers	4	43	$350,837,881
Warehouse, Household Hazardous Waste Storage	0	2	$30,000,000
Residential	0	20	$10,134,845
Other (Ontario International Airport, Fiber Optics, Various Equipment)	1	6	$54,330,187
Total	118	77	$723,662,462

*** Based on the City of Ontario insured replacement values**

Figure 4-6 displays the location of CFs and FOCs in relation to the hazardous materials storage/usage sites and the Cal Enviro Screen dataset associated with the City.

Social Threat

The threat of a hazardous materials release event affects those closest to a source of hazardous materials, including industrial sites, gas stations, gas transmission lines, or sewer mains. **Table 4-14** shows the city's vulnerable populations living within 500 feet of a hazardous materials storage/waste site. The median household income in these locations is almost $25,000 less than the rest of the city. This suggests that lower-income populations may be living near locations that store or use hazardous materials. Ontario residents living next to major transportation infrastructure such as highways or major roadways also face a greater risk of being affected by a hazardous materials release if vehicles transporting these materials accidentally release their contents into the environment. Groups such as the elderly, low-income, and renters face a greater risk of exposure since they may not have the financial resources necessary to retrofit their homes against infiltration by hazardous materials or relocate to a home farther from the potential sources of hazardous materials.

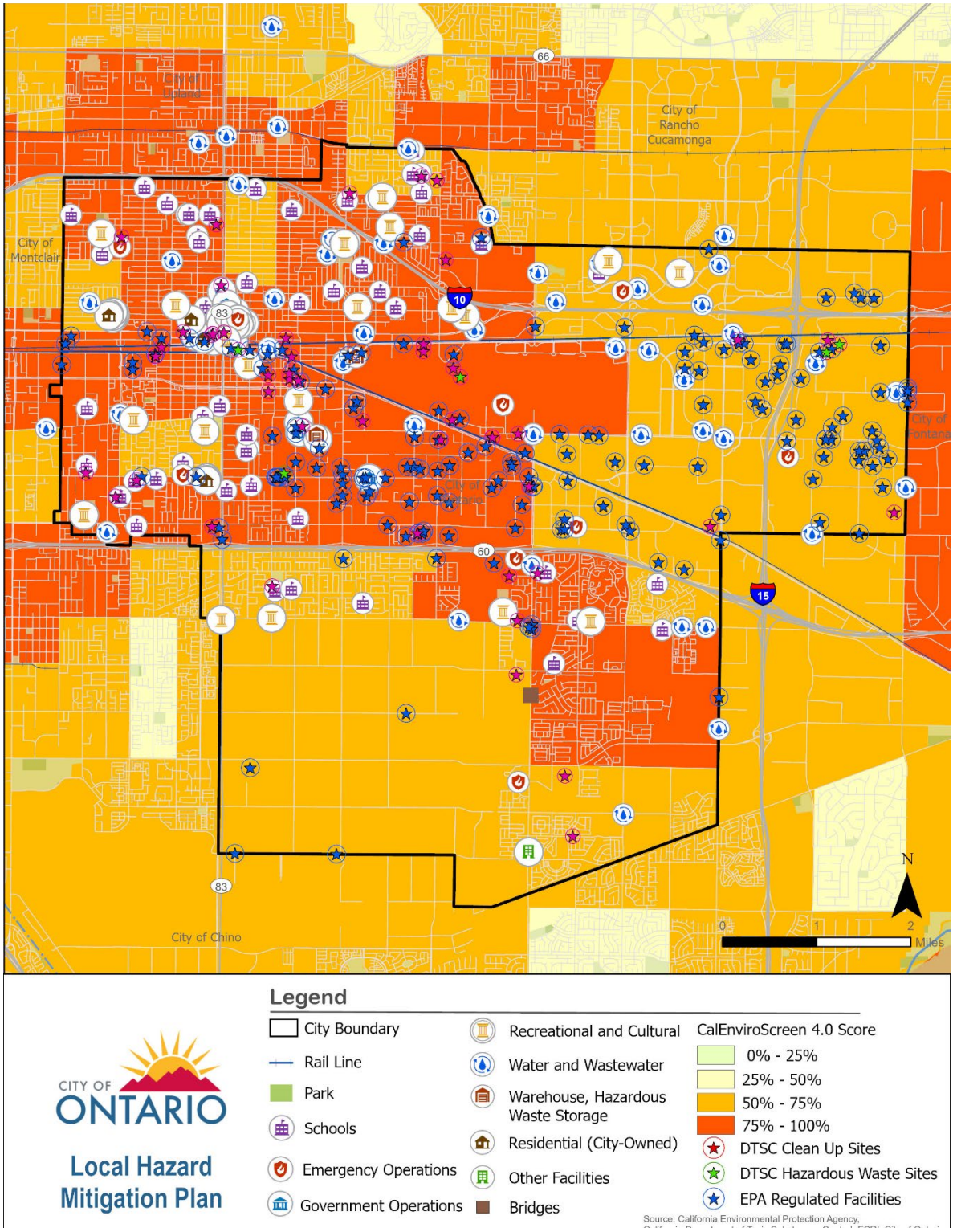
Table 4-14: Hazardous Materials Release Threatened Populations (Haz Mat Buffer 500 Feet)

Threatened Population Metric	500 Feet from Hazardous Materials Site	City of Ontario
Population	452	178,194
Households	109	50,599
Median household income	$53,895	$77,788
Renter Occupied Households	26.7%	42.2%
Percentage of households with at least one person living with a disability	34.9%	24.6%
Percentage of households living under the poverty limit	17.4%	12.4%
Percentage of households with one-member aged 65+	22.0%	24.9%

Other Threats

Hazardous materials release could threaten the city and regional transportation networks. Portions of the local road or rail networks may be closed to prevent people from entering areas contaminated with hazardous materials to allow remediation and cleanup activities to occur. If a highly corrosive hazardous material is released, it could potentially cause significant damage to the exteriors of homes or businesses in the area or require evacuation. A similar issue occurred recently in Perris, CA where hundreds of residents were required to evacuate their homes and businesses due to a release event. The City may experience additional personnel-related costs to coordinate the evacuation of a large area.

Figure 4-6 Critical Facilities and Facilities of Concern



Urban Fire

Physical Threat

Structures and physical assets in Ontario that are not equipped with fire suppression technology or design features that mitigate fire vulnerability are at risk of fire. Generally, these buildings are older, may not be well maintained, or may not meet current code requirements and regulations. While all structures can be impacted by urban fire, older structures may have increased vulnerability to this hazard. Power lines located around overgrown trees, where the tree crown envelops part or all the power lines, are also at risk of catching fire. When the wires overheat, they may ignite a fire in the tree, spread back to the power lines themselves, and burn the power line infrastructure. Underground utilities, like water delivery systems, residential electrical systems, or natural gas pipelines, are not threatened by the occurrence of fire since any urban fires that emerge in Ontario are likely to occur on the surface. According to Cal Fire, the city is not within a fire hazard severity zone and therefore not prone to wildfire events. Although no CFs or FOC are located within these fire hazard severity zones, the potential for an urban fire will always be present.

Social Threat

A fire hazard most immediately threatens seniors and persons with disabilities. These groups may have limited mobility and reduced environmental awareness. For example, a senior who lives alone may not be aware that a fire has been ignited in their house until the room begins to fill with smoke or even flashover, at which point escape may be more difficult or impossible. Therefore, a fire that starts in or spreads to any senior residences in Ontario could be highly threatening to those populations. Persons with disabilities may require special mobility devices or caregiver assistance to go outside, which may not be readily available if a fire occurs. Other groups with increased threat levels include lower-income persons and renters. These persons may live in substandard housing with outdated materials known to be flammable. Renters and lower-income persons may also live in housing units with improperly designed or maintained electrical or heating systems that could lead to a fire. Additionally, these groups may not possess enough financial resources to rebuild their homes or search for new homes after a fire event occurs.

Other Threats

Urban fires can consume power lines and force utility operators to shut off electrical and gas transmission activity, leading to utility outages in Ontario homes and businesses. Any streets surrounded by blazes or blocked by burning debris would hinder transportation, prevent people from evacuating, and block emergency response crews from reaching the source of the fire. Anyone living at the end of a cul-de-sac faces an elevated threat of being trapped if the fire occurs or spreads in a way that blocks evacuation. Fires that destroy trees or vegetation (especially within parks and open space areas) could limit or prevent the use of these areas, affecting future recreational opportunities for residents.

Public Safety Power Shutoffs (PSPS) will become a significant issue for many communities throughout California. Although there are only a few PSPS circuits within Ontario, the

potential for large-scale events affecting residents and businesses should be an ongoing concern. In the event of a PSPS outage in neighboring cities within the region, the City's resources could be strained as residents of affected areas seek refuge in communities with power. Outreach to residents and businesses to help them understand and prepare for these future events will become an important aspect of the City's overall hazard mitigation strategy.

Human-Caused Hazards

Physical Threat

Terrorism

There is no way to predict which of Ontario's facilities or assets may be impacted by an act of terrorism since the motivation behind the incident is often complex and not easily understood. Generally, these incidents occur at places of political, economic, or cultural importance. If the perpetrator's motives are to shut down city or regional government activity for a period, they may instead target pieces of infrastructure, like water systems, utility delivery systems, or transportation networks. The financial losses that may result from this type of incident would depend on the degree of destruction associated with the activity. If the incident involves the destruction of physical assets, the cost to the City or property owners in Ontario could be significant.

Transportation Incidents

Transportation incidents typically threatens infrastructure like roadways, bridges, and utilities that may be adjacent or co-located with these facilities. Depending on the nature of the event surrounding structures and uses may also be impacted, however to what degree is difficult to identify at this time. While many incidents within the City may be considered minor, if one were to occur at a key intersection or interchange, traffic and commerce within the affected area could be impacted significantly for hours or days depending on the severity of the incident.

Communications Failure

Physical threats to communications failure may involve the damage/destruction of city infrastructure (towers, transponders, other equipment) or could be impacted by non-physical methods (power loss, cyber-attack). Failure would most likely impact City operations and functions leaving some City services inoperable or severely diminished.

Social Threat

Terrorism

Since mass casualty incidents/acts of terrorism could occur anywhere in Ontario, all groups are potentially threatened by the impacts of these incidents; however, the extent of the threat would depend upon the type and magnitude of the event. For example, an active shooter situation may be isolated to a single location, whereas a larger-scale incident may affect multiple locations. Some locations are more likely to be targeted than others, including but not limited to medical facilities, government buildings, financial institutions, Ontario International Airport, and Toyota Arena. Populations that frequently visit these areas may face a greater threat than the average person. Seniors, pregnant

women, and persons with disabilities, for instance, are more likely to frequently visit the local hospitals than other subpopulations in the city. If an incident occurs at the hospital or within the community (overwhelming hospital resources), these groups are expected to face an increased impact from the incident.

An incident that occurs at a government building or financial institution may be more likely to threaten seniors or lower-income individuals that rely on in-person transactions in place of online options. As such, their use of these in-person services may place them in harm's way. An incident at Ontario City Hall or bank locations in the city can be expected to be more of a threat to these groups. Seniors and persons with limited income may be challenged if there is a need to shelter in place or evacuate during an incident requiring additional services, assistance, and/or medical treatment.

Transportation Incidents

Residents and businesses located in close proximity to major transportation infrastructure may be at greater risk of impact from these types of incidents. For residents that rely on the transportation network to get to work, any closures or impacts to that network could have a negative impact on their daily lives and wellbeing. While businesses could be impacted if employees and customers are unable to reach their place of business due to an incident. While many incidents would be short term, reducing impacts to the community, if a significant issue were to occur, the impacts could be longer, which could have economic impacts for both residents and businesses.

Communications Failure

Communications infrastructure is essential to the health and safety of residents. Medical services, first responder operations, and basic city services (trash collection, sewer/water operations) can be impacted by a communications failure, hindering these activities. Although the loss of communication infrastructure can occur anywhere in the city, the most vulnerable populations that would be affected are those that do not have the means to relocate temporarily during the outage to a location that has adequate communications capabilities.

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Chapter 5 – Hazard Mitigation Strategy

Strategy Development Process

Ontario's hazard mitigation strategy is a comprehensive set of actions intended to reduce hazard events' impacts. These hazard mitigation actions will help to protect the safety and well-being of residents and visitors, CFs and FOC, other buildings and structures, key services, the local economy, and other important community assets. Some actions will also help with emergency preparedness, allowing for a more effective community response to hazard events. Preparedness actions are not a required component of an LHMP, but they support and complement mitigation activities. The HMPC chose to include them as part of the overall hazard mitigation strategy.

Use of Hazard and Threat Assessment

The HMPC relied in part on the hazard profiles and threat assessments in this Plan to develop the actions in the mitigation strategy. A comprehensive set of mitigation actions that respond to the relevant hazard situations and protect Ontario residents, businesses, and community assets were prepared. The HMPC ensured that the mitigation actions would help reduce damage from the most frequent types of hazard events, the most significant that may reasonably occur, and those with the greatest potential to harm the community. The HMPC also drafted mitigation actions that will help protect the most vulnerable members of the community and the most vulnerable local assets.

Capabilities Assessment

As part of the effort to draft mitigation actions, the City completed a capabilities assessment, which included a review of existing policies, personnel, and technical resources that can support hazard mitigation activities in Ontario. The hazard mitigation actions build off the existing success of these resources and leverage their capabilities to support improved resiliency in the community. The capabilities assessment looked at the following types of resources:

- **Personnel resources:** City employees and volunteers, and employees and volunteers at other agencies.
- **Plan resource:** Advisory or enforceable plans adopted by the City or other agencies.
- **Policy resource:** Policies adopted and implemented by the City or other agencies
- **Technical resource:** Data and tools available to the City.
- **Financial resource:** Funding mechanisms available to the City that support mitigation activities.

Capabilities Improvement/Expansion

The ability to expand current mitigation capabilities will generally be reliant upon the budgeting allocated for each department/program for that fiscal year. The level at

which these programs may or may not be expanded upon, will be dependent upon the amount of funding received. FEMA has released a series of guides over the past few years which highlight some of the ways in which jurisdictions can expand mitigation. Some strategies for increasing current mitigation capabilities may include:

1. City should actively identify, adopt, and enforce the most current set of development codes and standards available. Strongly encouraging new development to be constructed to higher standards than currently required, increasing resilience within the community.
2. Engaging parts of the community that may not be actively involved in mitigation efforts.
3. Expanding the number and types of organizations involved in mitigation planning and implementation, increasing both efficiency and bandwidth.
4. Fostering new relationships to bring underrepresented populations and partners to the hazard mitigation planning process.
5. During the annual LHMP review, the HMPC should look for opportunities to fund and expand/enhance the effectiveness of current mitigation actions.
6. During annual budgeting processes, the City should identify new funding sources (bonds, grants, assessment districts, etc.) that can be used to support existing capabilities enhancements.

Tables 5-1a-d shows the capabilities assessment for Ontario. Within each resource described a section titled "Expansion and Improvement" is provided, which helps the City recognize specific areas where each capability may be modified to align with mitigation priorities and actions to be taken in the future.

Table 5-1a: City of Ontario Capabilities Assessment			
Local Legal and Regulatory Capabilities			
Resource Name	Version/ Date	Hazards Addressed	Description (Effect on Hazard Mitigation)
2050 The Plan Ontario Safety Element	2050 / Adopted 2020	All	The 2050 Plan identifies potential hazards: • Provides background on the history of hazards and the likelihood of future changes to these hazards. • Provides policies that increase the resilience of residents, businesses, workers, and visitors. • Provides policies to reduce the level of property loss due to a potential disaster. • Provides a framework for emergency management. Details of the Safety Element, including a discussion of the process to reduce the loss of life, injury, private property damage, infrastructure damage, economic losses, and social dislocation, can be found at: https://www.ontarioca.gov/about-ontario-ontario-plan-policy-plan/safety Expansion and Improvement: The HMP will be informed by referencing the Safety Element of the General Plan. The City will adopt the approved HMP as part of the General Plan Safety Element to meet the requirements of AB 2140.
2050 The Plan Ontario Land Use Element	2050 / Adopted 2020	Seismic, Fire, Flood, Wind	The Land Use Element functions as a guide to the ultimate pattern of development for the city, both within its incorporated boundaries and sphere of influence. The Land Use Element: • Designates the distribution, location, and balance of land uses. • Describes the desired build-out of Ontario • Describes building intensity standards for each land use. • Communicates population density. • Ensures compatibility between land uses. The entire Land Use Element may be found at the following link: https://www.ontarioca.gov/about-ontario-ontario-plan-policy-plan/land-use Expansion and Improvement: Focus on balancing community needs and ensuring compatibility of uses and development patterns.
Land Use Specific Plans	Various		The City maintains over 40 area-specific land use and project plans. Expansion and Improvement: These specific plans and the HMP will be aligned to describe developmental trends, hazards, and potential development in hazard areas.
California Standards Building Code	2022	Seismic, Fire, Flood, Wind	The California Building Standards Code is a compilation of three types of building standards from three different origins:

Table 5-1a: City of Ontario Capabilities Assessment			
Local Legal and Regulatory Capabilities			
Resource Name	Version/ Date	Hazards Addressed	Description (Effect on Hazard Mitigation)
			• Building standards that state agencies have adopted without change from building standards contained in national model codes; • Building standards that have been adopted and adapted from national model codes to address California's ever-changing conditions; and • Building standards, authorized by the California legislature, that constitute amendments not covered by national model codes that have been created and adopted to address California concerns. Expansion and Improvement: Adherence to building codes, including local codes, regulates growth and controls land use patterns. As codes are updated, addressing known hazards results in lowered risk and potentially fewer losses.
City of Ontario Building Code	2019	Seismic, Fire, Flood, Wind	The Ontario Building Code, Volume II Title 8 of the Municipal Code, incorporates and amends the 2018 Edition of the International Building Code, as published by the International Code Council. The full code can be found at: https://codelibrary.amlegal.com/codes/ontarioca/latest/ontario_ca/0-0-0-46100 Expansion and Improvement: Adherence to building codes, including local codes, regulates growth and controls land use patterns. Addressing known hazards, as codes are updated, results in lowered risk and potentially fewer losses.
City Emergency Operations Plan		All	Explains how the City will respond to a major emergency or disaster and coordinate between the Emergency Operations Center (EOC) and field-level Incident Commanders; includes the hazards with a description of each; the concept of operations during a major emergency or disaster; the role of the EOC, and the coordination that occurs between the EOC and City's departments and other local, state, and federal governments in times of disaster. Expansion and Improvement: The hazards section of the Emergency Operations Plan (EOP) is informed by the HMP as the two are closely correlated.
City of Ontario 2020 Urban Water Management Plan (UWMP)	2021	Climate Change, Drought	The UWMP provides urban water suppliers (including the City) with a planning document for long-term resource planning to ensure adequate water supplies are available to meet existing and future water supply needs. In addition, the 2020 UMWP incorporates water supply reliability determinations resulting from potentially prolonged drought, regulatory revisions, and/or changing climatic conditions. Expansion and Improvement: The UWMP and HMP will be aligned in describing and developing mitigation actions to address climate change and drought. Water demand reduction strategies contained in the UWMP should be considered for inclusion as mitigation activities in the HMP.

Table 5-1a: City of Ontario Capabilities Assessment			
Local Legal and Regulatory Capabilities			
Resource Name	Version/ Date	Hazards Addressed	Description (Effect on Hazard Mitigation)
Community Climate Action Plan	2022	Climate change, Drought, Extreme Heat, Wildland fire, Flood, High winds/Tornado/ Severe storm	This is a Greenhouse Gas Reduction document for the City to help achieve its goals of reducing greenhouse gases that contribute to climate change impacts. The plan may be found at the following link: https://www.ontarioca.gov/sites/default/files/Ontario-Files/Planning/The%20Ontario%20Plann/CCAP/Ontario-CCAP_Adopted_20220816.pdf Expansion and Improvement: The HMP and Climate Action Plan should be closely correlated. As the Climate Action Plan is updated, mitigation measures from the new HMP can be incorporated.
Climate Change Vulnerability Assessment	2022	Climate Change, Extreme Heat, Flooding, Severe Weather	The vulnerability assessment acts as a foundation for integrating adaptation and resilience policies into the Safety Element and The Ontario Plan by identifying a set of priority vulnerabilities in the City of Ontario. Expansion and Improvement: The HMP and Climate Change Vulnerability Assessment should be closely correlated. Ensure the Vulnerability Assessment is updated in conjunction with HMP updates.
Historic Preservation Program	City Code / 2015 update	Seismic, Fire, Flood, Wind	In 1991, the City Council adopted the City's first Ordinance intended to preserve historic resources. Pursuant to the National Preservation Act of 1966 and as amended in 1980, the Certified Local Government (CLG) program encourages the preservation of cultural resources by promoting a partnership among local governments, the State of California Office of Historic Preservation (OHP), and the National Park Service. Expansion and Improvement: The Historic Preservation Program designates facilities that must be considered when developing hazard mitigation activities. Planners must be aware of which facilities are in this program.

Table 5-1b: City of Ontario Capabilities Assessment		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
City Clerk's Office and Records Management	Management Services	The City Clerk / Records Management Department Supervises and coordinates City elections; serves as Filing Officer for City appeals as designated by various sections of the Ontario Municipal Code; prepares and updates the City's Conflict of Interest Code, and serves as Filing Officer for the Fair Political Practices Commission; receives and opens all sealed bids and formally releases bid bonds; receives, processes and maintains claims, public record requests, special event applications, summonses and complaints; assists the public and City staff by providing information and research assistance; and directs the retention and destruction of official records in accordance with applicable laws and regulations. Expansion and Improvement: Prioritize new initiatives that support mitigation activities within the city.
Communications	Management Services	The City of Ontario's Communications Department provides outreach and information to the public, creative services to all internal departments, and videography for the city. The Communications Department also handles all website administration. Expansion and Improvement: Strengthen ties with community organizations and businesses to ensure key content and information is timely and relevant. Create additional communications platforms to ensure information and content reaches community members.
Community Life and Culture	Community Life and Culture	The City's Community Life and Culture Division is comprised of four departments: Continuum of Care, Recreation and Community Services Department, and Library Services. The Ontario Continuum of Care encompasses a network of providers, programs and services to help residents facing housing, food, employment, and wellness challenges. For some of these programs, the City contracts with nonprofit providers and partners with the County of San Bernardino. The City of Ontario's Recreation & Community Services Department provides opportunities for wholesome, year-round public recreational services for every age group. Through a comprehensive array of programs and events, the Department continually strives to meet the City Council's goal to provide enhanced recreational, educational, cultural and healthy activities to the community. The Department operates six community centers, a senior center, and provides programming in over thirty parks, three dog parks, and a municipal golf course. Expansion and Improvement: Ensure the outreach and education of the City's most vulnerable populations are

Table 5-1b: City of Ontario Capabilities Assessment		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
		prioritized through the Continuum of Care Division. Integrate the mitigation actions and strategies into overall programming for capital improvements of recreation and community services.
Community Improvement	Community Development	The City of Ontario Community Improvement Department is responsible for enforcing Municipal Code regulations on private property throughout the city. The Ontario Municipal Code regulates parking on private property, zoning, property maintenance, weed abatement on undeveloped lots and other substandard conditions on residential, commercial, and industrial properties. Expansion and Improvement: Utilize code compliance as a means of incorporating mitigation into structures and improvements conducted by residents and businesses.
Engineering	Community Development	The department is charged with overseeing, planning, designing, and implementation of infrastructure projects. Some of the department's functions include: • Act as the lead agency for construction and public works contracts within the Right-of-Way. • Program, plan, design and administer the construction of the annual Capital Improvement Program. • Issue encroachment and traffic control permits for any work within the Right-of-Way. • Inspect construction within the Right-of-Way to verify conformance with the permit conditions and compliance with the latest City codes. • Review all proposed residential, commercial and industrial development projects and provide engineering input as well as conditions of approval for proposed projects. • Plan check all development plans including those that impact other department functions. • Manage the NPDES program activities, such as business inspection, construction site inspection, public education, and outreach, etc. • Manage traffic engineering and transportation planning activities. • Provide support for other departments working within the Right-of-Way. Expansion and Improvement: Integrate mitigation actions and strategies into the Capital Improvements Program and annual budgeting.
Housing	Community Development	The Housing Department administers funds the City receives from the United States Department of Housing and Urban Development (HUD). These funds are authorized under HUD's Community Development Block Grant (CDBG) program and used to benefit low- and moderate-income families and aid in the rehabilitation and development of blighted areas within the City.

Table 5-1b: City of Ontario Capabilities Assessment		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
		Expansion and Improvement: Integrate mitigation actions and strategies into low- and moderate-income areas to reduce blight and potentially spur further investment.
Planning	Community Development	The Planning Department plays a critical role in achieving the City Council's goals and objectives relative to land use, urban design, and the quality and sustainability of the built environment. The department conducts site plan reviews for residential, commercial, and manufacturing developments. They also process Conditional Use Permits, variances, zoning changes, and General Plan amendments. Expansion and Improvement: Provide opportunities for continued education to Community Development staff to maintain state-of-the-art knowledge of new code and regulatory requirements.
Building	Community Development	The Building Department provides professional plan review and inspection services to ensure buildings and projects are built and developed in compliance with all applicable municipal and state code requirements. Expansion and Improvement: Provide opportunities for continued education to Community Development staff to maintain state-of-the-art knowledge of new code and regulatory requirements.
Economic Development	Economic Development	The Economic Development Department supports and recruits business to the city. Expansion and Improvement: Identify economic development opportunities that incorporate mitigation actions and strategies.
Financial Services	Financial Services	The Finance Department is tasked with maintaining reliable accounting records, payment of approved demands against the City treasury, financial statement reporting, preparation of the annual budget, prudent fiscal planning, payroll processing and debt administration. Expansion and Improvement: Assist with key mitigation activities associated with cost tracking hazard events and disasters, identifying grant funding opportunities, grant reporting and administration, and establishing financial risk calculations that can help assist with budgeting of operations, maintenance, and capital improvements.
Human Resources	Human Resources	The Human Resources Department plans, coordinates and administers a comprehensive human resources management program for the City of Ontario and its employees. This includes the recruitment and retention of highly qualified employees, maintenance of a competitive employee compensation program, implementation and use of current technology for the City's human resources information systems (HRIS),

Table 5-1b: City of Ontario Capabilities Assessment		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
		organizational and employee development, and employee/labor relations. The Risk Management Department identifies, evaluates and manages the City's risk and liability programs. This includes claims administration, cost recovery, the maintenance of liability/insurance coverage as well as the compliance with governmental regulation. In addition, the department administers the City's workers' compensation and employee safety programs. Expansion and Improvement: Increase knowledge and information through better data collection and tracking.
Information Technology	Information Technology	The role of the IT Department is to support the operational departments with reliable systems and information on a daily basis. The most critical support required of IT being network, communications and applications support. The IT department provides short- and long-term direction in planning, researching, selecting and deploying future technologies. IT strives to accommodate improved business process automation, self-service and quality customer service through a variety of hardware and software solutions. Expansion and Improvement: Increase system redundancy and resiliency through improvements to technologies and connectivity.
Municipal Utilities Company	Municipal Utilities Company	The Utilities Department provides production, transmission, and distribution of the City's domestic water supply; wastewater collection services; and recycling services to Ontario residents. Expansion and Improvement: Increase system redundancy and resiliency through enhanced systems operations and additional connections within and outside of the city.
Public Safety	Police Department	Ontario Police Department is tasked with protecting life and property while preserving the peace. This department is responsible for conducting emergency preparedness activities, investigating criminal activity, and directing traffic. The Department has four bureaus – Airport Operations Bureau, Investigations, Special Operations, and Administrative Services Bureau. Expansion and Improvement: Provide training to Officers to better enable them to see potential hazards and take action to report them.
Emergency Management	Fire	Develops, coordinates, and manages programs that prevent, prepare for, respond to, recover from, and mitigate natural and human-caused disasters and emergencies. Expansion and Improvement: Increase coordination and collaboration with other City departments, especially during annual budgeting.

Table 5-1b: City of Ontario Capabilities Assessment		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
Fire Department	Fire	Ontario Fire Department has 227 personnel comprised of 186 sworn firefighters and 41 professional staff members serving the community across six bureaus – Operations/Airport Services, Fire Prevention, Support Services, EMS, Training and Professional Services, and Administrative Services. Expansion and Improvement: Proactively identify opportunities to coordinate and collaborate with neighboring jurisdictions to increase City and region-wide capabilities.
Public Works	Public Works	The City of Ontario Public Works Department is responsible for maintaining and improving the City's vital infrastructure, including streets, sidewalks, parks, landscaping, sewers, storm drains, and public facilities. Services are divided into three subdivisions: Integrated Waste (provides refuse collection services to resident and businesses), Municipal Services (maintains City and community facilities and provides City fleet services), and Parks and Street Maintenance. These services include maintenance of public buildings and facilities, landscaping and park upkeep, street and sidewalk maintenance and repair, storm drain and sewer servicing, and graffiti abatement. Expansion and Improvement: Improve the understanding of the role that daily activities play in hazard mitigation.
Floodplain Manager	Community Development Department	The duties and responsibilities of the Floodplain Administrator shall include, but not be limited to: • Permit review • Flood hazard reduction • NFIP program administration • Construction inspections Expansion and Improvement: The Floodplain Administrator supports compliance with NFIP requirements, advocates for appropriate development in flood hazard areas, and provides technical expertise on effective flood mitigation activities. This can support mitigation activities.
Planning Commission	Community Development Department	The Planning Commission is responsible for reviewing proposed residential and commercial development projects, subdivisions, and land use requests on private property, to determine their compliance with applicable City regulations. The Commission has the authority to approve various development projects that comply with City requirements. In addition, the Commission makes recommendations to the City Council with respect to the City's General Plan, Zoning Code, Specific Plans and other matters related to development within the City. The Commission may be responsible for implementing mitigation items pertaining to the Commission's scope. Expansion and Improvement**:** Provide opportunities for continued education to members of the Planning Commission

Table 5-1b: City of Ontario Capabilities Assessment		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
		to maintain state-of-the-art knowledge of new code and regulatory requirements.
City Attorney	City Manager's Office	Reviews and approves resolutions and ordinances. Expansion and Improvement: Provide opportunities for the City Attorney to review updates to regulatory information to provide expert review of City resolutions and ordinances that may address hazard mitigation
Southern California Association of Governments (SCAG)	SCAG	Functions as the Metropolitan Planning Organization for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. As the designated Metropolitan Planning Organization, the Association of Governments is mandated by the federal government to research and draw up transportation, growth management, hazardous waste management, and air quality plans. Expansion and Improvement: Attend SCAG meetings. Continue to participate in SCAG-sponsored programs. Routinely coordinate with SCAG staff to stay informed of current planning initiatives.
GIS	Community Development Department	Provides complex mapping and data management of City facilities, land use, and potential hazards. Supports visualization of complex data sets using geo-location and data correlation. Expansion and Improvement: Acquire and conduct training for GIS technicians on the latest versions of ArcGIS.
Emergency Radio Services	Ontario ECS	Ontario Emergency Communications Service (ECS) is a specialized detail within CERT tasked with providing auxiliary communications during special events and disasters. The primary mission and purpose of the Ontario ECS is to support emergency communications during periods of local, regional, or national emergencies. By providing the Ontario Fire Department and Police Department communication back-up with an amateur radio system, the integrity of public safety services can be ensured. To fulfill this mission, Emergency Communications Service members must be flexible. They must be able to adapt to a wide range of potential situations, which ECS may be called upon, for support. Expansion and Improvement: Continue to recruit amateur radio operators. Conduct preparedness exercises to provide proficiency in supporting emergency response.

Table 5-1c: City of Ontario Capabilities Assessment		
Financial Resources		
Financial Resource	**Administrator**	**Description (Effect on Hazard Mitigation)**
General Fund	Department Specific	Program operations and specific projects. Consists of property tax, sales tax, transient occupancy tax, and franchise tax that can be used for general purposes. Expansion and Improvement: Hazard mitigation projects may be considered during the annual budgeting process for funding from the general fund.
Enterprise Funds	Fund specific	The City operates a variety of Special Revenue Funds. Special Revenue Funds are used to account for revenue derived from specific taxes or other revenue sources that are restricted by law or administrative action to be expended for specified purposes. Expansion and Improvement: Where permissible, Special Revenue Funds may be considered during the annual budgeting process for funding mitigation projects.
Community Development Block Grants (CDBG)	Fund Specific	The CDBG program provides funding for eligible senior activities such as in-home care, art classes, counseling, and home-delivered meals. HUD also provides Disaster Recovery Assistance in the form of flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to the availability of supplemental appropriations. Expansion and Improvement: Where applicable, CDBG grants should be used to fund mitigation projects that enhance the resiliency of low-income and underserved communities.
Hazard Mitigation Grant Program (HMPG)	Emergency Management	Provides support for pre-and post-disaster mitigation plans and projects. Expansion and Improvement: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Building Resilient Infrastructure and Communities (BRIC)	Grant Funding	Provides support for pre-disaster mitigation plans and projects. Expansion and Improvement: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Flood Mitigation Assistance grant program (FMA)	Grant Funding	Mitigates structures and infrastructure that have been repetitively flooded. Expansion and Improvement: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Special Use Funds		Program operations and specific projects. Consists of property tax, sales tax, transient occupancy tax, and franchise tax that can be used for general purposes. Expansion and Improvement: Hazard mitigation projects may be considered during the annual budgeting process for funding from the general fund.

Table 5-1d: City of Ontario Capabilities Assessment		
Education and Outreach Resources		
Name	**Lead Organization**	**Description (Effect on Mitigation)**
San Bernardino County Emergency/Disaster Readiness web site https://sbcfire.org/oes/	San Bernardino County OES	The San Bernardino County Fire website has educational material on making an emergency plan, stocking supplies staying informed, and getting involved. Expansion and Improvement: Provide links to the County website on the City's website. Post material on social media accounts that provide a link to the appropriate County website page
Ontario Community Emergency Response Team (CERT) https://www.ontarioca.gov/CERT	Ready Ontario	The CERT Program is a 20-hour all-risk, all-hazard training offered by the City. This valuable course is designed to help citizens protect themselves, their family, their neighbors, and their neighborhood in an emergency. Expansion and Improvement: Share pertinent information with the CERT volunteers through CERT Monthly meetings. CERT volunteers can then share the information with the public during community engagement booths/events.
Ontario Continuity & Organizational Resilience in Emergencies (CORE) Academy https://www.ontarioca.gov/CORE	Ready Ontario	The CORE Academy prepares businesses, nonprofits, or faith-based organizations for emergencies through a structured series of training sessions. This new Seminar was piloted on May 25, 2022, and is designed to teach fundamental skills and provide tools to ensure organizations can build disaster resiliency. Expansion and Improvement: Distribute materials to past cohorts via email as "partners in preparedness." Utilize CORE to build a network of resilience amongst organizations across the City to better facilitate information sharing like this.
City Website Ready Ontario https://www.ontarioca.gov/news/readyontario-emergency-preparedness	Ready Ontario	This is a one-stop shop for emergency preparedness information. The public can learn what to do in an emergency, processes to get connected, and helpful guides to prepare them.

Table 5-1d: City of Ontario Capabilities Assessment		
Education and Outreach Resources		
Name	**Lead Organization**	**Description (Effect on Mitigation)**
		Expansion and Improvement: Devote a page on the website to post the HMP and provide updates on the progress of the mitigation action plan.
Ontario National Night Out	Ontario Police Department	National Night Out is a community-oriented program themed as a block party to increase crime prevention awareness. Expansion and Improvement: Include booths and National Night Out events focusing on family and individual preparedness and advertise mitigation activity success stories.

Hazard Mitigation Strategies and Actions

Hazard Mitigation Goals

The goals identified in Chapter 1 help develop policies to protect community members, ecosystems, and other important assets from hazard events. These goals were developed to ensure consistency with the Ontario Plan 2050 Safety Element, which plays an important role in risk reduction within Ontario. These goals informed the development of mitigation actions and act as checkpoints to help City staff determine implementation progress.

Evaluation of Potential Hazard Mitigation Actions

Based on the hazard profiles, threat assessment, capabilities assessment, community survey results, discussions among HMPC members, and existing best practices, a set of potential mitigation actions was developed and then evaluated based on the following criteria:

- FEMA requires local governments to evaluate the monetary and non-monetary costs and benefits of potential mitigation actions. Although local governments are not required to assign specific dollar values to each action, they should identify the general size of costs and benefits.
- The HMPC may elect to include measures with a high cost or low benefits, but such measures should be clearly beneficial to the community and an appropriate use of local resources.

In addition, FEMA directs local governments to consider the following questions as part of the financial analysis:

- What is the frequency and severity of the hazard type to be addressed by the action, and how vulnerable is the community to this hazard?
- What impacts of the hazard will the action reduce or avoid?

- What benefits will the action provide to the community?

The HMPC also chose to review and revise the potential hazard mitigation actions using a third set of criteria (**Table 5-2**), known as STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental). The HMPC did not formally assess every potential mitigation action under all STAPLE/E criteria but used the criteria to guide and inform the discussion. A discussion also occurred regarding how the criteria might be used to evaluate grant applications the City may submit in the future as part of plan implementation.

Prioritization

As part of the mitigation actions development and review, the HMPC also prioritized the actions. The prioritization efforts looked at the risks and threats from each hazard, financial costs and benefits, technical feasibility, and community values, among others. HMPC members were asked to identify their priority actions through a voting exercise. Items prioritized by at least three HMPC members are considered high priority, and those prioritized by one or two members are considered medium priority. Actions not prioritized by any HMPC member are considered low priority.

Table 5-2: STAPLE/E Criteria

Issues	Criteria
Social	• **Is the action socially acceptable to community members?** • **Would the action mistreat some individuals?** • **Is there a reasonable chance of the action causing a social disruption?**
Technical	• **Is the action likely to reduce the risk of the hazard occurring, or will it reduce the hazard's effects?** • **Will the action create new hazards or make existing hazards worse?** • **Is the action the most useful approach for the City to take, given the City and community members' goals?**
Administrative	• **Does the City have the administrative capabilities to implement the action?** • **Are there existing City staff who can lead and coordinate the measure's implementation, or can the City reasonably hire new staff for this role?** • **Does the City have enough staff, funding, technical support, and other resources to implement the action?** • **Are there administrative barriers to implementing the action?**
Political	• **Is the action politically acceptable to City officials and other relevant jurisdictions and political entities?** • **Do community members support the action?**
Legal	• **Does the City have the legal authority to implement and enforce the action?** • **Are there potential legal barriers or consequences that could hinder or prevent the implementation of the action?**

	• **Is there a reasonable chance that the implementation of the action would expose the City to legal liabilities?** • **Could the action reasonably face other legal challenges?**
Economic	• **What are the monetary costs of the action, and do the costs exceed the monetary benefits?** • **What are the start-up and maintenance costs of the action, including administrative costs?** • **Has the funding for action implementation been secured, or is a potential funding source available?** • **How will funding the action affect the City's financial capabilities?** • **Could the implementation of the action reasonably burden the City's economy or tax base?** • **Could there reasonably be other budgetary and revenue impacts to the City?**
Environmental	• **What are the potential environmental impacts of the action?** • **Will the action require environmental regulatory approvals?** • **Will the action comply with all applicable federal, state, regional, and local environmental regulations?** • **Will the action reasonably affect any endangered, threatened, or otherwise sensitive species of concern?**

Cost Estimates

To meet the cost estimation requirements of the hazard mitigation planning process, the HMPC identified relative cost estimates based on their understanding of the mitigation action intent and their experience developing identical or similar programs/implementing projects. Three cost categories based on the City's typical cost criteria were used for budgeting purposes:

- Low cost ($): $100,000 or less
- Medium cost ($$): $100,001 to $999,999
- High cost ($$$): Greater than $1,000,000

Based on the criteria and evaluation processes used during Plan development, the HMPC prepared a prioritized list of mitigation actions to improve Ontario's resilience to hazard events. **Table 5-3** lists the mitigation actions, the prioritization of each action, and other details related to implementation. In addition to mitigation action and strategies, several preparedness activities were identified and denoted with the letter "P."

National Flood Insurance Program

Ontario participates in the National Flood Insurance Program (NFIP), which was created by Congress in 1968 to provide flood insurance at subsidized rates to homeowners who live in flood-prone areas. Individual communities have the option to participate in the NFIP, although property owners who live in nonparticipating communities with flood-prone areas will not be able to buy flood insurance through the program. Additionally, nonparticipating communities with mapped floodplains cannot receive federal grants or loans for development activities in flood-prone areas and cannot receive federal disaster

assistance to repair flood-damaged buildings in mapped floodplains. Ontario has participated in NFIP since it was first deemed eligible.

Although participation is not a dedicated hazard mitigation action, Ontario will continue to participate in NFIP and comply with the program's requirements through continued enforcement of the City's Floodplain Management Regulations (Municipal Code Chapter 13: Flood Damage Prevention Program). These regulations apply to all areas of special flood hazards, areas of flood-related erosion hazards and areas of mudslide (i.e., mudflow) hazards within the City. The purpose of these regulations is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions. This chapter also includes methods of reducing flood losses, the basis for establishing flood hazard areas, development permit requirements, duties and responsibilities of the City's Floodplain Administrator, the development standards that apply in flood-prone areas and required documentation and analysis for construction within these areas. As part of the City's efforts to comply with NFIP, Ontario will make updates and revisions to these regulations periodically to ensure they are most effective at minimizing the threat of harm from flood events. These updates and revisions may be promoted by changes in local demographics, shifts in land use, changes to flood regimes such as frequency and intensity of flood events, and other factors that may warrant municipal action. The City will also continue to incorporate any changes to the locations and designations of mapped floodplains into future planning documents, including future updates to this Plan.

The City of Ontario contains Special Flood Hazard Areas that include 46 policies in force, with approximately $48,122 in premiums. Total insurance coverage for these policies amounts to $17,216,000. According to FEMA a total of 16 closed paid losses have occurred totaling $74,312; however, only one repetitive loss property and no severe repetitive loss properties were identified by FEMA.

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Table 5-3: Mitigation Action Implementation Plan

Mitigation Action		Potential Funding Sources	Responsible Department	Relative Cost*	Time frame	Priority
Preparedness Activities						
P1	Conduct regular emergency preparedness drills and training exercises for City staff.	General Fund, Grants	OEM	$	Ongoing	N/A
P2	Continue agreements with local school districts to ensure that school facilities can act as evacuation sites during major emergencies.	General Fund, Grants	OEM	$	Ongoing	N/A
P3	Promote and expand participation of local businesses, non-profits, and faith-based organizations in the Ontario Continuity & Organizational Resilience in Emergencies Academy (CORE) trainings and preparedness activities.	General Fund, Grants	OEM	$	Ongoing	N/A
P4	Expand participation in the Ontario Community Emergency Response Team (CERT) program.	General Fund, Grants	OEM	$	Ongoing	N/A
P5	Ensure that community evacuation plans include provisions for community members who do not have access to private vehicles or are otherwise unable to drive.	General Fund, Grants	OEM	$$	Ongoing	N/A
P6	Continue to ensure effective emergency notifications through multiple media formats, in at least English and Spanish, about pending, imminent, or ongoing emergency events. Ensure that information is accessible to persons with access and functional needs.	General Fund, Grants	OEM	$	Ongoing	N/A
P7	Maintain at least one emergency power-generating station in all critical facilities that the City could use as emergency public assembly areas, such as City Hall, Community Centers, and any other locations designated in the future.	General Fund, Grants	OEM	$$$	Ongoing	N/A
P8	Update the Ontario Emergency Operations Plan to identify backup power and communications locations for critical facilities and prepare a hazardous materials annex.	General Fund, Grants	OEM	$	Ongoing	N/A
P9	Continuously update response procedures for first responder departments to properly address new hazard events as they emerge.	General Fund, Grants	OEM	$	Ongoing	N/A
P10	Ensure that the City has an adequate supply of sandbags for residents and businesses, including prefilled sandbags for individuals who may be unable to fill them on their own.	General Fund, Grants	OEM	$	Ongoing	N/A

P11	Conduct active shooter drills for City staff, residents, and businesses.	General Fund, Grants	OEM	$	Ongoing	N/A
P12	Increase the number of City staff who have Cal OES Safety Assessment Program (SAP) credentials.	General Fund, Grants	OEM, Building Department	$	Ongoing	N/A
Multiple Hazards						
1.01	Promote and expand the use of 'Ready Ontario' as the primary location for emergency preparedness and hazard mitigation information that includes: 1. An outreach team that promotes emergency preparedness and hazard mitigation activities 2. A cadre of volunteers from the City's CERT Program, Continuity & Organizational Resilience in Emergencies Academy (CORE), Ontario Emergency Communications Service (ECS) HAM Radio Operators, and other organizations to support hazard mitigation and disaster preparedness activities. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Fire	$	Ongoing	High
1.02	Install energy-efficient equipment upgrades in City facilities to increase the longevity of the fuel supply for backup generators. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Facilities	$$$	Ongoing	High
1.03	Conduct routine updates to Facility Conditions Assessments for City-owned infrastructure and other utilities and coordinate with other agencies to ensure inspections of other important infrastructure. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering	$	Ongoing	Medium
1.04	Repair, as feasible, all major deficiencies discovered by inspections to prevent collapse, failure, or damage in the event of a natural disaster. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering, Building	$$$	Initiate by 2023/2024	High
1.05	Incentivize public and private utility operators to harden their lines passing through the City from potential breaches. Encourage the adoption of supervisory control and data acquisition (SCADA) to allow instantaneous shutdown of line breaches. Use mitigation grants to incentivize entities to partner with the City to complete these projects. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Community Development	$	Ongoing	Low

1.06	Install and harden emergency backup power at critical facilities deemed necessary. Prioritize installations for facilities that serve as key cooling/warming centers and evacuation centers. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering	$$$	Initiate by 2023/2024	High
1.07	Conduct a feasibility assessment of installing solar and battery backup systems at key critical facilities within the City. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities	$$$	TBD	Low
1.08	Work closely with community groups to increase awareness of hazard events and resiliency opportunities among socially vulnerable community members, including those experiencing homelessness. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Community Life & Culture	$	Ongoing	Medium
1.09	Avoid building new City-owned key facilities in mapped hazard areas. If no feasible sites outside mapped areas exist, ensure that such facilities are hardened against hazards beyond any minimum building requirements/ mitigation standards. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering, Building	$	Ongoing	Low
1.10	Closely monitor changes in the boundaries of mapped hazard areas resulting from land use changes or climate change and adopt new mitigation actions or revise existing ones to ensure continued resiliency. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Community Development	$	Ongoing	Low
1.11	Integrate policy direction and other information from this Plan into other City documents, including the General Plan, Emergency Operations Plan, and Capital Improvements Program. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	All Departments	$	Ongoing	Medium
1.12	Monitor funding sources for hazard mitigation activities. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM	$	Ongoing	Low
1.13	Integrate climate change mitigation and adaptation information and analysis into future LHMP updates and other City Plans, where practicable. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Planning	$	Ongoing	Low

1.14	Update the City's Master Plans (General Plan, Utilities Master Plan, etc.) periodically (in conjunction with the LHMP and CIP) to incorporate new data (FEMA flood maps and information) and/or address emerging issues. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	All Departments	$$	Ongoing	Medium
Earthquake/Geologic Hazards						
2.01	Develop a Public Information Program (PIP) for earthquake awareness and mitigation. The program should focus on reducing injury and property damage and encourage partnerships, activities, and products to educate the public about earthquake science and motivate homeowners to prepare for earthquakes.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Building, Communications	$	Initiate by 2026	Medium
2.02	Develop a small project-based retrofit program to assist homeowners with simple earthquake mitigation activities (i.e., water heater straps, furniture anchoring, gas shut-off tools, and other emergency supplies) to reduce strain on City resources during an event.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Building, Community Improvement	$$	TBD	Low
2.03	Conduct an educational campaign, incentivize and promote medium-scale seismic retrofits, such as window films to minimize shattering, anchors for rooftop-mounted equipment, bracing for masonry chimneys, and other preventative measures to reduce damage to private buildings.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Building, Community Improvement	$	Initiate by 2026	Medium
2.04	Periodically update the seismically vulnerable buildings and structures inventory and pursue funding to incentivize retrofits of these structures to be more resilient to earthquakes in accordance with State and Local building standards and Historic Preservation Program requirements. Assess soft story conditions for apartment buildings constructed prior to 1980.	General Fund, BRIC/ HMGP Grants, Other Grants	Building	$	Ongoing	Low
2.05	Conduct a seismic analysis of all City-owned key facilities and retrofit vulnerable facilities.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Building, Public Works Facilities	$$$	Initiate by 2026	Medium
2.06	Encourage the installation of resilient (seismically appropriate) piping for new or replacement pipelines in close coordination with utility providers.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities	$	Ongoing	Medium

2.07	To the extent feasible, construct all new and significantly retrofitted City-owned facilities to remain operational in the event of a major earthquake.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering	$$$	Ongoing	Low
2.08	Retrofit key critical facilities with seismically rated window film treatments that ensure glass windows do not shatter during a strong seismic event.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Facilities	$$	TBD	Low
2.09	Improve local understanding of the threat of a major earthquake by conducting a citywide scenario modeling potential loss of life and injuries, destroyed and damaged structures, and interruptions to key services.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Public Works Facilities	$	Initiate by 2026	Medium
2.10	Coordinate with Ontario Municipal Utilities Company (OMUC) on monitoring groundwater elevations in areas where liquefaction and subsidence may be a concern.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC	$	Ongoing	Low
Flood						
3.01	Investigate the use of permeable paved and landscaped swales for new construction and replacement of City-owned hardscaped areas.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Parks and Maintenance	$$	TBD	Low
3.02	Analyze if new critical facilities can be built a minimum of 1 foot higher than the anticipated 500-year flood elevation height to determine where it is feasible.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Facilities, Engineering, Building, Development	$	Initiate by 2026	Medium
3.03	Identify potential flood improvements that reduce inundation from both storm flows and potential dam inundation effects.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Initiate by 2026	Medium
3.04	Retrofit roadway medians to capture stormwater during rain events. Prioritize improvements along major arterials/ roadways throughout the City.	General Fund, BRIC/ HMGP Grants, Other Grants	Planning, Engineering	$$$	Initiate by 2023/2024	High
3.05	Conduct frequent cleanings of storm drain intakes, especially before and during the rainy season.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Ongoing	Low

3.06	Track areas where ponding frequently occurs during heavy rainfall and install new drains or upgrade existing ones to reduce water ponding.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Initiate by 2023/2024	High
3.07	Monitor intersections that frequently flood during rain events and identify improvements to alleviate these conditions.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing	Medium
3.08	Explore the feasibility of a mass notification siren and public address network to alert residents and visitors of potential flash floods and other flooding hazards, especially along the City's flood channel infrastructure.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Public Works, Engineering	$$	Initiate by 2023/2024	Medium
Extreme Weather (High Winds, Extreme Heat, Severe Rainstorms)						
4.01	Conduct outreach to residents and businesses before the severe winds (Santa Ana Wind events) on proper tree maintenance and identification of potentially hazardous trees. (Hazards addressed: High Winds)	General Fund, BRIC/ HMGP Grants, Other Grants	Communications	$	Ongoing	Low
4.02	Remove or trim trees determined to be susceptible to blowing over during a severe wind event and underground power lines, where feasible. (Hazards addressed: High Winds)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$$	Ongoing	Medium
4.03	Increase the use and construction of shade structures within new developments, City facilities, parks, and trails to reduce urban heat island impacts. (Hazards Addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Planning, Engineering, Recreation	$$	Ongoing	Medium
4.04	Evaluate the long-term capacity of designated cooling centers and shelters in the City to provide sufficient relief from extreme heat. Assess the need to expand services as the frequency, length, and severity of future heatwaves potentially change as a result of climate change. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Recreation	$	TBD	Low
4.05	Upgrade HVAC within City facilities to more efficient systems that may include split systems or decentralized systems that allow for heating and cooling the spaces needed, not entire buildings. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$$$	TBD	Low

4.06	Implement a tree-planting program to diversify tree age and increase shaded areas in the City to reduce the effects of the urban heat island effect. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Planning	$$	TBD	Low
4.07	Promote passive cooling design (brise soleil, long roof overhangs, locating windows away from southern facades, etc.) in new developments during the design review process. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Planning	$	Ongoing	Low
4.08	Promote early notifications to residents in advance of a severe weather event, focusing on effective communication methods with vulnerable populations to better ensure they have adequate time to prepare. (Hazards addressed: Severe Weather)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Communications, Police, Fire	$	Ongoing	Medium
Hazardous Materials Release						
5.01	Discourage new sensitive land uses, including schools, parks, childcare centers, adult and senior assisted living facilities, and community centers, from locating near identified hazardous material facilities. Discourage or prohibit new hazardous material facilities from locating near sensitive land uses.	General Fund, BRIC/ HMGP Grants, Other Grants	Planning	$	Ongoing	High
5.02	Continuously inspect businesses and other properties storing hazardous materials and create an inventory of storage locations that require updates, maintenance, or renovation.	General Fund, BRIC/ HMGP Grants, Other Grants	Fire	$	Ongoing	Low
5.03	Coordinate with hazardous materials generators/operators regularly to understand changes to their operations within the City.	General Fund, BRIC/ HMGP Grants, Other Grants	Fire	$	Ongoing	Low
5.04	Continue to work with solid waste service contractors to educate residents and businesses on their safe disposal of small quantities of hazardous materials.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Ongoing	Low
Urban Fire						
6.01	Educate and promote the proper maintenance and separation of power lines from trees and other hazards.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Ongoing	Medium

6.02	Conduct regular fuel modification projects to reduce fire hazard risks, such as clearing out dead vegetation in parks, open spaces, right-of-way embankments, and other areas that could become fuel for fires, such as within Cucamonga-Guasti Regional Park and surrounding neighborhoods.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Community Improvement	$$	Ongoing	Low
6.03	Provide information and resources to residents citywide on ways to improve resilience to home fires, including procedures for fallen powerlines.	General Fund, BRIC/ HMGP Grants, Other Grants	Fire	$	Ongoing	Low
6.04	Promote the removal of fire-prone tree species in the City, such as eucalyptus and pepper trees, especially in areas with heightened fire susceptibility (e.g., trees adjacent to powerlines).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$$	Ongoing	Medium
Dam Inundation						
7.01	Coordinate with dam owners/operators, state, and federal agencies to collectively identify threats to the City and the region and identify ways to retrofit/strengthen the dams under their control.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM	$	Ongoing	Medium
7.02	Implement an early warning system/protocol that notifies downstream communities in the event of a potential dam failure incident.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM	$$	TBD/Ongoing	Low
Human-Caused Hazards (Transportation Incidents, Terrorism, Communications Failure)						
8.01	Coordinate and enhance datasets with the School District, Hospitals, and other key entities within the City to better respond to mass-casualty and terrorism incidents. (Hazards addressed: Terrorism**)**	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Ongoing	Medium
8.02	Evaluate all critical facilities, facilities of concern, and business licenses, for potential human-caused hazard vulnerabilities and integrate counterterrorism design elements and building materials, where feasible. (Hazards addressed: Terrorism)	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Initiate by 2026	Medium
8.03	Coordinate with the San Bernardino County Sheriff to monitor potential incidents resulting in terrorism and mass casualty incidents. (Hazards addressed: Terrorism/Mass Casualty Incidents)	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Ongoing	Low

8.04	Conduct proactive community policing during special events. Ensure that all staff involved in community policing are trained to engage with and respect community members while maintaining security. (Hazards addressed: Terrorism)	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Ongoing	Medium
8.05	Prioritize any remaining grade separations to reduce or eliminate conflicts between different modes of travel. (Hazards addressed: Transportation Incidents)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing	Medium
8.06	Maintain relationships with Metrolink, Amtrak, and Railroad owners to improve rail safety. (Hazard addressed: Transportation Incident)	General Fund, BRIC/ HMGP Grants, Other Grants	Police, Engineering	$	Ongoing	Low
8.07	Analyze communications systems to identify critical components and ensure these components are readily available to ensure communications resiliency. (Hazards addressed: Communications Failure)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Police, IT & Broadband, Communications	$	Ongoing	Medium
8.08	Expand the installation of fiber optics infrastructure and conduit (for future services) to enhance the city's communications systems and economic opportunities. (Hazards addressed: Communications Failure)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Police, IT & Broadband, Communications	$$$	Initiate by 2023/2024	High
8.09	Enhance existing communication backup systems to minimize communications interruptions, as an annex to the City of Ontario Emergency Operations Plan. (Hazards addressed: Communications Failure)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Police, IT & Broadband, Communications	$$$	Initiate by 2023/2024	High

2018 Mitigation Action Progress

The HMPC reviewed the mitigation actions from the 2018 plan. Since preparation of the previous plan, City staff has recognized that many of the actions needed to be refined and integrated into the proposed mitigation actions matrix in **Table 5-3**. **Table 5-4** includes a summary of how these existing actions were incorporated into the proposed mitigation actions within the plan.

Table 5-4: 2018 Mitigation Actions Progress

Hazard	Mitigation Action	Description / Background	Integration into Table 5-3
ALL Hazard	Increase readiness for all hazards in the City of Ontario.	Develop a robust community outreach team to promote emergency preparedness and hazard mitigation activities. Develop a volunteer cadre to include CERT (Community Emergency Response Teams), Ham Radio Operators and faith-based organizations	This action was incorporated into Mitigation Action 1.01.
Wildfire	Continue to reduce fire hazards in the City of Ontario.	Through Code Enforcement enforce the weed abatement program to reduce fuels available to burn	This action was incorporated into Mitigation Action 6.02.
Earthquake	Improve public education programs and practices to residents for earthquake risk.	Public education and outreach programs are an efficient and cost-effective way to promote meaningful changes within a community. A Program for Public Information (PPI) for earthquake awareness and mitigation could significantly reduce injury and property damage to earthquake. Use a suite of partnerships, activities, and products to educate the public about earthquake	This action was modified and turned into Mitigation Action 2.01.

		science and motivating homeowners to become prepared for earthquakes.	
Flood	Provide adequate flood protection to minimize hazards and structural damage.	Utilize the National Flood Insurance Program. Participate in the National Flood Insurance Program (NFIP), which provides flood insurance within designated floodplains. Update NFIP data and maps with newly identified flood hazard areas in the County, as new information becomes available.	These mitigation actions were removed and replaced with actions 3.01 through 3.08.
Dam Inundation	Reduce damage from a breach in the San Antonio Dam.	Have Army Corps of Engineers review the inundation zones to reflect the retention basins, quarries, 2 subterranean freeways that now exist between the city and the dam	This action was incorporated into Mitigation Action 7.01.
		Promote the National Flood Insurance Program	This action was removed as it was deemed unnecessary, since the City already performs this action.
Anti-Terrorism	Use anti-terrorism strategies to discourage terrorism and protect the people, infrastructure and assets in Ontario from the effects of terrorism.	Use anti-terrorism design strategies to discourage / prevent acts of terrorism.	This action was incorporated into Mitigation Action 8.02.
		Identify and prioritize mitigation activities (anti-terrorism force protection) at critical facilities and gathering places that are vulnerable to terrorist attacks.	This action was incorporated into Mitigation Action 8.01.

Climate Change	Reduce the impacts of climate change on the City and limit human activities that change the atmosphere's makeup.	Meet greenhouse gas (GHG) reductions targets set forth by the Clean Air Act and The City's Community Climate Change Plan and the General Plan Environmental Element Section ER Continue working with the South Coast Air Quality Management District to meet GHG reductions targets. Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan, and the City Community Climate Change Plan	These actions were removed as the City recently completed an update Climate Action/Adaptation Plan that implements these actions.

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Chapter 6 – Plan Maintenance

For this LHMP to remain effective and useful to the community of Ontario, it must remain up to date. An updated version of the LHMP will continue to guide Ontario hazard mitigation activities and help keep the City eligible for state and federal hazard mitigation funding. The HMPC has structured this LHMP so individual sections can easily be updated as new information becomes available and as new needs arise, helping to keep this Plan current.

This chapter discusses how to update this Plan to keep it in compliance with applicable state and federal requirements. This chapter also describes how the City can incorporate the mitigation actions described in Chapter 5 into existing programs and planning mechanisms and how public participation will remain an important part of Plan monitoring and future update activities.

Coordinating Body

The HMPC will remain responsible for maintaining and updating the Plan, including evaluating the Plan effectiveness as needed. Members of the HMPC will also coordinate the implementation of the Plan through their respective positions. **Table 1-1** contains a list of current members. In future years, staff and representatives (either current HMPC members or other individuals) from the following City Departments should be included in maintenance and update activities:

- Office of Emergency Management
- Community Life & Culture (Recreation)
- Community Life & Culture (Library)
- Community Life & Culture (Museum)
- Community Development (Building)
- Community Development (Community Improvement)
- Community Development (Engineering)
- Community Development (Housing)
- Community Development (Planning)
- Economic Development
- Finance
- Fire Department
- Human Resources/Risk Management
- Information Technology
- Management Services (City Communications)
- Management Services (Records Management)
- Management Services (Broadband)
- Management Services (Innovation, Performance, and Audit)
- Ontario Municipal Utilities Company (OMUC)
- Police Department
- Public Works (Municipal Services)
- Public Works

The staff member currently serving as the HMPC leader (responsible for coordinating future updates) is in the Office of Emergency Management (within the Fire Department). He/ she will serve as the project manager during the update process or designate this role to another staff member. The HMPC leader or their designee will coordinate the maintenance of this Plan, lead the formal Plan review and evaluation activities, direct the Plan update, and assign tasks to other members of the HMPC to complete these activities. Such tasks may include collecting data, developing new mitigation actions, updating mitigation actions, making presentations to City staff and community groups, and revising sections of the Plan.

Plan Implementation

The effectiveness of the Plan depends on the successful implementation of the mitigation actions. This includes integrating mitigation actions into existing City plans, policies, programs, and other implementation mechanisms. The mitigation actions in this Plan are intended to reduce the damage from hazard events, help the City secure funding, and provide a framework for hazard mitigation activities.

HMPC members prioritized the hazard mitigation actions in **Table 5-3** in Chapter 5. These priorities will guide the implementation of these actions through new or existing City mechanisms as resources are available. The LHMP project manager is responsible for overseeing this Plan's implementation, promotion, and maintenance, as well as facilitating meetings and other coordinating activities related to Plan implementation and maintenance.

The key City Plans that should incorporate content from this LHMP include the following:

- **The Ontario Plan 2050 - Safety Element** – Content from the LHMP incorporated into the Safety Element will ensure the goals and policies of this plan are reinforced throughout future developments and projects proposed within the city.
- **Ontario Emergency Operations Plan** – This plan focuses on the effective preparedness and response to hazard events that occur within the city. Incorporating relevant content from this plan into the EOP ensures consistency regarding the hazards addressed in both plans.
- **Ontario Capital Improvements Program** – This program identifies key infrastructure investments throughout the City that may include hazard mitigation elements. Incorporating this plan into the CIP may enhance infrastructure investment through additional funding and/or modification of improvements to include hazard mitigation elements.

This integration of the LHMP into The Ontario Plan 2050 Safety Element also allows the City to comply with AB 2140 requirements, as identified in Chapter 1 of this plan.

Plan Maintenance Process

The City's plan maintenance process will rely on the Ontario Mitigation Implementation Handbook, located in **Appendix E**. The handbook is intended to function as a stand-alone document that gives a concise and accessible guide to jurisdiction staff for

implementing and maintaining the Plan. A key component of the handbook is the specific mechanisms the jurisdiction can use to integrate this plan into other City planning mechanisms.

Plan Monitoring and Evaluation

When members of the HMPC are not updating the Plan, they should meet at least once a year to go over mitigation action implementation and evaluate the Plan's effectiveness. These meetings should include the following:

- Discussion of the timing of mitigation action implementation
- Mitigation action implementation evaluation and determination of success
- Mitigation action prioritization revisions, if deemed necessary
- Mitigation action integration into other mechanisms, as needed

The first of these meetings will be held in the 2023-2024 fiscal calendar year. To the extent possible, HMPC meetings should be scheduled at an appropriate time in the City's annual budgeting process, which will help ensure that funding and staffing needs for mitigation actions are considered.

When the HMPC meets to evaluate the Plan, members should consider these questions:

- What hazard events, if any, have occurred in Ontario in the past year? What were the impacts of these events on the community? Were the impacts mitigated, and if so, how?
- What mitigation actions have been successfully implemented? Have any mitigation actions been implemented but not successfully, and if so, why?
- What mitigation actions, if any, have been scheduled for implementation but have not yet been implemented?
- What is the schedule for implementing future mitigation actions? Is this schedule reasonable? Does the schedule need to be adjusted for future implementation, and are such adjustments appropriate and feasible?
- Have any new issues of concern arisen, including hazard events in other communities or regions that are not covered by existing mitigation actions?
- Are new data available that could inform updates to the Plan, including data relevant to the hazard profiles and threat assessments?
- Are there any new planning programs, funding sources, or other mechanisms that can support hazard mitigation activities in Ontario?

Plan Updates

The information in this Plan, including the hazard profiles, threat assessments, and mitigation actions, is based on the best available information, practices, technology, and methods available to the City and HMPC at the time this Plan was prepared. As factors change, including technologies, community demographics and characteristics, best practices, and hazard conditions, it is necessary to update the plan to remain relevant. Additionally, Title 44, Section 201.6(d)(3) of the Code of Federal Regulations requires that

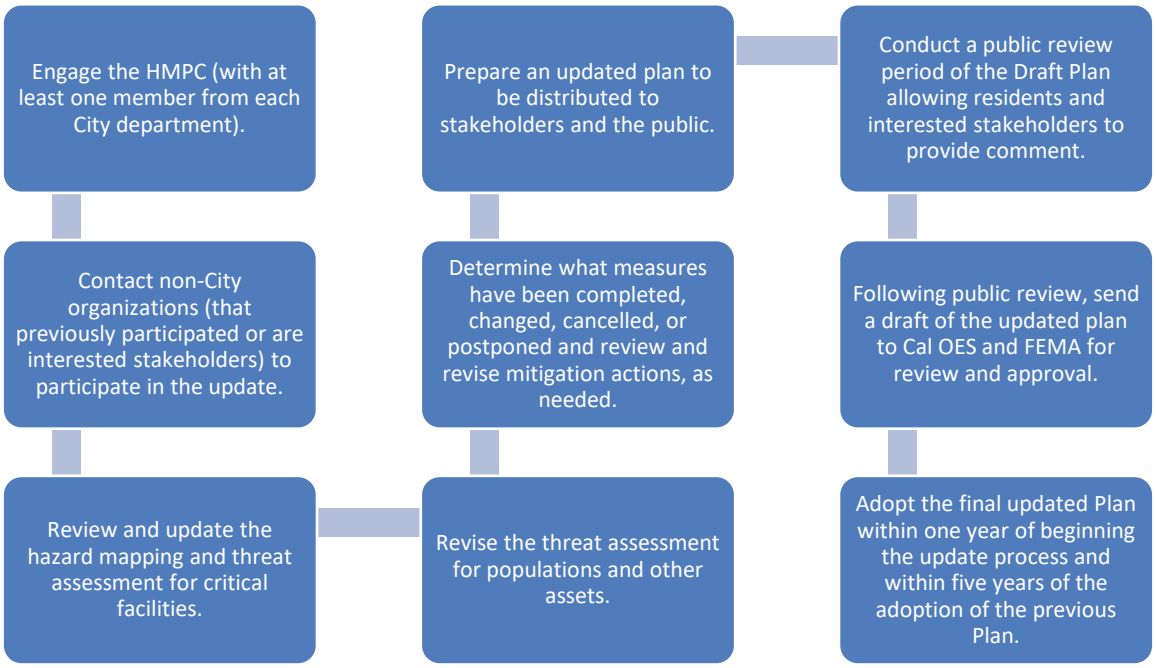
LHMPs be reviewed, revised, and resubmitted for approval every five years to remain eligible for federal benefits.

Update Method and Schedule

The update process should begin no later than four years after this Plan is adopted, allowing a year for the update process before the Plan expires. Depending on the circumstances, the LHMP project manager or their designee may also choose to begin the update process sooner. Some reasons for accelerating the update process may include the following:

- A presidential disaster declaration for Ontario or an area that includes part or the entire city
- A hazard event that results in one or more fatalities in Ontario

The update process will add new and updated methods, demographic data, community information, hazard data and events, considerations for threat assessments, mitigation actions, and other information, as necessary. This helps keep the Plan relevant and current. The HMPC will determine the best process for updating the Plan, which should include the following steps:



Update Adoption

The Ontario City Council is responsible for adopting this Plan and all future updates. As previously mentioned, adoption should occur every five years. To ensure the plan remains active, the City should begin the update process at least one year prior to expiration. If the City has a grant application that relies on the LHMP, an update to the plan should occur no later than 18 months before expiration. Adoption should take place after FEMA notifies the City that the Plan is Approved Pending Adoption. Once the City Council

adopts the Plan following its approval by FEMA, the adopted plan should be transmitted to FEMA.

Continued Public Involvement

The City will continue to keep members of the public informed about the HMPC's actions to review and update the LHMP. The HMPC will develop a revised community engagement strategy that reflects the City's updated needs and capabilities. The updated strategy should include a tentative schedule and plan for public meetings, recommendations for using the City website and social media accounts, and content for public outreach documentation. The HMPC will also distribute annual progress reports through City social media platforms and mailing lists used to engage community members. These outreach opportunities will describe the actions taken by the City and ways that residents and businesses can help further the City's goals. These updates are anticipated to occur after the annual HMPC meeting is conducted by the City.

Point of Contact

The HMPC leader for Ontario is the primary point of contact for this Plan and future updates. At the time of writing, the HMPC leader is Sagar Patel (Emergency Manager), available at spatel@ontarioca.gov | (909) 395-2557.

Appendix A – HMTF Meeting Materials

Table 1-1: Ontario HMPC Members		
Name	**Title**	**Department**
Sagar Patel (Project Manager, POC)	Emergency Manager	Office of Emergency Management
Nick Gonzalez	Recreation & Community Services Director	Community Life & Culture (Recreation)
Kelly Zackman	Library Services Manager	Community Life & Culture (Library)
Michelle Sifuentes	Museum Curator	Community Life & Culture (Museum)
Matt Montieth	Supervising Building Inspector	Community Development (Building)
Angela Magana	Community Improvement Director	Community Development (Community Improvement)
Khoi Do	City Engineer	Community Development (Engineering)
Peter Pallesen	Senior Project Coordinator	Community Development (Housing)
Kim Ruddins	Sustainability Program Manager	Community Development (Planning)
Charity Hernandez	Principal Project Manager	Economic Development
Angelica Mora	Purchasing Manager	Financial Services
Paul Ehrman	Senior Deputy Chief, Fire Marshal	Fire Department
Reed Sigler	Departmental Administrator	Human Resources/Risk Management
Colin Fernandes	Executive Director	Information Technology
Claudia Isbell	Assistant City Clerk	Management Services (Records Management)
Jimmy Chang	Broadband General Manager	Management Services (Broadband)
Albert Gastelum	Utilities Assistant General Manager	Ontario Municipal Utilities Company (OMUC)
Eric Quinones	Detective	Police Department
Joshua Blessingham	Fleet Services Coordinator	Public Works (Municipal Services)
David Coote	Park & Maintenance Supervisor	Public Works
Scott Ochoa	City Manager	Management Services
Darlene Sanchez	Assistant City Manager	Management Services
Dan Bell	Communications & Community Relations Director	Management Services

ONTARIO LHMP UPDATE KICKOFF

DATE: August 14, 2022

TO: Sagar Patel
Emergency Manager, City of Ontario

FROM: Aaron Pfannenstiel, Principal
Atlas Planning Solutions

City of Ontario

Local Hazard Mitigation Plan Update: Kick-Off Meeting Agenda

1. *Introductions (5 Minutes)*
2. *LHMP 101 (10 Minutes)*
    a. What is an LHMP?
    b. How does an LHMP benefit Ontario?
    c. What does the creation process look like?
    d. What are your expectations? HMPC expectations.
3. *Current Safety Element Goals (10 Minutes)*
    a. GOAL S1 - Minimized risk of injury, loss of life, property damage and economic and social disruption caused by earthquake-induced and other geologic hazards.
    b. GOAL S2 - Minimized risk of injury, loss of life, property damage and economic and social disruption caused by flooding and inundation hazards.
    c. GOAL S3 - Reduced risk of death, injury, property damage and economic loss due to fires, accidents and normal everyday occurrences through prompt and capable emergency response.

d. GOAL S4 - An environment where noise does not adversely affect the public's health, safety, and welfare.

e. GOAL S5 - Minimize the risk of injury, property damage, and economic loss resulting from windstorms and wind-related hazards

f. GOAL S6 - Reduced potential for hazardous materials exposure and contamination.

g. GOAL S7 - Residential neighborhoods, commercial areas, and industrial districts that are kept safe through a multi-faceted approach of prevention, suppression, and community involvement in public safety.

h. GOAL S8 - Disaster resilient, prepared community through effective emergency/disaster preparedness, response, mitigation and recovery.

i. GOAL S9 - Incorporate energy efficient practices and renewable energy systems to improve air quality, comfort, and energy reliability during temporary power outages.

4. ***Are these still Ontario's goals within these areas?*** (10 Minutes)

a. Has anything changed within the City not included in the Safety Element that needs to be addressed within the LHMP?

b. How we integrate the LHMP and the Safety Element to maintain cohesion

5. ***HMPC Meeting #1 Members: (10 Minutes)***

a. Potential Planning Committee Members: City Administrative Staff, City Attorney, Community Development, financial Services, Fire, Planning, Building, Engineering, Housing, Human Resources, Information Technology, Municipal Utilities, Police, Public Works, stakeholders, etc….

b. Do we have a list of names and email addresses for the invitees?

c. Are there any City scheduling constraints that could hinder project progress, or that we need to schedule around?

d. Communication Preferences/Protocol: Who is the City's primary point of contact for the project? Preferred method of communication.

e. Schedule Meeting #1

6. *Project schedule and milestone expectations (5 Minutes)*
7. *Invoicing Requirements (5 Minutes)*
8. *Schedule Meeting #1 (5 Minutes)*

Questions and Concerns? Please Contact

Aaron Pfannenstiel – aaron@atlasplanning.org

Atlas Planning Solutions

City of Ontario

LOCAL HAZARD MITIGATION PLAN UPDATE
HMPC MEETING #1 AGENDA

I. **Team Introductions (5 minutes)**

II. **Local Hazard Mitigation Plan Overview (15 minutes)**

III. **Project Goals and Expectations (10 minutes)**

IV. **Hazard Mitigation Planning Team Roster (10 minutes)**

V. **Communication Protocols (5 minutes)**

VI. **Data Needs (Critical Facilities List, vulnerable populations, recent/past hazards, GIS) (20 minutes)**

VII. **Community Engagement and Outreach Strategy (10 minutes)**

VIII. **Hazard Identification/Prioritization (30 minutes)**

IX. **Next Steps and To Do List (5 minutes)**

Hazard Mitigation Planning Update Process	**August 2022 – July 2023**
Community Outreach	September 2022 – January 2023
Administrative Draft LHMP	January 2023
Public Review Draft LHMP Document	Spring 2023
Cal OES/FEMA Review Draft Document	Spring/Summer 2023

2018 Ontario LHMP Goals

1. **Increase readiness for all hazards in the City of Ontario.**
2. **Continue to reduce fire hazards in the City of Ontario.**

3. Minimize exposure to structural and contents damage from geologic and seismic conditions.
4. Provide adequate flood protection to minimize hazards and structural damage.
5. Reduce damage from a breach in the San Antonio Dam.
6. Use anti-terrorism strategies to discourage terrorism and protect the people, infrastructure and assts in Ontario from the effects of terrorism.
7. Reduce the impacts of climate change on the City and limit human activities that change the atmosphere's makeup.
8. Reduce the risk of injury, property damage and economic loss resulting from Santa Ana Winds and wind related hazards. Santa Ana Winds and wind related hazards.

City of Ontario

LOCAL HAZARD MITIGATION PLAN UPDATE
HMPC MEETING #2 AGENDA

I. **Introductions (5 minutes)**

II. **Review of Project Goals (5 minutes)**

III. **Review of Hazard Prioritization (5 minutes)**

IV. **Review of Critical Facilities (5 minutes)**

V. **Review of Hazard Profiles/Mapping Discussion/Threat Assessment (75 minutes)**

VI. **Introduction to Mitigation Strategies (5 minutes)**

VII. **Next Steps (5 minutes)**

Hazard Mitigation Planning Process	August 2022 - July 2023
HMPC Meeting #3 – Mitigation Action Review/Prioritization	November 2, 2022
Community Outreach	September 2022-January 2023
Administrative Draft LHMP	January 2023
Public Review Draft LHMP Document	Spring 2023
Cal OES/FEMA Review Draft Document	Spring/Summer 2023

City of Ontario

LOCAL HAZARD MITIGATION PLAN UPDATE
HMPC MEETING #3 AGENDA

VIII. Introductions (5 minutes)

IX. Review of Project Goals (5 minutes)

1. Increase readiness for all hazards ~~in the City of Ontario~~.
2. Continue to reduce fire hazards ~~in the City of Ontario~~.
3. Minimize exposure to structural and contents damage from geologic and seismic conditions.
4. Provide adequate ~~flood~~ protection to minimize ~~hazards and structural~~ damage from flooding and dam inundation.
5. ~~Reduce damage from a breach in the San Antonio Dam.~~
6. Use anti-terrorism strategies to discourage terrorism and protect the people, infrastructure and assets ~~in Ontario~~ from these effects ~~of terrorism~~.
7. Reduce the impacts of climate change on the City and limit human activities that change the atmosphere's makeup.
8. Reduce the risk of injury, property damage and economic loss resulting from ~~Santa Ana Winds and~~ wind related hazards.

X. Overview of Mitigation Strategies

Plans and Regulations	• Ordinances, Regulations
Structural Projects	• Utility Undergrounding, Structural Retrofits
Natural Systems Protection	• Stream restoration, erosion control
Education Programs	• Outreach materials, websites, presentations
Preparedness and Response Actions	• Mutual aid agreements, equipment purchases, notification protocols

XI. Discussion of STAPLE/E Criteria

Issue	Criteria
Social	• Is the action socially acceptable to community members? • Would the action treat some individuals unfairly? • Is there a reasonable chance of the action causing a social disruption?
Technical	• Is the action likely to reduce the risk of the hazard occurring, or will it reduce the effects of the hazard? • Will the action create new hazards or make existing hazards worse? • Is the action the most useful approach for the City to take, given the City's goals and community members?
Administrative	• Does the City have the administrative capabilities to implement the action? • Are there existing City staff who can lead and coordinate the measure's implementation, or can the City reasonably hire new staff for this role? • Does the City have enough staff, funding, technical support, and other resources to carry out implementation? • Are there administrative barriers to implementing the action?
Political	• Is the action politically acceptable to City officials and other relevant jurisdictions and political entities? • Do community members support the action?
Legal	• Does the City have the legal authority to implement and enforce the action? • Are there potential legal barriers or consequences that could hinder or prevent the implementation of the action? • Is there a reasonable chance that implementation of the action would expose the City to legal liabilities? • Could the action reasonably face other legal challenges?
Economic	• What are the monetary costs of the action, and do the costs exceed the economic benefits? • What are the start-up and maintenance costs of the action, including administrative costs? • Has the funding for action implementation been secured, or is a potential funding source available? • How will funding the action affect the City's financial capabilities? • Could the implementation of the action reasonably burden the City's economy or tax base? • Could there reasonably be other budgetary and revenue impacts to the City?
Environmental	• What are the potential environmental impacts of the action? • Will the action require environmental regulatory approvals? • Will the action comply with all applicable federal, state, regional, and local environmental regulations? • Will the action reasonably affect any endangered, threatened, or otherwise sensitive species of concern?

XII. Discussion of Relative Cost Estimates

Cost Categories	
$	Less than $_____
$$	$_____ to $_____
$$$	Greater than $_____

XIII. Review and Discussion of Draft Mitigation Strategies

XIV. Next Steps (5 minutes)

Hazard Mitigation Planning Process	**August 2022 - June 2023**
Community Outreach	Ongoing
Administrative Draft LHMP	January 2023
Public Review Draft LHMP Document	March 2023
Cal OES/FEMA Review Draft Document	April-May 2023

City of Ontario Stakeholder Meeting Attendance

Sagar Patel – City of Ontario

Marissa Currier – City of Ontario

Chris Shaw – Ontario Convention Center

Andrew Harsh – Ontario Airport

Joyce Lee – City of Chino Hills

Joseph Ramos – City of Rancho Cucamonga

Aaron Pfannenstiel – Atlas Planning Solutions

Robert Jackson – Atlas Planning Solutions

Crystal Stueve – Atlas Planning Solutions

Appendix B – Outreach Engagement Materials

THE CITY OF ONTARIO IS PREPARING ITS LOCAL HAZARD MITIGATION PLAN!

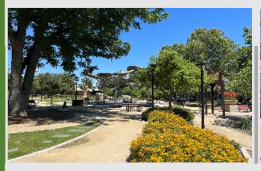
WHAT IS AN LHMP?

- Improves local resilience to hazards.
- Funded through grant money from the Federal Emergency Management Agency (FEMA)
- Prepared by city staff.
  - Support from key city stakeholders
  - Support from technical consultants
- Incorporates community member feedback.

FOLLOW OUR PROGRESS/TAKE THE SURVEY

WHAT DOES AN LHMP DO?

- Summarizes our community's threats, such as –
  - Flooding, earthquakes, fires, and extreme weather
- Identifies how climate change affects future hazards in the city.
- Identifies how community members and assets are vulnerable to the threats of these hazards.
- Outlines a strategy to aid in specific policy and action recommendations to City staff and community partners to improve resiliency to hazard events.
- Includes steps on how to maintain and keep the plan updated and current.



WHY HAVE AN LHMP?

- Protect our community from current and future hazards
- Make Ontario eligible for more FEMA funding for additional hazard mitigation efforts (Robert T. Stafford Act and the Disaster Mitigation Act of 2000)
- Make Ontario eligible to receive disaster relief funding (California Government Code § 8685.9)

2023 Ontario Hazard Mitigation Plan Survey

I. Local Hazard Mitigation Plan Survey

Dear Community Member,

The City of Ontario is preparing an update to the Local Hazard Mitigation Plan or LHMP. Like all other communities, Ontario could potentially face widespread devastation in the event of a natural disaster. While no community can completely protect itself against all potential hazardous situations, this plan will help identify those situations, assess our current provisions, and outline a strategy to lessen the vulnerability and severity of future disasters.

Your responses to this survey will inform the preparation of the plan. Thank you for your time and cooperation.

II. Hazard Awareness

1. **Please indicate whether you live or work in the City of Ontario.**
   a. I live in the City of Ontario.
   b. I work in the City of Ontario.
   c. I live and work in the City of Ontario.
   d. Neither applies to me, but I am interested in the City's resiliency.

2. **What is the ZIP code of your home?**

3. **Have you been impacted by a hazard event in your current residence?**
   a. Yes
   b. No

4. **If you answered yes to the previous question, please select the type of hazard event that you have been impacted by (select all that apply).**

Earthquake/Geologic Hazards	Flooding
Extreme Weather (High Winds, Extreme Heat Days, Severe Rainstorms)	Hazardous Materials Release
Urban Fire	Human Caused Hazards (Transportation Incidents, Communications Failure, Terrorism)
Dam Inundation	Other

Please list any additional hazards that have previously impacted your neighborhood or home.

5. **The following hazards could potentially impact the city. Please mark the THREE (3) hazards that are of most concern to your neighborhood or home.**

Earthquake/Geologic Hazards	Flooding
Extreme Weather (High Winds, Extreme Heat Days, Severe Rainstorms)	Hazardous Materials Release
Urban Fire	Human Caused Hazards (Transportation Incidents, Communications Failure, Terrorism)
Dam Inundation	Other

Please list any additional hazards that present a threat to your neighborhood or home.

6. **The planning team is using various data sources to identify hazards in your community; however, some of these data sources do not provide data at a general citywide level. Are there any small-scale issues, such as ponding at a specific intersection during rain, that you would like the planning team to consider?**
   a. I am not aware of local hazards
   b. I am aware of local hazards

Please provide as much detail as possible, including location and type of hazard.

7. **How concerned are you that climate change may create new hazardous situations in Ontario or make existing natural hazards worse?**

    a. Very concerned.
    b. Somewhat concerned.
    c. Somewhat unconcerned.
    d. Not at all concerned.
    e. Unsure.

8. **When do you think climate change will pose a threat to your health, property, livelihood, or overall wellbeing?**

    a. It already is.
    b. Within the next five years.
    c. In five to twenty years.
    d. Not for at least another twenty years.
    e. Never, or not in my lifetime.

9. **If you have taken any action to protect yourself against natural hazards, how confident are you that these actions will be sufficient to protect against more severe hazards that are expected because of climate change?**

    a. Very confident.
    b. Somewhat confident.
    c. Somewhat unconfident.
    d. Not at all confident.
    e. Unsure.

10. **If you are a homeowner, do you have adequate homeowners' insurance to cover the hazards that could impact your home?**

    a. Yes, my insurance coverage should be adequate.
    b. No, I don't believe my insurance coverage would be adequate for a major disaster.
    c. Unsure.
    d. I do not have an insurance policy.
    e. Not applicable; I rent my current residence.

11. **If you rent your residence, do you have renters' insurance?**

    a. Yes
    b. No
    c. Not applicable; I own my residence.

12. **Do you have flood insurance for your home?**

    a. Yes, I own my home and have flood insurance.
    b. Yes, I rent my home and have flood insurance.
    c. No, but I am interested in reviewing flood insurance options (http://www.floodsmart.gov/floodsmart/).

13. **Have you done anything to your home to make it less vulnerable to hazards such as earthquakes, floods, and fires?**

    a. Yes
    b. No
    c. Not applicable; I rent my residence.

    If not, do you plan to?

14. **If a severe hazard event occurred today such that all services were cut off from your home (power, gas, water, sewer) and you were unable to leave or access a store for 72 hours, which of these items do you have readily available?**
    a. Potable water (3 gallons per person)
    b. Cooking and eating utensils
    c. Can opener
    d. Canned / nonperishable foods (ready to eat)
    e. Gas grill / camping stove
    f. Extra medications and contact lenses (if applicable)
    g. First aid kit / supplies
    h. Portable AM/FM radio (solar powered, hand crank, or batteries)
    i. Handheld "walkie-talkie" radios (with batteries)
    j. Important family photos / documentation in a water- and fireproof container
    k. Extra clothes and shoes
    l. Blanket(s) / sleeping bag(s)
    m. Cash
    n. Flashlight (with batteries)
    o. Gasoline
    p. Telephone (with batteries)
    q. Pet supplies
    r. Secondary source of heat

    For more information on emergency kits, visit: https://www.ready.gov/kit

    What else do you have in your emergency kit?

15. **Are you familiar with the special needs of your neighbors in the event of a disaster situation (special needs may include limited mobility, severe medical conditions, memory impairments)?**
    a. Yes
    b. No

16. **Are you a trained member of your Community Emergency Response Team (CERT)?**
    a. Yes
    b. No, but I would like to learn more about CERT.
    c. No, I am not interested in being a trained CERT member.

    For more information about CERT, please visit:

    https://www.ontarioca.gov/CERT

17. **How can the city help you become better prepared for a disaster? (Choose all that apply)**
    a. Provide effective emergency notifications and communication.
    b. Provide training and education to residents and business owners on how to reduce future damage.
    c. Provide community outreach regarding emergency preparedness.
    d. Create awareness of special needs and vulnerable populations.
    e. Other (please specify)

If you do NOT work in the City of Ontario, please skip to question 21.

18. **What is the ZIP code of your workplace?**

19. **Does your employer have a plan for disaster recovery in place?**
    a. Yes
    b. No
    c. I don't know

20. **Does your employer have a workforce communications plan to implement following a disaster, so they can contact you?**
    a. Yes
    b. No

III. Recommendations and Future Participation

21. **Would you like to be contacted when the Draft 2023 Ontario Hazard Mitigation Plan is available for review?**
    a. Yes, please notify me using my contact information in the next question.
    b. No

22. **If you would like to be notified of future opportunities to participate in hazard mitigation and resiliency planning, please provide your name and e-mail address. If you do not have an e-mail address, please provide your mailing address.**

Full Name:	
Email Address:	
Street Address:	
City, State, Zip:	

23. **Please provide us with any additional comments/suggestions/questions regarding your risk of future hazard events.**

Thank you for taking the time to complete this survey. If you have any questions, or if you know of other people/organizations that should be involved, please contact Sagar Patel, at spatel@ontarioca.gov

2023 City of Ontario Hazard Mitigation Plan Survey

136 responses

Publish analytics

II. Hazard Awareness

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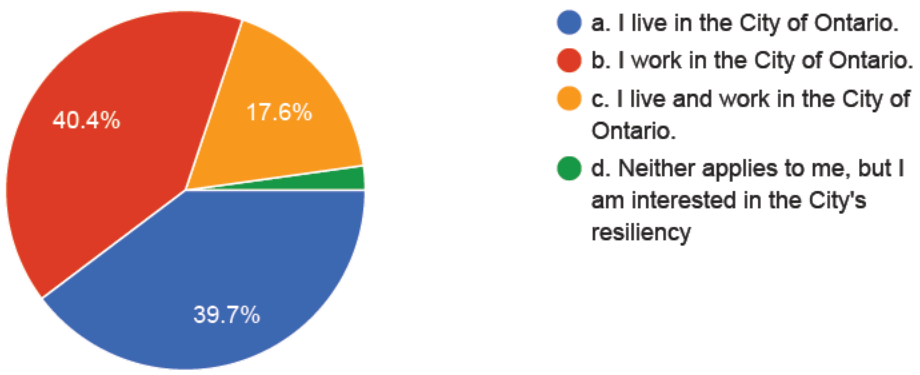
1. Please indicate whether you live or work in the City of Ontario.

136 responses



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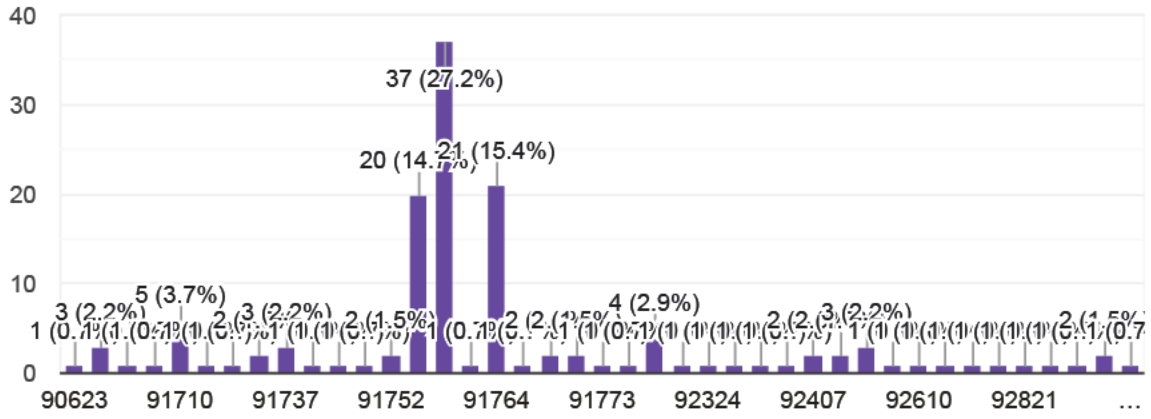
2. What is the ZIP code of your home?

136 responses



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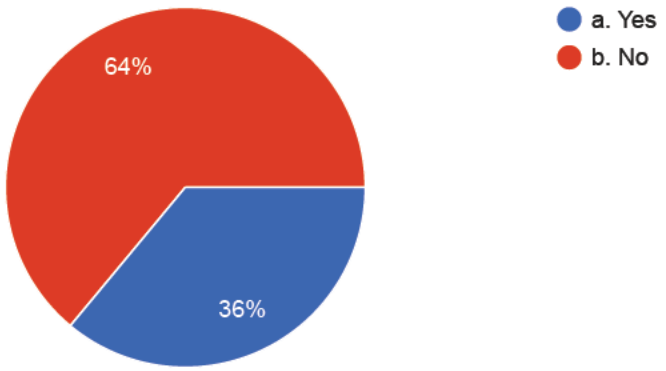
3. Have you been impacted by a hazard event in your current residence?

136 responses



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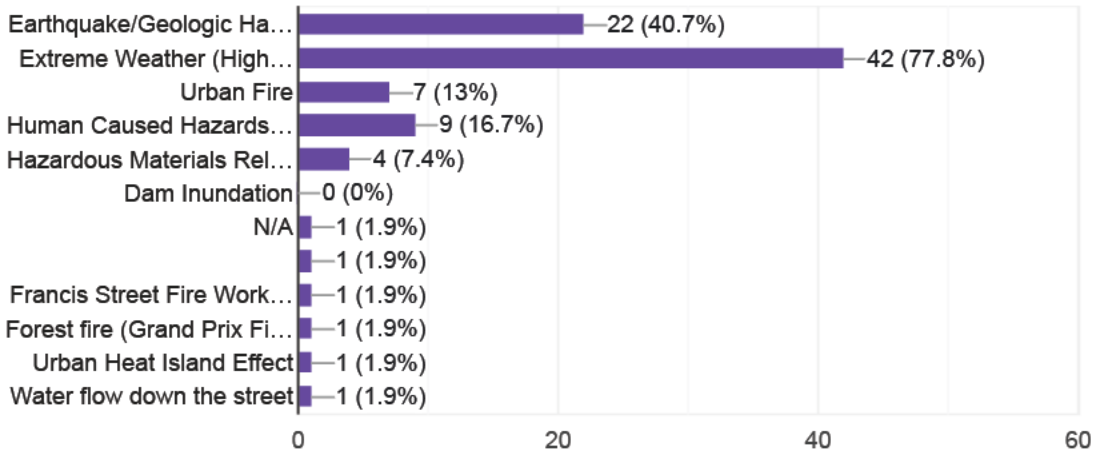
4. If you answered yes to the previous question, please select the type of hazard event that you have been impacted by (select all that apply).

54 responses



If you selected "Other" above, please list any additional hazards that have previously impacted your neighborhood or home.

8 responses

N/A

Power Outage

Recent rains made walking across street impossible due to rushing water

Vandalism

Fallen Trees

Extreme pollution from transportation vehicles, airport and transit carriers

Down sloping driveway. When it rains alot the water flows on one side of the street and if enough water it comes down the driveway.

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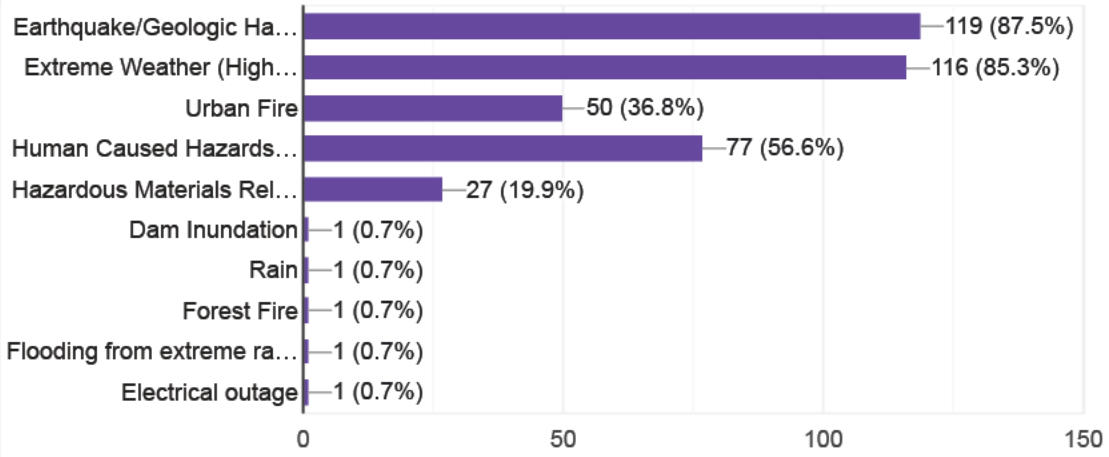
5. The following hazards could potentially impact the city. Please mark the THREE (3) hazards that are of most concern to your neighborhood or home.

136 responses



If you selected "Other" above, please list any additional hazards that have previously impacted your neighborhood or home.

5 responses

N/A

Too much water rushing down streets

Neighborhood was evacuated in October 2003 due to Grand Prix Fire.

Flooding/Mudslides

Electrical outage

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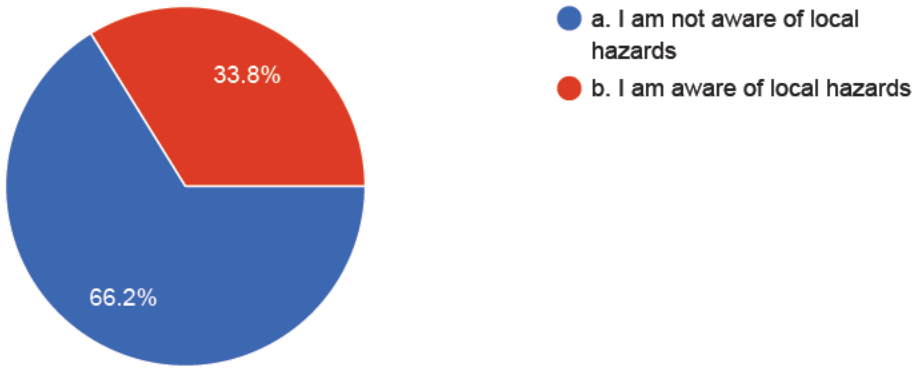
6. The planning team is using various data sources to identify hazards in your community; however, some of these data sources do not provide data at a general citywide level. Are there any small-scale issues, such as ponding at a specific intersection during rain, that you would like the planning team to consider?

136 responses



Please provide as much detail as possible, including location and type of hazard.

42 responses

Earthquake, Fire. Flooding

Flooding along 8th Street during rain events.

Flooding at Grove and 60, dairy streets during rain, freeway condition and lack of repair. High wind area. Increasing crime and homelessness. Mentally unstable people around kaiser on vineyard

San Antonio under the 60fwy

Flooding along Euclid during heavy rains. Specifically, northbound lanes north of the 60.

Flooding of streets during rain events. Specific example, down Sultana Ave between 4th street and Holt.

Intersection of grove and walnut floods pretty bad during rains. Same happens at the 10 fwy underpass on grove, however, it's mid construction.

Traveling and living on South Euclid Ave is becoming more and more hazardous. Due to speeding, inadequate traffic and pedestrian signage mitigation

Pot holes - damages to vehicles!!

Columbia from 6th down to J, Euclid at 6 th down to holt, sultana from 6th down to holt, mountain at 6th down to holt. 6th street pools up from Kenmore all the way to Moutain where they put the sidewalk that extends into the street for traffic calming. Those should get taken out, leave the median trees

Mostly "ponding" at some intersections. G and vine sometimes ponds in heavy rains., and some of the streets between F and 5th where they cross San Antonio. (Not frequent, just in really heavy storms). Also sometimes along Euclid by the curbs during storms.

impact of congestion on local streets due to construction
on the 10 freeway.

East J street, between Columbia and Sultana. When it rain it is horrible for the houses in the south side of the street.

ponding at intersections

Street flooding all along Sultana and Euclid as well as the intersection of Fourth and Columbia.

There are a lot of roots raising the sidewalk where I go for walks.

Ponding on Riverside Dr. and Haven

Mountain and Sixth intersection. Flooding in the easterly and southerly portion of the intersection.

Heading west on Mission from Haven, there is an area to the immediate left (south) that easily floods, when there are rains.

Flooding on Chino Ave and Edison between Archibald and Euclid

Euclid floods so badly during intense rains leaving the center lanes flooded and a hazard.

N/A

During heavy rainstorms, the major streets that drive into the City that I live are typically flooded due to lack of storm drain maintenance. Also, lack of tree maintenance also causes large tree branches to fall during heavy winds and heavy rainstorms.

Oaks & Campus- flooding during rain

street flooding occurs in south Ontario due to natural slope. San Antonio x Philadelphia Cypress x Philadelphia

Mostly flooding over by the 10 freeway and mountain.

Ponding at Mission Blvd west of Haven Ave

The south crosswalk of W 6th Street and N Elderberry Ave gets flooded during strong rain events. There are a lot of transients that block the sidewalk and leave waste under the 10 freeway off of Mountain Ave.

During moderate to severe rainstorms, many of the City's streets are dangerously flooded - this is a Citywide issue, but I have encountered safety issues specifically along Euclid (nearly the full stretch from the northern City boundary to B Street where I turn to go to the office), as well as some of our other major north-south streets. I am unsure of the precise location at this time, but I had bottomed out my SUV on a portion of a residential street that had washed away a few winters ago - it was near the northerly intersection of one of our smaller north-west streets. I have also experienced flooding issues down in Ontario Ranch. In addition to Ontario flooding issues, there are also dangerous flooding issues on my route to/from work, which includes the cities of Upland, Montclair, and Claremont, as well as the 10 Freeway.

There are huge ponding areas in the dairies. On the intersections of Ontario Ranch Road and Walker Avenue as well as Ontario Ranch Road and Grove Avenue. There was a car stuck between those streets over this past weekend. There is also ponding on Riverside Drive, in front of Westwind Community Center and Whispering Lakes Golf Course.

Flooding in area of Sultana/Philadelphia (Ontario) area in heavy rain

The underpass on Euclid that goes underneath the train when you go south on Euclid passing holt floods often and greatly when it rains.

Uprooting of native trees leading to erosion all across the city and they are not replanted; lack of permeability in our paved roadways causes our water tables to dry up and the water is simply flushed down in our sewers all across the city, it is not collected; our region has had the worst air pollution quality in the region year after year due to the smog and pollution from all the transportation only continually being exacerbated by the increase of warehouses built, disproportionately affecting our Latino community at a higher level.

corner of san anthonio and phillips is flooded during, intersection of vine and phillips floods because the street t's.

philadelphia at cypress floods every time it rains. same with san antonio from philadelphia to 60 fwy

James Bryant Park along San Antonio Ave needs pedestrian crosswalk with lights at Flora Street intersection as cars travel quite fast along San Antonio Ave. There is no stop sign such as on the south end of the park on D Street.

Northwest corner of Euclid & 4th has flooding during heavy rains that causes the wooden ramp students use to transverse the curb when they're leaving Chaffey High School to float out onto the right-most southbound lane of Euclid.

Flooding Chino Ave & Grove

There is a lot of ponding at Hellman and 4th, and at Star Privado and 4th

The city has been working on drainage so certain streets don't flood as often. They also now put up signs.

Potholes

The trees at Hawthorne Elementary. Specifically the tree in the kindergarten area. There is a cement ring around the tree that has shifted & cracked creating an hazard. I'm not sure if it is caused solely from the soil being saturated or if the trees root system has been compromised as well.

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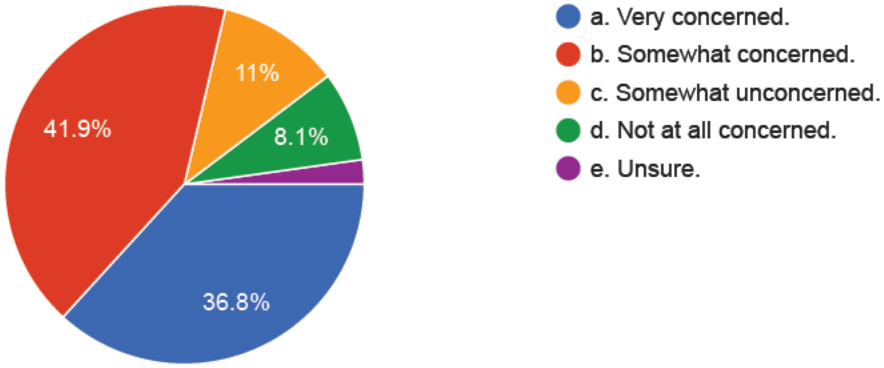
7. How concerned are you that climate change may create new hazardous situations in Ontario or make existing natural hazards worse?

136 responses



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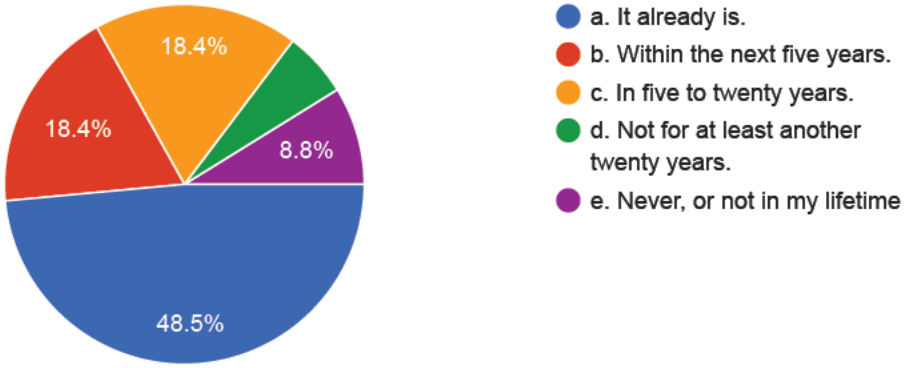
8. When do you think climate change will pose a threat to your health, property, livelihood, or overall wellbeing?

136 responses



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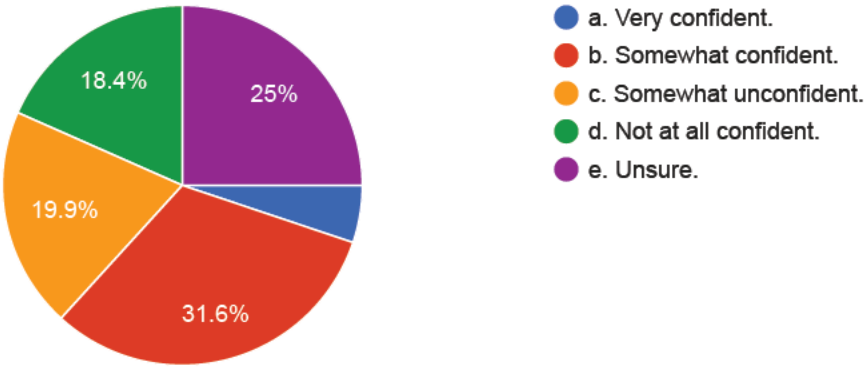
9. If you have taken any action to protect yourself against natural hazards, how confident are you that these actions will be sufficient to protect against more severe hazards that are expected because of climate change?

136 responses



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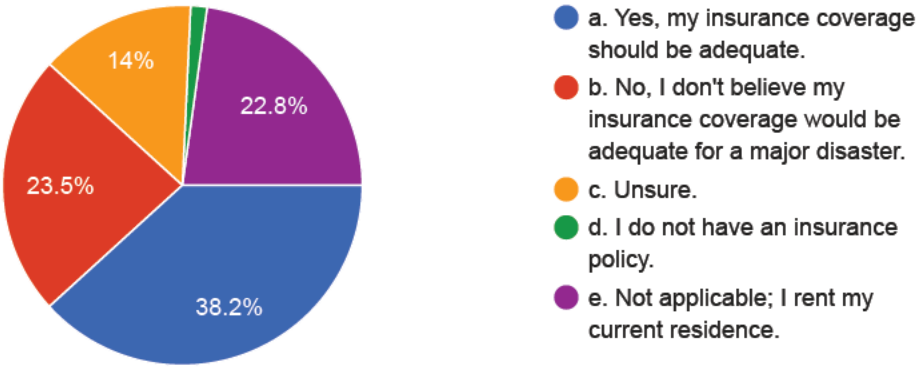
10. If you are a homeowner, do you have adequate homeowners' insurance to cover the hazards that could impact your home?

136 responses



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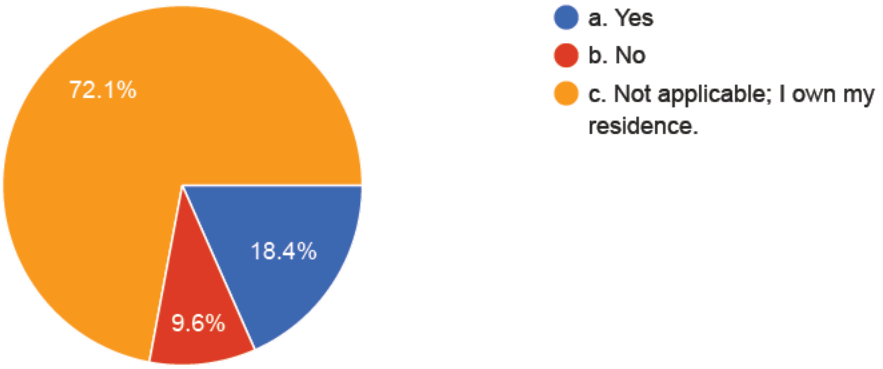
11. If you rent your residence, do you have renters' insurance?

136 responses



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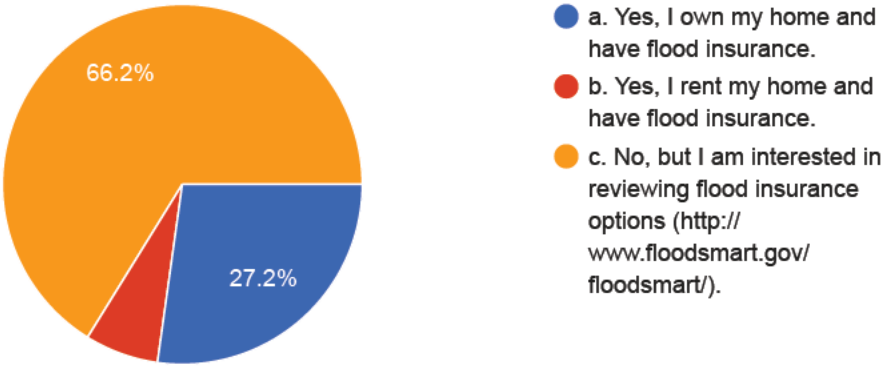
12. Do you have flood insurance for your home?

136 responses



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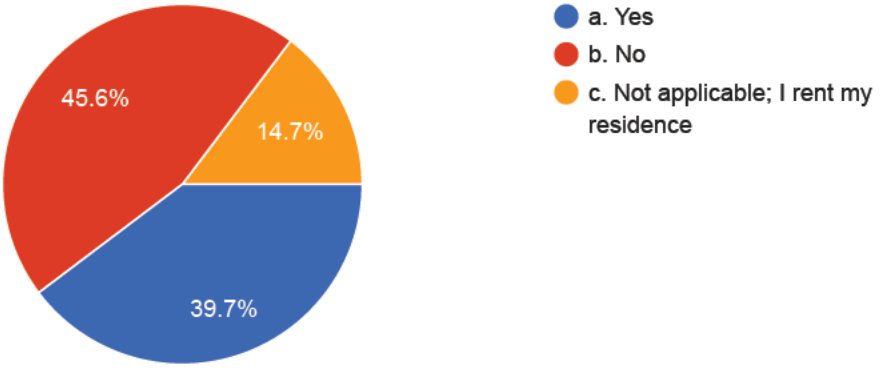
13. Have you done anything to your home to make it less vulnerable to hazards such as earthquakes, floods, and fires?

136 responses



If not, do you plan to?

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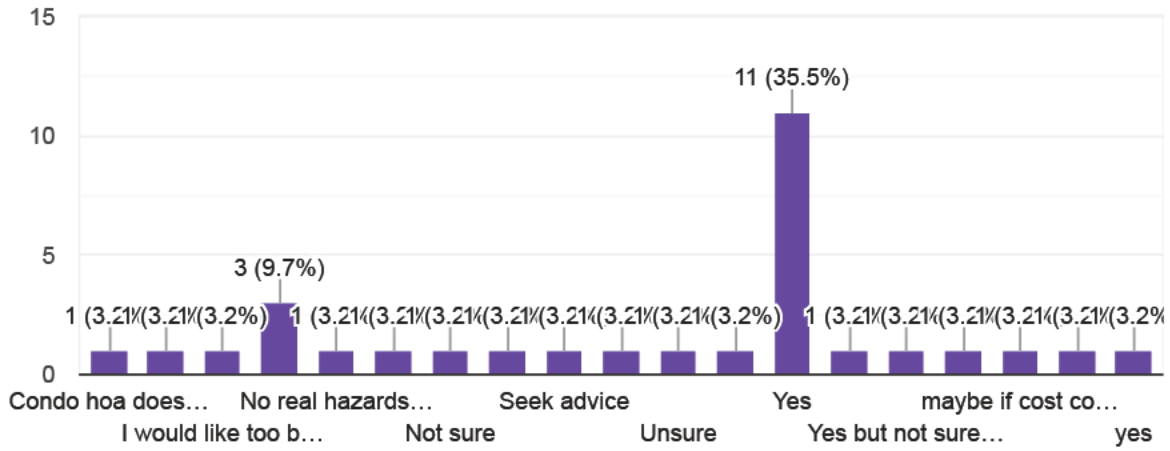
31 responses



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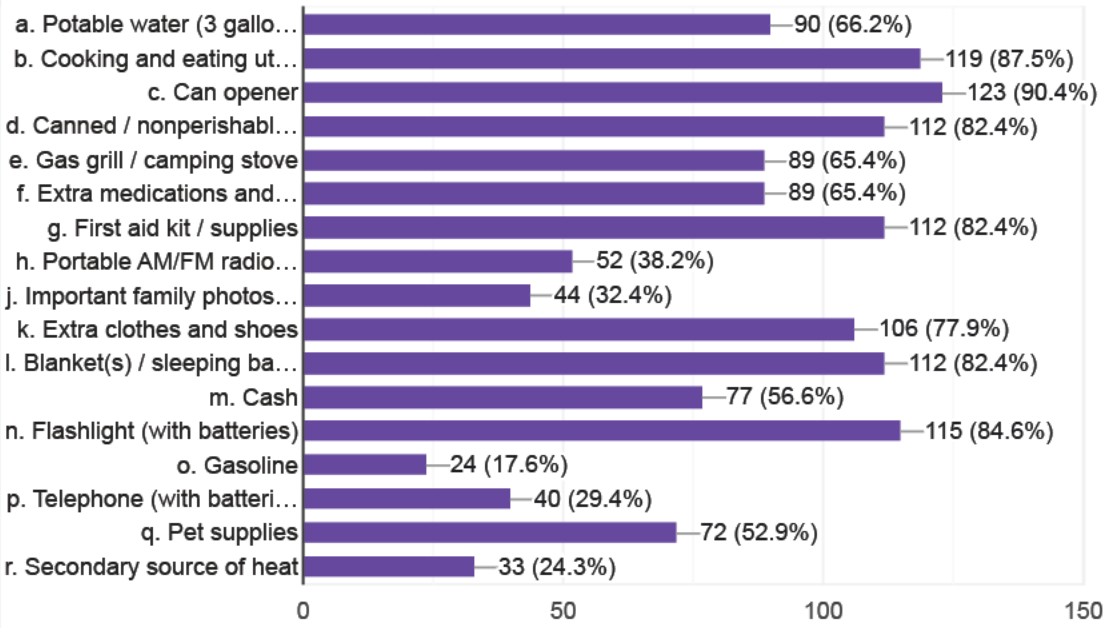
14. If a severe hazard event occurred today such that all services were cut off from your home (power, gas, water, sewer) and you were unable to leave or access a store for 72 hours, which of these items do you have readily available?

136 responses



What else do you have in your emergency kit?

28 responses

Maintenance and personal protection items

Ham radio

Escape plan for all members of family if we have to leave house

Tools, generator, extension cords, portable lights

Maps, personal security items,

solar chargers for mobile devices

Oreos

Bandages

Money

Rather not specify

We have what we would need to help ourselves and others.

Yellow vest, straw that filters water for drinking

Everything I did not check off above

no

N/A

Tent, restroom facilities

swiss army knife and work gloves.

Personal protection

A "Lifestraw" to be able to filter water

Portable phone chargers and cords. Clothes, water and food bowls, food, leashes and collars, toys for dog, so they're taken care of us much as we are. He has his own bag packed for

emergencies at all times.

Utility knife, duct tape

nothing you need to know

RV

Emergency Ladders to climb out windows;

Books to read and notebooks to write down stuff. Pet carrier and leash

Contact list

Large covered pail for toilet use

Generator

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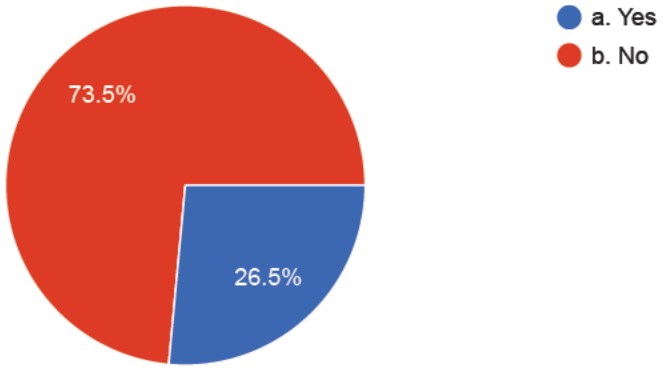
15. Are you familiar with the special needs of your neighbors in the event of a disaster situation (special needs may include limited mobility, severe medical conditions, memory impairments)?

136 responses



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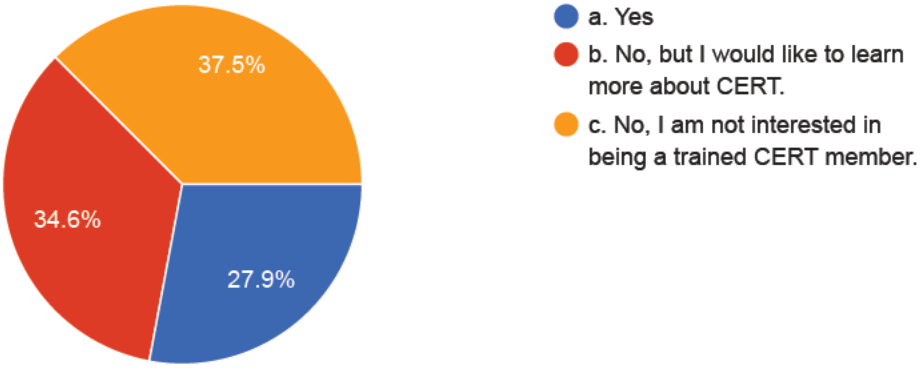
16. Are you a trained member of your Community Emergency Response Team (CERT)?

136 responses



For more information about CERT, please visit:

https://www.ontarioca.gov/CERT

5 responses

Ok

thanks

No

I added myself to the interest list.

Acknowledged

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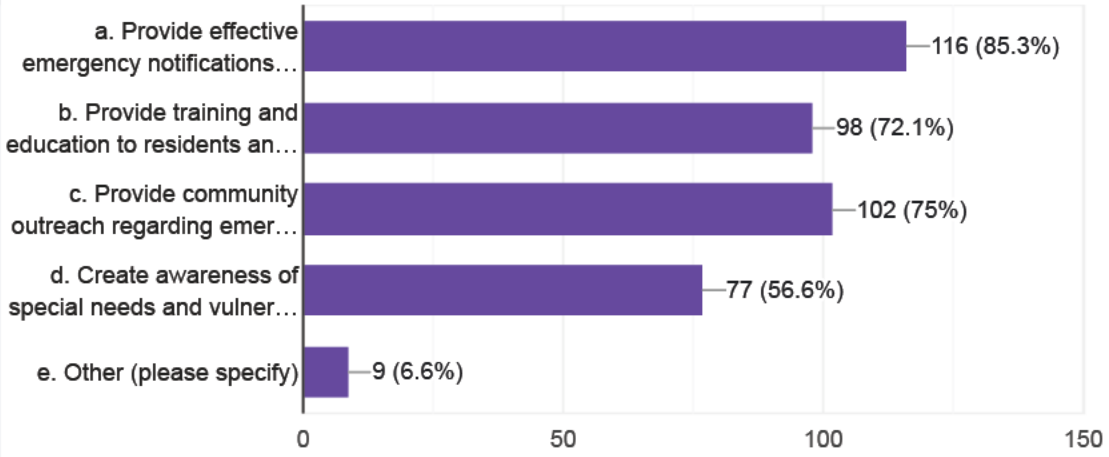
17. How can the city help you become better prepared for a disaster? (Choose all that apply)

136 responses



If you selected “Other” above, please describe.

11 responses

Identify potentially hazard facilities i.e., trains transporting hazardous materials, large Propane distributors, Airport facilities, Commercial vehicles traveling with hazardous materials via residential areas and traffic mitigation on Euclid Ave

N/A

Everyone needs to take CERT

Our biggest concern for emergency preparedness is the availability of clean water. It is difficult to store enough water for a large family. It would be helpful for the city to consider water availability.

Provide Emergency kits at low cost for Ontario Residents.

Does the City still provide for emergency shelter for City Staff and their families?

Have mandatory training courses during work hours, and have them often -- once a year or two for refreshers. We are disaster personnel, we should be prepared with CERT-level knowledge on how to serve ourselves and our communities in the face of disaster.

The City of Chino has a great notification system. I get notified of road closures and potential hazards in a timely fashion. If Ontario could get on board with an easy notification system like that, it would be really helpful for the community.

Create a plan and execute a plan that directly addresses climate change within the city for with stages of application within 5, 10 and 20 years.

know your citizens

I work for the City of Ontario for the past 15 years, during which 10 I also taught evenings at San Bernardino Valley College (SBVC).
Since the time I started working at SBVC (and continuing even now that I have not taught in a couple of years), I received real time emergency alerts regarding the campus and the area surrounding the campus sent to my campus/faculty email and to my personal email and personal cell phone (texts messages) that I gave them to put in my personnel file.
These alerts we about emergencies, potential threats, or areas around the campus (within 1-3 miles) to avoid; and they always included instructions what to do and then there would be follow up notices as needed and always a final one giving the "all clear"/situation resolved.
The alerts would include things like: notice of the Great Shake Out; suspicious person in a certain area of campus and instruction what to do (lock classroom doors, tell everyone to avoid a certain area); alerts that the police have closed off certain streets off campus (for what ever response reason) and to avoid that area; severe high wind threats or severe air

pollution (like from fires) and precautions to take.
I work at the Municipal Services Center campus on Bon View Ave and there are several times a year when I think this type of alert system would be useful for employees (if not the general public as well), such as: when the police block off an entire area of streets along my morning commute and then the are still blocked off when I go to lunch and I have to turn around; and, the fireworks explosion at a house about a mile way from my office and I had to learn about it through the rumor mill and then a news report video on the computer; and, when Main Street Fibers catches fire less that a mile up the street (and on the way to City Hall) and many direct collector streets in the area are closed and the railroad (and commuter trains effected (this has happened twice in recent years). Some sort of alert to avoid the area and which street segments closed would be helpful to everybody, including staff members that drive City service vehicles.
It is sad and disappointing that the "premier" Community of the Inland Empire could not succeed in even having the internal intercom system send an alert to everyone's desk phone for The Great Shake Out this past October, but a community college has had a better, further reaching, and successful alert system for over a decade.
Also, many of the buildings at the Ontario Municipal Services Center do not have proper working Fire or Emergency Alarms, nor adequate security of the facilities for the staff that work there.

If you do NOT work in the City of Ontario, please skip to question 22.

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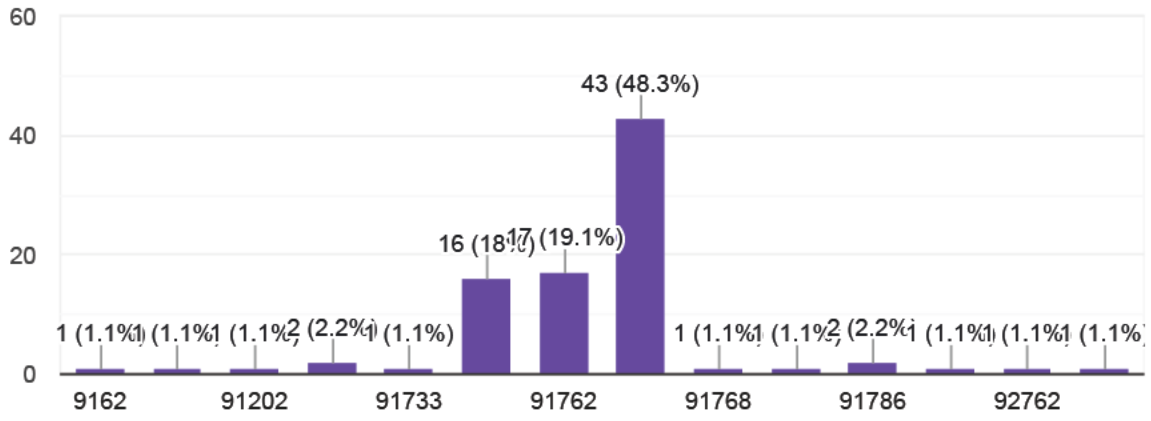
18. What is the ZIP code of your workplace?

89 responses



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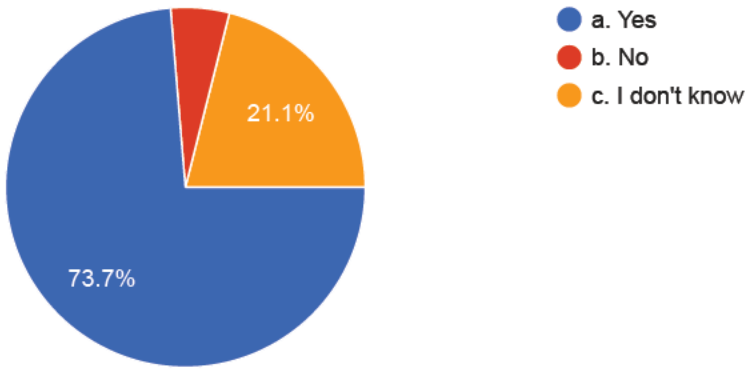
19. Does your employer have a plan for disaster recovery in place?

95 responses



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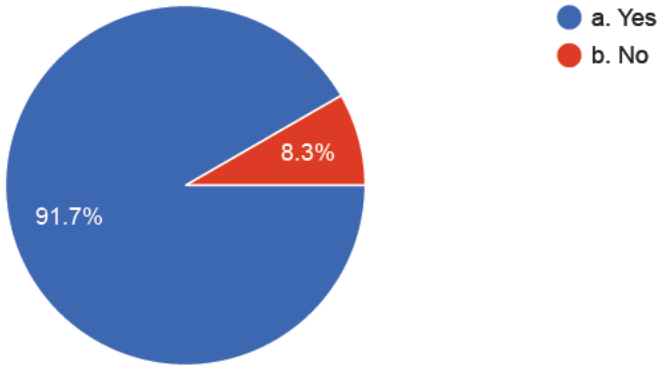
20. Does your employer have a workforce communications plan to implement following a disaster, so they can contact you?

96 responses



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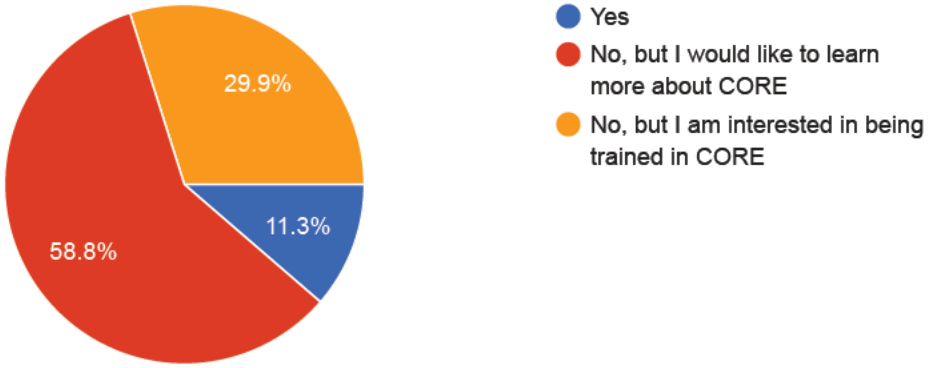
21. Have you taken the Continuity & Organizational Resilience in Emergencies (CORE) Training Seminar?

97 responses



For more information about CORE, please visit:

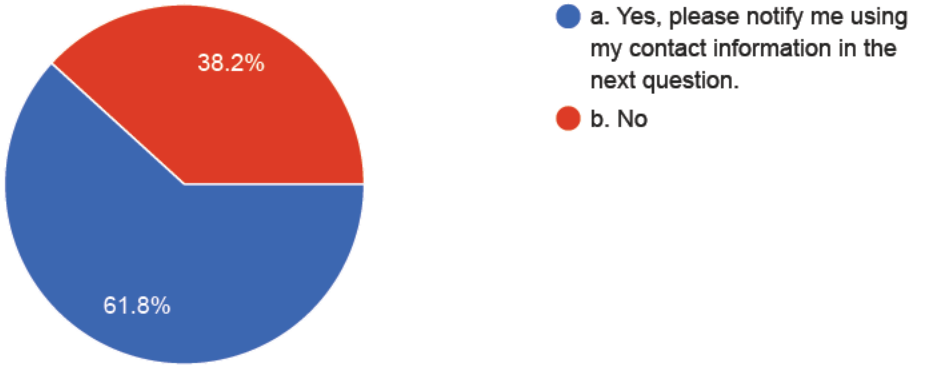
https://www.ontarioca.gov/CORE

III. Recommendations and Future Participation

Copy

22. Would you like to be contacted when the Draft 2023 Ontario Hazard Mitigation Plan is available for review?

136 responses



23. If you would like to be notified of future opportunities to participate in hazard mitigation and resiliency planning, please provide your name and e-mail address. If you do not have an e-mail address, please provide your mailing address. This information will be kept confidential.

59 responses

[redacted]

[redacted]

[redacted]

24. Please provide us with any additional comments/suggestions/questions regarding your risk of future hazard events.

8 responses

N/A

I answered a pair of questions as both a homeowner and renter. My home is a parsonage, owned by the church for which I am the Pastor. As I am responsible for the home while living in it and also represent the church I answered as the owner (as the church). But since the home is also part of my compensation - I am to some extent a "renter", so I do have renters insurance.

My main concern is for the impact of drought.

Working as a team in tandem with other local cities/getting the region all on the same level

city employees need to get out of their offices and see the city they work in - not just around city hall - everywhere! needs to be more proactive not reactive

Implement and automated alert system like the one i mentioned in a previous response.

None at this juncture

Please help us address climate change issues like extreme heat and/or flooding

Thank you for taking the time to complete this survey. If you have any questions, or if you know of other people/organizations that should be involved, please contact Sagar Patel, at spatel@ontarioca.gov

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Appendix C - Resolution of Adoption
(to be inserted after City Council approval)

Appendix D- Key Facilities

Asset Type Category	Critical Facility	Facility of Concern
Commercial Warehouse	0	1
Emergency Operations	19	0
Government Operations	12	4
Household Hazardous Waste Storage/Sortment	0	1
Industrial Warehouse	0	1
Modular	0	2
Not City Owned	1	0
Recreational, Cultural, Community	4	43
Residential	0	20
Water and Wastewater, Infrastructure	1	0
???	0	5
Total	**37**	**77**

Appendix E – Hazard Mitigation Implementation Handbook

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Local Hazard Mitigation Plan Implementation Handbook

April 2023

What Is This Handbook?

The Local Hazard Mitigation Plan (LHMP) for the City of Ontario features an evaluation of the City's hazards as well as a variety of corresponding mitigation actions. These actions are intended to preserve public safety, maintain critical municipal government operations and services when hazard events emerge, and empower community members to take on hazard mitigation at an individual level. This Implementation Handbook (Handbook) is intended for use by City staff and decision-makers after the LHMP is adopted. It will:

- Give clear instructions as to what to do following the adoption of the LHMP.
- Simplify future updates to the LHMP.
- Assist the City in preparing grant funding applications related to hazard mitigation.
- Guide annual plan review actions.

How do I Use This Handbook?

This Handbook can help City staff and decision-makers in several different situations. If and when the events listed below occur, consult the respective sections of this Handbook for advice on how best to proceed:

- A disaster proclamation has been issued by the Ontario City Council
- A disaster proclamation has been issued by the State of California
- A disaster declaration has been signed by the Federal Government
- I want to apply for mitigation grant funding
- Ontario is undergoing its budgeting process
- Ontario is holding its annual meeting of the Hazard Mitigation Planning Committee
- Ontario is updating the following policy and regulatory documents:
    - The Local Hazard Mitigation Plan
    - The Safety Element of the General Plan
    - The Housing Element of the General Plan
    - The Zoning Code

Who Maintains This Handbook?

The Hazard Mitigation Planning Committee (HMPC) leader is responsible for maintaining this Handbook. At the time of writing, the current HMPC leader is Sagar Patel from the Ontario Office of Emergency Management. The HMPC may delegate this responsibility to someone else should they so choose.

What to do when a disaster has been proclaimed or declared

Disasters may be proclaimed or declared by the Ontario City Council, the State of California, or the federal government. Responsibilities may differ depending on who proclaims or declares the disaster. If multiple organizations proclaim or declare a disaster, consult all applicable lists.

The Ontario City Council

If the Ontario City Council (or the Director of Emergency Services, if the City Council is not in session) proclaims a Local Emergency, take the following steps:

- ☐ Update **Attachment** 1 with information about the disaster. Include information about cumulative damage, including any damage outside of Ontario.
- ☐ Discuss opportunities for local assistance with the representatives from the California Office of Emergency Services (Cal OES).
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4**.
- ☐ **Chapter 6** of the Ontario LHMP states that the City should consider updating the LHMP if a disaster causes a loss of life in the community, even if there is no state disaster proclamation or federal disaster declaration that includes part or all of the city. If there is a loss of life in Ontario, consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The State of California

If the State of California proclaims a disaster for Ontario, or an area that includes part or all of Ontario, take the following steps:

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of Ontario.
- ☐ Collaborate with representatives from Cal OES to assess the damage from the event.
- ☐ Discuss opportunities for local assistance with representatives from Cal OES.
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4.**
- ☐ If the disaster may escalate into a federal disaster declaration, begin any necessary coordination with representatives from the Federal Emergency Management Agency (FEMA).
- ☐ **Chapter 6** of the Ontario LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes part or all of Ontario, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The Federal Government

If the federal government declares a disaster for Ontario, or any area that includes part or all of Ontario, take the following steps:

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of Ontario.
- ☐ Collaborate with Cal OES and FEMA representatives to assess the damage.
- ☐ Determine if Ontario will be eligible for public assistance funds related to the federal disaster declaration. These funds can be used to reimburse the City for response and recovery activities. If the City is eligible, work with FEMA and Cal OES representatives to enact the necessary requirements and receive funding.
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included in **Attachment 4**.
- ☐ The Hazard Mitigation Grant Program (HMGP) is a FEMA program that helps fund hazard mitigation activities after a disaster event. Ontario may be eligible for funding because of the federal disaster declaration, although not all activities may meet the program's requirements. If Ontario is eligible, work with FEMA to apply for this funding.
- ☐ **Chapter 6** of the Ontario LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes part or all of Ontario, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

I Want to Apply for Mitigation Grant Funding

There are three potential grant funding programs that FEMA administers for hazard mitigation activities. Two of these programs, the Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) funding sources, are available to communities with an LHMP that complies with FEMA guidelines and has been adopted within the past five years.
The third funding program is the Hazard Mitigation Grant Program (HMGP), which is available for communities that are part of a federal disaster declaration. This section discusses the BRIC and FMA programs and how to apply for them. The HMGP is discussed under the "Federal Government" subsection of the above "What to Do When a Disaster Has Been Proclaimed or Declared" section.

Building Resilient Infrastructure and Communities (BRIC)

Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.

The BRIC program's guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency.

Development projects must be identified in a hazard mitigation plan that meets FEMA guidelines and has been adopted within the past five years. When applying to this program, review the list of hazard mitigation actions in **Attachment 4** to see which projects may be eligible. Planning efforts for communities that lack a valid hazard mitigation plan may be eligible for funding if the

effort would create a valid hazard mitigation plan. All BRIC grant applications are processed through the State. To learn more, consult with Cal OES representatives or visit the FEMA webpage for the program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.

TAKE THE FOLLOWING STEPS TO APPLY FOR BRIC FUNDING:

- ☐ Confirm that the program is currently accepting funding applications. Check with representatives from Cal OES or consult the Cal OES webpage on the BRIC program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.
- ☐ Identify the actions from the hazard mitigation strategy (see Attachment 4) that call on the City to pursue funding or list grants as a potential funding source. Confirm that the actions are consistent with the requirements of the BRIC grant.
- ☐ Coordinate with Cal OES representatives to compile and submit materials for the grant application.

Flood Mitigation Assistance

The FMA grant program is a competitive, national program that awards funding for physical development projects and planning efforts that mitigate against long-term damage from flooding. The funding is only available to communities participating in the National Flood Insurance Program (NFIP), which Ontario currently does. Communities must also have a valid hazard mitigation plan that meets FEMA guidelines to be eligible, and all projects must be consistent with the list of actions in the hazard mitigation strategy. When applying to this program, review the list of hazard mitigation actions in **Attachment 4** to see which projects may be eligible. As with the BRIC program, applications for the FMA program must be processed through the State. To view more information, consult with Cal OES representatives or visit the FEMA webpage on the program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/floods.

TAKE THE FOLLOWING STEPS TO APPLY FOR FMA FUNDING:

- ☐ Confirm that the program is currently accepting funding applications. Check with representatives from Cal OES or consult the Cal OES webpage on the FMA program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/floods.
- ☐ Identify the actions from the hazard mitigation strategy (**see Attachment 4**) that call on the City to pursue funding or list grants as a potential funding source. Confirm that the actions are consistent with the requirements of the FMA grant.
- ☐ Coordinate with Cal OES representatives to compile and submit materials for the grant application.

Ontario is going through the budgeting process

Ontario's budget process is an ideal opportunity to secure funding for hazard mitigation actions and to ensure that hazard mitigation efforts are incorporated into the City's fiscal priorities. Ontario currently operates on an annual budget cycle that runs from July 1 to June

30. During this process, City staff should take the following steps to incorporate hazard mitigation into Ontario's annual budget:

- ☐ Include hazard mitigation activities into Ontario's list of Capital Improvement Projects (CIP). Review the list of hazard mitigation actions in Attachment 4 and identify the projects that can be included in the CIP or can support efforts within the CIP.
- ☐ Review the risk and threat assessments in the LHMP (Chapter 3 and Chapter 4) to ensure that all items in the list of CIP are planned, designed, and constructed to minimize the threat from hazard events.
- ☐ Identify opportunities to identify state-alone hazard mitigation actions through the annual budget process. Include appropriate items from Attachment 4 in the budget as stand-alone line items, particularly items that the Hazard Mitigation Planning Committee (Planning Committee) considered a high priority.
- ☐ Set aside staff to conduct hazard mitigation activities, including time to participate in Planning Committee meetings and research, prepare, and submit BRIC and FMA grant opportunities (consult the "I Want to Apply for Mitigation Grant Funding" section above).
- ☐ Ensure hazard mitigation activities are reflected in each department's priorities and earmarked time for specific goals.

Ontario is Conducting its Annual meeting of the Hazard Mitigation Planning Committee

The hazard mitigation planning process brings together representatives from multiple City departments as well as other relevant stakeholders. It provides a forum to discuss the hazards in Ontario and how to mitigate them effectively. As mentioned in **Chapter 6** of the LHMP, the Planning Committee should meet at least once each year, beginning a year after the LHMP is adopted. During these meetings, the Planning Committee should discuss implementation progress and integration of hazard mitigation actions in other City documents. At these meetings, the Planning Committee can review the status of the hazard mitigation actions and discuss whether completed or in-progress actions are working as expected. These meetings also allow the Planning Committee to strategically plan for the upcoming year.

It may help for the Planning Committee to meet early in the year, in advance of annual budget activities. **Attachment 3** contains an example of a Planning Committee Meeting Agenda.

The annual meeting should include representatives from City departments and other organizations that originally prepared the LHMP. Representatives from other relevant organizations should also be invited. During the preparation of the current LHMP, the following individuals were part of the Planning Committee:

Table 1-1: Ontario HMPC Members		
Name	**Title**	**Department**
Sagar Patel (Project Manager, POC)	Emergency Manager	Office of Emergency Management
Nick Gonzalez	Recreation & Community Services Director	Community Life & Culture (Recreation)
Kelly Zackman	Library Services Manager	Community Life & Culture (Library)
Michelle Sifuentes	Museum Curator	Community Life & Culture (Museum)
Matt Montieth	Supervising Building Inspector	Community Development (Building)
Angela Magana	Community Improvement Director	Community Development (Community Improvement)
Khoi Do	City Engineer	Community Development (Engineering)
Peter Pallesen	Senior Project Coordinator	Community Development (Housing)
Kim Ruddins	Sustainability Program Manager	Community Development (Planning)
Charity Hernandez	Principal Project Manager	Economic Development
Angelica Mora	Purchasing Manager	Financial Services
Paul Ehrman	Senior Deputy Chief, Fire Marshal	Fire Department
Reed Sigler	Departmental Administrator	Human Resources/Risk Management
Colin Fernandes	Executive Director	Information Technology
Claudia Isbell	Assistant City Clerk	Management Services (Records Management)
Jimmy Chang	Broadband General Manager	Management Services (Broadband)
Albert Gastelum	Utilities Assistant General Manager	Ontario Municipal Utilities Company (OMUC)
Eric Quinones	Detective	Police Department
Joshua Blessingham	Fleet Services Coordinator	Public Works (Municipal Services)
David Coote	Park & Maintenance Supervisor	Public Works
Scott Ochoa	City Manager	Management Services
Darlene Sanchez	Assistant City Manager	Management Services
Dan Bell	Communications & Community Relations Director	Management Services

In advance of Planning Committee meetings, consider using **Attachment 1** to maintain an accurate list of recent disaster events that have occurred in and around Ontario since the LHMP was adopted. At the Planning Committee meeting, review the Plan Maintenance Table **(Attachment 2**) to identify any gaps in the LHMP or any other component of the plan that needs updating. This also allows Planning Committee members the opportunity to review the actions in the hazard mitigation strategy **(Attachment 4)** and ensure that they are implemented as intended.

Ontario is updating its policy and regulatory documents

If Ontario is updating the LHMP, the Safety Element or Housing Element of the General Plan, or the Zoning Code, consult the following applicable section.

Local Hazard Mitigation Plan

All LHMPs should be updated every five years. This helps keep the plan up to date and ensures that it reflects the most recent guidance, requirements, science, and best practices. An updated LHMP also helps keep Ontario eligible for hazard mitigation grants that require a valid, recent LHMP (see "I Want to Apply for Mitigation Grant Funding"), along with an increased amount of post-disaster recovery funds.

The update process for the LHMP takes approximately one year. To ensure that a new LHMP comes into effect before the previous one expires, the update process should begin no later than four years after the plan is adopted. Updates may occur sooner at the City's discretion. Potential reasons for updating the LHMP sooner may include a state disaster proclamation or federal disaster declaration that covers part or all of Ontario, or if a disaster leads to a loss of life in Ontario (see the "What to Do When a Disaster Has Been Proclaimed or Declared" section), as discussed in **Chapter 6** of the LHMP.

Take the following steps to update the LHMP:

Assemble the Hazard Mitigation planning committee

- ☐ Convene a Planning Committee meeting no later than four years after the LHMP is adopted. Invite the regular Planning Committee members, along with representatives from other organizations that may have a role to play in the update process.
- ☐ Review the current status of mitigation actions, including if there are any that are not being implemented as planned or are not working as expected. Determine if there have been any changes in hazard events, regulations, best practices, or other items that should be incorporated into an updated LHMP.
- ☐ Decide if there is a need for a technical consultant to assist with the LHMP update and conduct consultant selection activities if needed. If a consultant is desired, the selection process should begin a few months before the update begins.
- ☐ Create and implement a community engagement strategy based on the strategy prepared for the existing LHMP. Describe in-person and online engagement strategies and materials, including ideas for meetings and workshops, draft community surveys, content for websites and press releases, and other materials that may be useful.

Update the Risk and Threat Assessments

- ☐ Review and update the risk assessment to reflect the most recent conditions in Ontario. Consider recent hazard events, new science associated with hazards and climate change, new development and land use patterns, and other recent changes in local conditions.

- ☐ Evaluate the status of all key facilities. Update this list if new facilities have been constructed or if existing facilities have been decommissioned. Re-assess the threat to key facilities.
- ☐ Review the demographics of community residents and update the threat assessment for vulnerable populations and other community members.
- ☐ Assess any changes to the threat to all other community assets, including key services, other facilities, and economic drivers.

UPDATE THE MITIGATION ACTIONS

- ☐ Update the existing hazard mitigation actions to reflect actions in progress. Remove actions that have been completed or revise them to increase their effectiveness. Revise actions that have been abandoned or delayed to make them more feasible or remove them from the list of mitigation actions if they are no longer appropriate for Ontario.
- ☐ Develop mitigation actions to improve the status of hazard mitigation activities in Ontario by addressing any issues not covered by the existing LHMP.
- ☐ The ability to expand current mitigation capabilities will generally be reliant upon the budgeting allocated for each department/program for that fiscal year. The level at which these programs may or may not be expanded upon, will be dependent upon the amount of funding received. FEMA has released a series of guides over the past few years which highlight some of the ways in which jurisdictions can expand mitigation. Some strategies for increasing current mitigation capabilities may include:
  - City should actively identify, adopt, and enforce the most current set of development codes and standards available. Strongly encouraging new development to be constructed to higher standards than currently required, increasing resilience within the community.
  - Engaging parts of the community that may not be actively involved in mitigation efforts.
  - Expanding the number and types of organizations involved in mitigation planning and implementation, increasing both efficiency and bandwidth.
  - Fostering new relationships to bring underrepresented populations and partners to the hazard mitigation planning process.
  - During the annual LHMP review, the HMPC should look for opportunities to fund and expand/enhance the effectiveness of current mitigation actions.
  - During annual budgeting processes, the City should identify new funding sources (bonds, grants, assessment districts, etc.) that can be used to support existing capabilities enhancements.
- ☐ Ensure that the feedback from the community engagement activities is reflected in the new and updated mitigation actions.

REVIEW AND ADOPT THE UPDATED PLAN

- ☐ Review the other chapters and appendices of the LHMP to reflect any changes made through the update process.
- ☐ Release the updated plan to the Planning Committee members and revise the plan

to reflect any comments by Planning Committee members.

- ☐ Distribute the updated Plan to any appropriate external agencies not included in the Planning Committee and revise the plan as appropriate in response to any comments.
- ☐ Release the updated plan publicly for review and make revisions to the plan to reflect public comments.
- ☐ Submit the plan to Cal OES and FEMA for approval and make any necessary revisions.
- ☐ Submit the plan to the Ontario City Council for adoption.

The Safety Element of the General Plan

The Safety Element is a required component of Ontario's General Plan. It can be updated as a stand-alone activity or as part of a more comprehensive process to update multiple sections or all of the General Plan. The Safety Element does not need to be updated on any set schedule, but updates should be frequent enough for the element to remain current and applicable to the community.

Local communities can incorporate their LHMP into their Safety Element as allowed under Section 65302.6 of the California Government Code, as long as the LHMP meets minimum federal guidelines. This allows communities to be eligible for an increased share of post-disaster relief funding from the State if a hazard situation occurs, as per Section 8685.9 of the California Government Code.

Take the following steps to incorporate the LHMP into the Safety Element:

Incorporate New Requirements into the Safety Element, and ensure that the LHMP is consistent with the Safety Element

- ☐ Review the requirements for Safety Elements in Section 65302(g) of the California Government Code and for LHMPs in Section 65302.6. Ensure that both documents meet all state requirements.
- ☐ Ensure that the information in both plans does not contradict each other and that any inconsistencies are corrected to use the most accurate and appropriate information. This information should include a community description, a risk assessment, and a threat assessment.
- ☐ Ensure that the policies in the Safety Element support the LHMP and provide a planning framework for specific hazard mitigation actions.

The Housing Element of the General Plan

The Housing Element is a required component of Ontario's General Plan. Section 65583 of the California Government Code requires a Housing Element to analyze and plan for new residential growth in a community, including residential growth for households with an annual income below the area median. Like an LHMP, state regulations require the Housing Elements to be updated regularly to remain current and valid.

The Housing Element is not required to contain any information or policies related to hazards, although it may include policies that address retrofitting homes to improve resiliency. However, state law links the regular schedule of Housing Element updates to mandatory revisions to other General Plan elements. For example, Section 65302(g)(2) of the California Government Code requires that communities that update their Housing Element on or after January 1, 2009, also update their Safety Element to include specific information and policies related to flood protection. As the LHMP is incorporated into the Safety Element, updates to the Housing Element may indirectly trigger updates to the LHMP.

To update the LHMP concurrent with updates to the Housing Element, take the following steps:

Ensure that the LHMP meets Any New Requirements for the Safety Element that May Be Triggered by a Housing Element Update

- ☐ Section 65302(g) of the California Government Code lists several requirements for the Safety Element of the General Plan. Some of these requirements are triggered by updates to the Housing Element. Check to see if there are any new requirements of this nature. Note that the requirement is linked to the new Housing Element's adoption date, not the date the update process begins.
- ☐ Because the LHMP is incorporated into the Safety Element, any amendments or revisions to the Safety Element triggered by the Housing Element update may be made directly in the LHMP. Requirements triggered by the Housing Element are unlikely to require a full rewrite of the LHMP, but the process should fully involve the Planning Committee and include appropriate community engagement.

- ☐ Adopt the updated LHMP and incorporate it into the Safety Element. If necessary, amend the Safety Element to ensure the two documents are consistent (review the "Incorporate New Requirements Into the Safety Element, and Ensure that the LHMP is Consistent with the Safety Element" subsection above).

The Ontario Municipal Code

Ontario's Municipal Code contains a set of standards that guide land uses and development in the community. These standards include where different types of buildings and land use activities may be located, how these structures must be built, and how they must be operated or maintained. The Municipal Code may include requirements that structures (particularly new structures or those undergoing substantial renovations) incorporate hazard-resistant features, be located outside the most hazard-prone areas, or take other steps to reduce hazard vulnerability.

All communities in California are required to adopt the minimum state Building Standard Code (BSC), which includes some hazard mitigation requirements for new or significantly renovated structures. The BSC is generally updated every three years, with supplemental code updates halfway into each update cycle. Title 8, "Building Regulations," of Ontario's Municipal Code contains building regulations and incorporates the BSC. Other sections of the Code adopt additional standards as desired by the City that adapts the BSC to Ontario's local context.

As a participant in the National Flood Insurance Program (NFIP), Ontario is required to incorporate Floodplain Management Requirements in its Zoning Code, which is located in Title 8, Chapter 13 – Flood Damage Prevention Program. These regulations establish standards for developing and operating facilities within mapped flood-prone areas. Other sections of the Ontario Municipal Code may include additional standards related to hazard mitigation activities.

With the exception of the Floodplain Management Regulations and the minimum standards in the BSC, Ontario is not required to incorporate hazard-related requirements in the Municipal Code. However, the Municipal Code is an effective tool for implementing hazard mitigation measures related to the siting, construction, and operation of new buildings and other structures. Substantial updates to the Municipal Code, including the Buildings and Construction and Zoning Code sections, should be done in a way that is consistent with the LHMP.

Include Hazard-Related Requirements in Applicable Sections of the Ontario Code of Ordinances

- ☐ If the BSC is being updated, evaluate the hazard-related requirements of all sections in the new BSC. Identify any areas where it may be feasible to add or revise standards to help reduce the threat from hazard events. Ensure that these standards are consistent with the LHMP. Consider whether standards should be applied to all structures, to specific types of structures, or to structures in a limited area (such as a flood plain).
- ☐ If the Zoning Code is being updated, ensure that all requirements do not expose community members or community assets to an excessive risk of harm. Where feasible, use the requirements to strengthen community resiliency to hazard events. Ensure that these standards are consistent with the LHMP. Consider possible

standards such as overlay zones that strengthen zoning requirements in hazard-prone areas, landscaping and grading requirements that buffer development from hazards, siting, and design standards that make structures more resilient, and other strategies as appropriate.

Attachment 1: Disaster Information Table

Use this table to fill out the information about any disaster events that have occurred in Ontario or nearby and have affected the community. Include the date and location of the disaster event, the damages associated with the event, and any information about disaster proclamations or declarations resulting from the event.

Date	Location	Damages *	Declaration Details †

* Includes number and type of injuries, number of deaths, and cost of physical damage
† If the disaster was proclaimed or declared by the local, state, and/or federal government

Attachment 2: Plan Maintenance Table

Use this table when reviewing the LHMP as part of the Planning Committee's annual activities. For each section of the LHMP, note if any changes should be made to make the plan more effective for the community. This includes noting if anything in the LHMP is incorrect or if any important information is missing. Make revisions consistent with these notes as part of the next update to the LHMP.

Section	Is Anything Incorrect?	Is Anything Missing?	Should Any Other Changes Be Made?
Multiple sections or throughout			
Chapter 1: Introduction			
Chapter 2: Community Profile			
Chapter 3: Risk Assessment			
Chapter 4: Threat Assessment			
Chapter 5: Mitigation Strategy			
Chapter 6: Plan Maintenance			
Appendices			

Attachment 3: Sample Agenda and Topics for the Hazard Mitigation Planning Committee

This attachment includes a sample agenda and discussion topics for the annual meeting of the Planning Committee. Meetings do not have to follow this order or structure, but the items included in this attachment should be addressed as part of the annual meeting. During the update process for the LHMP, it is likely that the Planning Committee will meet more frequently. The meetings of the Planning Committee during the update process will involve different discussion topics.

ITEM 1: RECENT HAZARD EVENTS

1.1. What hazard events have occurred this past year in Ontario or nearby in a way that affected the community?
- Identify events that caused loss of life or significant injury to Ontario community members, significant property damage in Ontario, or widespread disruption to Ontario.
- More minor events should also be identified if there is a need for a community response to mitigate against future such events.

1.2. What are the basic facts and details behind any such hazard events?
- Consider the size and location of the affected area, any measurements of severity, any injuries and deaths, the cost of any damage, the number of people displaced or otherwise impacted, and other relevant summary information.
- Ensure that these facts and details are clearly recorded for future plan updates, including using the Disaster Information Table (**Attachment 1**).

ITEMS 2: MITIGATION ACTION ACTIVITIES

2.1. What mitigation actions have been fully implemented? Are they working as expected, or do they need to be revised?

2.2. What mitigation actions have started to be implemented since the Planning Committee last met? Is the implementation of these actions proceeding as expected, or are there any barriers or delays? If there are barriers or delays, how can they be removed?

2.3. What mitigation actions are scheduled to begin implementation in the next year? Are there any factors that could delay implementation or weaken the effectiveness of the actions? How can these factors be addressed?

2.4. What resources are needed to support planned, in-process, or ongoing mitigation actions? Does the City have access to these resources? If not, how can the City obtain access to these resources?

ITEM 3: INFORMATION SHARING

3.1. Is the City communicating with all appropriate local jurisdictions, including neighboring communities, San Bernardino County, and special districts? This should include information on district-specific hazard situations, mitigation actions, and other relevant information.

3.2. Is the City communicating with the appropriate state and federal agencies? Is the City receiving information about new regulations, best practices, and data related to hazard mitigation activities?

3.3. Are there opportunities for the City to improve coordination with local, state, and federal jurisdictions and agencies?

ITEM 4: BUDGETARY PLANNING

4.1. What are the financial needs for Ontario to support the implementation of planned and in-process mitigation actions, including ongoing items? Is there sufficient funding for all measures in the LHMP that are planned for the next year, including in-process and ongoing items? If sufficient funding is unavailable, how can the City obtain these funds?

4.2. If it is not feasible for the City to support all planned, in-process, or ongoing mitigation actions, which ones should be prioritized?

4.3. Are there hazard-related activities not included in the LHMP that should be budgeted for? Can the City obtain the necessary funding for these activities?

ITEM 5: STRATEGIC PLANNING

5.1. Which grants are available for hazard mitigation activities, and which activities are best positioned to secure funding?

5.2. How should the agencies and other organizations represented on the Planning Committee coordinate to maximize the chances of receiving funding?

5.3. Are there any scheduled or anticipated updates to other City documents that could relate to hazard mitigation activities? How can the Planning Committee share information with staff and any technical consultants responsible for these updates and ensure that the updates will enhance community resiliency?

5.4. What capital projects are scheduled or anticipated? Are these capital projects being designed and built to be resistant to hazard events? Are there opportunities for these projects to support hazard mitigation activities?

5.5. How can Planning Committee members coordinate efforts with those responsible for capital projects to take advantage of economies of scale that will make implementing hazard mitigation activities easier?

5.6. Has it been four years since the adoption of the LHMP? If so, lay out a timeline for plan update activities, including additional meetings of the Planning Committee. Identify if a technical consultant is needed and begin the contracting process.

5.7. Are there any other opportunities for Planning Committee members and the organizations they represent to coordinate efforts?

ITEMS 6: NEW BUSINESS

6.1. Are there any other items related to the Planning Committee's mission?

Attachment 4: Hazard Mitigation Strategy

Table 5-3: Mitigation Action Implementation Plan						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
Preparedness Activities						
P1	Conduct regular emergency preparedness drills and training exercises for City staff.	General Fund, Grants	OEM	$	Ongoing	N/A
P2	Continue agreements with local school districts to ensure that school facilities can act as evacuation sites during major emergencies.	General Fund, Grants	OEM	$	Ongoing	N/A
P3	Promote and expand participation of local businesses, non-profits, and faith-based organizations in the Ontario Continuity & Organizational Resilience in Emergencies Academy (CORE) trainings and preparedness activities.	General Fund, Grants	OEM	$	Ongoing	N/A
P4	Expand participation in the Ontario Community Emergency Response Team (CERT) program.	General Fund, Grants	OEM	$	Ongoing	N/A
P5	Ensure that community evacuation plans include provisions for community members who do not have access to private vehicles or are otherwise unable to drive.	General Fund, Grants	OEM	$$	Ongoing	N/A
P6	Continue to ensure effective emergency notifications through multiple media formats, in at least English and Spanish, about pending, imminent, or ongoing emergency events. Ensure that information is accessible to persons with access and functional needs.	General Fund, Grants	OEM	$	Ongoing	N/A
P7	Maintain at least one emergency power-generating station in all critical facilities that the City could use as emergency public assembly areas, such as City Hall, Community Centers, and any other locations designated in the future.	General Fund, Grants	OEM	$$$	Ongoing	N/A
P8	Update the Ontario Emergency Operations Plan to identify backup power and communications locations for critical facilities and prepare a hazardous materials annex.	General Fund, Grants	OEM	$	Ongoing	N/A
P9	Continuously update response procedures for first responder departments to properly address new hazard events as they emerge.	General Fund, Grants	OEM	$	Ongoing	N/A
P10	Ensure that the City has an adequate supply of sandbags for residents and businesses, including prefilled sandbags for	General Fund, Grants	OEM	$	Ongoing	N/A

	individuals who may be unable to fill them on their own.					
P11	Conduct active shooter drills for City staff, residents, and businesses.	General Fund, Grants	OEM	$	Ongoing	N/A
P12	Increase the number of City staff who have Cal OES Safety Assessment Program (SAP) credentials.	General Fund, Grants	OEM, Building Department	$	Ongoing	N/A
Multiple Hazards						
1.01	Promote and expand the use of 'Ready Ontario' as the primary location for emergency preparedness and hazard mitigation information that includes: 1. An outreach team that promotes emergency preparedness and hazard mitigation activities 2. A cadre of volunteers from the City's CERT Program, Continuity & Organizational Resilience in Emergencies Academy (CORE), Ontario Emergency Communications Service (ECS) HAM Radio Operators, and other organizations to support hazard mitigation and disaster preparedness activities. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Fire	$	Ongoing	High
1.02	Install energy-efficient equipment upgrades in City facilities to increase the longevity of the fuel supply for backup generators. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Facilities	$$$	Ongoing	High
1.03	Conduct routine updates to Facility Conditions Assessments for City-owned infrastructure and other utilities and coordinate with other agencies to ensure inspections of other important infrastructure. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering	$	Ongoing	Medium
1.04	Repair, as feasible, all major deficiencies discovered by inspections to prevent collapse, failure, or damage in the event of a natural disaster. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering, Building	$$$	Initiate by 2023/2024	High
1.05	Incentivize public and private utility operators to harden their lines passing through the City from potential breaches. Encourage the adoption of supervisory control and data acquisition (SCADA) to allow instantaneous shutdown of line breaches. Use mitigation grants to incentivize entities to partner with the City to complete these projects. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Community Development	$	Ongoing	Low

1.06	Install and harden emergency backup power at critical facilities deemed necessary. Prioritize installations for facilities that serve as key cooling/warming centers and evacuation centers. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering	$$$	Initiate by 2023/2024	High
1.07	Conduct a feasibility assessment of installing solar and battery backup systems at key critical facilities within the City. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities	$$$	TBD	Low
1.08	Work closely with community groups to increase awareness of hazard events and resiliency opportunities among socially vulnerable community members, including those experiencing homelessness. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Community Life & Culture	$	Ongoing	Medium
1.09	Avoid building new City-owned key facilities in mapped hazard areas. If no feasible sites outside mapped areas exist, ensure that such facilities are hardened against hazards beyond any minimum building requirements/ mitigation standards. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering, Building	$	Ongoing	Low
1.10	Closely monitor changes in the boundaries of mapped hazard areas resulting from land use changes or climate change and adopt new mitigation actions or revise existing ones to ensure continued resiliency. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	Community Development	$	Ongoing	Low
1.11	Integrate policy direction and other information from this plan into other City documents, including the General Plan, Emergency Operations Plan, and Capital Improvements Program. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	All Departments	$	Ongoing	Medium
1.12	Monitor funding sources for hazard mitigation activities. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM	$	Ongoing	Low
1.13	Integrate climate change mitigation and adaptation information and analysis into future LHMP updates and other City Plans, where practicable. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Planning	$	Ongoing	Low
1.14	Update the City's Master Plans (General Plan, Utilities Master Plan, etc.) periodically (in conjunction with the LHMP and CIP) to incorporate new data (FEMA flood maps and information) and/or address emerging issues. (Hazards addressed: All)	General Fund, BRIC/ HMGP Grants, Other Grants	All Departments	$$	Ongoing	Medium

Earthquake/Geologic Hazards						
2.01	Develop a Public Information Program (PIP) for earthquake awareness and mitigation. The program should focus on reducing injury and property damage and encourage partnerships, activities, and products to educate the public about earthquake science and motivate homeowners to prepare for earthquakes.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Building, Communications	$	Initiate by 2026	Medium
2.02	Develop a small project-based retrofit program to assist homeowners with simple earthquake mitigation activities (i.e., water heater straps, furniture anchoring, gas shut-off tools, and other emergency supplies) to reduce strain on City resources during an event.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Building, Community Improvement	$$	TBD	Low
2.03	Conduct an educational campaign, incentivize and promote medium-scale seismic retrofits, such as window films to minimize shattering, anchors for rooftop-mounted equipment, bracing for masonry chimneys, and other preventative measures to reduce damage to private buildings.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Building, Community Improvement	$	Initiate by 2026	Medium
2.04	Periodically update the seismically vulnerable buildings and structures inventory and pursue funding to incentivize retrofits of these structures to be more resilient to earthquakes in accordance with State and Local building standards and Historic Preservation Program requirements. Assess soft story conditions for apartment buildings constructed prior to 1980.	General Fund, BRIC/ HMGP Grants, Other Grants	Building	$	Ongoing	Low
2.05	Conduct a seismic analysis of all City-owned key facilities and retrofit vulnerable facilities.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Building, Public Works Facilities	$$$	Initiate by 2026	Medium
2.06	Encourage the installation of resilient (seismically appropriate) piping for new or replacement pipelines in close coordination with utility providers.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities	$	Ongoing	Medium
2.07	To the extent feasible, construct all new and significantly retrofitted City-owned facilities to remain operational in the event of a major earthquake.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC, Public Works Facilities, Engineering	$$$	Ongoing	Low
2.08	Retrofit key critical facilities with seismically rated window film treatments that ensure glass windows do not shatter during a strong seismic event.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Facilities	$$	TBD	Low

2.09	Improve local understanding of the threat of a major earthquake by conducting a citywide scenario modeling potential loss of life and injuries, destroyed and damaged structures, and interruptions to key services.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Public Works Facilities	$	Initiate by 2026	Medium
2.10	Coordinate with Ontario Municipal Utilities Company (OMUC) on monitoring groundwater elevations in areas where liquefaction and subsidence may be a concern.	General Fund, BRIC/ HMGP Grants, Other Grants	OMUC	$	Ongoing	Low
Flood						
3.01	Investigate the use of permeable paved and landscaped swales for new construction and replacement of City-owned hardscaped areas.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Parks and Maintenance	$$	TBD	Low
3.02	Analyze if new critical facilities can be built a minimum of 1 foot higher than the anticipated 500-year flood elevation height to determine where it is feasible.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works Facilities, Engineering, Building, Development	$	Initiate by 2026	Medium
3.03	Identify potential flood improvements that reduce inundation from both storm flows and potential dam inundation effects.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Initiate by 2026	Medium
3.04	Retrofit roadway medians to capture stormwater during rain events. Prioritize improvements along major arterials/ roadways throughout the City.	General Fund, BRIC/ HMGP Grants, Other Grants	Planning, Engineering	$$$	Initiate by 2023/2024	High
3.05	Conduct frequent cleanings of storm drain intakes, especially before and during the rainy season.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Ongoing	Low
3.06	Track areas where ponding frequently occurs during heavy rainfall and install new drains or upgrade existing ones to reduce water ponding.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Initiate by 2023/2024	High
3.07	Monitor intersections that frequently flood during rain events and identify improvements to alleviate these conditions.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing	Medium

3.08	Explore the feasibility of a mass notification siren and public address network to alert residents and visitors of potential flash floods and other flooding hazards, especially along the City's flood channel infrastructure.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Public Works, Engineering	$$	Initiate by 2023/2024	Medium
Extreme Weather (High Winds, Extreme Heat, Severe Rainstorms)						
4.01	Conduct outreach to residents and businesses before the severe winds (Santa Ana Wind events) on proper tree maintenance and identification of potentially hazardous trees. (Hazards addressed: High Winds)	General Fund, BRIC/ HMGP Grants, Other Grants	Communications	$	Ongoing	Low
4.02	Remove or trim trees determined to be susceptible to blowing over during a severe wind event and underground power lines, where feasible. (Hazards addressed: High Winds)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$$	Ongoing	Medium
4.03	Increase the use and construction of shade structures within new developments, City facilities, parks, and trails to reduce urban heat island impacts. (Hazards Addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Planning, Engineering, Recreation	$$	Ongoing	Medium
4.04	Evaluate the long-term capacity of designated cooling centers and shelters in the City to provide sufficient relief from extreme heat. Assess the need to expand services as the frequency, length, and severity of future heatwaves potentially change as a result of climate change. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Recreation	$	TBD	Low
4.05	Upgrade HVAC within City facilities to more efficient systems that may include split systems or decentralized systems that allow for heating and cooling the spaces needed, not entire buildings. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$$$	TBD	Low
4.06	Implement a tree-planting program to diversify tree age and increase shaded areas in the City to reduce the effects of the urban heat island effect. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Planning	$$	TBD	Low
4.07	Promote passive cooling design (brise soleil, long roof overhangs, locating windows away from southern facades, etc.) in new developments during the design review process. (Hazards addressed: Extreme Heat)	General Fund, BRIC/ HMGP Grants, Other Grants	Planning	$	Ongoing	Low

4.08	Promote early notifications to residents in advance of a severe weather event, focusing on effective communication methods with vulnerable populations to better ensure they have adequate time to prepare. (Hazards addressed: Severe Weather)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Communications, Police, Fire	$	Ongoing	Medium
Hazardous Materials Release						
5.01	Discourage new sensitive land uses, including schools, parks, childcare centers, adult and senior assisted living facilities, and community centers, from locating near identified hazardous material facilities. Discourage or prohibit new hazardous material facilities from locating near sensitive land uses.	General Fund, BRIC/ HMGP Grants, Other Grants	Planning	$	Ongoing	High
5.02	Continuously inspect businesses and other properties storing hazardous materials and create an inventory of storage locations that require updates, maintenance, or renovation.	General Fund, BRIC/ HMGP Grants, Other Grants	Fire	$	Ongoing	Low
5.03	Coordinate with hazardous materials generators/operators regularly to understand changes to their operations within the City.	General Fund, BRIC/ HMGP Grants, Other Grants	Fire	$	Ongoing	Low
5.04	Continue to work with solid waste service contractors to educate residents and businesses on their safe disposal of small quantities of hazardous materials.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Ongoing	Low
Urban Fire						
6.01	Educate and promote the proper maintenance and separation of power lines from trees and other hazards.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$	Ongoing	Medium
6.02	Conduct regular fuel modification projects to reduce fire hazard risks, such as clearing out dead vegetation in parks, open spaces, right-of-way embankments, and other areas that could become fuel for fires, such as within Cucamonga-Guasti Regional Park and surrounding neighborhoods.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Community Improvement	$$	Ongoing	Low
6.03	Provide information and resources to residents citywide on ways to improve resilience to home fires, including procedures for fallen powerlines.	General Fund, BRIC/ HMGP Grants, Other Grants	Fire	$	Ongoing	Low
6.04	Promote the removal of fire-prone tree species in the City, such as eucalyptus and pepper trees, especially in areas with heightened fire susceptibility (e.g., trees adjacent to powerlines).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works	$$	Ongoing	Medium

Dam Inundation						
7.01	Coordinate with dam owners/operators, state, and federal agencies to collectively identify threats to the City and the region and identify ways to retrofit/strengthen the dams under their control.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM	$	Ongoing	Medium
7.02	Implement an early warning system/protocol that notifies downstream communities in the event of a potential dam failure incident.	General Fund, BRIC/ HMGP Grants, Other Grants	OEM	$$	TBD/Ongoing	Low
Human-Caused Hazards (Transportation Incidents, Terrorism, Communications Failure)						
8.01	Coordinate and enhance datasets with the School District, Hospitals, and other key entities within the City to better respond to mass-casualty and terrorism incidents. (Hazards addressed: Terrorism**)**	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Ongoing	Medium
8.02	Evaluate all critical facilities, facilities of concern, and business licenses, for potential human-caused hazard vulnerabilities and integrate counterterrorism design elements and building materials, where feasible. (Hazards addressed: Terrorism)	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Initiate by 2026	Medium
8.03	Coordinate with the San Bernardino County Sheriff to monitor potential incidents resulting in terrorism and mass casualty incidents. (Hazards addressed: Terrorism/Mass Casualty Incidents)	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Ongoing	Low
8.04	Conduct proactive community policing during special events. Ensure that all staff involved in community policing are trained to engage with and respect community members while maintaining security. (Hazards addressed: Terrorism)	General Fund, BRIC/ HMGP Grants, Other Grants	Police	$	Ongoing	Medium
8.05	Prioritize any remaining grade separations to reduce or eliminate conflicts between different modes of travel. (Hazards addressed: Transportation Incidents)	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing	Medium
8.06	Maintain relationships with Metrolink, Amtrak, and Railroad owners to improve rail safety. (Hazard addressed: Transportation Incident)	General Fund, BRIC/ HMGP Grants, Other Grants	Police, Engineering	$	Ongoing	Low
8.07	Analyze communications systems to identify critical components and ensure these components are readily available to ensure communications resiliency. (Hazards addressed: Communications Failure)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Police, IT & Broadband, Communications	$	Ongoing	Medium

8.08	Expand the installation of fiber optics infrastructure and conduit (for future services) to enhance the city's communications systems and economic opportunities. (Hazards addressed: Communications Failure)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Police, IT & Broadband, Communications	$$$	Initiate by 2023/2024	High
8.09	Enhance existing communication backup systems to minimize communications interruptions, as an annex to the City of Ontario Emergency Operations Plan. (Hazards addressed: Communications Failure)	General Fund, BRIC/ HMGP Grants, Other Grants	OEM, Police, IT & Broadband, Communications	$$$	Initiate by 2023/2024	High