

Update to City of Deshler Participant Section of the Thayer County Appendix to the Lower Big Blue and Little Blue NRD Multi-Jurisdictional Hazard Mitigation Plan
20 August 2019 Public Meeting

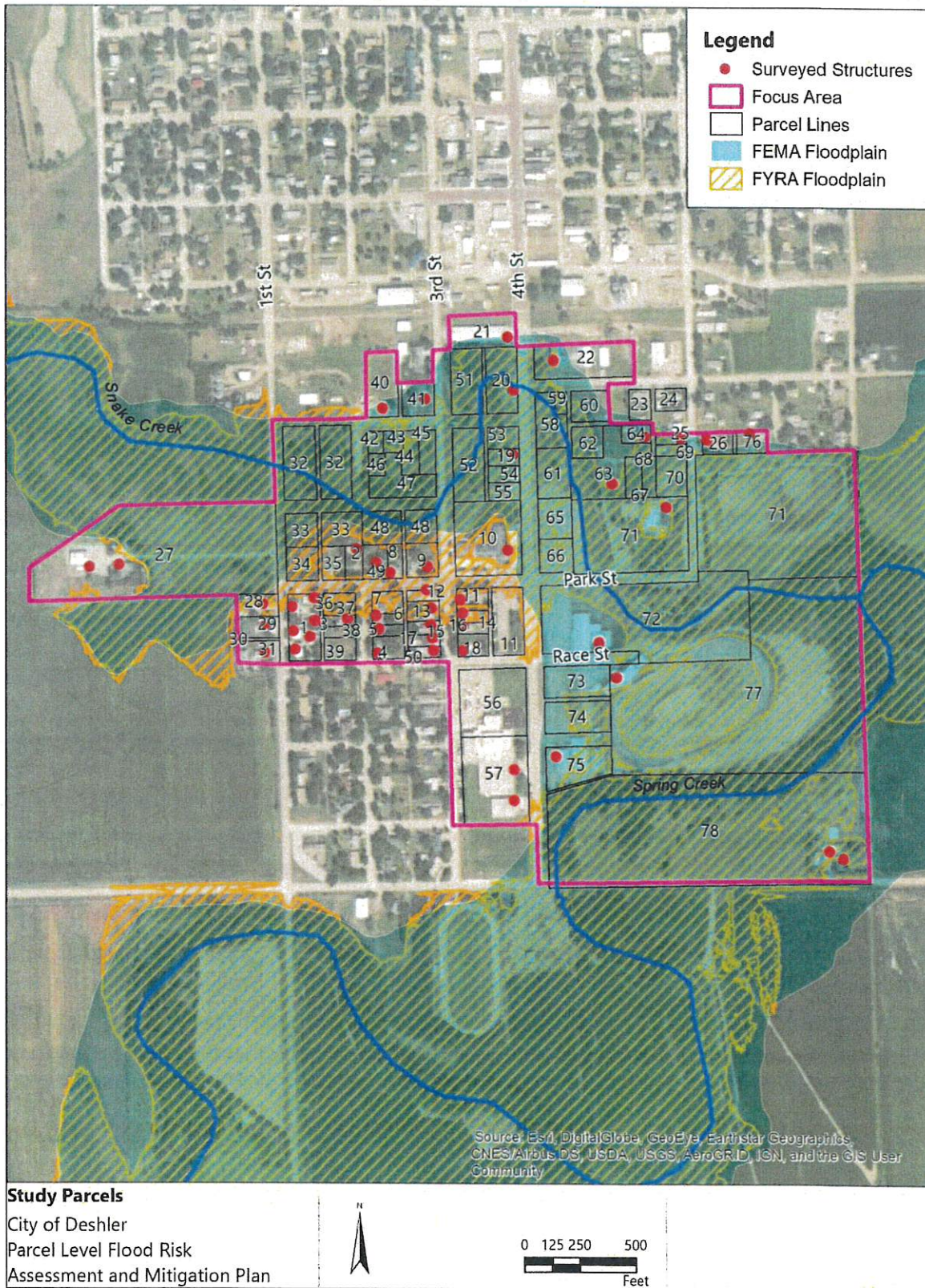


Figure 1. Study area details.



Table 1. Parcel Information for Parcels Included in the Parcel Level Mitigation Assessment

PARCEL NO.	PARCEL ID	STRUCT TYPE	FYRA 1% ACE WATER SURFACE ELEV ¹ (FT)	FYRA 0.2% ACE WATER SURFACE ELEV ¹ (FT)	MAIN FLOOR ELEV (FT)	LOWEST FLOOR ELEV ² (FT)	NATURAL GRADE (FT)	BSMT	BSMT SILL ELEV (FT)	LOWEST ADJACENT GRADE (FT)
1	850056012	Dwelling	1542.5	1544.3	1543.5	1543.5	1543.1	No	-	1543.1
3	850056047	Dwelling	1542.3	1544.1	1545.2	1537.2	1542.9	Yes	1543.3	1542.9
4	850056128	Dwelling	1541.8	1543.4	1550.7	1542.7	1547.8	Yes	1547.7	1547.7
5	850056101	Dwelling	1541.8	1543.4	1546.7	1538.7	1544.5	Yes	1544.6	1544.6
6	850056098	Dwelling	1541.8	1543.4	1545.6	1537.6	1542.8	Yes	1543.2	1543.2
8	850055911	Dwelling	1541.8	1543.4	1544.9	1536.9	1542.5	Yes	1538.4	1538.4
9	850055938	Dwelling	1541.4	1542.5	1545.2	1537.2	1542.5	Yes	1542.4	1542.4
10	850055822	Senior Care	1541.2	1542.3	1541.30	1541.30	1539.9	No	-	1539.9
11	850056233	Senior Care	1541.2	1542.3	1542.3	1542.3	1542.1	No	-	1542.1
12	850056195	Dwelling	1541.4	1542.5	1541.1	1541.1	1541.1	No	-	1541.1
13	850056160	Dwelling	1541.4	1542.5	1543.9	1535.9	1541.3	Yes	1538.5	1538.5
14	850056209	Dwelling	1541.2	1542.3	1544.4	1536.4	1541.7	Yes	1541.8	1541.8
15	850056152	Dwelling	1541.4	1542.5	1546	1538	1542.8	Yes	1543.7	1543.7
16	850056217	Dwelling	1541.2	1542.3	1545.2	1537.2	1542.5	Yes	1542.8	1542.8
17	850056144	Dwelling	1541.4	1542.5	1547.4	1539.4	1544.2	Yes	1544.6	1544.6
18	850056225	Dwelling	1541.2	1542.3	1547.2	1539.2	1544.7	Yes	1545.0	1545
19	850055423	Steel Building	1540.9	1542.1	1539	1539	1538.6	No	-	1538.6
20	850055164	Storage	1540.8	1541.9	1538.7	1538.7	1538.3	No	-	1538.3
21	850082978	Storage	1540.8	1541.9	1546.9	1546.9	1546.2	No	-	1546.2
22	850055148	Commercial	1540.3	1541.6	1537.6	1529.6	1537.0	Yes	1537.3	1537.3
23	850055563	Dwelling	1537.0	1539.9	1542.5	-	1541.7	-	-	1541.7
24	850055652	Dwelling	1537.5	1540.1	-	-	-	-	-	-
25	850055628	Dwelling	1537.5	1540.1	1541.8	1533.8	1539.4	Yes	1539.4	1539.4
26	850055695	Dwelling	1537.0	1539.6	1542.8	1534.8	1540.7	Yes	1540.9	1540.9
27	850144096	Dwelling	1544.2	1545.6	1548.5	1548.5	1545.5	No	-	1545.5
28	850027322	Dwelling	1543.8	1545.1	1547.2	1539.2	1543.9	Yes	1544.5	1544.5
29	850027349	Dwelling	1543.8	1545.1	1547.2	1539.2	1545.0	Yes	1545.8	1545.8
31	850027330	Dwelling	1543.8	1545.1	1550.7	1542.7	1547.3	Yes	1548.7	1548.7
41	850055202	Dwelling	1541.4	1542.5	1547	1539	1544.1	Yes	1542.4	1542.4
50	850056136	Dwelling	1541.4	1542.5	1546	1538	1545.0	Yes	1548.8	1548.8
56	850056268	School	1541.3	1542.6	1554	1554	1553.4	No	-	1553.4
57	850056551	School	1541.3	1542.6	1542	1542	1541.8	No	-	1541.8
63	850055504	Dwelling	1539.5	1540.8	1538.6	1530.6	1537.5	Yes	1538.1	1538.1
71	850055814	City Pool	1537.5	1540.1	1538.1	1538.1	1538.0	No	-	1538.0



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72	850056241	Conference Hall	1537.5	1540.1	1541.7	1541.7	1541.4	No	-	1541.4
73	32	Race Track Stands	1537.5	1540.1	1540.1	1540.1	1540.5	No	-	1540.5
74	32	Storage	1540.3	1542.9	0		0.0	No	-	0
75	32B	Storage	1540.3	1542.9	1540.9	1540.9	1540.5	No	-	1540.5
76	850055725	Mechanical Building	1537.0	1539.6	1540.1	1540.1	1539.3	No	-	1539.3
77	32A	Race Track Stands	1539.9	1542.4	1538.3	1538.3	1540.5	No	-	1540.5
78	850027381	Dwelling	1540.4	1543.0	1543.2	1543.2	1540.0	No	-	1540

Parcels Within the FEMA Floodplain and FYRA Floodplain

Parcels Only Within the FEMA Floodplain

Parcels Only Within the FYRA Floodplain

¹ Elevations are from the FYRA model and not regulatory flood maps.

² It was assumed that basements were constructed with 8-12" concrete blocks for a total of 8' below the main floor elevation and that crawl spaces were 4'.



Table 2. Mitigation Methods Used in Parcel Vulnerability Assessments.

Mitigation Method	Description	Applicable Funding Sources for Method	Effect on Flood Insurance Premiums
Filling Basement with Main Floor Utility Addition	Filling the basement with suitable fill material and covering the top of the fill with a vapor barrier. Existing utilities (hot water heater, furnace, etc) are relocated to a small addition on the main floor.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	Flood insurance costs would decrease significantly as the depth of flooding would be reduced or eliminated with the fill.
Barriers	Barriers include building a floodwall or berm around a structure or a group of structures to hold back floodwaters. An alternative to a permanent barrier is a temporary one, such as large water-filled tubes or bladders, metal walls lined with impermeable materials that act as floodwalls, and expandable gates that block floodwaters from entering structures through openings such as doors or windows.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	No change in flood insurance premiums.
Dry Floodproofing	Sealing structures to prevent floodwaters from entering. A structure can be dry floodproofed using waterproof coatings or impermeable membranes to prevent seepage of floodwater through walls, installing watertight shields over doors or windows, and installing sewer backup prevention method. Nebraska Administrative code restricts this method to non-residential structures only.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	No change in flood insurance premiums.
Elevation ¹	Raising the lowest floor to or above the flood level by elevating the entire structure, including the floor.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	Flood insurance premiums would be reduced based on the height of the LFE above the BFE. The greater the height, the lower the premium.



Mitigation Method	Description	Applicable Funding Sources for Method	Effect on Flood Insurance Premiums
Relocation ¹	Moving the structure out of the floodplain to higher ground where it will not be exposed to flooding.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	Flood insurance premiums would be eliminated as the structure would be relocated outside of the SFHA.
Acquisition ¹	Buying and tearing down a structure.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	Flood insurance premiums would be eliminated as the structure would either be demolished, or remain vacant.
Flood Insurance	Includes the structure owner purchasing flood insurance to provide financial compensation for flood damage to the structure and contents.	No Funding Available	NA
Wet Floodproofing	Permanent measures applied to a structure or its contents that prevent or provide resistance to damage from flooding while allowing floodwaters to enter the structure or area. This method is only allowed on residential and non-residential structures with less than a 5-foot crawlspace.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	Flood insurance premiums would be reduced if the wet floodproofing of the crawlspace meets the requirements of FEMA Technical Bulletin 1-08.
Saferoom	Construction a hardened structure specifically designed to meet FEMA criteria and provide near absolute protection in extreme weather events, including tornadoes and hurricanes.	<ul style="list-style-type: none"> • FEMA HMGP • FEMA PDM • FEMA FMA • HUD CDBG • LBNRD Urban Planning 	No change in flood insurance premiums.



Mitigation Method	Description	Applicable Funding Sources for Method	Effect on Flood Insurance Premiums
Backflow Preventer	Addition of a backflow preventor valve to basement drain pipe to prevent flow (storm and/or sanitary) from backflowing into the structures basement. This is an effective mitigation method for structures that have had damage due to backflow, but is not reimbursable by FEMA.	No funding available	No change in flood insurance premiums.

FMA – Flood Mitigation Assistance

HMGP – Hazard Mitigation Grant Program

PDM – Pre-Disaster Mitigation

HUD – Housing and Urban Development

CDBG – Community Development Block Grants

¹ Elevations, Relocations, and Acquisitions funding through FEMA Hazard Mitigation Assistance (HMA) includes 75% Federal funding and a 25% State cost share.



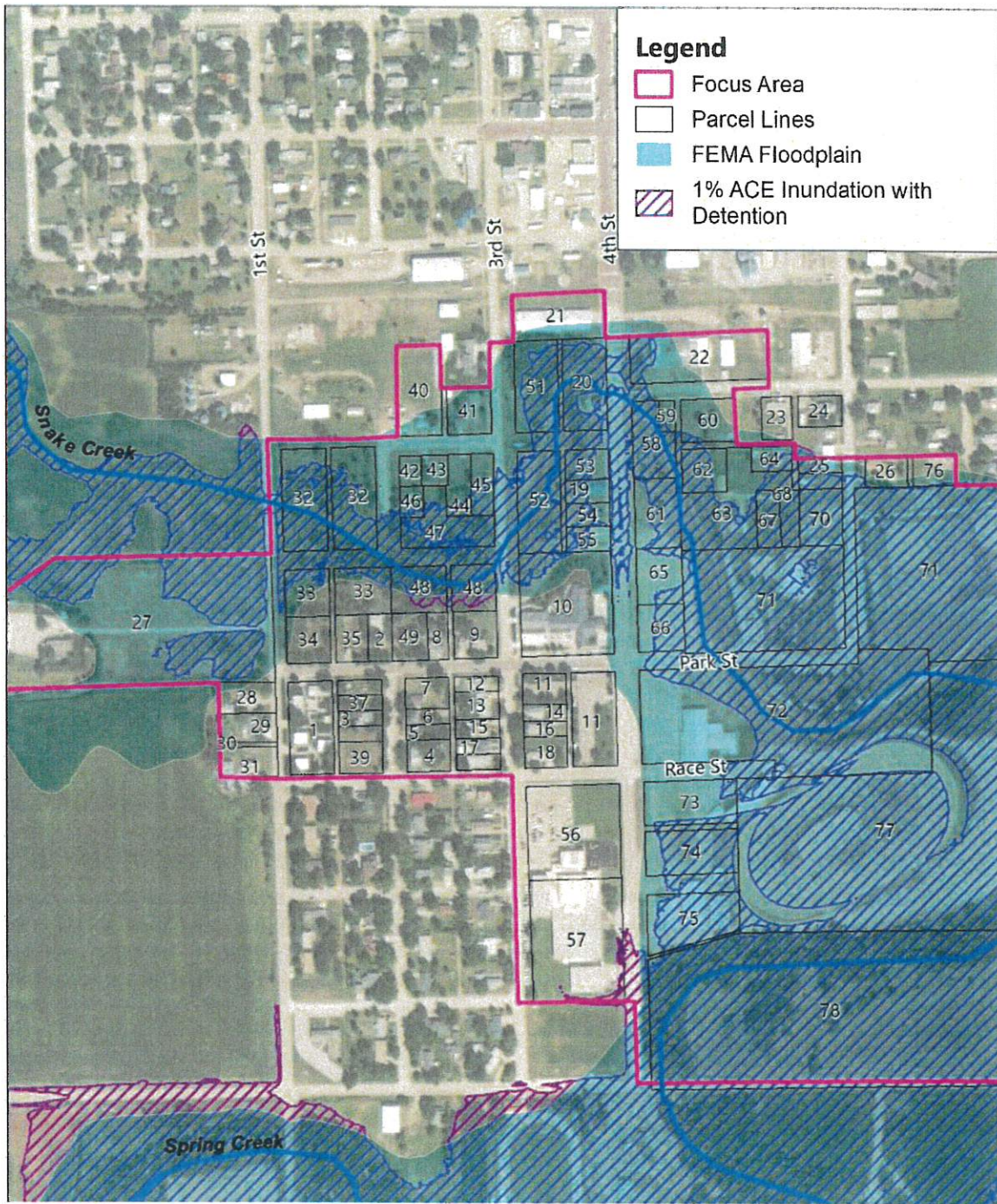


Figure 4. 1% ACE inundation with upstream detention.



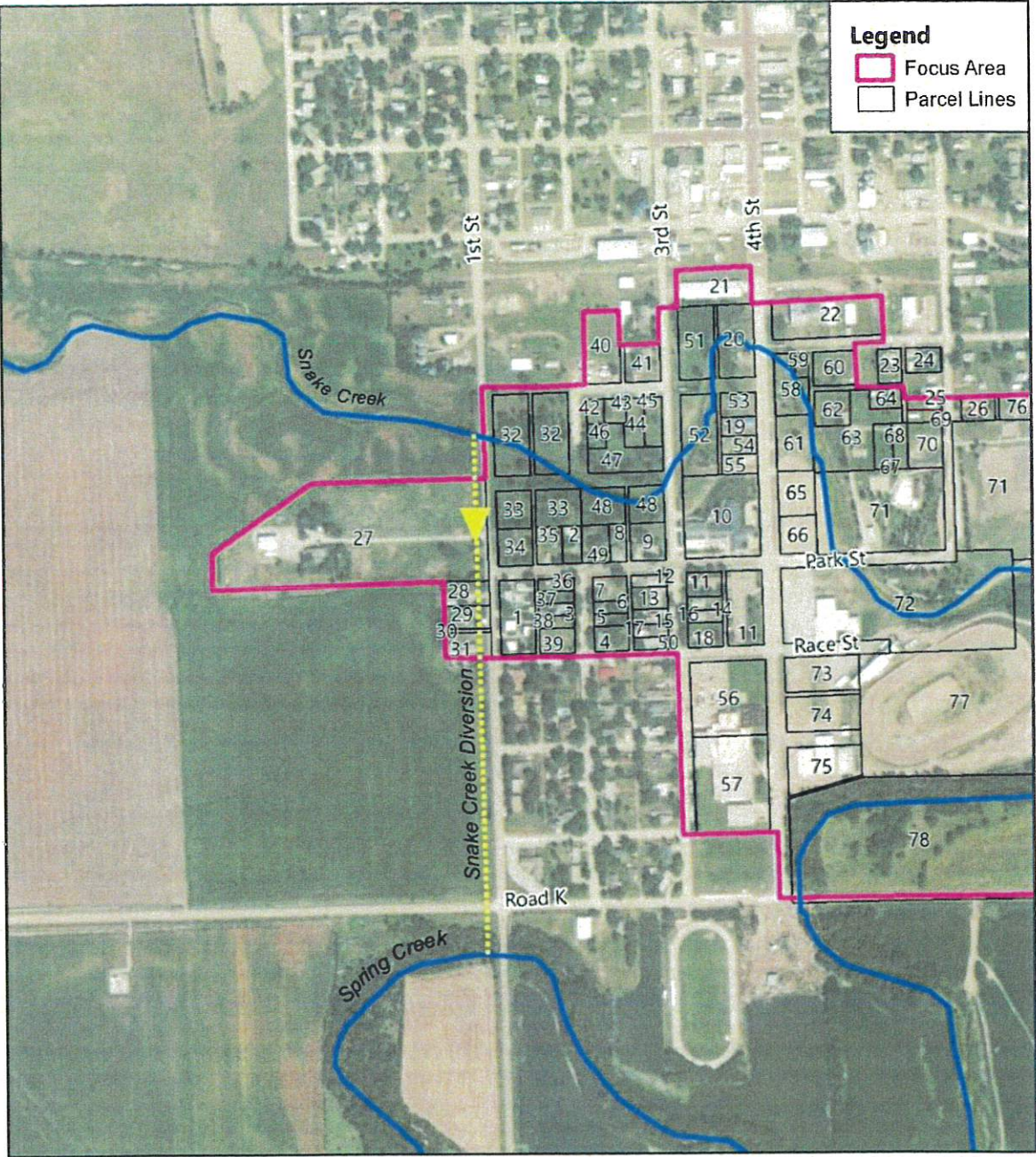


Figure 5. Snake Creek diversion route.





Figure 6. Flood inundation extents with modified channel cross section.



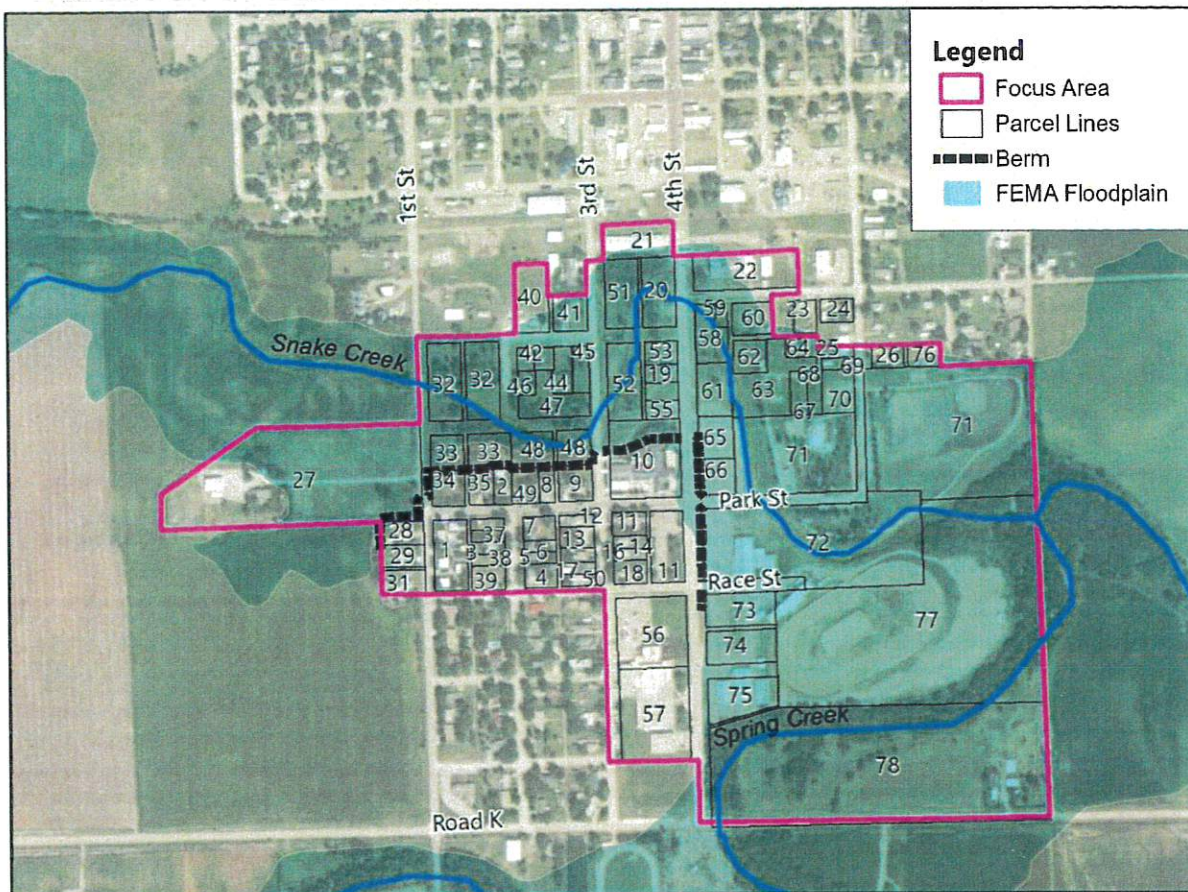


Figure 7. Preliminary location of berm.



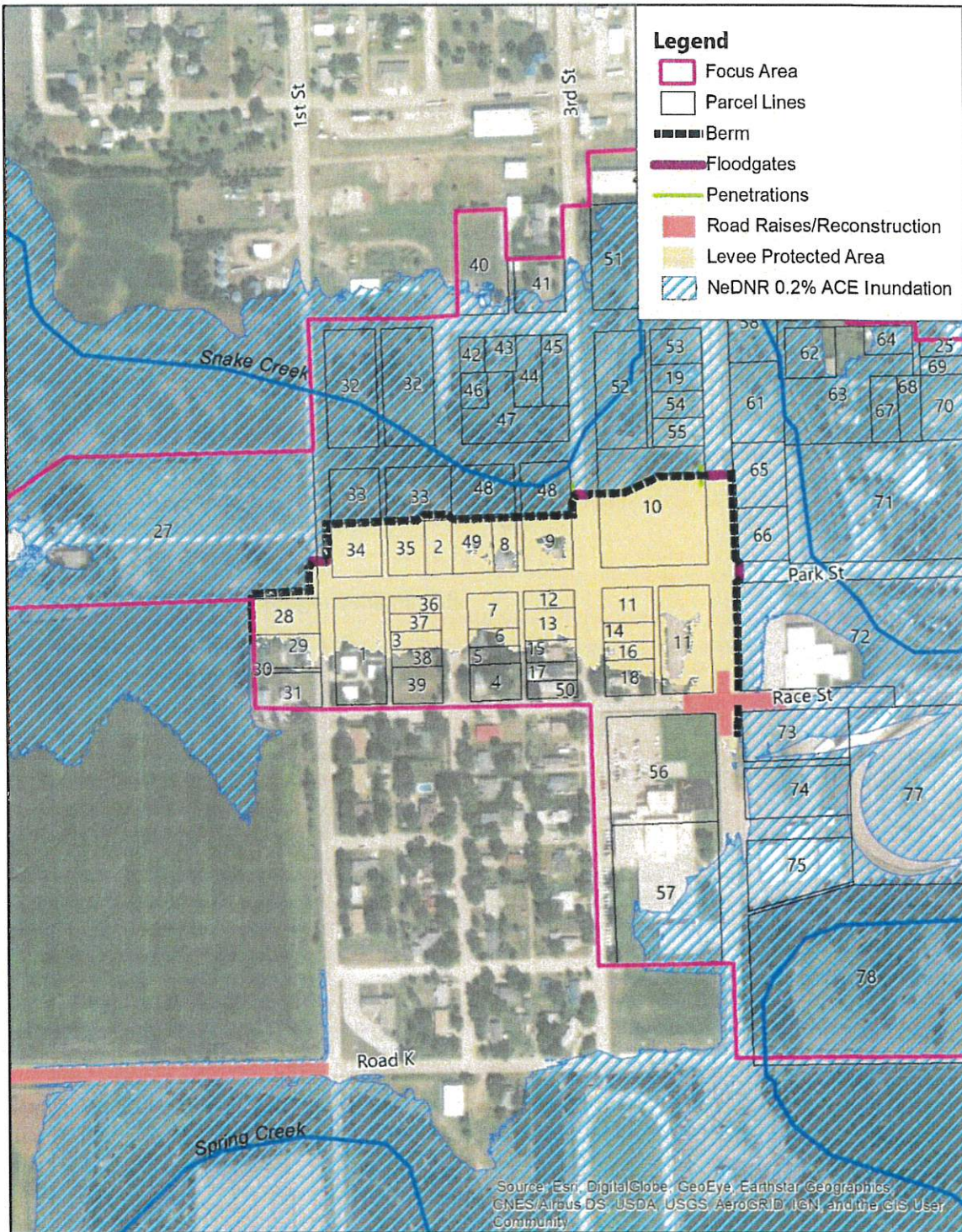


Figure 8. Berm mitigated area.



Table 3. Cost Estimate for Berm.

Item	Quantity	Unit	Unit Cost	Cost
Mobilization	1	LS	\$193,000.00	\$193,000
Embankment	4,860	CY	\$13	\$63,180
Floodgate	1	EA	\$500,000	\$500,000
Intersection/Pavement Reconstruction at Race Street, Park Street, 4th Street, 1st Street and Road K	1	LS	\$1,000,000	\$1,000,000
Stormwater Management Through Berm	150	LF	\$500	\$75,000
Miscellaneous Features and Surface Restoration	1	LS	\$250,000	\$250,000
Land Rights - Full Value	10	AC	\$4,000	\$41,200
			Subtotal	\$2,122,380
			25% Engineering/Permitting	\$530,595
			20% Contingency	\$424,476
			TOTAL	\$3,080,000

