July 11, 2016

The Ellettsville, Indiana, Town Council met for a work session on Monday, July 11, 2016, at the Fire Department Training and Conference Room. Scott Oldham called the meeting to order at 7:04 p.m.

Members present were Scott Oldham, President; Scott Thomas, Vice President; Dianna Bastin, Kevin Farris, Scott Thomas and Brian Mobley. Sandra Hash, Clerk-Treasurer, Jim Davis, Town Manager and Darla Brown, Town Attorney were also present.

Supervisors present were: Mike Cornman, Danny Stalcup, Kevin Tolloty, Mike Farmer and Jeff Farmer.

Jim Davis, Town Manager, introduced David Knipe with the Indiana Department of Natural Resources ("DNR").

David Knipe, Engineering Section Manager with the DNR, works with the Federal Emergency Management Agency ("FEMA") to do floodplain mapping, reconnaissance and other issues pertaining to flooding. They are funded by FEMA to go to communities and discuss land management and flooding issues. In 2011, the floodplain maps for Monroe County were completed and it changed things in Ellettsville because they did a new study for Jack's Defeat Creek ("Creek"). They have a vision Risk Map where they look at quality data to make sure they have the best topography information, and hydrology information. They want to try and reduce the risk of flooding in Ellettsville by identifying risks for determining mitigation options and doing computer modeling. This is called action discovery and is a partnership between the community, DNR and FEMA. Matt Riggs from the Polis Center is present and he is helping DNR with the modeling. They identify an action, plan an effort and move the mitigation forward. They have been working with Silver Jackets, a conglomeration of different federal and state agencies interested in mitigation. The Ellettsville project is based on the upper and lower White River Watershed. They selected seven communities with respect to different types of programs. Ellettsville has seen flooding in 1993, 2003, 2008, 2012, and 2013. The main stream through Town is the Creek that flows under the Temperance and Vine Street Bridges and upstream through Hartstraight Road. The scope of this study is to discuss the possible project with local stakeholders and then they will return to their office to look at different alternatives. They looked at the hydrological impact of the areas around McNeely Street, Main Street Bridge, Vine Street (between Temperance and Main Streets) and storage areas upstream of Temperance Street (between Temperance Street and Hartstraight Road). Results of the modeling are as follows:

McNeely Street

This is the most northern part of the study area and is downstream. There is a question of whether a set of culverts under McNeely Street would help the flow as well as excavating areas up and down stream of McNeely Street for more storage. In the model, they put in a couple of culverts for more flow under the bridge and lowering the ground elevation on each side for more conveyance. This dropped the elevations 1.7'. The issue is it only drops the elevations from McNeely Street up to about Main Street. This is due to the fact the Creek is steep. They need to plot the width and length.

Main Street

Main Street is simple from a model standpoint. Two spans are open but the third span of the bridge doesn't have much area. The idea is to remove some material to open up the third span for more flow under the bridge. By opening up the third span they saw a .2' drop in elevation. Based on the modeling, it doesn't appear to be a big reduction. This issue is utilities are located in the third span.

Vine Street

From east of the church to the Village Inn they looked at doing a flow shelf or something where they could excavate material on the bank and clean it out to lower the area. This would result in more storage and moving water through rather than having it pile up. A few buildings in the Industrial Zone would have to be removed. This would result in a more cross sectional area for flow to go through. If they take it out to the maximum area they see a reduction of 2' from Main to Temperance Streets. This would be a significant fix.

Temperance Street

They looked upstream from Temperance Street to Hartstraight Road where there are a couple of open areas. There is an idea to excavate it for dry detention for storage upstream so they can store water before it gets into Town. It would drop the elevations through Town. The problem is there is not a lot of area or depth without having full time ponds which causes other problems. They don't want the ponds to store water 24/7 because it defeats the purposes. If water is in the ponds, more can't be stored. There isn't much change between there and the stream. Mr. Oldham mentioned there is at least 4' to 5' of grade change from the bottom of the Creek to the bank. Mr. Knipe explained they assumed 2' when they did the study from the mapping they had. They didn't do detailed surveying or trying to figure out exactly what they might be able to get. Because they're upstream and storing water it drops the entire profile. They saw a reduction of almost 1' at McNeely Street and closer to .6' through the main areas of Town. They were conservative in that they didn't allow much storage. Maybe they can look to see if there is capacity for more storage.

Kevin Farris asked if the mitigation is temporary unless it has to be dredged. Mr. Knipe answered not necessarily, it depends on how it is designed. If all the material is removed and cleaned it can cause issues with maintenance. They want to try and design something so they can have natural features with lower maintenance and it stays open. They will look at this more closely when they get into design. Nothing is going to absolutely solve the flooding issues because the Creek runs through Town. There will always be some risk but it is about lowering the risk as much as possible and surviving the frequent flooding.

David Knipe explained the aforementioned are conceptual ideas and not real design. They're providing ideas of what may or may not be possible. Mr. Oldham asked if they did every project what would they see as the net reduction. Mr. Knipe replied they could probably get to 2.5' but he doesn't know if 3' is possible. He modeled for a 1% chance of a 100 year flood and a 10% chance of a 10 year flood. This means when they get flood events you don't see those exact lines. Instead, you will see a three or five year event and a couple of times they've seen a 25 or 50 year event. All options across the board will reduce flood damages. With the initial ideas they're seeing it will have some effect.

Matt Riggs, Polis Center, clarified this was the first step to look at. Specifically, how much water there would be depth-wise or the flood height. The next step would be looking at a couple of these and what reduction in the area actually gets flooded. The next step will be what is the difference between leaving it alone and then making a change in the area that does drop 2' for a certain event? What's the lateral change going to be? This will be dependent on the land slope and surrounding land. This is the next step. Then they can see what the reduction of area covered by water would be – this is the part that hasn't been done yet.

Kevin Farris asked if the studies are specific to Ellettsville or do they go all the way to the river. Mr. Knipe they modeled the Creek from White River past Ellettsville. They took the larger model for the flood insurance study and constrained it from downstream at McNeely Street to past Temperance Street. They took a subset of that model because it is easier to work with. Mr. Mobley asked if the new Matthews Street Bridge would open up the flow. The Town owns the property north of McNeely. Mr. Knipe stated that is one of the reasons why they wanted to look at McNeely Street. They looked at the new Matthews Street Bridge and doesn't think it had much of an impact. The Creek has a steep stream for Indiana and this limits the impact for fixing things downstream. Mr. Farris asked if it is steep all the way to the river. Mr. Knipe answered once it gets past Matthews Street it starts flattening out. Mr. Farris asked how far south it is considered steep. Mr. Knipe said it flows downhill so it gets more uphill as it gets farther south. Mr. Farris asked if the Silver Jackets only work in Indiana. Mr. Knipe replied Silver Jackets is a national program centered in each state and they are interested in mitigation of flood reduction. Indiana Silver Jackets are comprised of the following agencies: The U.S. Army Corps of Engineers is the lead agency and is comprised of FEMA, Indiana Department of Homeland Security, DNR, Indiana Department of Transportation, Indiana Department of Environmental Management, Indiana National Guard, Indiana University, Indiana University Purdue University – Indianapolis / Polis Center, Maumee River Basin Commission, National Weather Service, Purdue University, U.S. Army Corps of Engineers, U.S. Department of Agriculture, U.S. Department of Housing and Urban Development and U.S. Geological Survey. When these agencies get interested in an area they

have an opportunity to locate funding. The Office of Community and Rural Affairs is also a good source for funding block grants. Mr. Farris asked if the Silver Jackets have been approached. Mr. Knipe answered they have given presentations to them on the overall watershed project. They will provide the information presented in this meeting to Town Council at the next meeting of the Silver Jackets.

Scott Oldham stated the Town owns all of the properties involved other than those on Vine Street. Would it be possible to work on the three properties controlled by the Town but within the perimeters of the DNR if the Indiana Department of Environmental Management ("IDEM") will allow a levy on Vine Street? Is it possible to artificially drop it by raising the bank? Mr. Knipe replied it is possible, however, they always try to stay away from those options because there is a great need for maintenance of the levy. Larger cities maintain their levees fairly well but if a levy gets out of maintenance and it fails it is much more catastrophic than if it was never there. Mr. Oldham commented it is more adjunct at this point because they're trying to give some relief to Vine Street. It would put more pressure on upstream and downstream in the retention. Is it feasible because they don't own the Vine Street properties? It would displace several businesses and be costly. Mr. Knipe thinks it depends on how they would want to work with it. They have the stream, the area between the stream and Vine Street, the other side of Vine Street and then it gets into Temperance Street. Mr. Knipe asked if the levee could be built more toward the road than at the stream bank. It wouldn't protect anything at Vine Street but it would protect the rest of the community. The more the area you can get the better off you are. If you build the levee on the stream bank they're going to squeeze all of the water in it and raise the velocities which cause problems they'll have to also mitigate. The Corps of Engineers looked at this in the 1990s. With what they've learned over the last 20 years with levees they try to stay away from them. It doesn't mean it's off the table it is a last resort. Mr. Farris asked if they looked at tributaries to Jack's Defeat Creek. Mr. Knipe answered they didn't look at it carefully. It is built into the hydrology model but they didn't look at any upstream retention. He didn't think there was enough volume to retain in the higher parts of the watershed. Mr. Oldham asked if it is allowed to culvert the portion between Temperance Street and State Road 46 East/West rather than letting it be an open creek and have it come through a culvert all the way through. Mr. Knipe doubts it would get through an IDEM or DNR review. From an environmental point it would be problematic. Mr. Mobley clarified if they mitigate the three properties that would eliminate quite a bit. Mr. Knipe agreed it would have an impact. They could look at some other ideas around Vine Street. Mr. Oldham noted off of Hartstraight Road there is almost a 15' drop in some areas from the roadway to the bottom of the basin. Is it possible they could look at that a little closer before they commit to anything? Mr. Knipe replied yes, they could look at conceptual designs on how exactly the ponds will look. The best idea is a dry pond so there isn't a water hazard, perhaps a wetland-type of complex. The tricky part is, they want it to fill up and then drain. Designing how it works in practice can be tricky.

Sandra Hash asked when they refer to Vine Street do they mean everything between Vine Street and the Creek. Mr. Knipe replied for the modeling he assumed everything from the church to the Village Inn. If they do a levee then they're restricting the Creek. Raising Vine Street would be possible. A couple feet of berm not to extensive might help. Mr. Farris commented if they tried to dredge the Creek they could end up below the river. Mr. Knipe stated there is nothing to dredge, it is all bedrock. There's no way to drop the stream bed. Mr. Farris asked when the Town is flooded and the Creek is moving through Ellettsville, north of Ellettsville to the river is it at a standstill. Mr. Knipe answered it is, at least at the river. Mr. Farris stated the only choice is to hold the water. Mr. Riggs agreed, it can't get out faster. Russ Ryle asked at what point does the White River backup into Ellettsville. Mr. Knipe doesn't think Ellettsville would see that. Mr. Oldham asked if they started the projects with what they own how long is the permitting process. Mr. Knipe replied if the Town gets a DNR permit for Construction in a Floodway there are also IDEM and Corps of Engineer permits. The permitting process takes approximately one year depending on where they start and how far along they get with it. Mr. Oldham asked how they proceed. Mr. Knipe answered he received good information at this meeting. They will go back to their office, fine-tune their models and then return with a more accurate concept of what can be done. They would like to get something to FEMA by the end of September. Mr. Farris asked how long that process takes and when would they start. Mr. Knipe explained at that point they would need to talk to the Town about involving an engineering firm to do final design. The DNR doesn't have the capability to do the engineering design or look at utilities. The next

step would be to look at finding a grant to hire an engineering firm to take what they've done conceptually and turn it into an actual plan they can start working on.

After a discussion, the Town Council agreed to have Mr. Knipe model the three sections excluding Vine Street. Mr. Oldham advised north of McNeely Street, the Town owns significant property. Would it do any good to build a retention pond there? Would it take some of the stress of getting it through Town faster? Mr. Knipe answered it is downstream and that's a problem. If they're holding water downstream it doesn't do any good. Mr. Oldham asked if they hold water at McNeely Street and Hartstraight Road does that take the stress off of Vine Street. Mr. Knipe can look at that but doesn't think it will do much. They can do a model and see what happens.

Russ Ryle asked if the Town has a fixed body of water that flows north of Ellettsville to the White River do they have an option to increase the amount of water they can get out of Town. Mr. Oldham answered no, because at a certain point they don't own the property and don't have any control of it. Mr. Ryle clarified physically because of geography. Mr. Farris answered they can't dig it down any further. Mr. Ryle asked if the Town will gain anything by putting permanent ponds by the Stewart property. Mr. Oldham explained Mr. Knipe addressed the Town not wanting a permanent pond on that property because it already displaces the amount of water for the dry ponds. Mr. Ryle asked if the ponds could be deeper than creek level. Mr. Knipe answered if it is deeper than creek level then water stays in the ponds and there is no way to get it out. It would have to be pumped out. They can't go below bedrock.

David Knipe would like to complete this by the end of September. They'll talk about how to proceed when they return to Town Council.

Adjournment

Scott Oldham adjourned the meeting at approximately 7:57 p.m.

Scott Oldham, President	Dianna S. Bastin, Vice-President
Kevin Farris	Brian Mobley
Scott Thomas	Sandra C. Hash, Clerk Treasurer