



Michigan State University Extension  
Land Use Series

# Sample Wildfire Hazard Zoning

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Michigan experiences an average of 8,000 to 10,000 wildfires each year. While most of these fires are small, each year wildfire damages property and risks human life. The 10 largest fires between 2006 and 2012 in Michigan consumed more than 60,000 acres and destroyed approximately 250 homes and structures. Fortunately, individuals and communities can take steps to protect against wildfire and coexist with this naturally occurring phenomenon.

Michigan State University (MSU) Extension prepared the Sample Wildfire Hazard Zoning for Michigan local governments to consider addressing wildfire mitigation and protection through local zoning. Four approaches are presented that range from educating property owners in wildfire hazard areas to regulating property access, landscaping, and building materials. The range of approaches is presented for local governments to select the most appropriate option, based on local conditions and circumstances. In total, the four approaches are intended to allow any community with wildfire risk to incorporate 'firewise' principles in the zoning ordinance.

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*“Thirty seven million acres is  
all the Michigan we will ever have”*  
William G. Milliken

This is a fact sheet developed by experts on the topic(s) covered within MSU Extension. Its intent and use is to assist Michigan communities making public policy decisions on these issues. This work refers to university-based peer reviewed research, when available and conclusive, and based on the parameters of the law as it relates to the topic(s) in Michigan. This document is written for use in Michigan and is based only on Michigan law and statute. One should not assume the concepts and rules for zoning or other regulation by Michigan municipalities and counties apply in other states. In most cases they do not. This is not original research or a study proposing new findings or conclusions.

In addition to the Sample Wildfire Hazard Zoning, communities may wish to review the National Fire Protection Association's Standard for the Protection of Life and Property (NFPA 299) and the International Wildland Urban Interface Code (ICC 2012) to determine if additional zoning and/or building regulations are locally appropriate (see Works Referenced in Appendix).

Further, communities are highly encouraged to engage in a community wildfire protection planning process in concert with (in advance of) any regulatory approach to wildfire mitigation and protection. Generally, such a planning process entails:

1. A hazard assessment to identify and rank areas prone to wildfires based on characteristics such as vegetative types, soil types, topography, and weather;
2. A more specific risk assessment using such factors as available water supply, adequacy of road systems for access, and the availability of fire departments to respond to calls;
3. An institutional analysis of the various capacities and specializations of the various governmental organizations in the area with respect to emergency response; and
4. A set of goals, policies, and implementing actions for mitigating the risk of property loss and life loss due to wildfire. Such plans should be directly tied to, or should be a specific element within, the master plan for the subject community or communities.

Communities that initiate a wildfire mitigation and protection planning process are encouraged to work with local fire departments, the Michigan Department of Natural Resources (DNR), and the U.S. Forest Service (USFS), as applicable. From time to time, grants are available through the DNR and/or USFS for preparing Community Wildfire Protection Plans (CWPP). Communities are also encouraged to coordinate with their neighboring units of government and the county when planning for wildfire mitigation and protection in order to most effectively address a threat that pays no regard to municipal boundaries.

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## Disclaimers on Sample Zoning Ordinance Amendments

The following is offered as sample ordinance or ordinance amendment language. It is intended as a starting point for a community to use when considering this issue.

This is a sample, meaning that it is not a definitive recommendation by the authors or MSU Extension. A sample is a starting point for discussion and development of a ordinance, ordinance amendment, or zoning ordinance amendment that is appropriate for a particular community. Conversely a model

ordinance, or amendment, would be presented as the ideal or utopia intended as a recommended approach. This is not a model ordinance, or ordinance amendment. That means any numerical standard (dimensional standard) offered in the sample zoning amendment is just a starting point for discussion. Often there is already discussion about the standard in the commentary which is intended to provide a community with information to decide what the numerical standard should be for a particular community.

This document is written for use in Michigan and is based only on Michigan law and statute. One should not assume the concepts and rules for an ordinance or zoning by Michigan municipalities and counties apply in other states. In most cases they do not.

**If zoning exists:** If this is being done in a city, village, township, or county with its own existing zoning, then these provisions must be adopted pursuant to the Michigan Zoning Enabling Act. A step-by-step checklist of procedures to amend a zoning ordinance is available from Michigan State University Extension's *Land Use Series*: "Checklist # 4: For Adoption of a Zoning Ordinance Amendment (including some PUDs) in Michigan" is available from [www.lu.msue.msu.edu](http://www.lu.msue.msu.edu).

**Township with county zoning:** If this is being done in a township that relies on county zoning, then the township must work with the county planning commission so these provisions are placed in the county's zoning ordinance pursuant to the Michigan Zoning Enabling Act. Checklist #4 is also applicable here.

**Zoning done by a Joint Planning Commission:** If this is being done in a municipality that relies on joint zoning, then the municipality must work with the joint planning commission so these provisions are placed in the joint zoning ordinance pursuant to the Michigan Zoning Enabling Act, Municipal Joint Planning Act, and the Joint Planning Ordinance and Agreement. Checklist #4 is also applicable here.

**Zoning does not exist:** If this is being done in a township, village or city where zoning does not exist, then it is not possible to adopt these regulations apart from the adoption of a complete zoning ordinance establishing rules and creating the public offices and bodies necessary pursuant to the Michigan Zoning Enabling Act.

There are many different ways for a zoning ordinance to deal with the issues outlined here. The sample provided here is just one. It is written with the following assumptions:

1. The municipality already has a site plan review process in its zoning ordinance.
2. The section numbering system follows the standard system of codification presented in Michigan State University Extension's *Land Use Series*: "Organization and Codification of a Zoning Ordinance", available from [www.lu.msue.msu.edu](http://www.lu.msue.msu.edu).
3. The municipality's attorney whom is experienced in municipal law (planning and zoning) will review any proposed amendments before they are adopted.

Following are the sample zoning ordinance [amendments] with commentary.

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## Approach 1: Wildfire Hazard Education

This approach is applicable to any jurisdiction with wildland, and is most applicable to rural communities with little staff capacity and/or little public support for additional land use regulation.

## Zoning Text Amendment

**Commentary, Instructions:** The following language needs to appear in the ordinance to amend the zoning ordinance. In the zoning ordinance itself, only the text of the new zoning ordinance sections would appear, plus the titles of the new sections in the table of contents, and an annotation (if annotations are used). [End of commentary]

The [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance is amended as follows to add to Article 5: Definitions and Article 84: Permits (Land Use Applications): [INSERT THE WILDFIRE HAZARD ZONING LANGUAGE BELOW].

### Article 5: Definitions

**Commentary, Instructions:** The following definitions should be added to the existing Definitions article of the zoning ordinance. If identical or similar definitions already exist, one or both should be changed so that the terminology is consistent throughout the entire zoning ordinance. [End of commentary]

Wildfire Hazard Area - An area which has predominantly conifer tree species with lower branches which do not die off and are near to the ground, such as, but not limited to, Jack Pine or Scrub Pine (*Pinus Banksiana*), Scotch Pine or Scotch Fir (*Pinus Sylvestris*), Red Pine or Norway Pine (*Pinus Resinosa*), Spruces (*Picea*), Hemlock (*Tsuga Candensis*), and Cedars or Junipers (*Pinaceae*); and other situations where structures encroach into wildlands.

Wildland - An undeveloped area in its natural state containing plants, shrubs, and trees characteristic of the region and undisturbed topographical conditions.

### Article 84: Permits

**Commentary, Instructions:** The following language should be added to the existing, applicable section of the Permits article of the zoning ordinance. If similar language already exists, the following language should replace the existing language so that conflicts are not created. [End of commentary]

#### 8403. Land Use Applications

- A. Applicants seeking a zoning permit for land located in the Wildfire Hazard Area, shall be provided with:
1. Notice of Wildfire Hazard Area, detailing that the land is located in the Wildland and is exposed to wildfire fire risk.
  2. MSU Extension *Wildfire Series Bulletin* E2882 - "Understanding Wildfire Behavior in Michigan" (available at: <http://shop.msu.edu/>).
  3. MSU Extension *Wildfire Series Bulletin* E2831 - "Protecting Your Michigan Home from Wildfire" (available at: <http://shop.msu.edu/>).
- B. For land located in the Wildfire Hazard Area, a zoning permit shall not be issued unless the Notice of Wildfire Hazard Area is signed by the applicant indicating that he/she:
1. Is aware of the wildfire risk in the vicinity of his/her property,

2. Was provided with educational material on how to reduce the risk of property and life loss due to wildfire on his/her property, and
3. Waives his/her right to sue the municipality in the event of property or life loss due to wildfire on his/her property.

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## Approach 2: Wildfire Hazard Regulations to Ensure Property Access

This approach is applicable to any jurisdiction with wildland, and is most applicable to rural communities with little staff capacity, but public support for minimizing risks associated with provision of fire protection and other emergency services on private roads and driveways. In effect, this approach ensures that emergency vehicles will be able to navigate private roads and driveways to protect against wildfire.

### Zoning Text Amendment

**Commentary, Instructions:** The following language needs to appear in the ordinance to amend the zoning ordinance. In the zoning ordinance itself, only the text of the new zoning ordinance sections would appear, plus the titles of the new sections in the table of contents, and an annotation (if annotations are used). [End of commentary]

The [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance is amended as follows to add to Article 5: Definitions, Article 10: General Regulations (Vehicle Access/Roads/Parking), and Article 84: Permits (Land Use Applications): [INSERT THE WILDFIRE HAZARD ZONING LANGUAGE BELOW].

#### Article 5: Definitions

**Commentary, Instructions:** The following definitions should be added to the existing Definitions article of the zoning ordinance. If identical or similar definitions already exist, one or both should be amended so that the terminology is consistent throughout the entire zoning ordinance. [End of commentary]

Wildfire Hazard Area - An area which has predominantly conifer tree species with lower branches which do not die off and are near to the ground, such as, but not limited to, Jack Pine or Scrub Pine (*Pinus Banksiana*), Scotch Pine or Scotch Fir (*Pinus Sylvestris*), Red Pine or Norway Pine (*Pinus Resinosa*), Spruces (*Picea*), Hemlock (*Tsuga Candensis*), and Cedars or Junipers (*Pinaceae*); and other situations where structures encroach into wildlands.

Wildland - An undeveloped area in its natural state containing plants, shrubs, and trees characteristic of the region and undisturbed topographical conditions.

#### Article 10: General Regulations; Vehicle Access/Roads/Parking (105)

**Commentary, Instructions:** The following language should be added to the existing, applicable sections of the General Regulations article of the zoning ordinance (and subdivision

ordinance, if applicable). If similar language already exists, the following language should replace the existing language so that conflicts are not created. [End of commentary]

### 105X. Road Development Standards

- A. Roadways, unless specified otherwise in this Ordinance:
1. Shall have grades less than 12% and be surfaced, and of sufficient design to support the weight of a 20-ton vehicle.
  2. Shall have an angle of approach and angle of departure that is less than eight (8) degrees at any point on the roadway or its intersection with another roadway or fire lane.
  3. Shall be a minimum of 24 feet wide and provide for simultaneous access for emergency vehicles and evacuation of residents.
  4. Shall have curves with a minimum radius of 60 feet, measured at the outside of the turn.
  5. Shall have an improved gravel shoulder with a minimum width of four (4) feet on each side of the traveled surface. Where parking will be allowed along the roadway, at least nine (9) feet of improved gravel shoulder should be provided.
- B. Dead-end roads exceeding 1,000 feet in length shall be provided with approved intermediate turnarounds at a maximum of 1,000 feet intervals. All dead-end roads shall be provided with a turnaround cul-de-sac of at least 100 feet in diameter.

### 105Y. Driveway Design

- A. Driveways, unless specified otherwise elsewhere in this Ordinance:
1. Shall have a minimum unobstructed width of 12 feet and a minimum unobstructed height of 14 feet. Driveways over 200 feet long shall have a turnaround within 50 feet of the principal structure. The turnaround shall not be less than 30 feet at the inside radius and not less than 45 feet at the outside radius. If a driveway takes the form of a bridge in order to access a buildable envelope on a parcel, and the principal structure is set back 200 feet or more from the bridge, the bridge must be designed to support access of all emergency vehicles.
  2. Gates shall open inward, with a clear opening which is two (2) feet wider than the driveway, and located 30 or more feet from the road or private road right-of-way.
  3. Shall have at the foot of the driveway an address number displayed on a fire-resistant sign or mail box in compliance with the [INSERT MUNICIPAL OR COUNTY NAME] Address Ordinance.

## Article 84: Permits

**Commentary, Instructions:** The following language should be added to the existing, applicable section of the Permits article of the zoning ordinance. If similar language already exists, the following language should replace the existing language so that conflicts are not created. [End of commentary]

### 8402. Land Use Applications

- A. Applicants seeking a zoning permit for land located in the Wildfire Hazard Area, shall be provided with:
1. Notice of Wildfire Hazard Area, detailing that the land is located in the Wildland and is exposed to wildfire fire risk.

2. Michigan State University Extension *Wildfire Series Bulletin* E2882 - “Understanding Wildfire Behavior in Michigan” (available at: <http://shop.msu.edu/>).
  3. Michigan State University Extension *Wildfire Series Bulletin* E2831 - “Protecting Your Michigan Home from Wildfire” (available at <http://shop.msu.edu/>).
- B. For land located in the Wildfire Hazard Area, a zoning permit shall not be issued unless the Notice of Wildfire Hazard Area is signed by the applicant indicating that he/she:
1. Is aware of the wildfire risk in the vicinity of his/her property,
  2. Was provided with educational material on how to reduce the risk of property and life loss due to wildfire on his/her property, and
  3. Waives his/her right to sue the municipality in the event of property or life loss due to wildfire on his/her property.

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## Approach 3: Wildfire Hazard Zoning through General Regulations

This approach is most applicable to suburban communities with skilled staff and significant wildland/urban interface and/or wildland/urban intermix. This approach assumes the municipality already has a simplified site plan (plot plan) review procedure in its zoning ordinance, with a requirement to identify basic vegetation location and type on simplified site plans (plot plans).

### Zoning Text Amendment

**Commentary, Instructions:** The following language needs to appear in the ordinance to amend the zoning ordinance. In the zoning ordinance itself, only the text of the new zoning ordinance sections would appear, plus the titles of the new sections in the table of contents, and an annotation (if annotations are used). [End of commentary]

The [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance is amended as follows to add to Article 5: Definitions, Article 10: General Regulations (Parcel and Setback Regulations; Vehicle Access/Roads/Parking), and Article 94: Site Plan: [INSERT THE WILDFIRE HAZARD ZONING LANGUAGE BELOW].

#### Article 5: Definitions

**Commentary, Instructions:** The following definitions should be added to the existing Definitions article of the zoning ordinance. If identical or similar definitions already exist, one or both should be changed so that the terminology is consistent throughout the entire zoning ordinance. [End of commentary]

**Combustible** - Any material that, in the form in which it occurs or is used, and under the conditions anticipated, will ignite and burn.

**Defensible Space** - A natural or man-made area, where vegetation capable of carrying a fire has been sufficiently treated, modified, or removed to slow the rate of spread and reduce the intensity of a fire; provide a safe area for fire suppression operations; and slow or prevent a fire from traveling - in either direction - between a structure and the vegetation.

**Fuel** - All Combustible materials within the Wildland, including vegetation and structures.

**Fuel Break** - An area, usually a long strip strategically located, wherein vegetative fuels are reduced in volume and maintained to cause a reduction of fire intensity if ignited by a wildfire.

**Roadway** - Any surface improved, designed or ordinarily used for vehicular travel.

A. **Private** - A Roadway intended for limited use and constructed to the standards approved by [INSERT MUNICIPAL OR COUNTY NAME].

B. **Public** - A Roadway dedicated for public use and improved to the standards required by [INSERT MUNICIPAL OR COUNTY NAME].

**Wildfire Hazard Area** - An area which has predominantly conifer tree species with lower branches which do not die off and are near to the ground, such as, but not limited to, Jack Pine or Scrub Pine (*Pinus Banksiana*), Scotch Pine or Scotch Fir (*Pinus Sylvestris*), Red Pine or Norway Pine (*Pinus Resinosa*), Spruces (*Picea*), Hemlock (*Tsuga Candensis*), and Cedars or Junipers (*Pinaceae*); and other situations where structures encroach into wildlands.

**Wildland** - An undeveloped area in its natural state containing plants, shrubs, and trees characteristic of the region and undisturbed topographical conditions.

## Article 10: General Regulations; Parcel and Setback Regulations (104)

**Commentary, Instructions:** The following language should be added as a new section to the existing General Regulations article of the zoning ordinance. [End of commentary]

### 104X. Wildfire Hazard Area Regulations

Any structure constructed or altered after the effective date of this Ordinance which is located in a Wildfire Hazard Area shall comply with the requirements of this section.

- A. Parcels with structures shall be required to implement and maintain Defensible Space surrounding all structures.
1. A three (3) to five (5) foot primary Defensible Space shall be established on all sides of each structure. Primary Defensible Space shall:
    - a. Not have any combustible materials.
    - b. Have landscaping that is noncombustible, such as gravel, marble chips, concrete, or mineral soil, and shall have no grasses or lawn.
    - c. Not have a cluster of combustible trees or shrubs, and no Jack Pine or Scrub Pine (*Pinus Banksiana*), and Scotch Pine or Scotch Fir (*Pinus Sylvestris*) species.
  2. A 30 foot secondary Defensible Space within the parcel shall be established on all sides of each structure. The 30 foot secondary Defensible Space shall be increased by one (1) foot for each one (1) foot where the ground slopes more than 15% down from the structure. Secondary Defensible Space shall have:
    - a. Tree branches below six (6) feet pruned and removed.
    - b. Trees spaced so the edges of crowns are 10 or more feet apart.
    - c. Household and other debris, brush, ground fuels (leaves and pine needles) removed.

- d. Landscaping which includes, fire-resistant plants such as those listed in Michigan State University Extension *Wildfire Series Bulletin* E2948 - "Wildfire-Resistant Landscape Plants for Michigan" (available at: <http://shop.msu.edu/>), or a manicured lawn of four (4) inches maximum in height or garden.
- e. All insect infested, diseased, and dead trees removed.
3. A tertiary space, beyond the 30 foot secondary Defensible Space, up to the property line or 100 feet from each structure (whichever is less) within the parcel, shall be established on all sides of each structure. Tertiary space shall have:
  - a. Trees spaced so the edges of crowns are five (5) or more feet apart and 10 or more feet from power lines.
  - b. Tree branches below six (6) feet pruned and removed.
  - c. Household and other debris, brush, ground fuels (leaves and pine needles) removed.
  - d. All insect infested, diseased, and dead trees and shrubs removed.
4. All slash from vegetation modification and construction debris shall be treated or removed from the parcel upon completion of pruning and/or construction.
- B. A minimum of 10 feet shall be maintained between each structure, firewood storage pile, fuel storage, and storage of other flammable items; or shall be situated outside of the secondary Defensible Space.
- C. Chimneys and flues shall be provided with an approved spark arrester made of 12-gauge welded or woven wire mesh with holes no larger than ½ inch. A 10 foot secondary Defensible Space shall be established on all sides of each chimney, flue, grille or similar structure.
- D. In addition to requirements of P.A. 230 of 1972, as amended, (being the Stille-Derossett-Hale Single State Construction Code Act of 1972, M.C.L. 125.1501 *et seq.*) the following design features are required:
  1. Roofs are designed and constructed to minimize the possibility of ignition from a wildfire and to minimize the spread of a structural fire to the Wildland by use of National Fire Protection Association Class A roofing materials, such as metal, fiberglass shingle, clay, or tile.
  2. Exterior walls are constructed of at least 5/8 inch sheathing or an equivalent material. Exterior sheathing extends from the roof line to ground level or building foundation. Siding minimally consists of fire-resistant materials such as fiber cement, treated wood with UL-approved fire-retardant chemicals, or non-flammable materials, such as brick, stone, stucco, or metal.
  3. Foundations, crawl spaces enclosures, space under mobile homes; areas under porches, decks, or similar areas are provided with full enclosure skirting constructed of 5/8 inch nominal sheathing or the equivalent and made of noncombustible material, such as metal, block, cement, stone, or stucco. Crawl spaces which have vents through the foundation and other similar openings are enclosed with 1/8 inch mesh corrosion-resistant metal screening.
  4. Vents, eaves, fasciae, soffits and other similar openings are enclosed with 1/8 inch mesh corrosion-resistant metal screening.
  5. Windows are double pane glass. All windows, window wells in the foundation wall, and glazed openings within 30 feet of concentrations of vegetative fuels are provided with closeable, solid, exterior shutters constructed of fire-resistant materials. Window wells in the foundation are enclosed with fire-resistant screening or other fire-resistant material to prevent collection of flammable debris in the window well.

6. Spaces under decks are enclosed with fire-resistant screening or other fire-resistant material to prevent collection of flammable debris under the deck.
  7. Overhanging projections, such as exterior balconies, carports, decks, patio covers, and unenclosed roofs and floors, are of heavy timber construction; are constructed of noncombustible material, fire-retardant-treated wood, or other ignition-resistant materials.
  8. Permanently located mobile and manufactured homes with an open space beneath shall have a skirt of noncombustible material or material that has a minimum fire-resistive rating of 20 minutes.
  9. Fences attached to structures are made of noncombustible material or attached to structures with a noncombustible segment of at least three (3) feet.
- E. Any building shall be separated from another building by at least 30 feet and shall be set back at least 30 feet from a property line. If an accessory building is 400 square feet or less in ground floor area, the separation may be reduced to a minimum separation of 10 feet.
- F. Residential structures with more than two-family dwellings, such as townhouses and apartments, and all commercial structures shall have a water source located not more than 1,000 feet from the structure. The water source must provide a minimum of 500 gallons/minute for the duration of 60 minutes.
- G. In addition to the above standards, applicants shall be provided with the following:
1. Michigan State University Extension *Wildfire Series Bulletin* E2882 - "Understanding Wildfire Behavior in Michigan" (available at: <http://shop.msu.edu/>).
  2. Michigan State University Extension *Wildfire Series Bulletin* E2831 - "Protecting Your Michigan Home from Wildfire" (available at: <http://shop.msu.edu/>).

## Article 10: General Regulations; Vehicle Access/Roads/Parking (105)

**Commentary, Instructions:** The following language should be added to the existing, applicable sections of the General Regulations article of the zoning ordinance (and subdivision ordinance, if applicable). If similar language already exists, the following language should replace the existing language so that conflicts are not created. [End of commentary]

### 105X. Road Development Standards

- A. Roadways, unless specified otherwise in this Ordinance:
1. Shall have grades less than 12% and be surfaced, and of sufficient design to support the weight of a 20-ton vehicle.
  2. Shall have an angle of approach and angle of departure that is less than eight (8) degrees at any point on the roadway or its intersection with another roadway or fire lane.
  3. Shall be a minimum of 24 feet wide and provide for simultaneous access for emergency vehicles and evacuation of residents.
  4. Shall have curves with a minimum radius of 60 feet, measured at the outside of the turn.
  5. Shall have an improved gravel shoulder with a minimum width of four (4) feet on each side of the traveled surface. Where parking will be allowed along the roadway, at least nine (9) feet of improved gravel shoulder should be provided.

- B. Dead-end roads exceeding 1,000 feet in length shall be provided with approved intermediate turnarounds at a maximum of 1,000 feet intervals. All dead-end roads shall be provided with a turnaround cul-de-sac of at least 100 feet in diameter.

### 105Y. Driveway Design

Driveways, unless specified otherwise elsewhere in this Ordinance:

- A. Shall have a minimum unobstructed width of 12 feet and a minimum unobstructed height of 14 feet. Driveways over 200 feet long shall have a turnaround within 50 feet of the principal structure. The turnaround shall not be less than 30 feet at the inside radius and not less than 45 feet at the outside radius. If a driveway takes the form of a bridge in order to access a buildable envelope on a parcel, and the principal structure is set back 200 feet or more from the bridge, the bridge must be designed to support access of all emergency vehicles.
- B. Gates shall open inward, with a clear opening which is two (2) feet wider than the driveway, and located 30 or more feet from the road or private road right-of-way.
- C. Shall have at the foot of the driveway an address number displayed on a fire-resistant sign or mail box in compliance with the [INSERT MUNICIPAL OR COUNTY NAME] Address Ordinance.

## Article 94: Site Plan

**Commentary, Instructions:** The following language should be added as a new section to the existing Site Plan article of the zoning ordinance. If some of the requirements are already detailed in the existing zoning ordinance, the text below should be changed to avoid duplication. [End of commentary]

### 94XX. Required Data for a Basic Site Plan in a Wildfire Hazard Area

Applications for new land use activities determined to be in a Wildfire Hazard Area shall include a Basic Site Plan.

- A. In addition to the standards set forth in section 9404 - Required Data for a Basic Site Plan, and other applicable sections of this ordinance, the following shall be required on Basic Site Plans submitted for properties in a Wildfire Hazard Area:
1. Locations of all structures, firewood storage piles, fuel storage, and storage of other flammable items.
  2. Landscaping detail within five (5) feet of each structure showing landscape materials.
  3. Locations and types of trees and landscape plants within 30 feet of each structure, or up to the property line (whichever is less).
  4. Locations of trees within 100 feet of each structure, or up to the property line (whichever is less).
  5. Any area of the property where slopes are in excess of 15%.
  6. Driveway and roadway access.
  7. Vicinity map that provides details regarding the vicinity within 300 feet of property lines, including other structures, slope, vegetation, Fuel Breaks, water supply systems, and access roads.
- B. As-built drawings showing the locations of the required elements of the Basic Site Plan shall be submitted to the [INSERT MUNICIPAL OR COUNTY NAME] Fire Department upon completion of the project.

## Approach 4: Wildfire Hazard Zoning as an Overlay District

This approach is most applicable to suburban communities with skilled staff, significant wildland/urban interface and/or wildland/urban intermix, and resources to map and keep updated a wildfire hazard area overlay district. This approach assumes the municipality already has a simplified site plan (plot plan) review procedure in its zoning ordinance, with a requirement to identify basic vegetation location and type on simplified site plans (plot plans).

### Zoning Text Amendment

**Commentary, Instructions:** The following language needs to appear in the ordinance to amend the zoning ordinance (this language would not appear in the zoning ordinance itself). In the zoning ordinance, the text of the new sections and articles would appear, plus the title of the new overlay district in the section of the ordinance that lists the established zoning districts (section 1801), applicable additions to the table of contents, and annotations (if annotations are used). [End of commentary]

The [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance is amended as follows to add [to] Section 1801. Establishment of Districts (7X. Overlay Districts: 70XX.X. Wildfire Hazard Overlay District), Article 5: Definitions, Article 10: General Regulations (Parcel and Setback Regulations; Vehicle Access/Roads/Parking), and Article 7X: Wildfire Hazard Overlay District: [INSERT THE WILDFIRE HAZARD ZONING LANGUAGE BELOW].

### Article 5: Definitions

**Commentary, Instructions:** The following definitions should be added to the existing Definitions article of the zoning ordinance. If identical or similar definitions already exist, one or both should be amended so that the terminology is consistent throughout the entire zoning ordinance. [End of commentary]

**Combustible** - Any material that, in the form in which it occurs or is used, and under the conditions anticipated, will ignite and burn.

**Defensible Space** - A natural or man-made area, where vegetation capable of carrying a fire has been sufficiently treated, modified, or removed to slow the rate of spread and reduce the intensity of a fire; provide a safe area for fire suppression operations; and slow or prevent a fire from traveling - in either direction - between a structure and the vegetation.

**Fuel** - All Combustible materials within the Wildland/Urban Interface or Wildland/Urban Intermix, including vegetation and structures.

**Fuel Break** - An area, usually a long strip strategically located, wherein vegetative fuels are reduced in volume and maintained to cause a reduction of fire intensity if ignited by a wildfire.

**Roadway** - Any surface improved, designed or ordinarily used for vehicular travel.

A. **Private** - A Roadway intended for limited use and constructed to the standards approved by [INSERT MUNICIPAL OR COUNTY NAME].

B. **Public** - A Roadway dedicated for public use and improved to the standards required by [INSERT MUNICIPAL OR COUNTY NAME].

**Wildfire Hazard** - The condition of the natural and built environment creating a wildfire opportunity that is so adverse to past, current, or foreseeable construction or land use as to constitute a significant hazard to public health, safety or property. The term incorporates the combined effects of slope, aspect, topography, climatic conditions, weather, wildfire behavior, existing vegetation, and state of the vegetation; and may also incorporate additional factors such as evacuation conditions, density of structures, history of fire occurrence, and local emergency service availability.

**Wildfire Hazard Area** - An area containing or directly affected by a Wildfire Hazard as shown on the [INSERT MUNICIPAL OR COUNTY NAME] Zoning Map.

**Wildland** - An undeveloped area in its natural state containing plants, shrubs, and trees characteristic of the region and undisturbed topographical conditions.

**Wildland/Urban Interface** - An area where Wildland and development meet at a clearly defined boundary.

**Wildland/Urban Intermix** - An area where Wildland is interspersed with development.

## Article 10: General Regulations; Vehicle Access/Roads/Parking (105)

**Commentary, Instructions:** The following language should be added to the existing, applicable sections of the General Regulations article of the zoning ordinance (and subdivision ordinance, if applicable). If similar language already exists, the following language should replace the existing language so that conflicts are not created. [End of commentary]

### 105X. Road Development Standards

A. Roadways, unless specified otherwise in this Ordinance:

1. Shall have grades less than 12% and be surfaced, and of sufficient design to support the weight of a 20-ton vehicle.
2. Shall have an angle of approach and angle of departure that is less than eight (8) degrees at any point on the roadway or its intersection with another roadway or fire lane.
3. Shall be a minimum of 24 feet wide and provide for simultaneous access for emergency vehicles and evacuation of residents.
4. Shall have curves with a minimum radius of 60 feet, measured at the outside of the turn.
5. Shall have an improved gravel shoulder with a minimum width of four (4) feet on each side of the traveled surface. Where parking will be allowed along the roadway, at least nine (9) feet of improved gravel shoulder should be provided.

B. Dead-end roads exceeding 1,000 feet in length shall be provided with approved intermediate turnarounds at a maximum of 1,000 feet intervals. All dead-end roads shall be provided with a turnaround cul-de-sac of at least 100 feet in diameter.

### 105Y. Driveway Design

Driveways, unless specified otherwise elsewhere in this Ordinance:

- A. Shall have a minimum unobstructed width of 12 feet and a minimum unobstructed height of 14 feet. Driveways over 200 feet long shall have a turnaround within 50 feet of the principal structure. The

turnaround shall not be less than 30 feet at the inside radius and not less than 45 feet at the outside radius. If a driveway takes the form of a bridge in order to access a buildable envelope on a parcel, and the principal structure is set back 200 feet or more from the bridge, the bridge must be designed to support access of all emergency vehicles.

- B. Gates shall open inward, with a clear opening which is two (2) feet wider than the driveway, and located 30 or more feet from the road or private road right-of-way.
- C. Shall have at the foot of the driveway an address number displayed on a fire-resistant sign or mail box in compliance with the [INSERT MUNICIPAL OR COUNTY NAME] Address Ordinance.

## Article 70: Wildfire Hazard Overlay District

**Commentary, Instructions:** The following language should be added as a new article of the zoning ordinance. [End of commentary]

### ARTICLE 70: WILDFIRE HAZARD OVERLAY DISTRICT

#### 7001. Purpose

To provide regulation in identified Wildfire Hazard Areas that protects the health, safety, and welfare of residents by minimizing the potential for the loss of life and property by the ignition and spread of wildfires in the Wildland/Urban Interface and the Wildland/Urban Intermix.

The Wildfire Hazard Overlay District shall be superimposed over the existing zoning districts established by this Ordinance. The regulations of the Wildfire Hazard Overlay District are in addition to any regulations in the underlying zoning districts. The regulations of this district supersede all conflicting regulations of the underlying zoning districts to the extent of such conflict and not further.

#### 7002. Area Affected

The regulations contained in this Article shall apply to all land areas identified on the [INSERT MUNICIPAL OR COUNTY NAME] Zoning Map as being contained within the Wildfire Hazard Overlay District. The Wildfire Hazard Overlay District identifies those lands at greatest risk of property loss and life loss resulting from wildfire, due to the presence of Fuels and location within the Wildland/Urban Interface and Wildland/Urban Intermix. Whenever the majority of a parcel lies within the established Wildfire Hazard Area, the entire parcel shall be subject to the provisions of this Article.

#### 7003. Regulations and Standards

Development within the Wildfire Hazard Overlay District shall be required to mitigate identified hazards as follows:

- A. Parcels with structures shall be required to implement and maintain Defensible Space surrounding all structures.
  - 1. A three (3) to five (5) foot primary Defensible Space shall be established on all sides of each structure. Primary Defensible Space shall:
    - a. Not have any combustible materials.
    - b. Have landscaping that is noncombustible, such as gravel, marble chips, concrete, or mineral soil, and shall have no grasses or lawn.
    - c. Not have a cluster of combustible trees or shrubs, and no Jack Pine or Scrub Pine (*Pinus Banksiana*), and Scotch Pine or Scotch Fir (*Pinus Sylvestris*) species.

2. A 30 foot secondary Defensible Space within the parcel shall be established on all sides of each structure. The 30 foot secondary Defensible Space shall be increased by one (1) foot for each one (1) foot where the ground slopes more than 15% down from the structure. Secondary Defensible Space shall have:
  - a. Tree branches below six (6) feet pruned and removed.
  - b. Trees spaced so the edges of crowns are 10 or more feet apart.
  - c. Household and other debris, brush, ground fuels (leaves and pine needles) removed.
  - d. Landscaping which includes, fire-resistant plants such as those listed in Michigan State University Extension *Wildfire Series Bulletin* E2948 - "Wildfire-Resistant Landscape Plants for Michigan" (available at: <http://shop.msu.edu/>), or a manicured lawn of four (4) inches maximum in height or garden.
  - e. All insect infested, diseased, and dead trees removed.
3. A tertiary space, beyond the 30 foot secondary Defensible Space, up to the property line or 100 feet from each structure (whichever is less) within the parcel, shall be established on all sides of each structure. Tertiary space shall have:
  - a. Trees spaced so the edges of crowns are five (5) or more feet apart and 10 or more feet from power lines.
  - b. Tree branches below six (6) feet pruned and removed.
  - c. Household and other debris, brush, ground fuels (leaves and pine needles) removed.
  - d. All insect infested, diseased, and dead trees and shrubs removed.
4. All slash from vegetation modification and construction debris shall be treated or removed from the parcel upon completion of pruning and/or construction.
- B. A minimum of 10 feet shall be between each structure, firewood storage pile, fuel storage, and storage of other flammable items; or shall be situated outside of the secondary Defensible Space.
- C. Chimneys and flues shall be provided with an approved spark arrester made of 12-gauge welded or woven wire mesh with holes no larger than ½ inch. A 10 foot secondary Defensible Space shall be established on all sides of each chimney, flue, grille or similar structure.
- D. In addition to requirements of P.A. 230 of 1972, as amended, (being the Stille-Derossett-Hale Single State Construction Code Act of 1972, M.C.L. 125.1501 *et seq.*) the following design features are required:
  1. Roofs are designed and constructed to minimize the possibility of ignition from a wildfire and to minimize the spread of a structural fire to the Wildland by use of National Fire Protection Association Class A roofing materials, such as metal, fiberglass shingle, clay, or tile.
  2. Exterior walls are constructed of at least 5/8 inch sheathing or an equivalent material. Exterior sheathing extends from the roof line to ground level or building foundation. Siding minimally consists of fire-resistant materials such as fiber cement, treated wood with UL-approved fire-retardant chemicals, or non-flammable materials, such as brick, stone, stucco, or metal.
  3. Foundations, crawl spaces enclosures, space under mobile homes; areas under porches, decks, or similar areas are provided with full enclosure skirting constructed of 5/8 inch nominal sheathing or the equivalent and made of noncombustible material, such as metal, block, cement, stone, or stucco. Crawl spaces which have vents through the foundation and other similar openings are enclosed with 1/8 inch mesh corrosion-resistant metal screening.

4. Vents, eaves, fasciae, soffits and other similar openings are enclosed with 1/8 inch mesh corrosion-resistant metal screening.
  5. Windows are double pane glass. All windows, window wells in the foundation wall, and glazed openings within 30 feet of concentrations of vegetative fuels are provided with closeable, solid, exterior shutters constructed of fire-resistant materials. Window wells in the foundation are enclosed with fire-resistant screening or other fire-resistant material to prevent collection of flammable debris in the window well.
  6. Spaces under decks are enclosed with fire-resistant screening or other fire-resistant material to prevent collection of flammable debris under the deck.
  7. Overhanging projections, such as exterior balconies, carports, decks, patio covers, and unenclosed roofs and floors, are of heavy timber construction; are constructed of noncombustible material, fire-retardant-treated wood, or other ignition-resistant materials.
  8. Permanently located mobile and manufactured homes with an open space beneath shall have a skirt of noncombustible material or material that has a minimum fire-resistive rating of 20 minutes.
  9. Fences attached to structures are made of noncombustible material or attached to structures with a noncombustible segment of at least three (3) feet.
- E. Any building shall be separated from another building by at least 30 feet and shall be set back at least 30 feet from a property line. If an accessory building is 400 square feet or less in ground floor area, the separation may be reduced to a minimum separation of 10 feet.
- F. Residential structures with more than two-family dwellings, such as townhouses and apartments, and all commercial structures shall have a water source located not more than 1,000 feet from the structure. The water source must provide a minimum of 500 gallons/minute for the duration of 60 minutes.
- G. In addition to the above standards, applicants shall be provided with the following:
1. Michigan State University Extension *Wildfire Series Bulletin* E2882 - "Understanding Wildfire Behavior in Michigan" (available at: <http://shop.msu.edu/>).
  2. Michigan State University Extension *Wildfire Series Bulletin* E2831 - "Protecting Your Michigan Home from Wildfire" (available at: <http://shop.msu.edu/>).

## 7004. Basic Site Plan Review for the Wildfire Hazard Overlay District

**Commentary, Instructions:** If some of the requirements are already detailed in the existing zoning ordinance, the text below should be changed to avoid duplication. [End of commentary]

### 7004. Basic Site Plan Review for the Wildfire Hazard Overlay District

Applications for new land use activities determined to be in a Wildfire Hazard Area shall include a Basic Site Plan.

- A. In addition to the standards set forth in section 9404 - Required Data for a Basic Site Plan, and other applicable sections of this ordinance, the following shall be required on Basic Site Plans submitted for properties in the Wildfire Hazard Overlay District:
1. Locations of all structures, firewood storage piles, fuel storage, and storage of other flammable items.

2. Landscaping detail within five (5) feet of each structure showing landscape materials.
  3. Locations and types of trees and landscape plants within 30 feet of each structure, or up to the property line (whichever is less).
  4. Locations of trees within 100 feet of each structure, or up to the property line (whichever is less).
  5. Any area of the property where slopes are in excess of 15%.
  6. Driveway and roadway access.
  7. Vicinity map that provides details regarding the vicinity within 300 feet of property lines, including other structures, slope, vegetation, Fuel Breaks, water supply systems, and access roads.
- B. As-built drawings showing the locations of the required elements of the Basic Site Plan shall be submitted to the [INSERT MUNICIPAL OR COUNTY NAME] Fire Department upon completion of the project.

## Zoning Map Amendment

**Commentary, Instructions:** The following language needs to appear in the ordinance to amend the zoning ordinance. In the zoning ordinance itself, this language would not appear (other than as an annotation, if annotations are used). A new zoning map must also be prepared pursuant to this language. Only select one of the options below. Option 1 assumes the amendatory ordinance is accompanied by a map showing the proposed overlay district. Option 2 uses a legal description to define the boundaries of the overlay district. [End of commentary]

**Commentary:** OPTION 1 - OVERLAY MAP [End of commentary]

The Official Zoning Map of [INSERT MUNICIPAL OR COUNTY NAME] is amended to add a new Wildfire Hazard Overlay District as follows:

- A. For the purpose of this ordinance to amend the [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance, the Wildfire Hazard Overlay District is bounded and defined as shown on the “Official Zoning Amending Map of [INSERT MUNICIPAL OR COUNTY NAME] of [DATE],” a copy of which accompanies this ordinance and which, with all explanatory matter thereon, is hereby incorporated into and made a part of this ordinance by reference.
- B. Upon adoption of this amendatory ordinance, in accordance with the procedures of the [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance, Section [1805.] and the Michigan Zoning Enabling Act, M.C.L. 125.3101 et seq. (P.A. 110 of 2006, as amended), the Official Zoning Map of [INSERT MUNICIPAL OR COUNTY NAME] shall be modified, or re-drawn, as shown on the “Official Zoning Amending Map of [INSERT MUNICIPAL OR COUNTY NAME] of [DATE]” to show this amendment upon the effective date of this amending ordinance.

**Commentary:** OPTION 2 - LEGAL DESCRIPTION [End of commentary]

The Official Zoning Map of [INSERT MUNICIPAL OR COUNTY NAME] is amended to add a new Wildfire Hazard Overlay District as follows:

- A. For the purpose of this ordinance to amend the [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance, the Wildfire Hazard Overlay District is bounded and defined by the following legal description(s) of the new overlay district: [INSERT TEXT OF LEGAL DESCRIPTION OF OVERLAY DISTRICT HERE]

- B. Upon adoption of this amendatory ordinance, in accordance with the procedures of the [INSERT MUNICIPAL OR COUNTY NAME] Zoning Ordinance, Section [1805.] and the Michigan Zoning Enabling Act, M.C.L. 125.3101 et seq. (P.A. 110 of 2006, as amended), the Official Zoning Map of [INSERT MUNICIPAL OR COUNTY NAME] shall be modified, or re-drawn, as defined by the legal description of the overlay district to show this amendment upon the effective date of this amending ordinance.

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## Appendix A: Works Referenced

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