

Exhibit B

Threshold Requirements

## Appendix G responses

The state of Iowa (State) is an eligible applicant for aid through the National Disaster Resiliency Grant competition as listed in Appendix B of the Notice of Funds Availability (NOFA).

Additionally, all county and sub-county geographies considered for inclusion in this application are eligible according to Appendix B of the NOFA.

The state of Iowa intends to select eligible activities for implementation of the National Disaster Resiliency grant as identified in Phase 2 of the application process in accordance with Appendix A of the NOFA. The activities selected will be evaluated for reasonably expected improvement on the conditions that contribute to the target area's most impacted and distressed characteristics with unmet recovery needs. As demonstrated in Exhibit G, the state of Iowa has implemented permanent measures to address impact and distress not only in the eligible areas for this NOFA, but in areas across the state. Additionally, the State intends to focus the impacts of the eligible activities to meet the overall benefit mandate of serving those communities that have 51% or greater low to moderate income populations. Each selected activity will tie back to the geography and event that contributed to its status as eligible and most impacted and distressed with unmet recovery needs. The state of Iowa intends to select activities that best meet national objectives as established by the CDBG Disaster Recovery program.

Certifications can be found in Attachment C of the application.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is the City of Dubuque as a result of Severe Storms and Flooding (DR-4018) that occurred in 2011. The area is a sub-county area within Dubuque County, which was declared Major Disaster Area under the Stafford Act.

*Name of Area: City of Dubuque*

Dubuque exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from Severe Storms and Flooding (DR-4018) that occurred in 2011, as demonstrated below:

***Most Impacted Characteristics***

HOUSING – Following the July 2011 storms, the City of Dubuque received reports of damage to 200+ homes concentrated in the Bee Branch Creek target area. Impacts included flooded basements, collapsed foundations, destroyed furnaces and water heaters, and other structural damages. Substantiating data includes City records of calls to pump flooded homes, as well as records of calls for volunteer assistance. For Dubuque records supporting the Most Impacted Characteristics criteria, see [Attachment E – City of Dubuque](#).

***Most Distressed Characteristics***

HOUSING – Census tracts 1, 4, 5, 6, and 11.2 are in the flood-prone area. Approximately 69% of the people in the flood-prone area are at less than 80% median income. Substantiating data includes percentage of low and moderate income information for Census tracts 1, 4, 5, 6, 11.02. For maps showing the most impacted area, see Attachment E, B-10 CDBG Target Areas 2014 – with Bee Branch. Dubuque routinely spends a significant portion of its CDBG resources in the area identified for disaster assistance. See [Most Distressed Characteristics, Census and ACS Data](#), and [Summary](#) for Census Bureau data supporting the Most Distressed Characteristics criteria.

**Unmet Recovery Needs Threshold**

While Dubuque did receive earmarked CDBG Disaster Recovery funds to address the July 2011 storms, the City has Unmet Recovery Needs that have not been addressed by Federal, state, or other sources, in the area(s) identified in this letter as “most impacted and distressed.”

HOUSING – A windshield survey of the impacted Bee Branch Creek area, conducted in October 2014, identified 23 households that still remain damaged as a result of the July 2011 storms. The addresses of 20 of those households include:

- |                              |                           |
|------------------------------|---------------------------|
| 1. 2935 Jackson St           | 13. 2517 Elm St           |
| 2. 351 E 15 <sup>th</sup> St | 14. 2007 Kniest St        |
| 3. 2119 Elm St               | 15. 2440 Elm St           |
| 4. 2485 White St             | 16. 911 /913 Garfield Ave |
| 5. 2491 Jackson St           | 17. 2279 Jackson St       |
| 6. 2307 Kaufmann Ave         | 18. 2422 White St         |
| 7. 2845 White St             | 19. 2477 Jackson St       |
| 8. 1654 Manson Rd            | 20. 2322 Jackson St       |
| 9. 2605 Kerper Blvd          | 21. 2108 Washington St    |
| 10. 922 Garfield             | 22. 2170 Jackson St       |
| 11. 762 Cleveland Ave        |                           |
| 12. 1560 Wood St             |                           |

Dubuque also conducted surveys with 10 households in October 2014 to confirm that the identified damages were a result of the July 2011 storms, and verify that repairs have not been

made because of a lack of resources from insurance/FEMA/SBA. The results for 9 households from that survey include:

1. 762 Cleveland Ave – One area of collapsed earth wall has been replaced with concrete wall and metal hatch partial installed but not secured to stairwell. Furnace igniter only replaced and not in good condition, should be replaced. Water heater burner was only cleaned. Exterior damage to siding.
2. 1443 Elm St – Exterior damage to limestone foundation (cracked, misaligned and lacking mortar in joints).
3. 2440 Elm St – Basement windows lack proper galvanized window well covers. Basement windows have wood form attached to concrete foundation.
4. 2517 Elm St – Block foundation misaligned at corner with missing mortar in joints. Basement windows covered with wood. Front concrete stoop deteriorated and pitched back against foundation.
5. 922 Garfield – Home vacated by original owners. New owner made some structural repairs but rear addition is still undermined and has structural damage.
6. 2605 Kerper Blvd – Misaligned block foundation. Front concrete stoop and exterior concrete cellar stairs are undermined.
7. 2007 Kniest St – Settling of foundation visible on brick exterior. Holes in limestone foundation. Window well filled in with dirt. Building exterior is in deteriorated condition.
8. 2845 White St – Limestone foundation has missing mortar in joints. Rear block foundation is leaning outward indicating settling of foundation.

9. 1560 Wood St – Damage to siding from removal of wood stairs and deck to side entrance door that has not been replaced. Cracked and undermined concrete sidewalks.

Substantiating data includes the reports of the windshield survey and responses from surveyed households. See 2014 [Housing Survey of Bee Branch Creek Area](#) for City records supporting the Unmet Recovery Needs Threshold criteria.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Allamakee County, Sub-County Area #1, consisting of Census Tract numbers 9601, 9602, 9603, and 9604, as a result of presidentially declared disaster DR-4135 occurring in calendar year 2013. The area is within Allamakee County.

***Allamakee County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from DR-4135 which occurred in calendar year 2013.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Environmental Distress Data Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### ***Most Impacted Characteristics***

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$2,752,381, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Allamakee County, Sub-County Area #1 are Census Tract numbers 9601, 9602, 9603, and 9604. For supporting documentation including census tract amounts, FEMA project Worksheets, and engineering reports can be found in [Allamakee Sub-County Area #1](#) supporting documentation.

### ***Most Distressed Characteristics***

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Upper Iowa River and Mississippi River – Yellow River watersheds. The presence of pollutants was increased through the events that occurred in disaster DR-4135 occurring in calendar year 2013, magnifying existing problems in the watershed, and downstream of this sub-county area. These watersheds contain part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

### **Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Allamakee County, Sub-County Area #1, Census Tract number(s) 9603 has a documented unmet need in the amount of \$1,150,000 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Allamakee Sub-County Area #1](#) supporting documentation.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Benton County, Sub-County Area #1, consisting of Census Tract numbers 9601, 9602, 9603, and 9604, as a result of presidentially declared disasters DR-4016 occurring in calendar year 2011, and DR-4126 and DR-4135 occurring in calendar year 2013. The area is within Benton County.

***Benton County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from disaster DR-4016 which occurred in calendar year 2011, and disasters DR-4126 and DR-4135, which occurred in calendar year 2013.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### *Most Impacted Characteristics*

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$4,955,844, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Benton County, Sub-County Area #1 are Census Tract numbers 9601, 9602, 9603, and 9604. For supporting documentation including census tract amounts, FEMA project Worksheets, and

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

engineering reports can be found in [Benton County, Sub-County Area #1](#) supporting documentation.

### *Most Distressed Characteristics*

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Cedar River – Middle, and Iowa River – Middle watersheds. The presence of pollutants was increased through the events that occurred in disaster DR-4016 occurring in calendar year 2011, and disasters DR-4126 and DR-4135 occurring in calendar year 2013, magnifying existing problems in the watershed, and downstream of this sub-county area. These watersheds contain part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

### **Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Benton County, Sub-County Area #1, Census Tract number(s) 9603 has a documented unmet need in the amount of \$772,390 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Benton County, Sub-County Area #1](#) supporting documentation.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Buena Vista County, Sub-County Area #1, consisting of Census Tract numbers 9602, 9603, 9604, 9605, and 9606 as a result of presidentially declared disasters DR-1977 occurring in calendar year 2011, and DR-4126 occurring in calendar year 2013. The area is within Buena Vista County.

***Buena Vista County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from DR-1977, which occurred in calendar year 2011, and DR-4126 which occurred in calendar year 2013.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### *Most Impacted Characteristics*

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$5,635,426, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Buena Vista County, Sub-County Area #1 are Census Tract numbers 9602, 9603, 9604, 9605, and 9606. For supporting documentation including census tract amounts, FEMA project Worksheets, and engineering reports can be found in [Buena Vista County, Sub-County Area #1](#) supporting documentation.

### *Most Distressed Characteristics*

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Little Sioux River, Raccoon River, Boyer River and Maple River watersheds. The presence of pollutants was increased through the events that occurred in disaster DR-1977 occurring in calendar year 2011, and DR-4126 occurring in calendar year 2013, magnifying existing problems in the watershed, and downstream of this sub-county area. These watersheds contain part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

### **Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Buena Vista County, Sub-County Area #1, Census Tract number(s) 9605 has a documented unmet need in the amount of \$4,143,000 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Buena Vista County, Sub-County Area #1](#) supporting documentation.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Dubuque County, Sub-County Area #1, consisting of Census Tract numbers 1, 4, 5, 8.01, 9, 101.03, 101.04, 101.05, 102.01, 102.02, 103, 104, and 106, as a result of presidentially declared disaster DR-4018 occurring in calendar year 2011. The area is within Dubuque County.

***Dubuque County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from DR-4018, which occurred in calendar year 2011.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### *Most Impacted Characteristics*

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$15,156,401, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Dubuque County, Sub-County Area #1 are Census Tract numbers 1, 4, 5, 8.01, 9, 101.03, 101.04, 101.05, 102.01, 102.02, 103, 104, and 106. For supporting documentation including census tract amounts, FEMA project Worksheets, and engineering reports can be found in [Dubuque County, Sub-County Area #1](#) supporting documentation.

### *Most Distressed Characteristics*

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River – Little Maquoketa River, Mississippi River – Catfish Creek, and Maquoketa River watersheds. The presence of pollutants was increased through the events that occurred in disaster DR-4018 occurring in calendar year 2011, magnifying existing problems in the watershed, and downstream of this sub-county area. These watersheds contain part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

### **Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Dubuque County, Sub-County Area #1, Census Tract number(s) 1 has a documented unmet need in the amount of \$11,521,190 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Dubuque County, Sub-County Area #1](#) supporting documentation.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Lee County, Sub-County Area #1, consisting of Census Tract numbers 4901, 4902, 4903, 4904, 4906, and 4908 as a result of presidentially declared disasters DR-4119 and DR-4126 occurring in calendar year 2013. The area is within Lee County.

***Lee County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from DR-4119 and DR-4126, which occurred in calendar year 2013.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### *Most Impacted Characteristics*

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$3,476,081, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Lee County, Sub-County Area #1 are Census Tract numbers 4901, 4902, 4903, 4904, 4906, and 4908. For supporting documentation including census tract amounts, FEMA project Worksheets,

and engineering reports can be found in [Lee County, Sub-County Area #1](#) supporting documentation.

***Most Distressed Characteristics***

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River – Flint Creek and Des Moines River – Soap Creek watersheds. The presence of pollutants was increased through the events that occurred in disaster DR-4119 and DR-4126 occurring in calendar year 2013, magnifying existing problems in the watershed, and downstream of this sub-county area. These watersheds contain part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

**Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Lee County, Sub-County Area #1, Census Tract number(s) 4902 has a documented unmet need in the amount of \$1,770,000 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Lee County, Sub-County Area #1](#) supporting documentation.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Lyon County, Sub-County Area #1, consisting of Census Tract numbers 9501 and 9502, as a result of presidentially declared disaster DR-4114 occurring in calendar year 2013. The area is within Lyon County.

***Lyon County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from DR-4114 which occurred in calendar year 2013.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### ***Most Impacted Characteristics***

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$4,992,748, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Lyon County, Sub-County Area #1 are Census Tract numbers 9501 and 9502. For supporting documentation including census tract amounts, FEMA project Worksheets, and engineering reports can be found in [Lyon County, Sub-County Area #1](#) supporting documentation.

### ***Most Distressed Characteristics***

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

Water Act) stream segment within the Rock River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4114 occurring in calendar year 2013, magnifying existing problems in the watershed, and downstream of this sub-county area. This watershed contains the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

### **Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Lyon County, Sub-County Area #1, Census Tract number(s) 9502 has a documented unmet need in the amount of \$1,065,000 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Lyon County, Sub-County Area #1](#) supporting documentation.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Pottawattamie County, Sub-County Area #1, consisting of Census Tract numbers 212, 214, 304.01, and 318, as a result of presidentially declared disaster DR-1998 occurring in calendar year 2011. The area is within Pottawattamie County.

***Pottawattamie County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from DR-1998 which occurred in calendar year 2011.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### ***Most Impacted Characteristics***

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$4,078,717, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Pottawattamie County, Sub-County Area #1 are Census Tract numbers 212, 214, 304.01, and 318. For supporting documentation including census tract amounts, FEMA project Worksheets, and engineering reports can be found in [Pottawattamie County, Sub-County Area #1](#) supporting documentation.

### ***Most Distressed Characteristics***

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Boyer River, and Missouri River – Mosquito Creek watersheds. The presence of pollutants was increased through the events that occurred in disaster DR-1998 occurring in calendar year 2011, magnifying existing problems in the watershed, and downstream of this sub-county area. These watersheds contain part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

### **Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Pottawattamie County, Sub-County Area #1, Census Tract number(s) 212 has a documented unmet need in the amount of \$4,452,300 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Pottawattamie County, Sub-County Area #1](#) supporting documentation.

**Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Tama County, Sub-County Area #1, consisting of Census Tract numbers 2902, 2903, 2904, 2905, and 2906, as a result of presidentially declared disasters DR-4016, occurring in 2011, and DR-4126 occurring in calendar year 2013. The area is within Tama County.

***Tama County, Sub-County Area #1***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from the impacts from DR-4016, which occurred in calendar year 2011, and DR-4126 which occurred in calendar year 2013.

***Methodology***

To determine Most Impacted and Unmet Recovery Needs thresholds, the state utilized FEMA Project Worksheets, Engineering Reports, as well as Sources and Uses statements. Project Worksheets were obtained through the Emergency Management Mission Integrated Environment (EMMIE), which is FEMA's internet-based enterprise wide eGrants system. Engineering Reports and Sources and Uses statements were obtained from each qualified sub-county area and their respective engineer. To make threshold determinations, damages to permanent public infrastructure and located within qualified distressed sub-county areas were included in threshold determinations. Furthermore, damages in occurring in contiguous census tracts were aggregated and included in threshold determinations.

To determine distressed areas, the state utilized the database of impaired waters as listed by the Iowa Department of Natural Resources as either Category 4 (impaired/polluted waters, but no

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

total maximum daily load [TMDL] monitoring required) or Category 5 (impaired/polluted waters under the jurisdiction of the EPA through section 303d of the Clean Water Act) as the main indicator of the presence of pollutants within the watershed. Because HUD does not recognize watersheds as eligible geographies, a Geographic Information System was used to select the eligible geographies that were present within the impaired watershed. For the purposes of completing the application for the National Disaster Resiliency Competition, the eligible geography was determined to be the 2010 census tract. For a list of impaired waters, please see [2012 Impaired Streams – Iowa DNR](#). For a list of the relationship between impaired stream watersheds and corresponding census tracts, please see [Impaired HUC & Census Tracts](#), and the corresponding map for this list in [Impaired Streams, HUC & Census Tracts](#).

### *Most Impacted Characteristics*

The sub-county area has prior documented damage to permanent public infrastructure in the amount of \$3,453,258, determined from FEMA Project Worksheets and/or Engineering Reports, which were used to document eligible costs. This amount also includes any extra costs, which will be needed in the future to repair the damaged infrastructure resiliently, but have not yet been incurred due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine most impacted sub-county areas. Aggregated contiguous census tracts that compose Tama County, Sub-County Area #1 are Census Tract numbers 2902, 2903, 2904, 2905, and 2906. For supporting documentation including census tract amounts, FEMA project Worksheets, and engineering reports can be found in [Tama County, Sub-County Area #1](#) supporting documentation.

### *Most Distressed Characteristics*

## Exhibit B - Most Impacted and Distressed by Infrastructure Damage Sub-County Areas

The sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Cedar River – Middle and Iowa River - Middle watersheds. The presence of pollutants was increased through the events that occurred in disasters DR-4016, occurring in calendar year 2011, and DR-4126 occurring in calendar year 2013, magnifying existing problems in the watershed, and downstream of this sub-county area. These watersheds contain part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area. For supporting documentation on distressed characteristics, see [Environmental Distress Data](#).

### **Unmet Recovery Needs Threshold**

The sub-county area sustained damage to permanent public infrastructure that has not yet been repaired due to inadequate resources. Contiguous census tracts were aggregated, as applicable, to determine the sub-county area's fulfillment of the minimum \$400,000 in unfunded permanent infrastructure needs. Tama County, Sub-County Area #1, Census Tract number(s) 2902, 2903, 2904, 2905, and 2906 have a documented unmet need in the amount of \$503,147 according to FEMA Project Worksheets and/or Engineering Reports, along with sources and uses statements, which were used to determine and document eligible costs. For documentation supporting unmet recovery needs, see [Tama County, Sub-County Area #1](#) supporting documentation.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Cherokee County, Census Tract 803 as a result of DR-1977 that occurred in 2011. The area is within Cherokee County.

#### ***Cherokee County, Census Tract 803***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-1977.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-1977. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-1977 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Little Sioux River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-1977, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,124,125.53](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Cherokee County, Census Tract 804 as a result of DR-1977 that occurred in 2011. The area is within Cherokee County.

#### ***Cherokee County, Census Tract 804***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-1977.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-1977. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-1977 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Little Sioux River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-1977, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$3,863,606.10](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Ida County, Census Tract 902 as a result of DR-1977 that occurred in 2011. The area is within Ida County.

#### ***Ida County, Census Tract 902***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-1977.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-1977. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-1977 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Little Sioux River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-1977, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,413,609.91](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Dickinson County, Census Tract 4502 as a result of DR-4016 that occurred in 2011. The area is within Dickinson County.

#### ***Dickinson County, Census Tract 4502***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4016.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4016. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4016 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Little Sioux River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4016, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,184,841.63](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Dubuque County, Census Tract 102.01 as a result of DR-4018 that occurred in 2011. The area is within Dubuque County.

#### ***Dubuque County, Census Tract 102.01***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4018.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4018. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4018 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River - Little Maquoketa River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4018, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$3,189,493.68](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Dubuque County, Census Tract 103 as a result of DR-4018 that occurred in 2011. The area is within Dubuque County.

### ***Dubuque County, Census Tract 103***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4018.

### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4018. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4018 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River - Catfish Creek watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4018, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,717,624.08](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Dubuque County, Census Tract 104 as a result of DR-4018 that occurred in 2011. The area is within Dubuque County.

#### ***Dubuque County, Census Tract 104***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4018.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4018. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4018 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River - Little Maquoketa River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4018, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,627,336.66](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Appanoose County, Census Tract 9501 as a result of DR-4119 that occurred in 2013. The area is within Appanoose County.

#### ***Appanoose County, Census Tract 9501***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4119.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4119. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4119 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Des Moines River - Soap Creek watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4119, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$6,161,169.84](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Davis County, Census Tract 802 as a result of DR-4119 that occurred in 2013. The area is within Davis County.

#### ***Davis County, Census Tract 802***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4119.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4119. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4119 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Des Moines River - Soap Creek watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4119, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$7,089,197.99](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Iowa County, Census Tract 9603 as a result of DR-4119 that occurred in 2013. The area is within Iowa County.

### ***Iowa County, Census Tract 9603***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4119.

### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4119. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4119 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Iowa River - Middle watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4119, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,096,305.31](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Iowa County, Census Tract 9604 as a result of DR-4119 that occurred in 2013. The area is within Iowa County.

#### ***Iowa County, Census Tract 9604***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4119.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4119. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4119 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Iowa River - Lower watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4119, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,803,383.88](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Marion County, Census Tract 307 as a result of DR-4119 that occurred in 2013. The area is within Marion County.

#### ***Marion County, Census Tract 307***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4119.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4119. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4119 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Des Moines River - South River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4119, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,335,011.90](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Monroe County, Census Tract 703 as a result of DR-4119 that occurred in 2013. The area is within Monroe County.

#### ***Monroe County, Census Tract 703***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4119.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4119. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4119 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Des Moines River - Soap Creek watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4119, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$6,988,266.71](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Ringgold County, Census Tract 9501 as a result of DR-4119 that occurred in 2013. The area is within Ringgold County.

#### ***Ringgold County, Census Tract 9501***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4119.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4119. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4119 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Platte River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4119, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$10,164,746.96](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Cherokee County, Census Tract 803 as a result of DR-4126 that occurred in 2013. The area is within Cherokee County.

#### ***Cherokee County, Census Tract 803***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Little Sioux River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$6,021,223.27](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Jasper County, Census Tract 401 as a result of DR-4126 that occurred in 2013. The area is within Jasper County.

#### ***Jasper County, Census Tract 401***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the South Skunk River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,620,075.80](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Marshall County, Census Tract 9501 as a result of DR-4126 that occurred in 2013. The area within is Marshall County.

#### ***Marshall County, Census Tract 9501***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Cedar River - Middle watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,429,872.47](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Marshall County, Census Tract 9502 as a result of DR-4126 that occurred in 2013. The area is within Marshall County.

#### ***Marshall County, Census Tract 9502***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the South Skunk River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,550,408.30](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Marshall County, Census Tract 9503 as a result of DR-4126 that occurred in 2013. The area is within Marshall County.

#### ***Marshall County, Census Tract 9503***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the South Skunk River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,520,974.60](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Marshall County, Census Tract 9504 as a result of DR-4126 that occurred in 2013. The area is within Marshall County.

#### ***Marshall County, Census Tract 9504***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

immediate vicinity, and further downstream effects. This in turn introduced pollutants into the stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the North Skunk River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,009,263.60](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Poweshiek County, Census Tract 3702 as a result of DR-4126 that occurred in 2013. The area is within Poweshiek County.

#### ***Poweshiek County, Census Tract 3702***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the North Skunk River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$7,545,966.67](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Poweshiek County, Census Tract 3705 as a result of DR-4126 that occurred in 2013. The area is within Poweshiek County.

#### ***Poweshiek County, Census Tract 3705***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the North Skunk River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,812,550.65](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Sioux County, Census Tract 703 as a result of DR-4126 that occurred in 2013. The area is within Sioux County.

### ***Sioux County, Census Tract 703***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Big Sioux River - Lower watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$6,902,748.26](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Tama County, Census Tract 2901 as a result of DR-4126 that occurred in 2013. The area is within Tama County.

#### ***Tama County, Census Tract 2901***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Cedar River - Middle watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$6,708,774.24](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Tama County, Census Tract 2903 as a result of DR-4126 that occurred in 2013. The area is within Tama County.

#### ***Tama County, Census Tract 2903***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4126.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Cedar River - Middle watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,868,930.65](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Tama County, Census Tract 2906 as a result of DR-4126 that occurred in 2013. The area is within Tama County.

### ***Tama County, Census Tract 2906***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which

### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4126. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4126 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Iowa River - Middle watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4126, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost \$6,359,540.82 to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Allamakee County, Census Tract 9604 as a result of DR-4135 that occurred in 2013. The area is within Allamakee County.

#### ***Allamakee County, Census Tract 9604***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River - Yellow River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,229,071.35](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Buchanan County, Census Tract 9506 as a result of DR-4135 that occurred in 2013. The area is within Buchanan County.

#### ***Buchanan County, Census Tract 9506***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Maquoketa River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$8,143,724.58](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Cedar County, Census Tract 4501 as a result of DR-4135 that occurred in 2013. The area is within Cedar County.

#### ***Cedar County, Census Tract 4501***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Wapsipinicon River - Lower watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,178,346.68](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Clayton County, Census Tract 701 as a result of DR-4135 that occurred in 2013. The area is within Clayton County.

#### ***Clayton County, Census Tract 701***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River - Yellow River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$3,422,022.02](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Clayton County, Census Tract 702 as a result of DR-4135 that occurred in 2013. The area is within Clayton County.

#### ***Clayton County, Census Tract 702***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River - Yellow River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$4,627,572.11](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Delaware County, Census Tract 9504 as a result of DR-4135 that occurred in 2013. The area is within Delaware County.

#### ***Delaware County, Census Tract 9504***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Maquoketa River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$7,693,021.33](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Jones County, Census Tract 701 as a result of DR-4135 that occurred in 2013. The area is within Jones County.

### ***Jones County, Census Tract 701***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Maquoketa River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$7,701,958.63](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Jones County, Census Tract 705 as a result of DR-4135 that occurred in 2013. The area is within Jones County.

### ***Jones County, Census Tract 705***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Maquoketa River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$5,234,789.32](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.

### **Most Impacted and Distressed Threshold**

The target area identified as most impacted and distressed is Winneshiek County, Census Tract 9504 as a result of DR-4135 that occurred in 2013. The area is within Winneshiek County.

#### ***Winneshiek County, Census Tract 9504***

The area exhibits Most Impacted Characteristics and Most Distressed Characteristics, which affect the ability of the area to recover from DR-4135.

#### ***Methodology***

To determine the most impacted sub-county areas by environmental degradation, the Iowa Homeland Security and Emergency Management Department consulted with experts from the Natural Resources Conservation Service of the United States Department of Agriculture and the Department of Agronomy at Iowa State University to determine the best method of evaluating environmental degradation as it relates to Iowa's land and water. Through this consultation, a methodology was developed to identify the most impacted areas of the state based on the events contributing to the eligible presidentially declared disasters. This methodology can be viewed in [Iowa Environmental Degradation Determination Methodology](#).

#### ***Most Impacted Characteristics***

This sub-county area qualifies as impacted under criterion D of Appendix G - Environmental Degradation. The designated sub-county area had excessive soil loss as a result of the impacts of disaster DR-4135. This soil loss resulted in increased sediment delivery to waterways in the immediate vicinity, and further downstream effects. This in turn introduced pollutants into the

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

stream system, including nitrates and phosphorus, which would otherwise be available as fertilizer, which helps in maintaining and supplementing nutrients in the soil. This adds to the Gulf of Mexico hypoxia problem (dead zone), a national environmental concern. The excessive loss of topsoil during the disaster event period degraded the productive capability of the land, resulting in permanently lower crop yields without the addition of even more nutrients and other costly inputs, which places economic revitalization at risk. The reduced productive capability as a result of the loss of topsoil means that further inputs (fertilizer) will need to be introduced to maintain the productivity of the soil, introducing additional economic burdens on producers in the area, and perpetuating the environmental degradation of this area and interrelated areas downstream. If another event occurs, the area can expect to see further impacts in loss of productivity of the soils, and loss of nutrients, which accelerates the environmental degradation downstream. See [DR-4135 Most Impacted](#) data for maps and supporting analysis documentation.

### ***Most Distressed Characteristics***

This sub-county area is an area that has prior documented environmental distress with the presence of a Category 4 or Category 5 Impaired Waters (as defined by section 303 of the Clean Water Act) stream segment within the Mississippi River - Yellow River watershed. The presence of pollutants was increased through the events that occurred in disaster DR-4135, magnifying existing problems in the watershed, and downstream of this sub county area. This watershed contains part of the sub-county area, which indicates that it is negatively affected by and also negatively affects the sub-county area.

### **Unmet Recovery Needs Threshold**

## Exhibit B - Most Impacted and Distressed by Environmental Degradation Sub-County Areas

The sub-county area has Unmet Recovery Needs in the form of Environmental Degradation, and is the result of losses of topsoil as a direct result of the eligible disaster event. Because topsoil takes generations to regenerate, the loss of this resource can be considered to be permanent as the needs of continued production outstrip nature's ability to replenish the soil. Utilizing a benchmark value for one potentially beneficial conservation practice program implemented to a limited degree within the state by the Iowa Department of Agriculture and Land Stewardship, it has been estimated that it would cost [\\$6,872,318.39](#) to repair the damage from environmental degradation in this area. For further details on the determination of this estimate, see the [Environmental Distress Data](#) attachments.