

**COOK COUNTY
MULTI-JURISDICTIONAL
HAZARD MITIGATION PLAN
VOLUME 2 - Municipal Annexes**

Chicago Heights Annex

FINAL

July 2019

Prepared for:



Cook County
Department of Homeland Security and Emergency Management
69 W. Washington St., Suite 2600
Chicago, Illinois 60602

Toni Preckwinkle
President
Cook County Board of Commissioners

William Barnes
Executive Director
Cook County Department of Homeland
Security & Emergency Management

Table of Contents

Hazard Mitigation Point of Contact	2
Jurisdiction Profile.....	3
Capability Assessment	5
Jurisdiction-Specific Natural Hazard Event	10
Hazard Risk Ranking.....	12
Mitigation Strategies and Actions.....	13
New Mitigation Actions	17
Ongoing Mitigation Actions	20
Completed Mitigation Actions	25
Future Needs to Better Understand Risk/Vulnerability	31
Additional Comments.....	32
HAZUS-MH Risk Assessment Results	33
Hazard Mapping.....	36

Hazard Mitigation Point of Contact

Primary Point of Contact	Alternate Point of Contact
Jeff Springer, F.D. Chief Telephone: 708-756-5370 Email Address: JSpringer@chicagoheights.net	Franklin Enright, Emergency Management Agency 83 East Joe Orr Road, Chicago Heights, IL. 60411 Telephone: 708-277-7120 Email Address: FEnright@chicagoheights.net

Jurisdiction Profile

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation:** 1893
- **Current Population:** The US Census 2018 estimate for Chicago Heights is 29,571.
- **Population Growth:** Based on current Census information, the City experienced a steady growth in population starting with a population of 5,100 in 1900 that grew to 14,525 in 1910 – a 184.8% increase over a 10 year period. The population reached it's greatest height at about 40,900. More recently, the 1980 census shows a rate of population decrease that hit its peak in 1990 (10.7% decrease in population); however, the downward trend slowed between 1990 and 2000. As of the 2010 census the population was 30,276 and had decreased to 30,026 by 2016. The city is still currently experiencing a slow, but steady downward trend in population.
- **Location and Description:** The City of Chicago Heights is located in Cook County Illinois, 8 miles South West of Hammond Indiana and 24 miles South of Chicago. The people of Chicago Heights are considered to be in the Chicago Metropolitan area. The City's major crossroads are at Dixie Highway (Illinois Route 1) and Lincoln Highway (U.S. Route 30) giving the City the nicknamed "Crossroads of the Nation". Suburbs adjacent to Chicago Heights include: Homewood to the northwest, Glenwood to the northeast, South Chicago Heights to the south, Park Forest to the southwest, Lynwood and Ford Heights to the east, and Olympia Fields and Matteson to the west. Chicago Heights has a total land area of 10.08 square miles.
- **Brief History:** Chicago Heights was first settled by Absalom Wells a European settler in 1833. He built a log cabin where the Vincennes Trail crossed Thorn Creek, but then moved farther west to where Chicago Road is now. In 1835 a large group from Ireland arrived and at this time the town was known as Thorn Grove. In 1853 the first railroad arrived and the town was renamed Bloom. It was renamed again in 1892 to Chicago Heights, and incorporated as a city in 1893. By 1897 the City had twenty factories and by 1901 a population of about 5,000. Chicago Heights emerged as a City of industry, becoming home to multiple steel and chemical companies, as well as war material manufacturing of every sort. In the mid-1950s the Ford Motor Company stamping plant made Chicago Heights its home. Other large scale development and prominent firms like FedEx, Behr Paint, Ace Paint, New Farm, and some 60 other industrial manufacturing and distribution companies call Chicago Heights home today.
- **Climate:** Chicago Heights climate is warm during the summer when temperatures tend to be in the 70s and very cold during winter when temperatures tend to be in the 20s. The warmest month of the year is July with an average maximum temperature of 83.7°F, while the coldest month of the year is January with an average minimum temperature of 14.80°F. Temperature variations between night and day tend to be fairly limited during summer with a difference that can reach 19°F, and fairly limited during winter with an average difference of 15°F. The annual average precipitation in Chicago Heights is 38.65 inches. Rainfall is fairly evenly distributed throughout the year, but the wettest month is June with an average rainfall of 4.6 inches.
- **Governing Body Format:** The City Council is composed of a Mayor and seven Alderpersons who represent the City's seven wards. This body of Government will assume the responsibility for the

adoption and implementation of this plan. The municipality oversees several departments, committees and boards, which cover a host of community facets, including Public Safety, Housing, Historic Preservation, Economic Development, and Community Relations, among many others.

- **Development Trends:** Development in the City of Chicago Heights is based on a comprehensive development plan that is administrated by the City’s Planning and Zoning department. The current trends are focused on the recruitment of light and heavy industrial operations along with developing and expanding the City’s commercial enterprise zones. The City currently has affordable new single family housing developments that qualify for several government programs. These programs make the City more attractive to potential home buyers and stimulate population growth. One of the hospitals in Chicago Heights closed in September 2018, after almost 100 years in business.

Capability Assessment

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in the *Legal and Regulatory Capability Table* below. The assessment of the jurisdiction’s fiscal capabilities is presented in the *Fiscal Capability Table* below. The assessment of the jurisdiction’s administrative and technical capabilities is presented in the *Administrative and Technical Capability Table* below. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in the *National Flood Insurance Program Compliance Table* below. Classifications under various community mitigation programs are presented in the *Community Classifications Table* below.

TABLE: LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	No	Yes	Chicago Heights code of ordinance Chapter 11 Adopted 2006
Zonings	Yes	No	No	Yes	Chicago Heights Code Chapter 33 Adopted 2006
Subdivisions	Yes	No	No	No	Chicago Heights Code Appendix B Adopted 12-28-1970
Stormwater Management	Yes	No	Yes	Yes	State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA. Chicago Heights Code Chapter 15 Adopted 2008
Post Disaster Recovery	Yes	No	No	No	Emergency Operations Plan of 2006
Real Estate Disclosure	Yes	No	Yes	Yes	Emergency Operations Plan of 2006 (765 ILCS 77/) Residential Real Property Disclosure Act.

Growth Management	Yes	No	No	No	1990s; City currently working on new plan.
Site Plan Review	Yes	No	No	No	Chicago Heights Code Chapter 33 Article 11
Public Health and Safety	Yes	No	Yes	Yes	Cook County Board of Health. Chicago Heights Code Chapter 21 Article 11
Environmental Protection	Yes	No	No	No	Emergency Operations Plan of 2006
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	1990s; City currently working on new plan.
<i>Is the plan equipped to provide linkage to this mitigation plan?</i>					N/A
Floodplain or Basin Plan	Yes	No	MWRD	No	
Stormwater Plan	Yes	No	MWRD	No	Regional stormwater impacts are managed by MWRD. The Village lies within the South Basin watershed planning area of MWRD's comprehensive Stormwater Master Planning Program.
Capital Improvement Plan	Yes	No	No	No	City of Chicago Heights Code of Ordinances Chapter 2 Article 1 Sec. 2-3 Fiscal Year.
<i>What types of capital facilities does the plan address?</i>					Economic Development. Fiscal year department budgets
<i>How often is the plan revised/updated?</i>					Annually
Habitat Conservation Plan	No	No	No	No	
Economic Development Plan	Yes	No	Yes	Yes	The City's Economic Development Department is responsible for

					development in accordance with the Planning and Zoning Department.
Shoreline Management Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	No	No	Yes	Yes	Cook County DHSEM
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	Cook County DHSEM Preparing THIRA
Terrorism Plan	No	No	Yes	Yes	Cook County DHSEM
Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	No	No	Yes	No	Cook County DHSEM
Public Health Plans	No	No	Yes	No	Cook County DPH

TABLE: FISCAL CAPABILITY

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE: ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning and Zoning Department, Robinson Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	Robinson Engineering
Planners or engineers with an understanding of natural hazards	Yes	Robinson Engineering
Staff with training in benefit/cost analysis	Yes	
Surveyors	Yes	Zoning / Robinson Engineering
Personnel skilled or trained in GIS applications	Yes	Cook County GIS Consortium
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	CHFD EMA Coordinator
Grant writers	Yes	Administrative

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your jurisdiction?	Planning and Zoning
Who is your jurisdiction’s floodplain administrator? (department/position)	Planning and Zoning Director
Are any certified floodplain managers on staff in your jurisdiction?	Yes, Robinson Engineering
What is the date of adoption of your flood damage prevention ordinance?	07/30/2008
When was the most recent Community Assistance Visit or Community Assistance Contact?	May 2013
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? (If no, please state why)	Yes

Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? If so, is your jurisdiction seeking to improve its CRS Classification? If not, is your jurisdiction interested in joining the CRS program?	No

TABLE: COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection/ISO	Yes	ISO 4	June 2011
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	No	N/A	N/A

Jurisdiction-Specific Natural Hazard Event

The information provided below was solicited from the jurisdiction and supported by NOAA and other relevant data sources.

The *Natural Hazard Events Table* lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: 3
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: 1

Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Severe Storms	DR-4116	2013	-
Severe Winter Storms	DR-1960	2011	-
Severe Storms/Flooding	DR-1935	2010	-
Severe Storms/Flooding	DR-1800	2008	-
Severe Storms/Flooding	DR-1729	2007	-
Severe Winter Storms	EM-3161	2000	-
Winter Snow Storm	EM-3134	1999	-
Flooding	DR-1188	1997	-
Flooding	DR-1129	1996	-
Severe Storms/Flooding	DR-997	1993	-
Severe Storms/Flooding	DR-798	1987	-
Severe Storms/Flooding	DR-776	1986	-

Jurisdiction-Specific Hazards and Impacts

Hazards that represent a county-wide risk are addressed in the Risk Assessment section of the 2019 Cook County Multi-Jurisdictional Hazard Mitigation Plan Update. This section only addresses the hazards and their associated impacts that are **relevant** and **unique** to the municipality.

Dam/Levee Failure: The City of Chicago Heights has experienced issues with the dam on Thorn Creek at 26th Street and Euclid.

Flood: Within the City, Thorn Creek in the Country Club neighborhood and Butterfield Creek in the Hamilton Wood neighborhoods are flood-prone. The poor condition of infrastructure causes a lot of residential flooding, requiring general creek maintenance.

Extreme Heat: The City's senior population is vulnerable to extreme heat events. Accordingly, Golden Towers Senior Living (1704-1706 East End Ave.) and the nursing home located at 490 W. 16th Place are specific areas that are at high risk of extreme heat impacts.

High Winds: Throughout the City's residential areas, there are a high number of very old trees that need either trimming or removal to prevent loss of life and property during high wind events.

Tornado: Tornado activity is increasing in the City's area.

Hazard Risk Ranking

The *Hazard Risk Ranking Table* below presents the ranking of the hazards of concern. Hazard area extent and location maps are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

TABLE: HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	54
2	Severe Winter	54
3	Tornado	54
4	Flood	39
5	Earthquake	30
6	Drought	6
7	Dam Failure	0

Mitigation Strategies and Actions

The heart of the mitigation plan is the mitigation strategy, which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy describes how the community will accomplish the overall purpose, or mission, of the planning process. In this section, mitigation actions/projects were updated/amended, identified, evaluated, and prioritized. This section is organized as follows:

- New Mitigation Actions - New actions identified during this 2019 update process
- Ongoing Mitigation Actions - Ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.
- Completed Mitigation Actions - An archive of all identified and completed projects, including completed actions since 2014.

The *Hazard Mitigation Action Plan Matrix Table* below lists the actions that make up the jurisdiction’s hazard mitigation plan. The *Mitigation Strategy Priority Schedule Table* identifies the priority for each action.

TABLE: HAZARD MITIGATION ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action C4.1 —Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses.						
Ongoing	All	7, 13	City of Chicago Heights	High	FEMA Hazard Mitigation Grants	Long-term (depending on funding)
Action C4.2 —Continue to support the countywide actions identified in this plan.						
Removed	All	All	City of Chicago Heights	Low	General Fund	Removed
Action C4.3 —Actively participate in the plan maintenance strategy identified in this plan.						
Complete	All	3, 4, 6	DHSEM, City of Chicago Heights	Low	General Fund	Completed

Action C4.4 —Consider participation in incentive-based programs such as the Community Rating System, Tree City, and StormReady.						
Ongoing	All	3, 4, 5, 6, 7, 9, 10, 11, 16	City of Chicago Heights	Low	General Fund	Long-term
Action C4.5 —Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on floodplain requirements and impacts.						
Ongoing	Flooding	4, 6, 9	City of Chicago Heights	Low	General Fund	Short-term and Ongoing
Action C4.6 —Where feasible, implement a program to record high water marks following high-water events.						
Completed	Flooding, Severe Weather	3, 6, 9	City of Chicago Heights	Medium	General Fund; FEMA Grant Funds (Public Assistance)	Completed
Action C4.7 —Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Completed	All	3, 4, 6, 10, 16	Planning and Zoning Department, Robinson Engineering	Low	General Fund	Completed
Action C4.8 —Continue storm sewer upgrades.						
Ongoing	Flooding, Severe Weather	2, 9, 13	City of Chicago Heights	Low	General Fund	Ongoing
Action C4.9 —Water main repair and replacement.						
Ongoing	Drought	1, 2	City of Chicago Heights	Low	General Fund	Ongoing
Action C4.10 —Reducing water loss from system.						

Ongoing	Drought	1, 2	City of Chicago Heights	Low	General Fund	Ongoing
Action C4.11 —Purchased new early outdoor warning system control panel.						
Completed	All	2, 5	City of Chicago Heights	Low	City EMA Fund	Completed
Action C4.12 —Develop CERT program.						
Removed	All	6, 8	City of Chicago Heights	Low	City EMA Fund	Removed
Action C4.13 —Growth management Plan.						
Ongoing	All	3, 4, 10	City of Chicago Heights	Low	Grant Funded	Ongoing
Action C4.14 —Westside Neighborhood Drainage Improvement Project.						
New	Flood	9	Fire Department	\$6.5 Million; Medium	City General Revenue	2020/2021
Action C4.15 —Completed outdoor warning siren project (purchased 4 new warning sirens and new computer (2) control centers).						
Completed	Flood, Lightning, Hail, High Wind, Ice Storms, Tornado, Widespread Power Outage	5	Fire Department	\$112,000.00; Low	City general	Completed

(a) Ongoing indicates continuation of an action that is already in place. Short-term indicates implementation within five years. Long-term indicates implementation after five years.

TABLE: MITIGATION STRATEGY PRIORITY SCHEDULE

Action Number	Number of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority (a)
1	2	High	High	Yes	Yes	No	Medium

2	13	Medium	Low	Yes	No	Yes	High
3	3	Medium	Low	Yes	Yes	Yes	High
4	9	Medium	Low	Yes	No	Yes	High
5	3	Medium	Low	Yes	No	Yes	High
6	3	Medium	Medium	Yes	Yes	No	Medium
7	5	Medium	Low	Yes	Yes	Yes	High
8	3	High	High	Yes	Yes	No	Medium
9	2	High	High	Yes	Yes	No	Medium
10	2	High	High	Yes	Yes	No	Medium
11	2	High	Low	Yes	No	Yes	High
12	2	Medium	Low	Yes	No	Yes	Low
13	3	Medium	Low	Yes	Yes	Yes	High
14	1	High	Medium	Yes	No	Yes	High
15	1	High	Low	Yes	No	Yes	High

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

The following are new mitigation actions created during the 2019 update.

Action C4.14

Mitigation Action	Westside Neighborhood Drainage Improvement Project
Year Initiated	2019
Applicable Jurisdiction	Chicago Heights
Lead Agency/Organization	Fire Department
Supporting Agencies/Organizations	Engineering, Code Enforcement, Zoning
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events. • Involve stakeholders to enhance the local capacity to mitigate, prepare for, and respond to the impacts of natural hazards. • Develop, promote, and integrate mitigation action plans. • Promote public understanding of and support for hazard mitigation.
Applicable Objective	<ul style="list-style-type: none"> • Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans.
Potential Funding Source	City General Revenue
Estimated Cost	\$6.5 Million
Benefits (loss avoided)	Will reduce surface and basement flooding, repairing infrastructure, reduce inflow and infiltration, and provide new detention
Projected Completion Date	estimated fall 2020, possibly early 2021
Priority and Level of Importance (Low, Medium, High)	High Priority
Benefit Analysis (Low, Medium, High)	High - Project will provide an immediate reduction of risk exposure for life and property.
Cost Analysis (Low, Medium, High)	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget amendment, or the cost of the project would have to be spread over multiple years.
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
X	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	Extreme Cold
	Ice Storms
	Tornado
	Epidemic or pandemic
	Nuclear Power Plant Incident
	Widespread Power Outage
	Coastal Erosion
	Secondary Impacts from Mass Influx of Evacuees
	Hazardous Materials Incident

Ongoing Mitigation Actions

The following are ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.

Action C4.1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.1	Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses.	
Status Description: No		X
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.4	Consider participation in incentive-based programs such as the Community Rating System, Tree City, and StormReady.	
Status Description: No		X
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.5	Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on floodplain requirements and impacts.	
Status Description: Yes		O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.8	Storm sewer upgrades	
Status Description: Yes		O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.9

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.9	Water main repair and replacement	
Status Description: Yes		O
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.10

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.10	Reducing water loss from system	
Status Description: Yes		O
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.13

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.13	Growth management plan	
Status Description: Yes		O
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Completed Mitigation Actions

The following section represents completed mitigation actions, and serves as an archive of identified and completed projects.

Action C4.2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.2	Continue to support the countywide actions identified in this plan.	
Status Description: Yes		C
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.3	Actively participate in the plan maintenance strategy identified in this plan.	
Status Description: Yes		C
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.6	Where feasible, implement a program to record high water marks following high-water events.	
Status Description: Yes		C
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.7

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.7	Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.	
Status Description: Yes		C
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.11

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# C4.11	Purchased new early outdoor warning system control panel	
Status Description: Yes		C
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action C4.15

Mitigation Action	Completed outdoor warning siren project (purchased 4 new warning sirens and new computer (2) control centers)
Year Initiated	2019
Applicable Jurisdiction	Chicago Heights
Lead Agency/Organization	Fire Department
Supporting Agencies/Organizations	Engineering/zoning, code enforcement
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events. • Involve stakeholders to enhance the local capacity to mitigate, prepare for, and respond to the impacts of natural hazards. • Develop, promote, and integrate mitigation action plans. • Promote public understanding of and support for hazard mitigation.
Applicable Objective	<ul style="list-style-type: none"> • Develop, improve, and protect systems that provide early warnings, emergency response communications, and evacuation procedures.
Potential Funding Source	City general
Estimated Cost	\$112,000.00
Benefits (loss avoided)	Early warning detection for life safety
Projected Completion Date	July 2019
Priority and Level of Importance (Low, Medium, High)	High Priority
Benefit Analysis (Low, Medium, High)	High - Project will provide an immediate reduction of risk exposure for life and property.
Cost Analysis (Low, Medium, High)	Low - The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.
Actual Completion Date	7/3/2019

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance

Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
X	Flood
	Extreme Heat
X	Lightning
X	Hail
	Fog
X	High Wind
	Snow
	Blizzard
	Extreme Cold
X	Ice Storms
X	Tornado
	Epidemic or pandemic
	Nuclear Power Plant Incident
X	Widespread Power Outage
	Coastal Erosion
	Secondary Impacts from Mass Influx of Evacuees
	Hazardous Materials Incident

Future Needs to Better Understand Risk/Vulnerability

No needs have been identified at this time.

Additional Comments

No additional comments at this time

HAZUS-MH Risk Assessment Results

CHICAGO HEIGHTS EXISTING CONDITIONS	
2010 Population	30,276
Total Assessed Value of Structures and Contents	\$13,949,560,870
Area in 100-Year Floodplain	426.14 acres
Area in 500-Year Floodplain	465.25 acres
Number of Critical Facilities	94

HAZARD EXPOSURE IN CHICAGO HEIGHTS						
	Number Exposed		Value Exposed to Hazard		Total	% of Total Assessed Value Exposed
	Population	Buildings	Structure	Contents		
Dam Failure						
Buffalo Creek	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #2	0	0	\$0	\$0	\$0	0.00%
Touhy	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #3	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #4	0	0	\$0	\$0	\$0	0.00%
Flood						
100-Year	78	24	\$85,988,763	\$85,940,551	\$171,929,313	1.23%

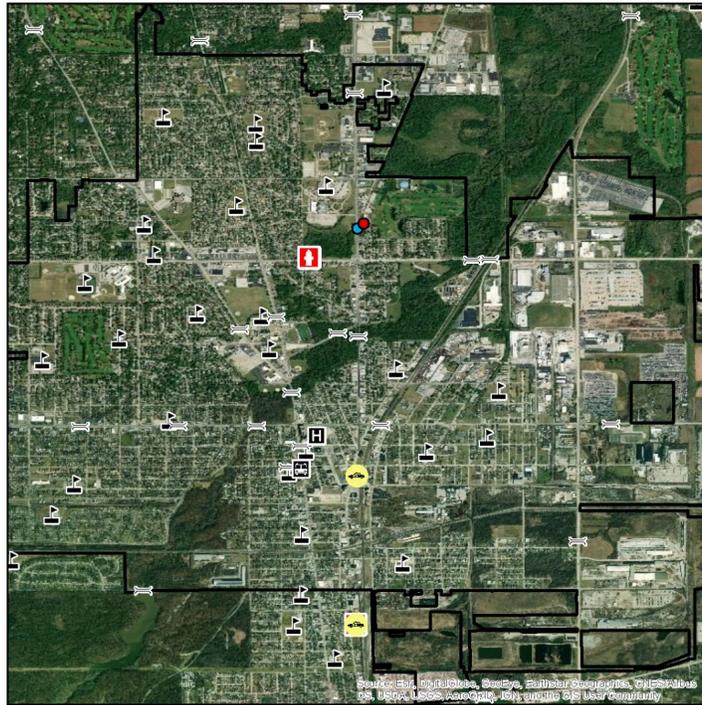
500-Year	166	51	\$92,016,811	\$88,985,408	\$181,002,219	1.30%
Tornado						
100-Year	—	—	\$1,303,746,492	\$1,116,133,355	\$2,419,879,847	17.35%
500-Year	—	—	\$2,033,192,873	\$1,810,871,484	\$3,844,064,357	27.56%

ESTIMATED PROPERTY DAMAGE VALUES IN CHICAGO HEIGHTS

	Estimated Damage Associated with Hazard			% of Total Assessed Value Damaged
	Building	Contents	Total	
Dam Failure				
Buffalo Creek	\$0	\$0	\$0	0.00%
U. Salt Cr. #2	\$0	\$0	\$0	0.00%
Touhy	\$0	\$0	\$0	0.00%
U. Salt Cr. #3	\$0	\$0	\$0	0.00%
U. Salt Cr. #4	\$0	\$0	\$0	0.00%
Earthquake				
1909 Historical Event	\$44,655,556	\$11,912,368	\$56,567,924	0.41%
Flood				
10-Year	\$5,890,901	\$21,269,403	\$27,160,304	0.19%
100-Year	\$9,163,312	\$26,890,186	\$36,053,498	0.26%
500-Year	\$11,399,684	\$30,524,518	\$41,924,203	0.30%

Tornado				
100-Year	\$130,374,649	\$111,613,336	\$241,987,985	1.73%
500-Year	\$296,846,159	\$264,387,237	\$561,233,396	4.02%

Hazard Mapping



CITY OF CHICAGO HEIGHTS

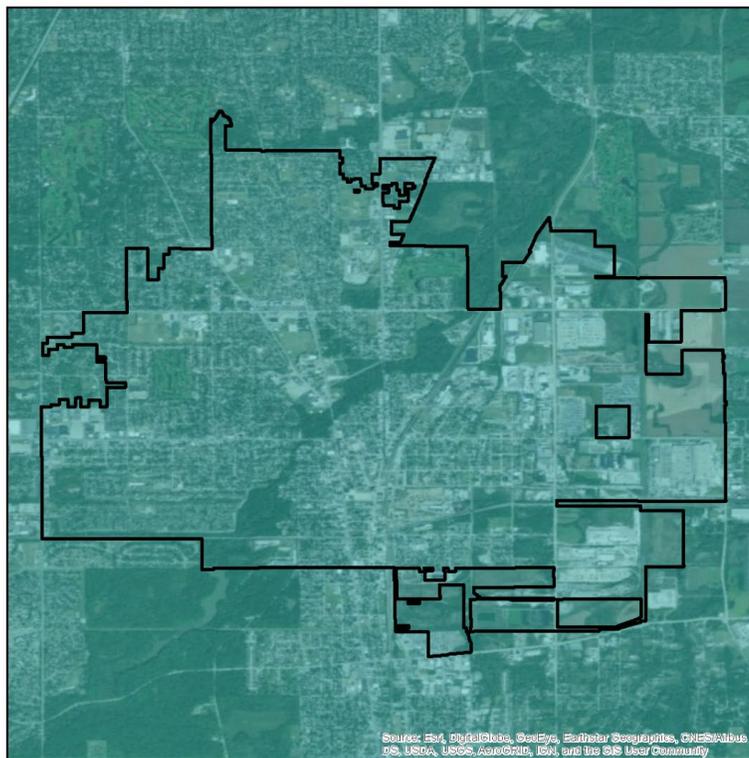
CRITICAL INFRASTRUCTURE

- Oil Facilities
- Transit Centers
- Military Facilities
- Police Stations
- Fire Stations
- Hazardous Waste
- Airports
- Hospitals
- Highway Bridges
- Warming Centers
- Cooling Centers
- Schools
- Railroad Stations

Base Map Data Sources:
Cook County, ESRI



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



CITY OF CHICAGO HEIGHTS

PEAK GROUND ACCELERATION FOR A 100 YEAR EARTHQUAKE EVENT

Mercalli Scale, Potential Shaking
II-III Weak

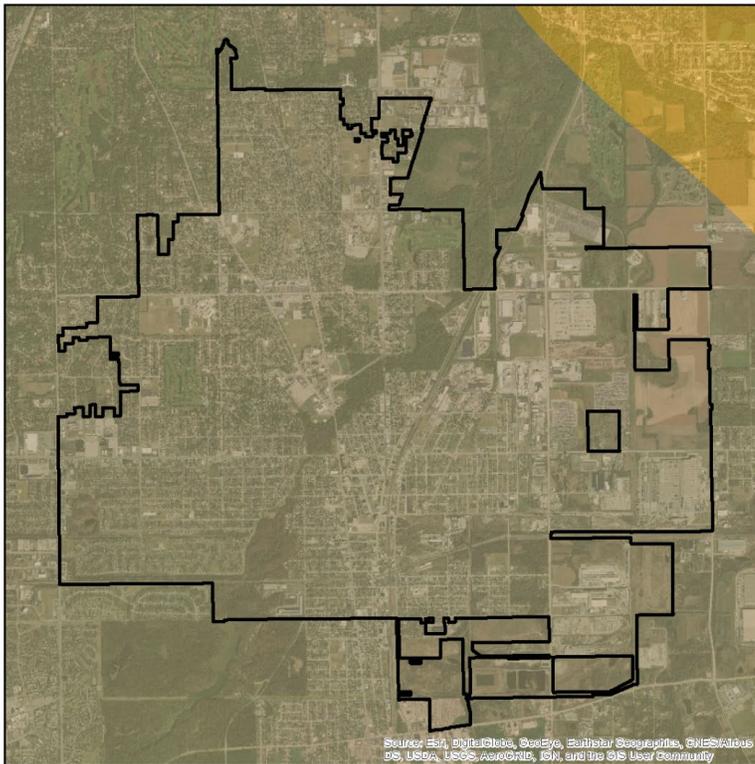
Data provided by the USGS Earthquake Hazards Program and Cook County.

Probabilistic seismic hazard maps were prepared for the conterminous United States for 2014 portraying peak horizontal acceleration and horizontal spectral response acceleration for 0.2- and 1.0-second periods with probabilities of exceedance of 10 percent in 50 years and 2 percent in 100 years. All of the maps were prepared by combining the hazard derived from spatially smoothed historical seismicity with the hazard from fault-specific sources. The acceleration values contoured are the random horizontal component. The reference site condition is firm rock, defined as having an average shear-wave velocity of 760 m/s in the top 30 meters corresponding to the boundary between NEHRP (National Earthquake Hazards Reduction Program) site classes B and C.

The information included on this map has been compiled for Cook County from a variety of sources and is subject to change without notice. Cook County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. Cook County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of Cook County.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



CITY OF CHICAGO HEIGHTS

NATIONAL EARTHQUAKE HAZARD REDUCTION PROGRAM (NEHRP) SOIL CLASSIFICATION

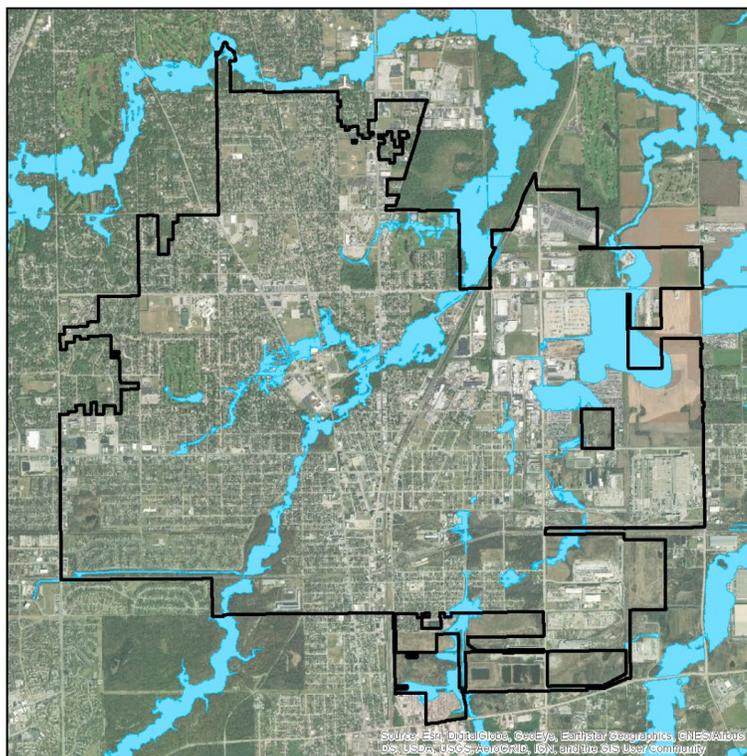
TYPE

- C - Very Dense Soil, Soft Rock
- D - Stiff Soil
- F - Site Specific Evaluation

Data provided by the Illinois State Geological Survey and Cook County.

The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Site Class map (NEHRP Soil Profile Type Map), a Liquefaction Susceptibility Map and a Soil Response Map for the 8 states to be used in the FEMA New Madrid Catastrophic Planning Initiative Phase II work. The USGS Geologic Investigation Series I-2769 Map of Surficial Deposits and Materials in the Eastern and Central United States (East of 102 degrees West Longitude) by David S. Fullerton, Charles A. Bush and Jean N. Pennell (2003) was the base map used for this work. Each State Geological Survey produced its own state map version of the Soil Site Class and Liquefaction Susceptibility maps. The procedures outlined in the NEHRP provisions (Building Seismic Safety Council, 2004) and the 2003 International Building Codes (International Code Council, 2002) were followed to produce the soil site class maps. CUSEC State Geologists used the entire column of soils material down to bedrock and did not include any bedrock in the calculation of the average shear wave velocity for the column, since it is the soil column and the difference in shear wave velocity of the soils in comparison to the bedrock which influences much of the amplification.

The information included on this map has been compiled for Cook County from a variety of sources and is subject to change without notice. Cook County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. Cook County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of Cook County.



CITY OF CHICAGO HEIGHTS

COOK COUNTY MWRDGC 100-YEAR INUNDATION AREA

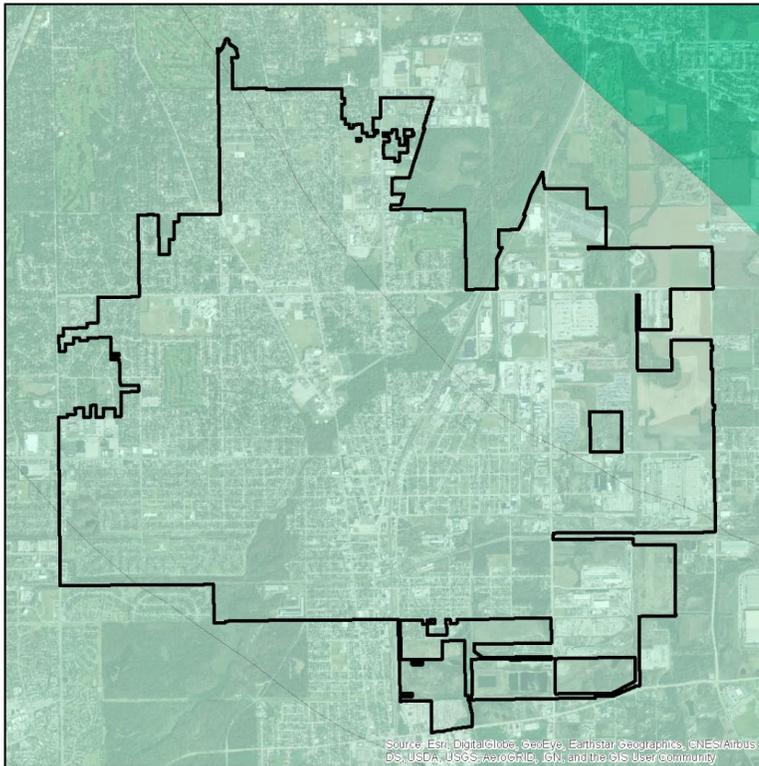
- 100-year Inundation Area

MWRDGC Data provided by Metropolitan Water Reclamation District of Greater Chicago and Cook County.

The information included on this map has been compiled for Cook County from a variety of sources and is subject to change without notice. Cook County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. Cook County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of Cook County.

DISCLAIMER: The Cook County MWRDGC 100-year Inundation Map is provided to show general flood risk information regarding floodplains and inundation areas. This map is not regulatory. Official FEMA Flood Insurance Study information and regulatory maps can be obtained from <http://www.fema.gov>.





CITY OF CHICAGO HEIGHTS

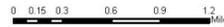
LIQUEFACTION SUSCEPTIBILITY

- LIQUEFACTION SUSCEPTIBILITY**
- high
 - low
 - very low

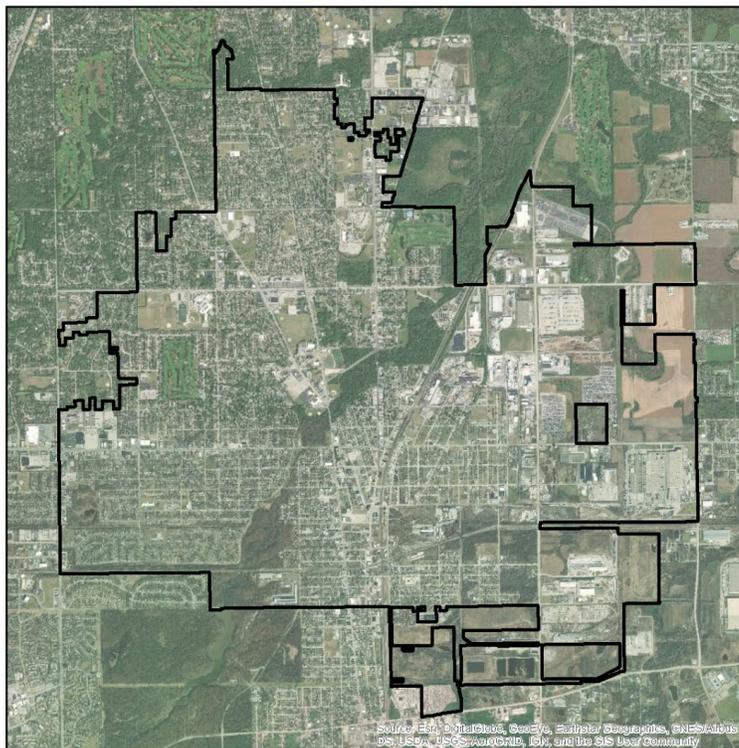
Data provided by the Illinois State Geological Survey and Cook County.

The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Site Class map (NEHRP Soil Profile Type Map), a Liquefaction Susceptibility Map and a Soil Response Map for the 8 states to be used in the FEMA New Madrid Catastrophic Planning Initiative Phase II work. The USGS Geologic Investigation Series I-2789 Map of Surficial Deposits and Materials in the Eastern and Central United States (East of 102 degrees West Longitude) by David S. Fullerton, Charles A. Bush and Jean M. Pennell (2003) was the base map used for this work. Each State Geological Survey produced its own state map version of the Soil Site Class and Liquefaction Susceptibility maps. The procedures outlined in the NEHRP provisions (Building Seismic Safety Council, 2004) and the 2003 International Building Codes International Code Council, 2003) were followed to produce the soil site class maps. CUSEC State Geologists used the entire column of soils material down to bedrock and did not include any bedrock in the calculation of the average shear wave velocity for the column, since it is the soil column and the difference in shear wave velocity of the soils in comparison to the bedrock which influences much of the amplification.

The information included on this map has been compiled for Cook County from a variety of sources and is subject to change without notice. Cook County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. Cook County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of Cook County.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



CITY OF CHICAGO HEIGHTS

100- AND 500- YEAR TORNADO EVENTS

- Magnitude**
- 4 (100 year event)
 - 5 (500 year event)

Historic tornado data provided by NOAA/NWS showing the initial points and paths of all F4 and F5 events observed from 1950 to 2017.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community