**ITEM # 37**
**DATE 01-12-16**

## COUNCIL ACTION FORM

**SUBJECT: ZONING TEXT AMENDMENTS RELATING TO VISIBILITY TRIANGLE SECTION 29.408 (5)**

**BACKGROUND:**

For safety reasons, the City of Ames Zoning Ordinance prohibits obstructions at the intersecting corners of streets within an area defined as a visibility triangle. Within that visibility triangle, the height of obstructions and their width or opacity is of concern. The City's current standard for a visibility triangle (See page 4) is measured at 20 feet along both intersecting streets. The measurement is along the right-of-way line (property line), not the edge of the curb or pavement edge. Within this visibility triangle, no structures, fences, trees, or other vegetation higher than 36 inches above the curb line can be placed. The current ordinance is Section 29.408 (5) and can be found in Attachment A.

The City of Ames Transportation Division is interested in updating these standards. Recent traffic engineering professional research has suggested a more refined approach to defining a visibility triangle based upon the speed of traffic on a street and whether there is a control feature (stop sign, yield sign, or stop light) at the intersecting street. Staff's research has found that communities generally limit obstructions between the height of 2.5 feet and 10 feet. In some cities, visibility triangles have been established for driveways.

In addition to travel speed, there are other factors to consider, such as zoning setback requirements which might cause a building to encroach into the visibility triangle. For example, in downtown there is usually no requirement for a vision triangle at corners to allow for buildings to be located up at a sidewalk.

Staff has looked at how other communities define and regulate encroachments in the visibility triangle. Full portions of some of these cities' ordinances are found in Attachment B. In summary, Mason City's definition of the visibility triangle is identical to Ames' although the restrictions are less. For example, they allow trees and other features provided there is no visual obstruction wider than 2 feet between 3 feet and 10 feet above grade.

Ankeny defines the visibility triangle similar to Ames except for having a 30 foot triangle leg. In addition, the city also has a definition for a driveway visibility triangle of 20 feet on a side. Obstructions between 30 inches above grade and ten feet above grade are prohibited.

Iowa City has a more extensive approach. Their visibility triangle is defined by the functional classification of a street (local, collector, or arterial) which in turn defines where the length of the triangle is measured (whether along the curb line or along the right-of-way line). And because the triangle includes public right-of-way (since in many

instances it is measured along the curb edge), there are exemptions that explicitly allow public signs, street lights, and traffic lights.

Wichita, Kansas (not included in Attachment B) takes a more complicated approach based on the number of lanes, the posted speed limit, and whether on-street parking is allowed. Furthermore, the legs of the visibility triangle are measured along the centerline of the street. Legs of the triangle vary based on whether it is to the right or left of the intersection and can be as long as 580 feet to the right and 445 feet to the left (for a 4-lane road posted at 55 mph) or as short as half the street width plus 15 feet for the controlled street.

**In developing amendments for Ames, staff kept four criteria in mind: not creating an unreasonable amount of nonconformities, being simple to evaluate during site plan review, being able easily to describe to homeowners, and being able easily to determine compliance in the field.**

**Proposed Amendments** (See page12)

Staff is considering two factors to determine the delineation of the visibility triangle under different circumstances. **The first factor is the posted speed limit of the street.** (Speed is a proxy for the type of street and its function as an arterial, collector or local street.) **The second factor is whether it is a controlled intersection** (one or more pairs of stop signs, yield signs, or stop lights) or an uncontrolled intersection (having the standard rule of the road to “yield to the right-of-way”).

The triangle legs would be measured from the back of the curb or the edge of the pavement if there were no curb. This differs from the current regulation of measuring from the right-of-way line as a lack of sidewalks or other features sometimes makes the location of the right-of-way line problematic. In addition, the distance from the back of curb to the property line varies greatly—in some instances as much as 40 feet or as little as 8 feet. By placing the edge of the triangle along the pavement edge, the visibility triangle would be applied more consistently.

The length of the triangle legs of the intersecting street would depend on the posted speed limit of the through street. For instance, a street having a posted speed of up to and including 30 miles per hour would have a 50 foot leg. A street having a posted speed above 30 mph would have a 100 foot leg. **While these would seem significantly greater than the current 20 feet, the length of the legs would be reduced by 50 percent if the intersecting street was a controlled intersection**. For instance, two streets posted at 35 mph having a four-way stop would have a visibility triangle of 50 feet on each leg measured along the edge of the pavement (compared with the current standard of having legs of 20 feet measured along the right-of-way line). **Attachment C shows the various scenarios of how the new standard would be applied to particular instances based on speed limits and whether it is a controlled intersection. Attachment D compares the current visibility triangle with the proposed triangle in certain real-life instances.**

Within that triangle, no obstruction would be allowed that would obstruct vision between a height of 3 feet and 10 feet above the grade at the curb line. In practice, it would

generally allow deciduous trees provided the trunk is trimmed between 3 and 10 feet. It would prohibit fences and shrubs above three feet, and evergreen trees. Exceptions to allow power poles, street lights, signs, and buildings allowed by building setbacks (such as in Downtown or Campustown) are included.

It should also be noted that the current ordinance applies only to Residential, Agriculture, and Hospital/Medical zoning districts. **The proposed ordinance would be universal and apply to commercial and industrial properties as well; hence the need to allow exceptions for structures built in accordance with allowed setbacks**.

The Planning and Zoning Commission reviewed the proposed text amendments at its December 16, 2015 meeting. The Commission recommended the Council adopt the proposed text amendment on a 5-0 vote.

**ALTERNATIVES:**

1. The City Council can adopt the amendment regarding the visibility triangle.

2. The City Council can decline to adopt the proposed amendment regarding the visibility triangle.

3. The City Council can recommend alternative language for the proposed amendments regarding the visibility triangle.

**CITY MANAGER'S RECOMMENDED ACTION:**

Staff believes the proposed amendments will improve the visibility at intersections. At controlled intersections there will only be a minimal change in the visibility triangle areas from current requirements. In addition, the rules would be universal and not be limited to certain zoning districts. However, administration and enforcement of the rules will be easier for staff with the updated language.

Staff believes the posted speed limit option for defining the triangle is the preferred method. There are more involved methods of addressing speed and sight distance at intersections, but in staff's opinion do not result in significantly better outcomes. Alternatively to speed limits, staff could use a street classification map to define the lengths of vision triangle legs. Although, there is a wide range of methods and details for defining triangles at intersections, staff believes the proposed option addresses the interests of Ames.

**Therefore, it is the recommendation of the City Manager that the City Council act in accordance with Alternative #1.**

## ATTACHMENT A: EXISTING LANGUAGE

Current language is shown here:

29.408 (5) Visibility at Intersections.

(a) Definition. "Visibility Triangle" means the area created by the intersection of property lines at the corner of 2 abutting streets and a line connecting 2 points on these property lines 20 feet from the point of intersection.

(b) Within the Visibility Triangle on any corner lot located in Agricultural, Residential, or Hospital/Medical districts, no fence, wall, or other structure shall be erected and no foliage plant permitted to grow to a height of more than 3 feet above the elevation of the established street grade measured at the curb line at the intersection of the streets abutting the corner lot.

**ATTACHMENT B: OTHER COMMUNITIES' APPROACHES**

## Mason City: (Zoning Ordinance)

Corner Lots: On corner lots in all zoning districts, except for buildings in the Z5 district, nothing shall be erected, placed, planted or allowed to grow in such a manner as to materially impede vision between a height of three feet (3') and ten feet (10') within twenty feet (20') from the intersecting property lines. Said obstruction shall not be wider than two feet (2').

## Ankeny: (Zoning Ordinance)

No fence, wall, shrubbery, earthen berm, sign, billboard, or other obstruction to vision shall be permitted which serves to obstruct vision between a height of 30 inches and ten feet on any corner lot within a triangle of 30 feet formed by intersecting street right-of-way lines or, in the case of interior lots, within a triangle of 20 feet formed by intersecting driveway edge and street right-of-way lines.

As an alternative to the 30-foot and 20-foot visibility triangles defined in the paragraph above, an unobstructed area between a height of 30 inches and ten feet at intersections formed by intersecting street right-of-way lines or driveway edge and street right-of-way lines may comply with the sight distance specifications established by Iowa SUDAS (State Urban Design Standards Manual) in Chapter 5, Roadway Design, Urban Geometric Design Criteria if approved by the City.

## Iowa City: (Zoning Ordinance)

The intersection visibility standards establish triangular areas on corner lots, referred to herein as "vision triangles", within which the placement of buildings, fences, hedges, walls, and other structures is restricted in order to maintain clear lines of sight at street intersections for the purposes of traffic and pedestrian safety.

14-5D-2: APPLICABILITY: Lots located at the corner of any street intersection must comply with the requirements of this article.

14-5D-3: VISION TRIANGLES: The dimensions of vision triangles are determined as follows: (See also figure 5D.1, located at the end of this section.)

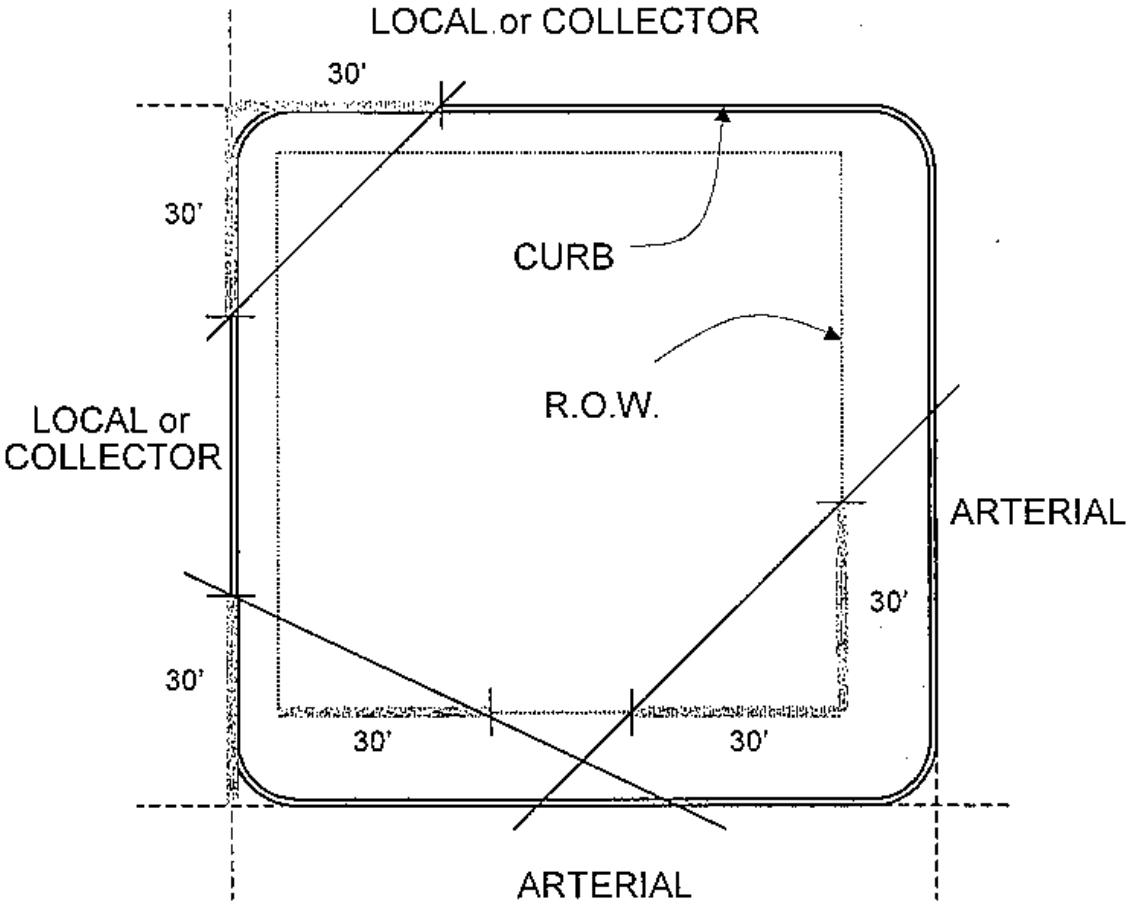
A. At the intersection of two (2) local streets, a local street with a collector street, or two (2) collector streets, the legs of the vision triangle will be thirty feet (30') in length, as measured along the curb line from the point where the curbs of the two (2) streets intersect. In the absence of a curb, the legs of the triangle will be thirty feet (30') in length, as measured along the edge of the street pavement from the point where the pavement of the two (2) streets intersect.

B. At the intersection of two (2) arterial streets, the legs of the triangle will be thirty feet (30') in length, as measured along the right of way line from the point the right of way lines of the two (2) streets intersect.

C. At the intersection of a local street with an arterial or at the intersection of a collector street with an arterial, the local or collector leg of the triangle will be

thirty feet (30') in length, as measured along the curb line from the point where the curbs of the streets intersect. The arterial leg of the triangle will be thirty feet (30') in length, as measured along the right of way line from the point the right of way lines of the two (2) streets intersect.

Figure 5D.1 - Vision Triangles At The Intersections of Various Street Types




14-5D-4: STANDARDS WITHIN VISION TRIANGLES:
A. Prohibited Obstructions: The following obstructions are prohibited within vision triangles:

1. Hedges and walls higher than two feet (2') above the curb level.

2. Fences higher than two feet (2') above the curb level. However, fences that are of a type that is less than twenty percent (20%) solid, such as split rail, open weave, or wrought iron, are permitted within the vision triangle; provided, that such fences are kept free from plantings and other materials that are more than two feet (2') in height. Solidity is the percent of the fence over a random area that is made up of solid, opaque material that does not allow light or air to pass through.

3. Signs, except as specifically exempted in subsection B of this section.

4. Structures of any type, including principal and accessory buildings, except as exempted in subsection B of this section.

5. Items of outdoor display or storage, including ornamental features, such as fountains, statues, garden structures and similar features.

6. Parking and vehicular display areas.

B. Exemptions: The following structures are exempt from the provisions of this article:

1. Structures, including signs, in the CB-2, CB-5 and CB-10 zones.

2. After review by the city, buildings on lots at intersections where both streets are signalized. The city will approve or deny a request to construct a building within the vision triangle based on such factors as street right of way width, speed and volume of traffic through the intersection, and the number of turning movements.

3. Utility and street light poles.

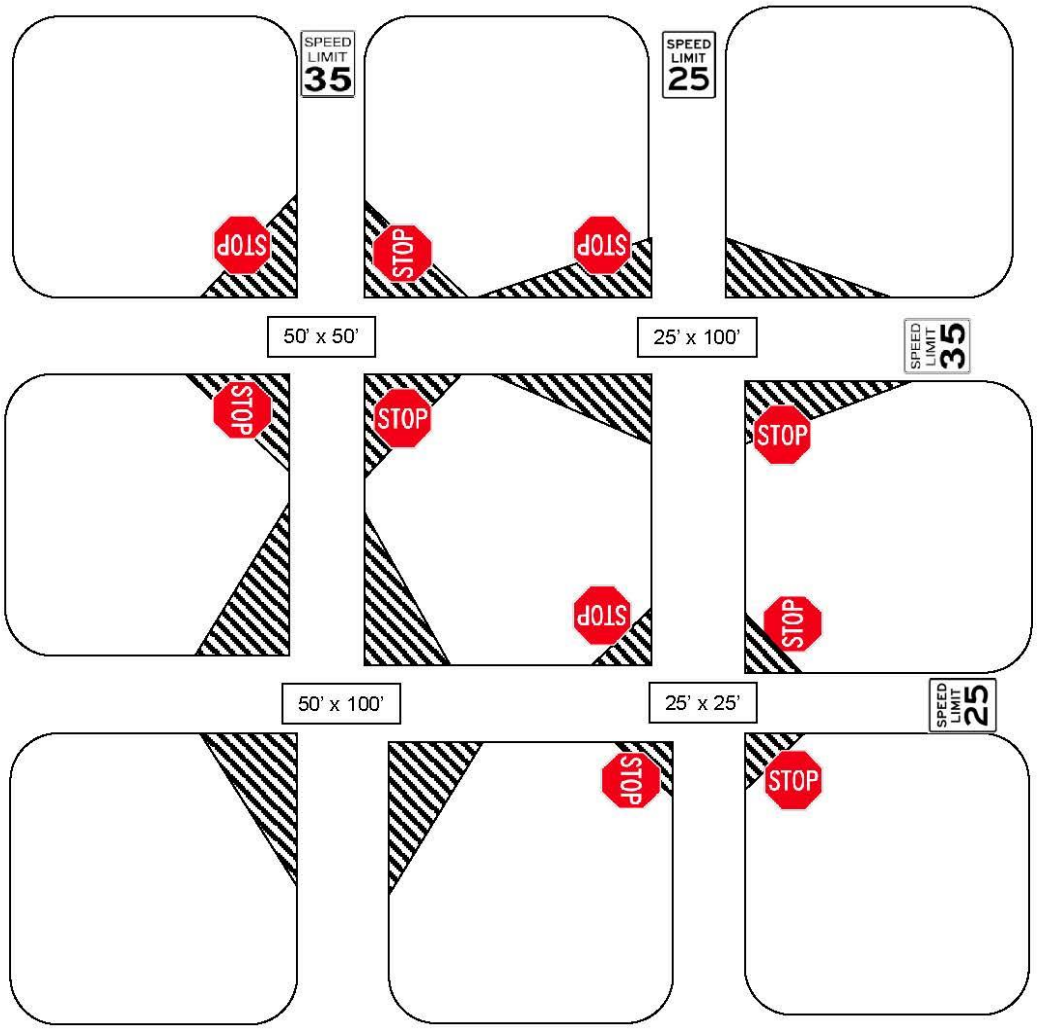
4. Traffic control equipment, including control boxes, traffic signs, and structures that support traffic signals.

5. Building signs located on buildings that are exempt from the vision triangle requirements as specified in subsections B1 and B2 of this section.

6. A sign established according to Chapter 5, Article B, "Sign Regulations", of this title, provided the bottom edge of the sign and any supporting structure is at least eight feet (8') above the adjacent curb level, so that visual clearance is maintained within the vision triangle. Poles and supporting structures for signs are prohibited within the vision triangle.

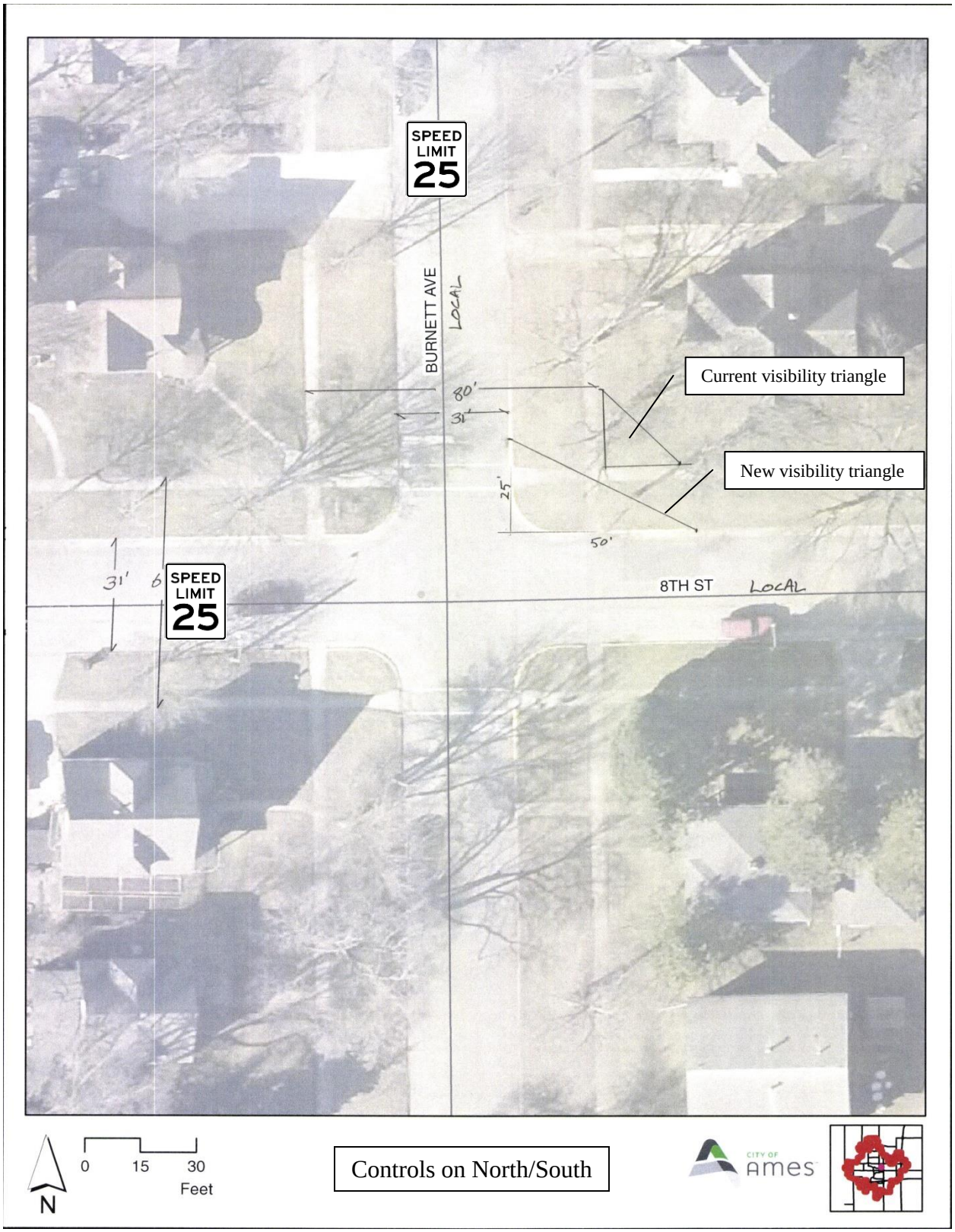
## ATTACHMENT C: IMPACTS OF PROPOSED APPROACH

VISIBILITY TRIANGLE DIMENSIONS
(BY SPEED AND CONTROL FEATURE)



## ATTACHMENT D: COMPARISON OF CURRENT AND PROPOSED TRIANGLE


New visibility triangle
Current visibility triangle
SPEED LIMIT 35
SPEED LIMIT 25
7TH ST
E 7TH ST
LOCAL
DUFF AVE
ARTERIAL
44'
80'
100'
25'
N
0 15 30
Feet
Controls on East/West
CITY OF ames


SPEED LIMIT 25
BURNETT AVE
LOCAL
80'
31'
Current visibility triangle
New visibility triangle
25'
50'
31'
6
SPEED LIMIT 25
8TH ST
LOCAL
N
0
15
30
Feet
Controls on North/South
CITY OF ames

## ATTACHMENT E: PROPOSED LANGUAGE

Section 29.408 (5) Visibility at Intersections

(a) In order to promote a safe pedestrian and vehicular environment, a “visibility triangle” is established at each street intersection.

(i) The visibility triangle is defined by a triangle, two legs of which are measured from the intersection of the back of the curb line or pavement edge (if there is no curb) extended.

(ii) The legs of the triangle are based on the posted speed limit of that street. A street with a posted speed limit of greater than 30 miles per hour shall have a 100 foot leg. A street with a posted speed limit of up to and including 30 miles per hour shall have a 50 foot leg.

(iii) The length of any leg shall be halved if the street has a control feature, such as a stop sign, yield sign, or traffic signal.

(b) Within the visibility triangle, no obstruction is allowed that would significantly obstruct or impede vision through the visibility triangle between a height of 3 feet and 10 feet above the grade of the curb or pavement edge (if there is no curb). Examples of obstructions include:

(i) any fence, wall, shrub, berm, or sign taller than 3 feet.

(ii) any evergreen tree.

(iii) any deciduous tree with branches extending from the trunk between 3 feet and 10 feet.

(iv) any parking of vehicles.

(v) any other permanent or temporary structure or item determined by the traffic engineer to be a visual obstruction.

(c) The following shall not be considered an obstruction:

(i) a building conforming to the setback requirements of this Zoning Ordinance

(ii) utility poles and street light poles.

(iii) traffic control equipment including control boxes, traffic signs, and traffic signal poles.

(d) For unique siutations due to topogrpahy, street alignment, or other physical condition, the city’s traffic engineer may require as part of site development plan

approval, alternative dimensions to the triangle to ensure a safe clear area at street intersections

**ORDINANCE NO.**

**AN ORDINANCE TO AMEND THE MUNICIPAL CODE OF THE CITY OF AMES, IOWA, BY REPEALING CHAPTER 29, SECTION 29.408(5) AND ENACTING A NEW SECTION 29.408(5) THEREOF, FOR THE PURPOSE OF AMENDING THE DELINEATION OF VISIBILITY AT INTERSECTIONS; REPEALING ANY AND ALL ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT TO THE EXTENT OF SUCH CONFLICT; PROVIDING A PENALTY; AND ESTABLISHING AN EFFECTIVE DATE.**

**BE IT ENACTED**, by the City Council for the City of Ames, Iowa, that:

Section One. The Municipal Code of the City of Ames, Iowa shall be and the same is hereby amended by repealing Section 29.408(5) and enacting a new Section 29.408(5) as follows:

"**Sec. 29.408. OTHER GENERAL DEVELOPMENT STANDARDS.**

(5) **Visibility at Intersections**.

(a) In order to promote a safe pedestrian and vehicular environment, a "visibility triangle" is established at each street intersection.

(i) The visibility triangle is defined by a triangle, two legs of which are measured from the intersection of the back of the curb line or pavement edge (if there is no curb) extended.

(ii) The legs of the triangle are based on the posted speed limit of that street. A street with a posted speed limit of greater than 30 miles per hour shall have a 100 foot leg. A street with a posted speed limit of up to and including 30 miles per hour shall have a 50 foot leg.

(iii) The length of any leg shall be halved if the street has a control feature, such as a stop sign, yield sign, or traffic signal.

(b) Within the visibility triangle, no obstruction is allowed that would significantly obstruct or impede vision through the visibility triangle between a height of 3 feet and 10 feet above the grade of the curb or pavement edge (if there is no curb). Examples of obstructions include:

(i) any fence, wall, shrub, berm, or sign taller than 3 feet.

(ii) any evergreen tree.

(iii) any deciduous tree with branches extending from the trunk between 3 feet and 10 feet.

(iv) any parking of vehicles.

(v) any other permanent or temporary structure or item determined by the traffic engineer to be a visual obstruction.

(c) The following shall not be considered an obstruction:

(i) a building conforming to the setback requirements of this Zoning Ordinance.

(ii) utility poles and street light poles.

(iii) traffic control equipment including control boxes, traffic signs, and traffic signal poles.

(d) For unique situations due to topography, street alignment, or other physical condition, the city's traffic engineer may require as part of site development plan approval, alternative dimensions to the triangle to ensure a safe clear area at street intersections.**"**

Section Two. Violation of the provisions of this ordinance shall constitute a municipal infraction punishable as set out by law.

Section Three. All ordinances, or parts of ordinances, in conflict herewith are hereby repealed to the extent of such conflict, if any.

Section Four. This ordinance shall be in full force and effect from and after its passage and publication as required by law.

Passed this _____ day of _____, _____.

_____ _____

Diane R. Voss, City Clerk Ann H. Campbell, Mayor