

Location A

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
In the area of the confluence of Big Sioux & Missouri Rivers and Perry Creek	I-29 Bridge over Big Sioux River causing a pinch point	Increase capacity under bridge - widen footprint	Reduce flood risk increase flood capacity	Existing infrastructure
		Develop green belt corridor - using NRCS wetland reserve program to increase floodplain capacity	Increase amount of flood water, more residence time; slow the water down	Federal funding - farm bill limited opportunities to enroll in program, enlisting landowners
	Historical flooding along Perry Creek - city has already done work along creek	City is looking to add green space / wetlands where comes into city.	Nutrient reduction	Funding

Location B

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Winnebago Bend - near Sloan 4 Mile stretch	Little Sioux is very channelized and altered near the entrance into the MO River.	Top width widening - Expands over shallow areas but keeps depth for navigation	Increase channel conveyance; public ownership	Cost to construct, works best on public lands
		Watershed Management Authorities. Investment in tributaries, i.e. Little Sioux River. Restore natural flood mitigation sites.	WMA brings together many groups, technical expertise, and diverse partnerships. Investments can bring together relevant stakeholders and improvements to the basin.	

Location C

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Decatur to Herman- Lat: 41.998884 - Lng: -96.237350	NE generally tight flood plain Lots of flooding on NE side	Widen river - Deer island moving levees back channel width widening on public land.		

Hwy 175 bridge east of Decatur, NE Lat: 42.006466 - Lng: -96.242299	US highway bridge abutments cause a restriction	Increase flood flow passage under bridge. Either second bridge to double width; Similar approach to Hwy 2 bridge in Fremont County?	Increase capacity - reduce flood stage for north of bridge.	
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Location D

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Decatur to Herman, NE generally Lat: 41.666250 - Lng: -96.108415	Tight flood plain Lots of flooding on NE side	Widen river - Deer island moving levees back channel width widening on public land.		

Location E

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Hwy 30 bridge at Blair Nebraska Lat: 41.551057 - Lng: -96.095331	US highway bridge - abutments cause a restriction	Increase flood flow passage under bridge. either second bridge to double width; Similar approach to Hwy 2 bridge in Fremont County?		No levee to protect farmland downstream
Rand Farm Lat: 41.531594 - Lng: -96.088471	Potential to rebuild levee, which is setback from original location.	Channel widening in this reach. Corps previously looked at this area. Small projects have been completed in the beginning. Related to endangered species projects.		

Location F

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
	Issues with levee maintenance there that			

Levees at DeSoto Bend National Wildlife Refuge	may have contributed to I-29/I-680 flooding.			
	Levees on federal ground that have not been maintained			
	Previous flooding issues			

Location G

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Lat: 41.477096 - Lng: -96.010982	Pinch point on the NE side between Vanman and the rock quarry on the west side.			
De Soto Bend, just east of Wilson Island State Rec Area Lat: 41.472520 - Lng: -95.998874	Low river bank - prone to scour Puts pressure on levee on north (Iowa) side secondary channel following levee w/ potential to impact I-29 at stage 22	Relocate levee?? Bring riverbank up 3 or 4 feet for 200-300 feet		
North of Council Bluffs, South of Loveland Lat: 41.438318 - Lng: -95.923026	Boyer River levee breach. Boyer is channelized. Little floodplain in this section. Often flooded stretch of the interstate.	Looking upstream on the Boyer and MO to reduce the flow. Floodplain restoration, reducing the flow into the MO River in this area.	Reduced flow/flooding	

Location H

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Multiple levees. Vanman Levee, and New Culthard Levee. Entire levee is within the refuge.	Potential for raising local levees. Potential negative impacts on HWY 30. Potential for higher water levels that will be	Levee setbacks. Establishing overflow areas on the Nebraska side.	Would reduce stress on upper end (US 30).	Potential impacts to 680

Lat: 41.464877 - Lng: -95.954934	Flooding due to levee raising.			
Lat: 41.380407 - Lng: -95.933004 I-680 upstream to Honey Creek	Water flow has changed over the years - Has not routinely flooded in the past now standing water for extended time	Revise infrastructure of flood and drainage districts - hard to put together centralized effort		Us vs. them between rural and urban Levee run by drainage districts
Lat: 41.380033 - Lng: -95.898443		Raise lanes of I-29	Transportation, economic benefits	Costs

Location I

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Council Bluffs upstream and downstream levees Lat: 41.293334 - Lng: -95.869862	Road infrastructure impacts when flooding occurs	Redoing and maybe raise I-29, raise levees, dredge, etc. and other economic benefits	Keep the roadways open without delays	Need money and analysis of best options Cash to get any work accomplished -
General area of L627 Western edge of Council Bluffs - Levees along river serving the City Lat: 41.274164 - Lng: -95.896218	Damage because of water table so high	Levee reinforcement Better internal drainage/pumping assess integrity of levee	Improved levee performance, less groundwater pressure	
North of Omaha waterways Lat: 41.231781 - Lng: -95.910869	Constrained flow and narrow channels in various portions upstream of city. Water forced through narrow channel between Omaha and CB	Addressing water flow further upstream even 30 miles upstream to absorb water flow or address flow through city metro. Use the oxbows.	Bridges and railways closed during flooding and has economic impact. Protects infrastructure.	Upstream reservoirs have to be released and the water will move through.

Location J

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
General Area along river near Bellevue, NE Lat: 41.138621 - Lng: -95.880651	Narrow area - Highway 370 pinch point, Haworth Park flooded Rail Line that acts as levee (NE side) - pushes water to Iowa side	Allow for more water flow Wider flood plain 3000 feet per ACOE recs	Increase flood capacity Less pressure on local infrastructure	Levee on Iowa side Railroad on NE side
General I-29 area I-480 to Percival, MO Lat: 41.141574 - Lng: -95.821352	Multiple closures & flooding Road in river basin/floodplain Regional lifeline	Northbound Higher than southbound, redirect traffic when one side is closed. Shoulder armoring Raise to double as levee, use as backup levee	Road stays open Less repairs/reconstruction	IDOT Cost - ~1,000,000/mile Busy piece of infrastructure - very important to the region - broad taxpayer interest
Gifford Point Ox bow - Critical infrastructure including sewage plant and power plant Lat: 41.177698 - Lng: -95.840558	Area protected by levee, but possible Interior drainage issues as water backs up around plants	Reinforcing or raising levee Improving interior drainage, reducing water backing up	Better protection for critical facilities, ensure consistent operation	

Location K

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Downstream of Omaha and Council Bluffs Ag land and levees. Lat: 41.050784 - Lng: -95.863120	Huge break on the levee where it turns and goes east. The break has been fixed, but it will always be a problem unless the levee gets set back. It is too close to the river. Flooding down to Pacific Junction.	Oxbows need to be reconnected to the river. Is there thoughts from DOT about whether the road is high enough at this location?	Creating wildlife habitat and reducing flood risk. Creating more certainty that surrounding ag lands wouldn't be flooded.	Set back the levee - Keep the land clear of trees and willows and cottonwoods

	Narrow just below the Platte River. Just below Omaha and Council Bluffs, lots of water that pushes out once past the cities.			
Lat: 41.073616 - Lng: -95.863429	Cottonwood trees along Iowa side. Originally to control water and erosion but now is catching silt and build up to push back water upstream without moving through quickly	Replace back into grass or crop so the water can flow over faster.		
Lat: 41.051130 - Lng: -95.874255	Cottonwoods on Iowa side of river. When water rises, the trees split the channel water and the water goes around the east side of the trees	Replace back into grass or crop so the water can flow over faster.		
Lat: 41.066408 - Lng: -95.870245		Set levees back, reduce flow upstream and downstream. Increase carrying capacity of the river. Increase flood storage, increase capacity of the river, top width and widening. Look at areas where state owned or federal owned land to do the setbacks.		

Lat: 41.050687 - Lng: -95.874591		Is there enough riverbed aggradation just downstream from the Platte? The specification in the area may need to be upgraded. Might warrant some levee changes		
Channel downstream from Platte River Lat: 41.043712 - Lng: -95.867153	Siltation problem in Missouri River Channel			

Location L

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Lat: 41.007083 - Lng: -95.866349	Cottonwoods on Iowa side of river. When water rises, the tree loses flood options with the Plattsmouth bridge located just downstream	Replace back into grass or crop or other options so the water can flow over faster.		
Plattsmouth bridge Lat: 41.001383 - Lng: -95.865920	Pinch point, trees upstream are impacting	New bridge? - the old one is dated		

Location M

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Trees at the outlet of Pony and Keg creeks Lat: 40.978843 - Lng: -95.827441	Trees impacting the flow of water.	Lower vegetation, grass, crops, etc. for water flow during flooding.		Concerns for whose "jurisdiction" the location are for practices to be used in the area.

<p>Floodplain</p> <p>Lat: 41.001677 - Lng: -95.806410</p>	<p>The town of Pacific Junction a year ago was under water.</p> <p>Ag ground. Levees are pretty tight to river to west. Large blowout occurred just east of Hwy 34 bridge</p> <p>2,500 acre St. Mary's Wildlife Management Area just north of the levee blowout that is mostly owned by the Corps.</p>	<p>BNIM - architectural and planning firm that will work on public meetings and planning for the area - Comprehensive land use plan for Mills and Fremont County</p> <p>St. Mary's Island WMA: forgo the "Island"</p>	<p>Coordination between the BNIM effort and the COE effort</p>	<p>COVID delaying in-person discussion</p>
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Location N

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
<p>Northern extent of Copeland bend wildlife area. Small piece of public land.</p> <p>Lat: 40.908396 - Lng: -95.816340</p>	<p>Levee on the Iowa side is close to the river with ag land. Important to show the levee and the hill on the Nebraska side.</p> <p>Levee 575. Had some breaks along the levee. Has been replaced to existing conditions.</p>	<p>Levee setback is a potential solution that would require land purchase or easement. Looked at as a system that fits together.</p> <p>Landowners have expressed interest in alternative options.</p>	<p>Solutions that are long lasting that don't require levee repair at every flood and that have multiple benefits.</p> <p>Traditional levee system is pushing the flooding downstream and this solution would help some of those side effects.</p>	<p>Purchase land or easements are difficulties. May not believe that it will provide protection. Involves upfront costs.</p>
<p>Bartlett RV development "The Wilds."</p> <p>Lat: 40.890840 - Lng: -95.807595</p>	<p>The Wilds was completely wiped out by the flood, and they have actually opened a new restaurant outside the floodplain. From the look of it they are not</p>			<p>They are struggling to get back in operation. Re the comment to land acquisition. The Corps has been severely constrained in their effort to return some acres to river associated</p>

	currently taking steps to get back in operation in that location.			wetlands. The Corps was supposed to return 166,000 acres and to date, they have acquired about 66,000 acres. The congressional delegation of Missouri led this fight to stop land acquisition.
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Location O

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Lat: 40.772917 - Lng: -95.834763	Lot of force that comes through the Percival area. A tight point north of the town.	Desperate need to pull the levee back and add widening to the river there. L575 levee need to think about the entire system not just strengthening parts. Incorporates a lot of non-structural components and extends into Missouri		Don't just fix the parts that are seen as the issue only.

Location P

Location/Area	Problem Description	Potential Solution	Advantages	Challenges
Highway 2 Lat: 40.672501 - Lng: -95.829050	In this location the COE is constructing a super levee. Toes are to be raised about a foot to 18". Thicken the levee and make higher on the toe. COE embarked on this super levee due to raise of Hwy 2.	Levee should protect the city of Hamburg. People in Hamburg should have confidence that they won't flood again due to super levee. Not a lot of solutions for the west side of the river. Raise the levee 2-3 feet besides the thickening of the toe Levee setback	Saving the town of Hamburg	Costs and landowners having different goals with their land Geography has changed a lot due to the last flood events.

<p>Industry with a truck stop and eating establishments. Residential Area- Hamburg</p> <p>Lat: 40.689748 - Lng: -95.789907</p>	<p>Nishnabotna River levees are tight right on the river. This is the nexus in the town of Hamburg which melds into the Missouri River.</p> <p>Temporary levee from the 2011 flood event</p>	<p>Can the temporary levee be a permanent solution?</p> <p>Flood mitigation board approved to restore the levee permanently last fall - Ditch 6 levee. Potentially approved \$6-7 million to restore to the 2011 levels</p> <p>Drainage district south of Hamburg in Missouri to be evaluated to see if there are any options to keep water from backing up into the town</p>	<p>Working with the flood center and other partners to look at many scenarios. Strategize under Flooding scenarios the different options and economic development opportunities.</p>	<p>Local residents in the process of mitigating the superberm construction. The superlevee in extends into the Payne WMA where there has been sluffing and the toe was too low so the Corps will be working to fix that as part of the project.</p> <p>Resistance by Ag interests to setbacks so the Corps can do only superlevees.</p>
<p>Lat: 40.772917 - Lng: -95.834763</p> <p>Lat: 40.669245 - Lng: -95.809886</p> <p>Lat: 40.573901 - Lng: -95.763752</p>	<p>Lot of force that comes through the Percival area. A tight point north of the town.</p>	<p>Desperate need to pull the levee back and add widening to the river there.</p> <p>L575 levee need to think about the entire system not just strengthening parts. Incorporates a lot of non-structural components and extends into Missouri</p>		<p>Don't just fix the parts that are seen as the issue only.</p>
<p>Lat: 40.671322 - Lng: -95.829983</p>	<p>Highway 2 being raised - helping the pinch point</p> <p>Businesses being flooded</p>	<p>DOT currently forming new drainage district</p>		
Location Q				
Location/Area	Problem Description	Potential Solution	Advantages	Challenges
<p>Pumping Station</p> <p>Lat: 40.607204 - Lng: -95.742976</p>	<p>Inadequate pump maintenance.</p>	<p>Fix the pump that is there around the area of the Saap Brothers and the</p>	<p>Saving the town of Hamburg</p>	

		other small businesses right at highway 2		
Lat: 40.573901 - Lng: -95.763752	Lot of force that comes through the Percival area. A tight point north of the town.	Desperate need to pull the levee back and add widening to the river there. L575 levee need to think about the entire system not just strengthening parts. Incorporates a lot of non-structural components and extends into Missouri		Don't just fix the parts that are seen as the issue only.
Farms west of Hamburg 40.620,95.739 40.597,95.721	In 2011 levee broke and flooded 600 acres crop land so moved crops into wood wetland practices. Approximately 20+ homes destroyed, shop and barns full of mud. Only about 3 homes left. 2019 hit pretty hard with sand. About 80 acres with water until this summer. Corps has taken some sand off but willow trees are taking over.	Pump currently doesn't work and hasn't for 3 years. Crops haven't been planted for last 3 years, the water just started to recede Remove sand on surface of crop lands. Remove willows	Prioritize flood controls, farming in the bottoms is challenging. Control the floods and then focus on other items like habitat. Fix and repair scours, pilings, seep berm, and other practices to manage flooding. If can get rid of water during winter, release it.	Years of standing water kills the bio material and takes years to bring the ground back into production Seep water, water level needs to be lower than 12' so seep water doesn't impact the crop lands. During growing season, need to get river level down for seep water.
Levee west of Hamburg 40.600,95.743	Levee broke straight west of Hamburg - hole 600 feet wide and 90' deep. Corp took a while to fill and stop it.	Pilings, fill, and other materials used to fill the levee break. Plan to build into super levee, bigger and larger. Plan to add sheet pilings down 60-90' deep to strengthen levee to avoid future breaks.	Not enough flood storage space in reservoirs. 60% of Mississippi water is fed by Missouri River. Mississippi waters are economic needs for barges. 2019 flood massive and many studies to learn from and will have more	

			floods if we don't do something with stored flood water.	
Just east of Schemmel Island	L-575 Levee Leaks under levee, sloughing around the public grounds WMA, the dynamics of flood water without the bridge will speed up and make more corrosive.	Make stronger all the way up to highway 2. Corp plans to focus on this area because of the concerns.	Water fowl attraction for public. Economic impact.	
Lat: 40.571134 - Lng: -95.672285		Option for willing sellers either for a flood easement or other selling.	Wider conservation areas - continuity to allow the flood storage. EWP funds for wetland restoration. It was oversubscribed by about a 10:1 ratio. They will be able to address about 10% of those. Most in the lower reach of the Missouri.	Land use planning. Should not have isolated tracts around

GENERAL COMMENTS

	Think about areas where we have had the most damage and do some studies to reduce impacts over time. Where are areas where studies have not been done. Look where studies are outdated and should be reviewed again	Complete a picture of the drainage areas to focus on areas that could/should be addressed.
Any location	Natural infrastructure like wetlands, oxbows, etc. for flood control not just levees to control flooding and restore habitat. Increase capacity to hold water. Not just conveyance issues but communities impacted by flood waters. Considerations for the entire river to the end point, not just the Midwest portions. Considerations for impacts to the dead zone of the gulf. Be able to use practices to correct gulf issues.	When water is released, the investments of natural infrastructure can get torn out and lose all the investment of practices. Silt lose from the Corp reservoirs collection and dam release flow impacts sediment collected behind reservoirs (loss of storage). MO river reservoirs moves the water when needed that take silt and sand with it.

General	Wing dikes need addressed and have not been addressed recently. Moves water quickly to keep water moving through area. Dikes have eroded over the years. Bank erosion needs to be stabilized which is breaching the levees. Wing dikes might assist.				
	Hwy 2 levee setback and see what that might have on flooding in the future. Prioritize the next best place for future setbacks. Limit additional development in areas that there is high risk. As repairs are being done in weak spots locals are interested in adding some additional soils to the toe to help keep a weak spot from failing.	The levee change in the Hamburg location may protect the area. Ag land may provide more flood storage.	Wherever we "fix" an issue it could push another issue upstream or downstream Some tension between farmers and developers. More development in the floodplain puts resources at risk unless they are protected somehow. Federal lands it is understood are not reinforcing the weak spots. Vegetation changes on the wet side of the levee inadvertently causing issues for weak spots or topping.		
River corridor - general area	Not designed to handle the amount of precipitation of last several years Climate change results in more extreme rain events	Detention/Retention basins on uncontrolled basins Greenspace and/or wetlands to hold and slow down flows More integrated and comprehensive plan for infrastructure		Resilient infrastructure and communities	
General	Rail lines up and down river corridor	Railroad road, typically raised above grade	Tie in with railroads - they can quickly respond. When railroads upgrade, have them build to federal specs.	Greater 'levee' network Additional points for protection projects to tie in to	Railroad willingness Pushes water downstream
	Not enough flood storage space in reservoirs. 60% of Mississippi water is fed by Missouri River. Mississippi waters are economic needs for barges. 2019 flood massive and many studies to learn from and will have more floods if we don't do something with stored flood water.				
	Partner with Burlington Northern Railroad as they have been impacted by flooding as well.				
General	Decreasing nutrient loads, improving soil health, and decreased erosion. Advocate for watertrails and dam mitigation. Education on stream/river improvements.				
General	ERP Easement properties resulting from 2019 event.	Funding. Many willing sellers, of easements to retire crop production.	Restoration to more natural landscapes.		
General	Landowners interested in easements, private investors to expand mitigation banking in Iowa. Nutrient trading, flood mitigation		Using a different funding source rather than federal dollars.		

	bank. Private investors working with landowners for credits. Bring private investors in to do improvements ahead of time. Need good mapping of data of interested landowners, to connect investors to landowners.		
	Reassess with 40 years of knowledge and data gathered. Programs to assist landowners with beneficial uses like recreational opportunities instead of crops. Recruit and retain and attract more hunters - obtain more partnerships for land use to be recreational opportunities. Kansas has a good model/example.	Economic benefit studies for recreation - habitat for wildlife you will have more recreational value. If able to set levees away from the river and have suitable habitat then will receive economic benefits of attracting recreational users. Emergency Watershed Program Application period to assist with permanent easements.	Small towns not attractive for people to move to if worried about flooding.
	(2018 meeting) Fields being flooded bottom coming up due to sediment from Platt river		
	Hamburg flooded -should be a priority Are recovery shallow water chutes for wildlife - do they need to be repaired? Need to be evaluated		
General	Encourage looking at river as whole consider natural solutions - wetlands etc.		
	Communication & coordination between various counties, drainage districts, DNR etc. Iowa Nebraska, Fish and Wildlife paperwork was not doable in time given		
	All solutions on table - engage local people		
	Look at the river as entire system not just pinch points - encourage DNR to think about the natural infrastructure solutions that will protect the large section of the area.		
Mills & Fremont Counties, Western Council Bluffs	Work with homeowners, small businesses on grant assistance.		Takes time.