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GRASSROOTS PLANNING: AN ACTOR-NETWORK STUDY OF SURFING

WAVES IN MISSOULA, MONTANA

By

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Thesis

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ABSTRACT

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Geography

Grassroots Planning: an Actor-Network Study of Surfing Waves in Missoula, Montana

Committee Chair: Christiane von Reichert

Brennan's Wave, in downtown Missoula, has become an iconic feature of the town. Through the diligent work of a group of community advocates a dangerous and unsightly irrigation diversion structure was repurposed to include a recreation feature in the middle of the river that improved safety while simultaneously maintaining the integrity of the structure. The success of Brennan's Wave has led to its replication through the planning of another memorial wave, the Max Wave, to be built downstream at the site of a similar irrigation structure. This study investigates how these structures are planned for and built by utilizing an actor-network approach. Actor-Network Theory (ANT) addresses the complexity and heterogeneity of influential actors through its symmetrical view of human and non-human actors. The creation of an actor-network accountable for the surfing waves enables other emergent issues surrounding the downtown river corridor to be addressed as well. The implications of ANT in relation to urban planning are also discussed.

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1. Introduction

As the seasons shift from spring to summer in Missoula, a change takes place that can be seen throughout downtown. A new phenomenon has emerged throughout the banks of the Clark Fork River. As the sun blazes down and the air temperature rises, the meltwaters coming from the winter snowpack recede followed by a cascade of river users who flock upstream so to ride the current back into town. Clutching to any type of inflatable vessel, they make it to Brennan's Wave, a whitewater play wave for all to see in the middle of the river, in the heart of downtown. Year round a contingent of surfers and boaters carve, spin, and float on top of the water no matter the weather. The colder the water temperature, the thicker their wetsuits become, until only the threat of ice forces them out of the water as the river begins to freeze over (Brown 2-4-15).

As soon as the ice thaws, the surfing addicts are back out on the water simply for pure enjoyment. The popularity of Brennan's Wave has surprised almost everyone, especially those from out of town. Not many people would have foreseen a surf shop to open up in a mountain town. Yet Strongwater Mountain Surf Co. has done just that, shaping their own custom surfboards year round a block away from the wave. What's traditionally thought of as an ocean sport with palm trees and warm summer sun framing the scenery, surfing has found a new home in the heart of Western Montana. Strongwater Mountain Surf Co., "the original mountain surf shop," has found an unexpected niche in Missoula. On a cold, dreary, February afternoon, a group of surfers could be found doing what they love – riding their custom river surfboards on the Clark Fork between banks of ice three feet thick.

When I spoke to a manager at Strongwater, he told me he “was a former football player for the University of Montana, but after receiving too many concussions, he had to quit, and that was when he took up surfing” (fieldnotes 1-27-15). He had only been surfing for a short period of time, but he said it was addicting. “The surfing community in Missoula is great, and unlike that of California where it is very exclusive... in Missoula, it allows me to feel like I am still part of a team,” he shared (fieldnotes 1-27-15).

Brennan’s Wave is a memorial surfing wave named after Brennan Guth, a world renowned local kayaker, whose untimely death on a river in Chile left many in the river community distraught. As a local kayaking instructor, Brennan shared his passion for the river with many, and his friends and family only saw it fit to honor him with a project that he and others had already been dreaming of. The Clark Fork River at the time was unsightly and dangerous at the location of Brennan’s Wave. A diversion dam made of concrete rubble from the old Higgins Street Bridge needed to be replaced and the idea of a multipurpose structure was floated to members of the Missoula Whitewater Association who quickly realized the potential to honor Brennan and impact the community in a healthy and positive way.

In 2007, only a year after Brennan’s Wave was built, Max Lentz, an aspiring teenage kayaker from Missoula, died in a kayaking accident in West Virginia. Friends and family saw the positive impact Brennan’s Wave had on the river and the community and felt it was only right to honor him in a similar manner. With the decision to create another recreational wave downtown, they set forth on the trail blazed by Brennan’s Wave. The process of creating these waves has been navigated by a highly motivated group of actors from all walks of the community, yet the grassroots, volunteer nature of

the project has left many people to wonder exactly how the process of creating a recreation feature in a public waterway takes place.

Concerns relating to the Max Wave were raised by members of the City Council in late January. Council President Marilyn Marler told the *Missoulian*, “Since volunteers spearhead the projects, neither of them go before the Missoula City Council” (Szpaller 2015). The city had a limited role in creating Brennan’s Wave, just financial donations from the Missoula Redevelopment Agency, with the same being true for the Max Wave. Although the project is located in the heart of downtown, the planning process of the two waves took place outside of the usual public forum, since the city technically has no jurisdiction within the banks of the Clark Fork River. This gray area in which the planning efforts take place left room for the question to be asked, how was Brennan’s wave planned for and created? Further, how does this process compare to the Max Wave, nearly a decade later?

The purpose of this research is to understand, from a planner’s perspective, how a grassroots advocacy group can successfully enhance the downtown stretch of the Clark Fork River in Missoula, Montana, and how this success can be translated into another similar project. By utilizing Actor-Network Theory (ANT) and following the associations created through the development of the whitewater play waves in downtown Missoula, this research will trace the story of Brennan’s Wave and the process involved in creating it. ANT is a useful tool beginning to work its way into planning theory that offers a view of the human and non-human actors that influence a certain planning project. This research will also compare the process and changes that have taken place with the Max Wave, which is currently in the final stages of the permitting process. Another key theme

that emerged throughout this research was the identified need for a comprehensive urban river corridor management plan. Through this research, I will also show the utility of ANT in understanding how these urban planning projects are created, and the implications they can have on the rest of the place based actor-network.

2. Conceptual Framework

To understand the basis for Actor-Network Theory (ANT), the departure point begins at the shift from the structuralist era of geography and social sciences toward post-structural theory. Emerging from the failures of structuralism to explain actions and events with a generative mechanism responsible for their creation, post-structuralism developed throughout the social sciences. The multitude of possible explanations that structuralism lacked weakened its prospects and forced a new way of understanding social relations. Structuralism became reinvented as Post-structuralism, which “refers, in the main, to the multiple meanings and modes of identification that emerge from the constitution of relations within texts and within cultures” (Murdoch 2006, 9). Allowing for multiple meanings and relations encouraged an open and dynamic understanding versus the closed determinism of structuralism. “Post-structuralism directed its attention to the relationship between the reader and the text” (Murdoch 2006, 23). Realizing that different readers will interpret text differently opened the doors for the study of identity within a dynamic and complex world. Accepting the relational nature of individuals within the world allows for investigations into the organizing forms of society.

According to post-structural theory, it is not the structure that creates relations; rather, relations create structure. The entire world can be seen as complex relations between various objects, locations, people, places, and times. This imbroglio of networks and flows that exists can be difficult to unpack, but it has been taken up by many human geographers who are thinking of space relationally rather than territorially (Jones 2009). In light of this, some have gone far enough to say that all geography is relational geography (Murdoch 2006). The dualistic thinking of structuralism can be difficult to set

aside. Schillmeir (2010, 236) points out that “the very fact of *being modern* cannot be explained solely with modern means of explanation.” The monistic and dyadic concepts of modernism exist as “either-or oppositions: they exclude the other in order to be what they are: the one *or* the many... such binary logic systematically excludes third possibilities” (Schillmeir 2010, 236). Heterogeneity gives validity to a grey area that is neither black nor white. By exploring the world in non-binary terms, the distinction between subject and object becomes difficult to maintain.

Relational geography and post-structuralism inherently incorporate the researcher into the methodological framework of data collection and interpretation since it is the researcher who is responsible for creating a research network (Latour 2005). A qualitative researcher is immersed within the field, engaging with subjects and deriving meaning through experience. “As such, there has been a general recognition that our position as researchers, as well as that of those we are researching need to be written into our research practice” (Ruming 2009, 452). Objectivity is difficult to maintain in qualitative research; therefore, reflexivity on part of the researcher is justified and accounted for in the qualitative research. By combining the relational nature of post-structuralism and the reflexive condition of qualitative research, Actor-Network Theory (ANT) provides itself to be a useful tool by blending the two into a methodology that adds value to research in the field of human geography (Ruming 2009).

Although the name may be misleading, Actor-Network Theory is not a theory in and of itself, but rather “a general attitude and an attempt to be sensitive to the multitudes of circulating forces that surround us, affecting both each other and ourselves” (Hitching 2010, 100). It goes against the reductionism inherent in structural theories by starting on a

local level and working outwards. As Bruno Latour writes, ANT does not “claim to explain the actors’ behavior and reasons, but only to find the procedures which render actors able to negotiate their ways through one another’s world-building activity” (1999b, 21). Reality is inherent, and the connections that hold it together are constantly changing. If ANT is to be considered a theory, “it is a theory of the space or fluids circulating in a non-modern situation” (Latour 1999b, 22). ANT exists outside of theoretical confines that seek to explain why reality exists. Rather, it derives meaning by looking at how reality is performed through the relations that comprise it.

ANT grew out of the field of science and technology studies and was initially developed through the work of Bruno Latour, John Law, and Michael Callon. Essentially, turning an ethnographic lens back onto researchers and scientists in the field, associations between the researchers and the subjects and objects relevant to their study were traced, and a useful vocabulary was created to help better understand how knowledge is created by developing a network of associations. Networks in ANT are not to be thought of in a technical sense, nor are they purely social networks. Actor-networks are not necessarily finalized or stabilized and do not only concern themselves with the human dimension. Technical networks, such as transportation, sewers, and computer networks, generally lack a human dimension to them, while social networks most often lack non-human elements. An actor-network does not differentiate between the human and non-human actors that can compose it (Latour 2005).

ANT researchers, as well as others who study sociology of science, would agree that knowledge is socially produced and materially conveyed. Knowledge is expressed through speech, documents, skills, and other material forms and is ordered in distinct

ways. The order of the relations that exist to create knowledge is the main focus of ANT (Latour 2005). As Law explains, “it is a process of ‘heterogeneous engineering’ in which bits and pieces from the social, the technical, the conceptual, and the textual are fitted together, and so converted (or ‘translated’) into a set of equally heterogeneous scientific products” (1992, 381). The knowledge created by science is produced through the associations of people and materials. In other words, it can be seen as a “network of heterogeneous materials” (Law 1992, 381). This analytical perspective is not limited just to science but can be applied to all manners of the social, since it too is made up of heterogeneous networks of humans and materials.

ANT has been mobilized as a useful tool for geographic studies in recent years as researchers trace associations to understand *how* networks of associations are created and what outcomes they produced. Economic geography, food geography, urban studies, and planning, among many other areas of study, also utilize ANT (Murdoch et. al. 2000; Sheehan and Vadjunec 2012; Rutland and Aylett 2008; Barratt 2011). The idea of networks and assemblages of actors has proven useful in a variety of geographic studies seeking to understand *how* a phenomenon is created. By carefully tracing the associations between actors, a more detailed perspective of a situation is created by not presupposing *why* actors perform different actions. The ontology of each actor is preserved and is irrelevant in developing an actor-network. By setting aside notions of preexisting structures, market forces, or natural forces, ANT seeks to describe how society and nature are *consequences* rather than causes of natural and social sciences (Latour 2005).

Three central principals of ANT include radical relationality, generalized symmetry, and association (Farias 2010). Relations between the human and material

world in ANT reach beyond language, culture, and communication, qualifying it as radical. The concept of generalized symmetry refers to the elimination of binary thinking so that one actor does not take precedence over another. Human and non-human actors are equally important in the network of associations. Associations between things that by themselves are not social are what constitute the social realm for ANT (Farias 2010). In his seminal text, *Reassembling the Social: An Introduction to Actor Network Theory*, Bruno Latour (2005) reframes the study of sociology from being the study of the social to being a sociology of associations. By incorporating non-human objects, which are traditionally thought of as non-social, into the composition of the social, he maintains the epistemological foundations of sociology by merely tweaking the ability for social inquiry to include non-human elements. ANT limits itself to associations and does not presuppose any constructing forces of the social; instead, it traces the connections that create the social. Society is a condition to be explained rather than an explanation for the social condition. (Latour 1996).

It is important to let the shape of the network structure emerge from the connections between actors. As Latour explains, “social, for ANT, is the name of a type of momentary association which is characterized by the way it gathers together into new shapes” (2005, 65). What is social is ever changing and shifting, and not an invisible force that determines the actions of individuals. It is a succession of social moments that create and recreate the social reality in which we live. The world we know has been handed down to us through a succession of actions based on associations (Latour 1999a). By taking this perspective, ANT can investigate how durable connections are held together and others are enrolled to create a constant actor-network that is the social.

The focus of an actor-network revolves around the actors and not the network. Actors are defined through action, and action is defined by asking, “what other actors are modified, transformed, perturbed, or created by the character that is the focus of attention”? (Latour 1999a, 122). Networks can maintain a sense of stability, but there is no guarantee that the relations that exist will remain since actors have the ability to act in various ways, which can lead to change and enrollment into different actor-networks. The agency of actors is an important facet of ANT because the actions that are performed can come from any amount of ontological perspectives that are subjectively produced by each individual. Meaning is subjective and prescribed by the actor. Agency is constantly debated among actors and groups are constantly formed and reformed. The concept of symmetry is used in ANT as to not presuppose the importance of one ontological perspective over another, meaning the reason why an action took place is not as important as the fact that it happened. This flattening of ontologies, as Latour describes it, allows for the agency of non-human actors to also exist in the social realm (2005).

In regards to non-human actors, Murdoch points out, “non-humans have the potential to act, a potential which arises from the network relations in which they are enmeshed” (Murdoch 1997, 331). As different parts of a network, non-human actors can influence the other, human or non-human, parts. Allen reiterates this when he states, “objects are connected to networks because they are actors waiting to become activated” (2011, 276). Objects can display a stability that never affects a network, yet still retain the ability to impact the network in meaningful ways.

ANT does not suggest that non-human actors have preexisting intent or ontology that guides action. Rather, it recognizes that action can take place by objects that are

outside of human control. The actions of non-human actors are mediated by others, they “do not speak on their own, but always through something or someone else” (Latour, 2005, 76). Non-human actors can exist as intermediaries, which “transports meaning or force without transformation,” or as a mediator that can “transform, translate, distort or modify the meaning or the elements they are supposed to carry” (Latour 2005, 39). A mediator has an active role in altering the network, while intermediaries exist within the network without alteration to it. These roles are not static, as the actions of an intermediary can have implications which shift its role to that of a mediator. The network structure that may appear is a “continually reproduced medium through which action is enabled” (Murdoch 1997, 324). Actor-networks are dynamic and although stability may exist, it is not guaranteed. While a network may be assembled in one manner, the ability for it to be reassembled in a different way is always a possibility.

A simple actor-network in ANT can usually be described as an assemblage. Anderson et al. (2011) describe assemblages as being “composed of heterogeneous elements that may be human and non-human, organic and inorganic, technical and natural.” An assemblage can be understood as an actor-network since it draws together various human and non-human elements. Paul Barrett shows how “humans and non-humans are relational, produced through and with others” in his description of rock climbing as a human-material hybrid assemblage (2011, 398). Using ANT, he shows the role technology plays in allowing humans to experience place. The network of a climber, climbing shoes, and a surface to climb on is a technological assemblage that allows the shifting of human movement to a mechanical advantage. “Climbers are hybrid beings that are co-enabled in their ascents as co-constituent actors among a ‘climbing assemblage’”

(2011, 398). The ability to look at an assemblage as a network allows for new analysis of seemingly usual things. The shoes, harness, rope, climbing surface, and belay are actors in a network that allows for humans to experience place in a different and unique way. The assemblage is stable when all actors are working in unison; however, the effects of unanticipated actions can drastically alter the stability of the assemblage.

Objects, texts, concepts, machinery, institutions, and humans are not viewed as separate entities but in constant relation to each other. Each can have a crucial impact when an action takes place, and there is no certain sense of control. Networks can remain stable for a period of time, but they are always in flux, allowing new actors to enter and exit the network (Latour 2005).

The heterogeneity available to actor-networks allows for such a vast array of associations and it is difficult preserve common social constructs of scale, time, society, and nature. When one begins to follow the associations between actors, these concepts become problematic and difficult to hold onto due to the interrelatedness of actors. Humans and non-humans have equal capability to act, thus bringing into question the artificial division between the social and material world. Traditionally, sociology has given preference to the human dimension. However, the concept of generalized symmetry prescribed by ANT does not impose any a priori privilege (Muller 2014).

Local and global scales become points of issue as well. Connectivity is no longer contingent on proximity to one another. The ability of “drawing places that look distant close and making close places more distant, also implies a move toward a flat ontology” (Muller 2014, 5). The networks we live in are constantly shifting and are “never purely local because actors in a certain location are bound in sets of relations to actors located

elsewhere” (Kortelainen 199, 237). With technology, distance has become less of an obstacle and does not dictate the strength of connections. The flat ontological view proposed by ANT allows for the way in which people interact with place to be viewed in different ways.

A common dualism that becomes flattened by ANT is the human/nature dichotomy. The rift that exists between the social and natural realms can be deconstructed with ANT, offering a different and potentially more useful perspective in research (Latour 2005). Allen (2011) argues that “ANT is a viable method for studying anything in the landscape, because it folds the nature – society dialectic (and space – time) into one concept” (274). By focusing on the connections between the two and not adhering to the dichotomous relationship a network approach of understanding renders the reliance on dualism unnecessary. Kortelainen (1999, 236) argues “it is impossible to understand the social construction of nature without taking into account its material basis. Nature is at the same time real, social, and imagined.” The concept of nature exists in a human dimension. The living beings and objects we define as natural exist in relation to one another regardless of how we define them and conceptualize them. By flattening the human/nature dualism and looking at the associations between human and non-human actors, a more nuanced description of interactions can be elicited. “Actors are networks rather than human beings and these networks are relentlessly heterogeneous,” Murdoch explains (1997, 329). It is by tracing the connections between actors that dualisms become flattened. The analytical approach of ANT is to “follow the actors” (Latour 2005, 12). It is the actions of the actors that Latour implores one to uncover in a symmetrical, unbiased, manner.

The symmetrical approach that ANT utilizes allows for a heterogeneous group of actors to coexist without preference given to any one actor. Actors influencing a network can be human or non-human as shown by Callon (1986) in a much cited study involving scientists, scallops, and fishermen in France. In this early application of ANT, which Callon refers to as the “sociology of translations,” he traces the “construction of a network relationship in which social and natural entities mutually control who they are and what they want” (1986, 68). Agency is displayed by all actors through the scallops’ ability to attach to collection devices which provide protection from other sea creatures, the scientists with their research agenda, and fishermen who subvert the collective agreement and harvest all the scallops from the study site in what Callon refers to as an act of treason (1986).

Actors are enabled and mobilized through the process of translation. According to Ren et al. (2012), “Actor-networks are shaped by the connection and association of a broad variety of entities-becoming-actors through which actors attempt to characterize and pattern the networks of the social” (15). The grouping and organizing of individual actors (human or non-human) based on associations creates coherent, although possibly only temporary, networks. A network that exists is stabilized. When that stability is altered through changes in associations, the network can cease to exist or transform into something noticeably different (Latour 2005). The formation and alteration of networks happens through a process called translation.

The process of translation takes place through four distinct steps through which the actor-network is created. Callon (1986) identifies these steps as problematization, interessement, enrollment, and mobilization. In the problematization phase, a central

issue is identified, as well as the relevant actors who help to define it. An impasse is identified that requires a decision or action of an actor in order for the chain of translations to continue. In the *interessement* stage, the primary actors reach out to others who take up roles associated with the primary actors' position. Enrollment into an actor-network occurs when actor groups are formed and a spokesperson emerges to represent the group which is then mobilized, resulting in action being taken.

In order for enrollment to occur, the first step, *problematization*, has to be mitigated. In this step, an issue is identified that is an impasse that must be addressed before further action can take place. "Obligatory Passage Points (OPP)" exist for individual actors who each have "their own obstacle-problem to be concerned with" and "cannot obtain what they want by themselves" (Callon 1986, 70). When faced with an OPP, actors are forced to assemble into groups depending on their interests for a consensus to be reached and their individual problems to be solved. This is the *interessement* phase. *Interessement* stabilizes actors and delegates spokespeople who can then speak on behalf of the group. When *interessement* is successful, enrollment has been achieved (Callon 1986).

While enrollment creates a consensus for future action, actors become displaced as a result of identifying a representative through the interpretation of roles for the sake of stabilization. In regards to the heterogeneity of actors, the ability for a spokesperson to be defined is an inherent part of the process:

The repertoire of translation is not only designed to give symmetrical and tolerant description to a complex process which constantly mixes together a variety of social and natural entities. It also permits an explanation of how a few obtain the right to express and to represent the many silent actors of the social and natural worlds they have mobilized (Callon 1986, 81-82).

The position of the group does not necessarily represent that of each individual. For translation to take place, actors must go through transformations and displacement must occur. Displacement is complex, involving goals and interests of actors, be they human, animals, or objects. The continuous process of displacement can be understood as translation, and when translation is successful, “only voices speaking in unison will be heard” (Callon 1986, 81). Translation is ultimately the establishment of power relations in which control is established and representation is given to numerous silent actors for the sake of mobilization.

Power is enacted through relations, and exists only through action. It is performative and although one actor may appear to hold more power over others, it can be contested by other actors. According to Latour (1986), power is a consequence of translations, not an explanation of the social condition. “Those who are powerful are not those who ‘hold’ power in principal, but those who practically define or redefine what holds everyone together,” he writes (1986, 273). It is not power that holds society together; rather, power is the result of enrolling and convincing others. There is a constant debate between those who obey and those who are obeyed. Power is an effect, not a cause of society. Latour argues, “Society is not what holds us together, it is what is held together” (1986, 276). Thus, it is associations that determine society, not a reserve of capital or power.

Money can act as both a mediator and intermediary in actor-networks. “Actor-networks ‘give voice’ to the third elements (like money, technologies, etc.) that configure, for example, humans and non-humans as subjects and objects” Schillmeier explains (2010, 240). Money has an individualizing effect on human beings with its

ability to enact difference. Money, along with visual perception, “has the ability to mediate humans and non-humans into subjects and objects: calculating subjects and calculated objects,” Schillmeier continues (2010, 241). We all have a natural tendency to divide and reassemble things in order to create meaning, and it is often through our perceptions and money that meaning is translated. This translation is projected onto a larger scale as Schillmeier notes, “the realm of visual perception dominates modern cultures, and the metropolis is very much an assemblage of visual regimes” (2010, 241). Our notions of space and place are influenced by our perceptions, mainly sight, and also other cultural constructs.

ANT has been incorporated into planning theory in order to help understand the inherent complexity that exists when a heterogeneous group of actors attempt to synthesize their goals and interest with regards to a specific development project. From a planning perspective, it “can offer an analytic edge over existing planning theories that only engage with the material and natural world through the values and communicative action of social actors” (Rydin 2012, 24). By looking at elements of the landscape, documents, regulatory agencies, and other actors, Rydin applies ANT to a case study of regulating low carbon commercial development. Using the heterogeneity of actors, she goes on to suggest that “building planners’ ability to engage with the materiality of urban development may be the key to enhancing their network power and achieving planning-led change” (2011, 43). Allowing for a greater understanding of the intricacies between planners and the actor-networks they exist in can give leverage to planners in their ability to shape the environment in which they work.

Engaging with the heterogeneity of society is not a clean process. In the past, planning theory, and consequently, planning practice, has always tried to distill physical space and social interactions into a clean and neat comprehensive plan through surveys and maps. Physical plans focus on design and physical form, while generally ignoring the dynamic of lived and “becoming” processes (Murdoch 2006, 10). Jane Jacobs, an iconic critic of planning theory, noticed this in the 1960’s in her book, *The Life and Death of Great American Cities*. The traditional leaning of planning toward physical science cannot solve the problems of “organized complexity” she argues (Jacobs 1961, 440). Statistical averages and probabilities used to understand disorganized complexity do not translate to cities because people are not predictable statistical units (Jacobs 1961).

By taking a perspective from life sciences, cities, consisting of problems of organized complexity, can be seen as “organisms that are replete with unexamined, but obviously intricately interconnected, and surely understandable relationships” (Jacobs 1961, 439). This relational thinking of urban space came ahead of the curve in the discipline of geography and its shift toward post-structuralism. In her call to understand cities in relational terms, she lists three approaches (1961, 440):

1. To think about processes;
2. To work inductively, reasoning from particulars to the general, rather than the reverse;
3. To seek for “unaverage” clues involving very small quantities, which reveal the way larger and more “average” quantities are operating.

Jacobs continues to elaborate on the understanding of processes and their catalysts, explaining the importance of objects in cities and their ability to “have radically differing effects, depending upon their circumstances and contexts in which they exist” (1961, 440). These ways of thinking which she suggested – decades earlier – are reflected by ANT. By understanding processes and “these ordinary arrangements of cause and effect,

we can also direct them if we want to” (Jacobs 1961, 441). In order for planners to enact meaningful change, it must be done by first understanding the particulars of a place, rather than applying generalizations.

Rivers have been the subject of many ANT studies that address cultural constructs such as the human/nature divide. Kortelainen (1999) describes a Finnish river as an actor-network that consist of “a combination of different non-human and human actors constructing the river in a material, social and cultural sense” (237). By tracing the associations between the forest industry, the river, the environmentalist, and other actors, the author uncovered a shift in attitude from environmental exploitation to environmental protection. In another study of a hydroelectric dam project in Costa Rica, ANT is employed to show how proponents of the dam, rival indigenous groups, and an independent researcher establish different cultural representations of a shared social reality. The dam project is used to show how a development project is constituted through associating heterogeneous actors (Campregher 2010).

In looking at the interface between the Clark Fork River, recreation waves, and the actors responsible for their creation, ANT provides a “set of tools to help reveal how political priorities and the capacity to achieve them emerge over time from the dispersed energies of diverse actants, both human and nonhuman” (Rutland 2007, 633). This study will utilize ANT to trace the associations that were established in order to build Brennan’s Wave, how they have maintained a level of stability, endured change, and have been drawn upon to create another similar project, the Max Wave.

Actor-Network Theory (ANT), as a methodology, is primarily concerned with describing the actions and events that create the actor-network. Data can come from a

variety of sources, but generally, ethnographic and qualitative techniques are used. Cowen et al. (2009) describe the research benefits of ANT existing “first, in its reflexiveness, and, second, in the researcher’s ability to ‘pick-and-mix’ from different methodological jars.” Different approaches to data collection and analysis are available depending on the topic of research. Research and methodology are “a series of translations of network actors in relation – where we first build a network (research field) and then translate our findings” (Ruming 2009, 454). Research subjects are enrolled into a research network created by the researcher. The story that is told by the researcher is inevitably different than that which the research subjects would tell about themselves. The researcher and the research subjects come to an agreement that the topic at hand is interesting enough to be studied, but there is no agreement in how the results are portrayed (Pile 1991). Ultimately, the power of translation lies within the hands of the researcher to interpret the actor-network, and thus reflexivity is a necessary point to acknowledge. The researcher takes the situated knowledge within an actor-network and translates it within their own research network (Ruming 2009).

3. Methodology

This thesis, like any research product, emerges as an assemblage constructed from a research network. Theory and data are combined to produce a meaningful analysis based on the progress of scientific inquiry. In regards to data, St Pierre and Jackson (2014) argue that “conventional humanist qualitative inquiry is grounded in the Cartesian dualism, subject/object, that implies the existence of an object separate from and independent of the collecting subject, a brute datum – pure data that exist in an external reality waiting to be collected and analyzed” (2014, 716). Data and theory are often viewed as being separate and kept to different sections of a research product. However, “There are no data without theory that orders and gives classification to the things of the world,” argues Popkewitz (2004, 72). Theory gives context to the collected data and is ultimately sorted and interpreted into a meaningful end product. St Pierre and Jackson suggest “using theory to determine, first, what counts as data and, second, what counts as ‘good’ or appropriate data” (2014, 715). This approach gives equal standing to the theory being applied to a research product, as well as the actual data being collected. A more robust analysis can be created if the two are used simultaneously.

The analytic strategy of ANT is to “follow the actors” and relations between them Latour (2005, 12). Latour suggests that any ANT study should start from the middle. My roles as the researcher and an employee for the Missoula Downtown Association, positioned me in the center of activity around Brennan’s Wave. Working at Caras Park for two years gave me the unique position as a participant observer of the daily activity at Brennan’s Wave. From this vantage point, I was able to see the different types of passive and active interactions that took place in and around Brennan’s Wave. With a seasoned

understanding of the daily flows of activity around the wave, I still found myself wondering how, from a planning perspective, Brennan's Wave was constructed, and what the policy implications were. Hearing talk of the Max Wave being built, I felt this was a perfect opportunity to dig deeper and compare and contrast the process of creating the two different downtown surfing waves.

To this end, semi-structured interviews proved to be most useful to understanding the planning that was going on behind the scenes. I also conducted observations and informal intercept interviews to understand the ways in which it is being used by the general public and to get a feel for the sense of place created by Brennan's Wave. To establish a context, I compiled secondary sources of data such as newspaper articles, websites, and city council meeting minutes. I transcribed interviews and field notes, and converted them to a digital format so they could be put into a computer assisted qualitative data analysis software along with all of the other data gathered in the process. The analysis software used for this study was QSR Nvivo 10.

The formal interviews, nine in total, lasted an average of forty-seven minutes each. A list of the interviewees and their roles involved with the wave projects can be found in appendix A. The interviewees were chosen in a purposeful manner based on their involvement with Brennan's and Max Wave, determined by preliminary conversations with key individuals. Linda McCarthy, Director of the Missoula Downtown Partnership (MDP), was one of the first people I spoke to who gave me an initial list of contacts who were some of the primary actors involved with Brennan's Wave and the Max Wave. After conducting initial interviews and familiarizing myself with the network of actors involved in these projects, I contacted other actors that

emerged as key players. A snowball approach was also taken when, at the end of each interview, I asked participants who else they recommended I should talk to. Based on these suggestions, I reached out to this new group of potential interview candidates. Before conducting each interview, participants signed an informed consent document granting their permission to be audio recorded and their name to be used in the final document. I choose to include their names in the study since most of the interviewees were public figures or already quoted by name in many of the newspaper articles about the waves.

I conducted intercept interviews and observations simultaneously with users of Brennan's Wave and people around the riverfront. Over the course of ten observation sessions, from late January to early March, I spoke about the wave with sixteen different people. Each session lasted thirty minutes to one hour long, and the intercept interviews approximately five to fifteen minutes. The casual nature of the conversation eventually led to the line of questioning turning back towards me and my project, and that was when I would kindly thank them for their time and end the conversation. The objective of the interviews was to collect the users' perceptions so I felt that when I began talking too much, I was no longer collecting data.

Each session started at Caras Park and depending on the level of activity and where the most people were located, I would move around the area, sometimes crossing the Higgins Street Bridge to the south side of the river to talk with surfers who parked their vehicles there. During one session, on a rather dreary February afternoon, only one person in a raft was using the wave. After talking to him when he got out of the water,

there was no one else around, so I decided to walk across the bridge to the surf shop, where I found a couple of surfers hanging out in the store.

Intercept interviewees were selected through a convenience sampling approach based on the visible interest a person had in Brennan's Wave and their willingness to talk. The interviewees were kept anonymous, as their names were not as important as their perceptions of the wave. By allowing for interviewees to maintain anonymous and unrecorded, I felt that I could get a more honest opinion. This also relaxed the requirement for a signature on the informed consent paperwork, maintaining the casual, open nature of the conversation. The data gathered from observations and intercept interviews showed how people interact with the space and the constant interest displayed towards Brennan's Wave; however, it did not explain the associations that existed to create Brennan's Wave.

Secondary data collected for this study came from newspaper articles and other Internet sources. I compiled fifty-nine articles from the *Missoulian* website dating back to July 2005. Eight other articles about Brennan's Wave or other river surfing waves were compiled from *Outside Magazine*, *Matador Network*, *Surfer Magazine*, *Smithsonian*, and *National Geographic*. This data was used for background information about Brennan's Wave, and also gave context for formal and informal interviews. The *Missoulian* gave insight to the public discourse surrounding the wave, but coverage only began when the building process for Brennan's Wave started, leaving a gap about the planning process that began six years earlier.

After collecting all of the data and inputting it into Nvivo 10, the data was coded using structural, holistic, and thematic techniques in the first cycle coding process (Saldana 2009). This allowed for the a priori goals of ANT to be applied to the analysis. By taking larger, holistic sections of interview transcriptions, discussions and actions are not taken out of context. This helps to maintain validity when describing the actor-network. Coding in an ANT analysis must focus on the relations between actors, as well as the impasses, actions, and translations that take place. Analytical memos are also used for the sorting of codes and themes, and recording key etic (researcher) insights of the actor-network throughout the analytical process.

Memo writing is an integral part of qualitative analysis. Memos, the “conceptual notes that tie together various data excerpts into a coherent and cohesive assemblage,” are an important aspect of developing etic interpretations (Warren & Karner 2010, 241). As described earlier, the researcher reflexivity of ANT highlights the process of etic interpretation through the creation of a research network that is a representation of the actual actor-network. Ideas on associations of the actor-network are inherent to the researcher and can come at various and often unpredictable times throughout the course of a project. Since ANT is descriptive by nature, the data must be organized and structured in a way that ties the actions within the actor-network into a cohesive representation of events. I found that memos were the most useful tool for tying all of the various connections I saw together.

The analysis section, represented in the Findings chapter of this study incorporates the description of actions and associations within the actor-network, and highlights the notable translations that took place for the creation of Brennan’s Wave. It

also shows how the actor-network surrounding Brennan's Wave has been mobilized again for the creation of the Max Wave. Other issues that emerged which are of concern to the actor-network are also highlighted.

4. Findings

The actor-network that exists around the surfing waves in Missoula was partially in existence before the idea of Brennan's Wave and the Max Wave came to be. An actor-network of regulatory agencies and policies governing development projects in the river was already in place and mobilized for different projects. Brennan's Wave enrolled the existing actor-network into a new wave building network. The following sections will discuss the actor-network that was created by the inception of Brennan's Wave. The first section of this chapter will look at a surfing wave as an assemblage, a small, highly functioning actor-network. The next section will examine the larger actor-network responsible for the creation of Brennan's Wave and the Max wave, followed by the other challenges along the riverfront facing the established actor-network.

4.1 Assemblages: What Constitutes a Surfing Wave?

From the surface, the river is filled with waves and riffles as water flows over the rocks, logs, and anything else in its path. Every wave is different, the surfers will tell you. No matter if it's the ocean or the river, the complex conditions that make up the waves can change daily (Brown 2-4-15). On the Clark Fork, high water comes every year with the snowmelt from the mountains. The river swells and the waves become amplified. In certain places, the right alignment of the river bed can produce a wave that can momentarily be used as a canvas for performance art as an anonymous onlooker put it. "I like seeing people using their bodies and being athletic. I find it energetically attractive. I enjoy seeing people having fun and doing what they love. Seeing this type of positive energy cheers me up throughout the day," one woman told me on a brisk February day

(fieldnotes 2-13-15). Whether in a kayak or on a surf board, surfing on river waves has become a popular and intriguing sport for many. However, looking deeper at the conditions that exist in order for this activity to take place reveals more than just the necessary human elements. Without a stable assemblage of natural processes, a surfing wave cannot exist.

Waves are caused by rocks, debris, or other material on the surface of a moving body of water. On the Clark Fork River, some surfing waves occur naturally when the current has scoured out a pool on the downstream side of a large boulder causing the water to fall over the boulder into the pool and shoot back up, creating the proper conditions for someone to surf on it. This is essentially what is being replicated by a manmade surfing wave. “The right conditions allow you to become “locked” into place in kayak or surfboard on the moving water. The stationary moments in the middle of the moving river have an addictive quality,” one surfer told me (fieldnotes 1-27-15). Since surfing is mainly seen as a human activity, it is a social phenomenon traditionally thought of in contrast to the natural elements of the river. But taking a symmetrical view of the relationship between the human and natural elements, an expanded field for exploration opens as the social condition plays out on the river at various moments.

The assemblage of a person, a surfboard, and the river becomes a type of human/nature hybrid, not uncommon from the rock climbing assemblage Barrett (2011) describes. Alone, a person, a river, and a surfboard do not constitute a surfing wave, but assembled together they become an actor-network in the form of a human-object hybrid assemblage. The wave itself exists from the physical relations of material on the river bed. Brennan’s Wave, like other manmade play waves, is an assemblage of boulders or

other material grouted together with cement above a pool in order to create a stabilized feature.

Manmade surfing waves have been created all across the globe. By extending the network of the surfer, the local/global scale dichotomy needs to be forgotten about. This is what Latour speaks of when he talks about flattening networks (2005). Movement occurs in Euclidian space, which is different from network space, as Law (2002) points out. Brennan's Wave is not just a local phenomenon. The actor-network of Brennan's Wave extends beyond the Clark Fork River and Caras Park through photographs, and the Internet. Strongwater Mountain Surf Co. tests their surfboards on Brennan's Wave but sells them internationally over the Internet, the owner, Kevin Brown, told me. A wall in the back room of the store is covered with newspaper and magazine clippings highlighting some of the local and national publicity Brennan's Wave has received (Brown 2-4-15). On May 7, 2015, a photographer from *National Geographic* came through Missoula and took a picture of Brennan's Wave that was posted on their Instagram feed (@natgeo). The image was "liked" by over 268,000 of the 21.7 million people who follow the social media account. The exposure of Brennan's Wave on the Internet allows for innumerable connections. The relationship between Brennan's Wave and other actors are numerous, but for the sake of this study, the focus will remain on the strongest and most influential connections in the actor-network.

4.2 Brennan's Wave: A Process of Translations

The need to replace the diversion structure in the Clark Fork River, near the Higgins Street Bridge, was first addressed in 1998. Owned by the Orchard Homes Ditch

Company, the diversion dam was built by the city from concrete debris and rubble when the Higgins Street Bridge was replaced in the 1960's. It was a haphazard pile of debris that created a danger to river users and an eyesore to others, most importantly, the Missoula Redevelopment Agency (MRA). At the request of the MRA, a feasibility study was conducted to look at the alternatives of what could be done to the diversion structure, including enhancements to recreation. The Missoula Conservation District, "which is a quasi-governmental entity that helps promote soil, land, and water conservation," sponsored the study conducted by an engineering firm called Land & Water (Baker 1-29-15). Trent Baker was heavily involved with Brennan's Wave and volunteered his skillset as a land use lawyer throughout the entire process. Everyone I interviewed pointed towards him as the expert on Brennan's Wave. According to Baker, the feasibility study found the following:

Although it's not physically pushing water into the Orchard Homes Irrigation Company's ditch, it does maintain the grade of the river and so the structure that was falling apart had essentially, you know, mostly degraded except for the side nearest Caras Park. And the irrigation head gate is on the other side of the river, and so it wasn't physically pushing the water over there, that was just kind of happening by virtue of it being on the outside of the bend and maybe some influence from the Higgins St. bridge piers, but the study showed that if they just removed all of that concrete and rebar the river could down cut on that north side, Caras park side of the river, and could potentially leave the ditch high and dry. So... the engineers' conclusion was that yea you can take it out but you got to replace it with something. (Baker 1-29-15)

This was when Baker, who was also a kayaker and at the time president of the now defunct Missoula Whitewater Association, was approached by an engineer named Paul Callahan, an engineer for Land & Water. Based on press about river surfing waves being built in Colorado at the time, Callahan asked Baker if the Whitewater Association would be interested in helping to create a similar structure. "Me and some other folks in the whitewater association, including Brennan Guth, said 'yeah, you know, let's do it.' So

that was the beginning of the project” (Baker 1-29-15). This was the beginning stages of translation with the identification of a problematizing situation, an obligatory passage point (OPP), and enrollment.

As they began the initial work of understanding what it took to build a surfing wave, permits, ownership, and funding had to be translated as well in order to realize the finished product. Each of these areas was new territory for a group faced with an uncertain and unknown process. “We started looking into it and talking to the permitting agencies and identifying the issues. The issues that kept coming up included liability and maintenance, and the ownership of that existing structure... we had to deal with all these things,” Baker explained (1-29-15). Each problem that arose saw a process of translation in order to deal with it, and the actor-network that was being created around the project changed in unanticipated ways (Callon 1986).

A major turning point took place when Brennan Guth, a world class whitewater kayaker and local instructor, died in an untimely kayaking incident while on a river in Chile in March 2001. Brennan was beloved by the community and a vocal advocate for the project. His family knew right away that instead of flowers they wanted people to donate to a fund for the “prospective development of a whitewater park in Missoula” (*Missoulian* 2001). Baker and the project working group were soon approached by Brennan’s father with the donation, and felt it was fitting to honor Brennan in the project and so they created the 501-3C non-profit, Brennan’s Wave, Inc. The death of Brennan was tragic for the community, but he remained an important figure in the actor-network as an inspiration for a grieving community. Donna Gaukler, Director of Missoula Parks and Recreation, noted in her time with the city:

One of the things that I've seen in Missoula over the years is some of the best projects that happen, have happened because of a group of citizens get together with a really great vision and the vision is significant enough to the community that other people join in and pretty soon we do these amazing things that maybe initially nobody thought was possible, or the first answer was no that can't happen and people find a way to make good things happen (Gaukler 3-13-15).

Tragedy was translated into inspiration as the surfing wave advocates had more of a purpose than ever to see the project through. With new motivation, Brennan's Wave, Inc. set out to understand how to realize their vision.

It took roughly eight years to establish a design, learn about the permitting process, and enroll key players to help fully understand the scope of the project. The novelty of the project interested many people as this was the first of its kind in Montana. "We had people in Helena who were also involved in Brennan's Wave just because it was so new. ... The attorney general... was involved initially because the state land board was involved in terms of they're the entity that leases state property, and the bed of the river is state property" (Baker 1-29-15). The public nature of the river complicated the situation because there were no limits to the stakeholders. Mary Sexton, the director of the DNRC, told the local newspaper, "'we certainly want to work with the public... But we have to analyze everything very carefully' to make sure the project is in the best long-term interest of the river and the state" (Andrews 2005a). After countless hours of volunteer fundraising, researching and engineering a design, the project was ready to move on to the permitting phase. However, one issue lingered before the permits could be approved. It was unclear who exactly held ownership of the diversion structure that had been sitting in the river for nearly a century, since it had maintenance done on it from the city, county, and ditch company over the years.

In other states, play waves built in rivers are generally owned by the local government; however, ownership was not straightforward for Brennan's Wave. "One of the things about this ownership thing that's pretty interesting to me is if you do research, the majority of these structures are publically owned. They are owned by the city, they are owned by the county. ...They are part of a park," stated Ellen Buchanan, Director of the Missoula Redevelopment Agency (MRA) (2-19-15). While it would make sense for a public entity to own the piece of public recreation infrastructure, it is not so straightforward in this situation. Even though Brennan's Wave Inc. wanted the city to take ownership of the wave initially, the city was reluctant because the riverbed is owned by the DNRC and the city of Missoula has no jurisdiction (Marler 2-17-15). Gaukler explained:

Parks and Recreation manages many of the lands, public lands, on either side of the river through downtown, but we have no jurisdiction or authority below high water... We have had various meeting for example in relation to Brennan's Wave which is technically an irrigation ditch diversion, about what would it look like if Parks and Recreation were to manage the wave and one of the challenges there is we have no jurisdiction. (Gaukler 3-13-15)

Below the high water marks of the river is state property, which requires more permitting for maintenance or repairs if any equipment enters into the river. The difficulty that the city would have in managing Brennan's Wave, due to access restrictions, was not the only conflict of interest faced with potential ownership of Brennan's Wave.

Another concern regarding ownership was brought up by Morgan Valliant, the Conservation Lands Manager for Missoula Parks and Recreation, and Ellen Buchanan, director of the MRA. Buchanan noted that irrigation structures "are owned by the ditch companies. And the ditch companies aren't going to give up ownership of the structure because they have to protect the right to divert the water into their irrigation ditches"

(Buchanan 2-19-15). The proprietary nature of these structures complicates and prospect of public ownership. Valliant went on to elaborate:

The city doesn't really have the resources to own it. And so they are looking at these partnerships with nonprofits to actually figure out, to have a different mechanism to do maintenance and stuff on it... Where you have got a structure that was permitted as an irrigation structure that supplies a ditch that supplies water to shareholders so that they can make profits down the road. You know having the city own a structure that helps other companies make profit is not, I mean that goes directly against our mission as a government entity, you are not allowed to you know, to do something of this whole benefit for a select few. So that muddies it up a little bit more. (Valliant 3-17-15)

While it is easy to see Brennan's Wave on the surface as purely recreational, there are profit motives and water rights tied into it as well. The Orchard Homes Ditch Co. realized this and ultimately agreed to take ownership of the wave and became the primary applicant for all permits and the land use license granted by the DNRC.

The Orchard Homes Ditch Co. also benefited through this partnership with Brennan's Wave, Inc. since their diversion structure needed to be rebuilt. They had to do some sort of construction in the river, bearing the full cost. In a city council meeting, when asked why the ditch company did not help out with the funding of Brennan's Wave, Baker replied, "They don't have the funds. I don't know what it would look like to them, with their fee structure, to contribute. With Orchard Homes Ditch Company, they did not have the funds to fix the diversion until Brennan's Wave came along and offered to rebuild it" (Missoula City Council 2015b, 8). It was evident that the structure needed to be rebuilt because it was unsightly and dangerous. However, "the companies that own these structures are not going to invest in alternatives," Baker stated to the Missoula City Council. With Brennan's Wave, "There is a safety benefit. There is an environmental benefit. It has given people a connection to the river. We have a whole new batch of people using the river so they have a stake in the river. I would never advocate for

something like this in the middle of nature, but there was an existing structure” (Missoula City Council 2015b, 6). The enrollment of Brennan’s Wave, Inc. and the Orchard Homes Ditch Company into a mutually beneficial network has a reach beyond just these actors. With ownership being settled, the project could finally move on to gaining the proper permits.

Navigable waterways in Montana are owned by the public and managed by various agencies, and it is a very convoluted process to do work within a river, nonetheless build a surfing wave. According to the DNRC website, as of 2015 there are twelve different stream permits from different agencies which may apply to projects that take place in and along streams and rivers (Stream Permitting Accessed 4-21-15). Since the repurposing of an irrigation to include a surfing wave was new to the permitting agencies tasked with overseeing the river, some confusion exists about who had jurisdiction in overseeing the permitting. Brennan’s Wave was “strictly treated as diversion repair or upgrade” (Buchanan 2-19-15). Framing the project in this manner allowed for some of the permits involving the Army Corps of Engineers and FWP to be bypassed. The permit that was necessary for construction stems from Montana state law 310, the Natural Streambed and Land Preservation Act of 1975, which aims to improve and protect water quality and availability and also mitigate impacts (Stream Permitting Accessed 4-21-15).

Being the first project of its kind in Montana, a full understanding of what the proposed outcome would be was not reflected in the permits. The necessary permit Brennan’s Wave had to comply with was the 310 law. Normally, for an irrigation project of this nature, the Conservation District would oversee the permit and the decision

making would be left to FWP. However, the Conservation District did not have jurisdiction in this case, because when the Conservation District was created in 1946, their jurisdiction included all of Missoula County, minus the 1946 city limits of Missoula (Missoula Conservation District 2014). Therefore, the county commissioners were the ones to oversee the 310 permit, and FWP served only as an advisor the County Commissioners who had the decision making power. Pat Saffel, a fisheries biologist for FWP, acknowledged:

At Brennan's Wave, you could honestly say that it was a lot more political than a scientific assessment... I got a little side channel next to a ditch... To have fish move up where water is flowing down a ditch you know, they might have made it past it, but they might end up in the ditch... So that wasn't the best situation for me. (Saffel 3-3-15)

Brennan's Wave was granted a permit by the County Commissioners, at the reluctance of FWP. With the Army Corps of Engineers permit requirement waived, the other necessary regulation for the construction of the wave was a land use license granted by DNRC. The land use license allowed for Orchard Homes Ditch Company, the owner of the wave, to alter the riverbed with the diversion structure. Once all the legal work of permitting and negotiating was worked out, the project could finally move on to construction.

After all involved groups were in agreement with the design and construction procedures, the only contingent factor was funding. Aside from the small donations from community members who supported the project, major funding came from the MRA and the Washington Companies, an industrial conglomerate based in Montana. Baker explained:

It started with the Brennan's Wave memorial fund, which I want to say was like, twenty grand or something. It wasn't insubstantial. That was kind of the seed money to get us going, then the MRA jumped in and I don't remember what their piece was, it was significant, a couple hundred thousand. And then, the in-kind donations from Envirocon and Modern Machinery. Those were huge, I have no

idea what to value those at, but a big, big chunk. Then right, kind of at the end, we were within 20 or 40 thousand dollars of our goal and Washington Foundation said, "we got that," then boom there we were. (Baker 1-29-15)

Much of the financial support was due in part to the project coming along at the right place during the right time. Envirocon and Modern Machinery, both owned by the Washington Companies, were involved in the contentious Milltown Dam removal project. Baker described, "they were interested in kind of showing Missoula 'hey, we can work in the river in a safe and environmentally responsible manner.' So that was lucky for us" (1-29-15). Envirocon is an environmental remediation that provided the construction expertise for the Wave, while Modern Machinery, an equipment supplier, donated new track hoes and coffer dams. The Washington Foundation, the philanthropic arm of the Washington Corporations, also gave financial support for Brennan's Wave because the project was within their scope of community support (Baker 1-29-15). Other support came from the MRA, which oversees and administers Tax Increment Financing (TIF) to districts in Missoula.

The MRA at the time had money to spend from the downtown urban renewal district which was set to expire in 2005. According to Buchanan, "there was a lot of cash in the district that hadn't been earmarked for anything. Like 7 million dollars... And one of the things that the board had already approved investing in was Brennan's Wave" (Buchanan 2-19-15). The MRA funding was distributed over time as Brennan's Wave Inc. needed it. In total, the MRA donated \$205,000 dollars (Missoula City Council 2-18-15).

Construction began in January 2006 and was completed in a matter of weeks. The structure was built by diverting the water with a coffer dam and grouting boulders into place with cement. The boulders were placed in line with the old diversion structure and a

pool was created just downstream, allowing for a continuous wave to be created as the water flows over the boulders and falls into the pool. As soon as the wave could be accessed, it was put to use by kayakers anxious to try it out. The first coffer dam was opened on January 31, at ten a.m. and by noon, with only eight inches of water flowing through, the first kayaker was on it. More boaters gathered throughout the first day, happy they could practice their sport in town and not thirty-five miles away in Alberton Gorge (Chaney 2006). The wave was an instant success and saw an official dedication ceremony in June 2006 and the unveiling of a monument at Caras Park (Cohen 2006). Popularity of the wave increased and local competitions gave way to national competitions, putting Missoula on the map in the kayaking world. The 2010 national team qualifying competition had a record setting 174,000 Internet views, roughly eight times more than the previous year's viewers in Vail, CO (Cohen 2010). Although the wave was a huge success on the surface, eventually some issues developed under the water as the concrete and rock structure settled over time.

Almost a decade later, the river scoured out the riverbed underneath the wave and a crack appeared in the main channel. A couple of boulders also came loose in the north channel and were pushed into the pool below the wave, prompting emergency permitting for repairs to the structure. Since the boulders and rubble were putting users at risk, emergency repairs were granted with minimal permitting necessary. The boulders were removed, along with more concrete rubble from the previous structure that had surfaced. However, the main crack has yet to be addressed, and even more rubble has surfaced since then. As Baker explained, "we want to stabilize that, and in order to do that, you have to dry it out, kind of like we did for construction... So when it's dried out that the

perfect opportunity to get in there and find those pieces of reinforced concrete” (Baker 1-29-15). In order to do a project of this nature, permits are again required. This time however, the permitting process has changed.

The Army Corps of Engineers changed their stance on Brennan’s Wave and the county required a more thorough analysis of the problem looking for reassurance that this problem will not happen again. Realizing that Brennan’s Wave is not just an irrigation structure, it is no longer exempt from the Army Corps of Engineers 404 Permit, which falls under the Federal Clean Water Act and requires a biological impact assessment. The county, which is the 310 permitting agency, also required sediment transport and hydraulic modeling (Missoula City Council 2-18-15). Although the requirement for more analysis was costly, “it was good to have better, more precise analysis of that and the size of the rock that needed to be placed below the structure when we go back in to make sure that that doesn’t happen again,” Baker said (1-29-15). The permits were submitted in the spring of 2015 and are still awaiting approval. With more fundraising, Baker hopes that they can begin construction in autumn 2015 (1-29-15).

While the process of translation is constant and numerous, only some of the more important ones were highlighted in the above description of Brennan’s Wave. The notable translations that took place are the enrollment of Brennan’s Wave, Inc., Orchard Homes Ditch Co., and the permitting agencies (federal, state, and county) into an actor-network agreement resulting in the approval of the necessary permits. In accord with Callon’s (1986) phases of translation, the initial feasibility study was the problematization of the old diversion dam that resulted in the enrollment of key actors. The first Obligatory Passage Point was that the dam could not be removed and something

needed to be built to replace it. The impasse highlighted that some sort of reconstruction had to take place and Paul Callahan, the engineer who did the study, had a specific goal in mind. Interestment took place when he approached the Missoula Whitewater Association about getting involved in creating a surfing structure. The agreement between the engineer and kayaking advocates was a stabilization of identities through the alignment of agendas and thus the first enrollment of actors into an actor-network was successful. The advocate group, now mobilized, began to speak on behalf of the project to enroll others into the actor-network.

The cycle of translations continued as others were enrolled into the network and new problems emerged. As more and more translations occurred through the work of deciphering how to build a surfing wave into an irrigation structure, key groups emerged and solidified the actor-network. Brennan's Wave, Inc., Orchard Homes Ditch Co., the County, FWP, DNRC, and the Army Corps of Engineers were the primary actor groups enrolled into the actor-network for the project.

The problematizing aspects of the project were primarily gaining permission from the permitting agencies. Negotiating the permitting process takes place through translations. Permits are the obligatory passage points that must be addressed by the alignment of interests from all of the necessary actors. When a permit is approved, the actors have met the necessary requirements to come to an agreement and enrollment into an actor-network is successful.

Another notable translation was the resolution of ownership of the irrigation structure. The problematization was the uncertainty over who actually owned the structure in its dilapidated state. This obligatory passage point had to be resolved in order

to move on because the County Commissioners required an owner to be identified before they could approve the construction permit. It was an issue, because throughout its history, both the county and the city had given money to work to on the dam and the Orchard Homes Ditch Co. was not sure if they owned it or not. The interested parties, the City, County, and the ditch company came to an agreement based on a document from the 1960s that the county attorney's office found which stated that ownership would be transferred to the Orchard Homes Ditch Co. after the work was completed (Andrews 2005b). The agreement signified the enrollment of the interested parties, solving the problematizing situation. However, now that an owner was identified, liability and maintenance became the next problems.

Liability was a concern that needed to be translated because part of the hesitation to own the structure was the fear of being held accountable in the event of a situation that could result in a lawsuit. Baker always felt comfortable about the issue of liability because of a recreational use statute in Montana that states, "if no one is charging you to use their property and you're using it for recreational purposes and you get hurt, you can't hold them liable" (Baker 1-29-15). He also described to me that "there is a similar protection to irrigation structures that would apply to irrigation ditches and diversions like this one. And then there is also the ability to obtain insurance, which Orchard Homes Ditch Company did" (Baker 1-29-15). Through discussions with the concerned entities, the issue of liability could be translated into an agreement that there was already legal protection, insurance on behalf of the ditch company, and that this project was going to make the river safer than what is already there. In a discussion with the City Council, Baker suggested that "it is important to think about the context. What was there then

versus what is there now. It is an irrigation structure at its heart. We looked at whether there is something better. It was a hazard. What is there now is designed safe and serves its purpose” (City Council 2-18-15). The general idea that the river users are responsible for their own actions and the added security of insurance obtained by Orchard Homes Ditch Co. was enough to translate the issue of liability from a concern to comfort for the actor-network. The only other point of passage to translate was the provision for future maintenance.

Initially, there was an agreement with the DNRC and MRA to set aside some funds for future maintenance. When the city council enquired, Baker explained, “the 310 permit did not have any maintenance requirements, but there were maintenance requirements in two other documents. We had a license agreement with the DNRC and also a contract with MRA, and both of them required a maintenance fund of \$20,000 be created. It was, and it is as it remains today, in an account” (City Council 2-18-15). Meeting the necessary requirements put forth by other actors, enrollment of all actors into wave building actor-network was successful and the process of translating the ideas and plans for Brennan’s Wave into a tangible structure could continue.

With permits approved, actors aligned and with a plan in hand, Brennan’s Wave, Inc. could now reach out to the community for the necessary funding. The money for fundraising in this situation acts as an intermediary, since it “transports meaning or force without transformation” (Latour 2005, 39). The show of support for the project by donors is translated through the monetary donations that they give. In this situation, the money is not a mediator since it does not transform or modify the meaning of their support; rather, the act of donating further enrolls actors into the actor-network.

Organizations such as the MRA and the Washington Companies were enrolled into the Brennan's Wave actor-network since they showed their support through financial support, donations of equipment, and construction expertise. The alignment of the Washington Foundation with the purpose of Brennan's Wave is an example of the interessement and ultimate enrollment that took place. Baker explained this when he stated, "the Washington Foundation, which is a philanthropic foundation that donates money to various things and has focuses that include kids and health and things like that, said "you know, we think this project fits within our purpose" and so they donated a huge chunk of money to it" (Baker 1-29-15). Any support for project, whether financial or not can be seen as enrollment into the Brennan's Wave actor-network.

Even though there may have been actors opposed to the wave, the lack of effective opposition to the construction of the wave, ultimately places them within the Brennan's Wave actor-network as displaced actors. Through the continual process of translation, the collective voice that supported the wave ultimately spoke on behalf of all other silent actors, human and non-human. Fishermen and residents who may have been opposed to the project, along with fish, rocks, old diversion structure, and any other affected actors became displaced in the translations that resulted in the construction of the wave.

Fish, in this situation, were not totally silent actors in the process. Representation for this group of actors came from FWP. As an advisor to the 310 permitting process, Pat Saffel, in his role as a fisheries biologist, advocated on behalf of the wildlife enrolled into the FWP actor group. Negotiations for fish passage took place, and based on fisheries research Pat could make claims about the design elements of the wave and the impact to

fish passage. “As soon as you fill up the spaces between the rocks that give refuge to where fish can go and rest and feed and stuff, then they are just exposed to the fast water, and they don’t want to be in the fast water. It takes too much energy,” he told me in regards to cementing the river bed to secure the structure of the wave (Saffel 3-3-15). He continued to explain that when you add grout to the riverbed,

you’re removing the roughness of the bed, which slows water down on the bottom and you’re adding grout which then forces the water to the top and then its smooth so it shoots over pretty quickly. And then on top of that, you’re concentrating the flow to make sort of a jet and all those things together isn't necessarily good for fish. (Saffel 3-3-15)

Only being an advisor to the County on the 310 permit for Brennan’s Wave, the ultimate decision of design approval came down to the County Commissioners. As an advocate for the aquatic life, some of Saffel’s suggestions were translated into the final design, but ultimately when the permit was approved any concerns he may have had on behalf of aquatic life that were unaddressed were displaced in the actor-network. Since he was not the decision maker for this permit and only an advisor, he had limited power in changing the ultimate design of the wave.

After the construction of Brennan’s Wave, the assemblage of rocks and cement in the river was relatively stable for about eight years. Eventually, the agency of the river was displayed when its eroding forces dislodged some boulders from the wave and moved them into the pool just below the wave, creating a safety concern. This action was unanticipated and it put the whole actor-network back into a problematized scenario. The safety for river users prompted an emergency permit to be granted in a timely manner, to remove the boulders from the pool, and at that time, some of the rubble and debris that had surfaced was removed too. When it came to developing a full plan to make the

needed repairs, the opinion of the Army Corps of Engineers had changed, as Baker explained to the City Council:

At one point we had a deal with Envirocon who was very engaged in the process. They built it and are proud of it and wanted to get a plan in place to fix it. We had a maintenance fund. And Envirocon said we could get it fixed for what we had. However, the Army Corps of Engineers, the Federal agency, had initially said that this is an irrigation diversion. It is exempt from our 404 permit process. They have since changed their mind on the permitting for these types of structures. They are now saying that you have to go through 404 permitting in order to do the repairs. (City Council 2-18-15)

The change in permitting requirements from the Army Corps of Engineers is an example of an intermediary actor becoming a mediator in the actor-network. Suddenly, a new obligatory passage point was placed on the actor-network that need to be translated. Another 310 permit also had to be obtained from the County, this time with additional analysis. A biological assessment was requested by the Army Corps of Engineers in the 404 permit, and a hydrologic and sediment analysis was requested by the County on the 310 permit. These permits have been resubmitted, and as of May 2015, they have not yet been approved. The changes in the permitting process reflect the change in perceptions of Brennan's Wave after nearly a decade of existence.

Brennan's Wave has been widely accepted by the community. "There was no major sponsor, no major donor, and no major company that took the lead. It happened because a group of friends and family members of Brennan's pulled together to make something special happen," explained Linda McCarthy, Director of the Missoula Downtown Partnership (MDP) (2-3-15). It was a grassroots project that was seen to fruition through the efforts of a dedicated group of advocates within the community.

After the creation of Brennan's Wave, the social demographic shifted as new users began to spend time at the wave and even watch from the banks. Valliant had

noticed a trend from looking at old photographs. He told me that at the location of Caras Park, “back in the turn of the century up into the 20’s and 30’s, there [was] a full shanty town down there. That is where transients used to live. And so there has been a history of over 100 years of use of people camping down by the river” (3-17-15). This was still the case prior to Brennan’s Wave being built. McCarthy explains the demographic shift:

The negative sort of users lived in Caras Park on a regular basis. They moved to the north end of downtown. And they moved up to the north end of downtown because we had vacant spaces. We had places and little coves and alleys where they could hang out and be unnoticed or not bothered. [They] completely vacated Caras Park in a matter of a year from the time that Brennan’s Wave was built and people started using that in a positive way. (McCarthy 2-3-15)

From the perspective of the business community, which is represented by the MDP, the homeless population presented a negative influence at Caras Park. From my experience working at the park, I noticed litter and vandalism seemed to have pitted the business community against the homeless population. While it is a generalization to blame an entire group for the actions of a potential few, that was what I observed during my time working at the park. Ultimately, after the creation of Brennan’s Wave the new activity that it generated displaced the homeless population in the actor-network.

The Clark Fork River has seen some dramatic changes over the last decade that shifted the patterns of activity throughout the downtown corridor. The removal of the Milltown Dam upstream from downtown, along with a new interest in river recreation from the community, has problematized the actor-network surrounding the downtown river corridor, requiring new translations to take place. The actor-network that was established around Brennan’s Wave is being remobilized in light of the increased use by the community, as well as the proposition for another memorial surfing wave on a different irrigation structure downstream from Brennan’s Wave.

4.3 Remobilization of the Actor-Network

While the actor-network of Brennan's Wave remained fairly stable after the completion of the project, the repairs to Brennan's Wave are coming up at the same time as the permits application for the Max Wave. This situation has sparked a new awareness of downtown river recreation, and a concern by some about what exactly is taking place with the downtown river corridor. Some elements of the actor-network have changed; however, much of it remains similar. Aside from a new location on the river, different people have taken up roles within established actor groups, the overall plans are slightly different, as are some of the permitting requirements. The actor-groups have remained in place, and the same concerns for ownership, liability, and maintenance have resurfaced as problematizing issues.

The Max Wave is another memorial project, this time for Max Lentz, a local kayaker who passed away at age seventeen in an unfortunate kayaking accident on a river in West Virginia in 2007. In a similar circumstance to Brennan's Wave, the Lenz family knew they wanted to start a memorial fund that would help sponsor a river enhancement project. After creating an actor-group to discuss what they wanted to do, they narrowed their focus on two other irrigations structures in the Clark Fork River. Jason Shreder, a Max Wave board member, explained that through negotiations with the irrigation structure owners, the group established a connection with the owners of the Flynn-Lowery weir, downstream of Brennan's Wave near the California St. Bridge (1-28-15).

Since the vision of the Max Wave paralleled that of Brennan's Wave, the wave advocates realized the benefits of sharing the resources that Brennan's Wave, Inc. had

already established. Although Baker decided not be too heavily involved with Max Wave project, he explained to me that “Max Wave is a project of Brennan’s Wave, the company. Because it didn’t make sense for them to form a whole new nonprofit just to do the same thing basically. It was totally within the mission of what Brennan’s Wave was set up for” (Baker 1-29-15). Brennan’s Wave, Inc. proved to be a durable actor-network and the new ambition of the Max Wave advocates were able to use the momentum that Brennan’s Wave created as they began the translation process of a new wave.

The process of creating the two different wave projects is similar, but some changes have occurred in the permitting requirements. Pat Saffel explained that Brennan’s Wave,

being characterized as an irrigation diversion kind of had a lot of people hands off as far as permitting goes. But clearly it’s not just an irrigation diversion. They were getting their water before, they could have secured their water with something a lot less conspicuous and I think 90% of that structure is for something other than irrigation. I think a lot of the permitting agencies saw that and they didn’t come to realize it until afterwards. But, and then Max Wave... they have a couple sets of waves. It’s not just on the diversion profile, you know. There are some longitudinal waves that are away from the diversion so that made the assessment that it wasn’t just a diversion. (3-3-15)

The plan for the Max Wave includes a second wave, downstream from the first wave located on the diversion structure. The second wave is essentially a new structure in the river and not just an improvement to an existing structure requiring a different perspective to be taken by the permitting agencies. In this process, Saffel has more power in the outcome as he is the one who decides whether or not to approve the permit.

Although he has the ability to be against the project, from my conversation with him it appears he is not opposed to the project, as long as it can meet the requirements necessary for fish passage. Approval of the permits is a negotiation process. Saffel explained, “we are just trying to redirect the proposal to add more natural river bed, whether its leaving it

as it is or we're just mimicking it in another way, I'm not entirely certain... we just need to have some good engineers that are creative and open-minded" (3-3-15). As long as an agreement can be reached between FWP and the engineers, enrollment can be successful and the process can move onto the next stage of the process: finding funding.

Although the city has contributed funding to the projects through the MRA, the process of creating the waves was not understood by the City Council. Knowing that the MRA was providing funding for the projects, the City Council decided to become involved in a discussion to clarify the City's role in the creation of these waves. Time was dedicated to the discussion in two public meetings in February 2015. Marilyn Marler, the President of the City Council, brought the discussion into the public forum:

It's not clear what the city government's role is in this project, because the river itself is not city property. Those are state resources managed by state agencies. The city of Missoula has contributed to both projects, to Brennan's Wave and to the Max, for the planning and or permitting stages of the Max, but we haven't been involved in any discussion because... there hasn't been a community wide planning of the river corridor. (Marler 2-18-15)

In the City Council sessions, representatives of the actor-groups were called together to answer questions regarding permitting, ownership, liability, and the City's role in the projects in order to better understand what was going on. Both meetings, offered an opportunity for public comment, yet no one spoke in opposition to the wave being built.

The City, through the discretion of the MRA, donated \$205,000 in total to both the Brennan's Wave and Max Wave. The Mayor also utilized his executive authority by signing a public endorsement on behalf of the Max Wave in order to meet a DNRC permit requirement, ultimately making the City a co-applicant for the permits submitted through a joint-permitting process. The land ownership issue was translated by the DNRC when they had the city also sign an application for a land use easement in the

location of the river where Max Wave is being proposed. This is a notable change from the land use license that was granted to Brennan's Wave (City Council 2-25-15).

Speaking on behalf of the MRA and the City, Buchanan stated, "we'll own the easement, we won't own the structure. And we'll probably have to hammer out some sort of maintenance agreement with the Brennan's Wave folks, since they are the umbrella of all this" (Buchanan 2-19-15). As of May 2015, the actor-network is still waiting to see if the permits for the Max Wave will be approved so the process of translation can continue into a major fundraising campaign for construction costs.

By cosponsoring the permit applications, the City has been enrolled into the Max Wave actor-group, although the City Council still has hesitations about ownership and liability. These concerns are related to the potential event of an accident resulting in a lawsuit, which at the basis of it is a monetary concern (City Council 2-25-15). In this situation, the notion of money creating "calculating subjects and calculated objects" can be clearly seen (Schillmeier 2010, 241). By viewing the wave as a calculated object by its potential to create a lawsuit, the very notion of the monetary cost to the city has put money into a mediator role.

4.4 New Directions for the Actor-Network

Brennan's Wave was built nearly ten years ago, and river user habits have changed. Many believe that the impact from the Max Wave will be significant since it "provides yet another anchor of our downtown riverfront parks system and trails system" (Gaukler 3-13-15). The downtown river corridor has become a highly active recreation area as Baker Points out.

Brennan's Wave, we've got the riverside trails, we've got the skate park, we've got McCormick Park, we've got the Osprey field, we've got that take out, and we've got Silver Park down there. You know it's just this great downtown stretch of river which is what Missoula should have always had. (Baker 1-29-15)

Having another center of activity along the river is a perceived benefit to the community, but "it's getting a whole different level of use and... we have started to see [a] significant amount of damage to riparian areas because of use" (Valliant 3-17-15). By creating another feature on the river that encourages use, more challenges will arise, requiring more action to be taken to ensure the quality of place.

Many of the immediate impacts that need to be addressed involve the increased usage that the downtown stretch of river has seen in recent years. Ellen Buchanan pointed out, "one thing that may come out of this, we've started some discussions about it, is some sort of a community conversation about what do we want to see this stretch of river that goes through Missoula be?" (2-19-15). One major issue that has emerged is that "there is no designated put ins and take outs, so people find a convenient place and go, and it causes erosion and so we've got to plan some facilities for people to get in and out of the river as a basic thing," said Marilyn Marler (2-17-15).

The agency of the river is still present in the actor-network as it changes in ways on its own that will impact its recreational use. Valliant noted:

because the [Milltown] dam is gone, there's not all the sediment getting held back, so we are actually growing beaches now throughout Missoula which were not there ten years ago... once you start getting some of these areas filling in with sand, it's just even more inviting and it's going to be almost impossible to fence people out of those if there is a nice sandy beach. (3-17-15)

As new and desirable places appear along the river, people will find ways to recreate there without necessarily thinking of the potential impacts. Thus, it is up to the actor-network to manage these impacts and monitor the constant change.

Management of the river corridor is complicated due to the policy restrictions placed on actors by others in the network. When Parks and Recreation wants to do work in the river, occasionally they run into a scenario where the “Army Corps of Engineers’ and fisheries’ goals are miles apart and there are times where one entity or the other will hold a permit for work we want to do until we achieve the others goals” (Gaukler 3-13-15). With Brennan’s Wave in existence, and the Max Wave in the permitting process, the actor-network surrounding the river has started “looking at the bigger picture rather than just trying to do an individual project here, and an individual project there” (Valliant 3-17-15). Now that the actors are gaining a better understanding of the roles one another play in the actor-network, they can be mobilized in different ways.

Parks and Recreation has embraced the heterogeneity of the riverscape and has enrolled natural elements into their goal of preventing riverbank erosion. By incorporated the natural processes of resident beavers living along the river, they are able to allow the natural processes to persist in certain circumstances. As long as property damage can be avoided, “we have certain trees in strategic locations that if they... will drop in the river parallel to the river bank, we want the beaver to take them down as part of the natural ecosystem, because one of the things it does is help us sure up the river bank and keep it safer,” Gaukler told me (3-13-15). If the tree risks falling in an undesired direction, Parks and Recreation will place wire cages around the base of the tree, thereby asserting their power to preventing the beavers from taking down the tree. By working with both human and natural actors, much of Parks and Recreation’s work resides in the heterogeneous realm that ANT is able to explore.

Allowing a place for non-human actors to influence the social realm is useful from a planning perspective. The memory of individuals became an inspiring force in creating the surfing waves. Brennan Guth and Max Lentz live on through the symbolic roles they have taken in these projects. While the memory gives perseverance and motivation to the grassroots actors responsible for these projects, the public process is put in a precarious position. Marilyn Marler brought up the difficulties in criticizing the projects when she stated, “I feel like a jerk for saying anything bad about it because you know, for obvious reasons. I don’t want to take away from Brennan or Max and how much everybody loved them, but still it’s an actual, physical structure in the river” (2-17-15). Criticism to these projects becomes difficult since it carries a different level of sensitivity than other public projects. Acknowledging this, Marler opened up the conversation to the City Council in order to allow for an opportunity to address any opposition in a public forum, yet nobody from the public opposed the wave at the two meetings that were held. It cannot be discerned how these projects would have been built without the memorial nature they have associated with them, but by realizing the pattern of these memorial projects raises the question, why is it only through a memorialized condition that these projects are being created? (Valliant 3-17-15). The memorial aspect is one of the unique associations of the actor-network that has shown to hold durably between the two projects. While Brennan and Max are not actors in these projects, actions taken on behalf of their memory show them to be very active and influential components of the actor-network somewhere in between the human and non-human realms.

By capitalizing on sentiment, “it’s a fitting memorial and a great way to direct people’s memories and care and love for these individuals into something that will go on forever and benefit a lot of other people like them” (Baker 1-29-15). The support of the projects translated the monetary aspect of the projects into the role of an intermediary in the actor-network. While all of the work associated with the project has a calculable cost, funding was always found through volunteers and donations. At times, money would appear as a mediator in the actor-network, showing up as a cost barrier that problematized the situation. However, problematizing costs were always translated and once again put the role of money back into that of an intermediary.

Elucidating the associations between the emotionality of humans, non-humans, and money allows for a more subtle understanding of how we interact with space and place. The example of the surfing waves in Missoula shows that money does not always play a mediating role in development projects, instead, it is more importantly the perseverance of a dedicated group actors who create the power to realize the dreams they set out to achieve.

5. Conclusion

Very few places, if any, in Missoula can be said to have the same public influence that Brennan's Wave has had. The impressive success of Brennan's Wave is now leading to its replication in the form of the Max Wave. Brennan's Wave transformed hazardous section of river, filled with rubble and refuse, into a space for both active and passive recreation. A clear history of events that transpired to create Brennan's Wave – as laid out here – allows for the planning implications of such a project to be explored and better understood. By first uncovering the process that took place to create Brennan's Wave, specific insight can be gained in regards to the ways in which the process came into being, the directions it may be heading, how it manipulates space, and creates place. The associations that exist to produce Brennan's Wave and offers insight into the role community activists play within the planning process. From local grassroots efforts, the City of Missoula gained a public recreation feature in the middle of the river that no government agency would – or even could – create on their own. The work of the volunteers working with Brennan's Wave, Inc. established an actor-network that is focused on cleaning up a neglected stretch of river, creating river advocates, enriching the downtown core, and memorializing an influential member of the community.

By applying Actor-Network Theory to this case study, the unique planning process surrounding these waves emerged. The mix of regulatory agencies, volunteers, philanthropists, community leaders, and many others, both human and non-human, make up a diverse group of actors responsible for changing the shape of downtown Missoula. The specific structure of this actor-network was not a model imported from another city.

Rather, it emerged organically through the associations established when actors make themselves visible by requiring others to act.

The actor-networks that can be uncovered with ANT have useful implications for planning. Including non-human elements into the definition of social allows for more silent actors to be considered in the planning process. “For cities, processes are of the essence,” Jane Jacobs writes (1961, 440). By understanding place as a constant interaction between human and non-human actors, a more nuanced approach to creating meaningful places can occur. “Processes in real life are too complex to be routine, too particularized for application as abstractions,” Jacobs continues (1961, 441). Projects that create unique processes and engage heterogeneous actors have the ability to respect individuals and be more inclusive of the entire community.

Brennan’s Wave turned a hazardous stretch of river into a gathering place that engages multiple types of users with the river and other natural elements. While the primary function of a surfing wave is for recreational use, the project creates a cohesion between river users, passive observers, and natural elements in the heart of downtown. Giving a place for people to pause, if only momentarily, and observe an activity they may have never been exposed to allows for a more culturally enriching community experience. By thinking of space and place relationally, “new heterogeneous alignments will be brought progressively into view and, once seen, they will be acted upon in ways that sustain their collective properties,” writes Murdoch (2006, 156). The presence of surfing waves in the Clark Fork is a dramatic shift from the way the river was perceived a generation ago. The river, once used as a dump by the community, is now a place that

engages citizens with each other and the natural world in which we coexist – all of which fosters a new respect for the community and the environment.

Planning is inherently connected to the environment and has traditionally functioned as an extension of government. Traditionally, modern planners were thought of as experts as they created ordered places out of disordered spaces. As perceptions of the environment are changing, people are challenging the notions of ordered and disordered space and are thinking more critically about the impacts humans have on the environment. The incorporation of the environment as a stakeholder in the planning process has taken place in recent decades, as planners realize that the natural landscape is something to be embraced instead of exploited. The human/nature divide is beginning to be challenged as planners are realizing that they are no longer dealing “with closed, concentrated spaces, but rather with flowing basins, as multiple as rivers” (Latour 2004, 165). Thus, it is necessary to embrace the heterogeneity and disorder that exists in the world, rather than trying to order it.

Brennan’s Wave has been able to incorporate the human and natural realms in a single space, and doing so has benefited both. The improvement of the diversion structure removed dangerous debris from the river, while simultaneously opening up a new recreation space, all within a nontraditional planning process. No governmental planning agency took the lead on the project: rather, it was a grassroots group of community members who translated the entire process. With the ability to not be bound to a specific jurisdiction, Brennan’s Wave, Inc. was able to chip away at the barriers, engage with multiple necessary agencies and regulations, and raise funds necessary to complete the project. By establishing an actor-network based around surfing waves, other planning

challenges, such as public access and bank erosion, can be addressed more efficiently now that the actors are familiar with each other's roles in the process. The structure necessary to address new and emergent issues has already been created from within the actor-network, and it can now be applied and modified as necessary.

Creating the structure of a planning process from within the actor-network is a stark contrast to the structuralist paradigm that has been a trademark of planning practice. Most community planning projects exist to first, offer a return of capital to the projects investors, and second, but not guaranteed, offer a benefit to the community. Money is ultimately the mediator of these projects, and often dictates when and where a project is created. If the economy is not favorable a project will often sit dormant, waiting for the market to turn around. This leaves places to languish in the meantime, and offers little or no benefit to the community. By keeping money to an intermediary role, not a driving role in the planning process, the total benefit is shared by the community and not a group of investors at the top. The grassroots approach, as witnessed through Brennan's Wave, is one of the clearest ways to achieve this shift. If planners and community advocates can better facilitate projects created through a grassroots process, the benefits can be as diverse as the needs of the community.

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Appendix A

Interviewee	Position
Jason Shreder	Owner of Zootown Surfers, Max Wave board member
Trent Baker	Land use lawyer, Brennan's Wave board member, former president of the Missoula Whitewater Association
Linda McCarthy	Executive Director of the Missoula Downtown Partnership
Kevin K.B. Brown	Owner of Strongwater Mountain Surf Company
Marilyn Marler	President of the Missoula City Council
Pat Saffel	Fisheries Biologist with Montana Fish, Wildlife, and Parks
Ellen Buchanan	Director of the Missoula Redevelopment Agency
Donna Gaukler	Director of Missoula Parks and Recreation
Morgan Valliant	Conservation Lands Manager for Missoula Parks and Recreation