

The Role of Architecture in Overcoming Barriers: From Ronald Rael’s Teeter Totter over the US-Mexico Border to Lawrence Halprin’s Freeway Park Designed over the Seattle Freeway

*By Vittoria Umani**

In the last few years, more border walls have appeared in Europe than those present during the Cold War. What is fundamentally wrong about these walls is how a simple line drawn on a map, able to change the perception of a territory and of its identity, does not follow any design principle. In places characterized by security infrastructure, such as borderwalls, the role of architecture is minimal and struggles to go beyond a surface level. The only possible contributions remain in terms of provocations as seen by the designs of architect Ronald Rael. The border walls are not the only contemporary built “walls” that form barriers with negative social implications. Expanding on the theme of infrastructure, differently from the previously mentioned type, connecting infrastructure, such as highways, freeways, parkways, is designed to unite two sides, two places. If this is true in one direction, in the other direction it is quite the opposite: two sides that used to be neighboring are now separated by a physical barrier, not just a line in the sand. Lawrence Halprin’s Freeway Park designed as a bridge over the Seattle Interstate, wishes to reconnect the neighborhood that had been divided by the construction of the motorway. This paper wishes to analyze the role that architecture projects by the two architects, Rael and Halprin played in stitching back together parts of cities, communities, even countries through stratified complexity and also a new definition of interaction.

Introduction

“Something there is that does not love a wall”,¹ the starting verse of Robert Frost’s *Mending Wall* seems to express a negative perception of a “wall”, an infrastructure designed to keep two sides separated.

In 1989, the fall of the Berlin wall, marked the end of the Cold War for the general public. What followed, was a feeling of relief and a belief that the Soviet Union would no longer use force to preserve its Empire.² This moment underlined the public belief that “walling off” (or “walling in”) the enemy, was not going to be used as a war (or peace) strategy anymore.

Nevertheless, the poem ends with a very different quote, “good fences make good neighbors”,³ clashing with this optimistic view. In reality, in the last few

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1. Robert Frost, Margery S. Hellmann, and Holburne Press, *Mending Wall* (Seattle, Wash.: Holburne Press, 2000).

2. Eric Rubin, *A Time of Hope and Optimism* (2019).

3. Frost, Hellmann, and Holburne Press, *Mending Wall*, 2000.

years, more border walls have appeared than those present during the Cold War. Some of the most famous walls include the so called “Trump Wall” that is being constructed along the U.S.-Mexico border.

In order to be able to talk about the shifts in power of the World after the Cold War, it is necessary to move away from the old Continent and look at the new one.

Hegemony can be defined as predominance of material resources such as raw materials, markets, and capital. Moreover, these material resources provide the means for the hegemon to make and enforce the rules for the world political economy. “It was the European governments that sought to elicit and influence the projection of U.S. power into Europe – and they did so primarily for security and resource reasons. In short, U.S. hegemony in Europe was largely an empire by invitation.”⁴

In the words of Francis Fukuyama, this period after the Cold War was characterized by the hegemony of the United States. He goes further into detail explaining whether or not this title is still valid today, “The long-term sources of American weakness and decline are more domestic than international. The country will remain a great power for many years”.⁵ For this reason, the American model of the border will remain influential for the rest of the world for just as many years. Studying the border model of the hegemony is useful for both, the countries directly influenced by it and also all the other ones that experience it because of their bordering condition.

Many people, writers, artists and architects have openly opposed the building of this security infrastructure. Among them, the architect Ronald Rael that in his book *Borderwall as Architecture. A Manifesto for the U.S.-Mexico Boundary*⁶ points out many negative aspects of the Borderwall. Without ever negating the actual separation of the two countries or the security aspects that define the U.S.-Mexico borderlands, nor envisioning a world with no separations, the book proposes a new vision for the “wall”. The Architect emphasizes the positive aspects of the borderlands as places of connection between two realities that when in contact should be allowed to rub off on each other. Since the border is the place of the encounter and clash between differences it can be both, the unsafe home of disputes and violent conflicts, as well as the place where resourcefulness is designed and tested in the name of amicable confrontations.

Rael also imagines a different type of wall, not one made of 30 ft tall metal bars and six ft of below ground bollards. The idea behind the architect’s book is to create spaces where people can meet and share experiences, the Swing Wall, the Yoga Wall, the Confessional Wall, the Tortilla Wall. At the same time, Rael designs useful linear infrastructure to be placed along the border instead of the actual wall, like the Dam Wall, the Hydro Wall, the Wastewater Treatment Wall, the Solar Wall, whose first priority is to solve problems linked to the territory (of both sides) and the barrier aspects, simply become a consequence of its geometry.

4. John G. Ikenberry, “Rethinking the Origins of American Hegemony,” *Political Science Quarterly* 104, no. 3 (1989): 375-400.

5. The Economist, *Francis Fukuyama on the End of American Hegemony*.

6. Ronald Rael and Teddy Cruz, *Borderwall as Architecture: A Manifesto for the U.S.-Mexico Boundary* (Oakland, California: University of California Press, 2017).

This form of irony and sarcasm can also be seen in the concepts of de-architecture by SITE (Sculpture in the environment), led by James Wines where de-architecture is not a problem-solving, functionalist endeavor. In this case, architecture is used as the raw material for art, and visual commentary for issues of mobility, infrastructure and American commercial strips.

In the case of connecting infrastructure, on the other hand, the consequence of the physical barrier cannot be considered something positive. Connecting infrastructure is designed to efficiently connect two places together, like highways and freeways. This is true in one direction, but on the opposite direction, connecting infrastructure becomes a visual and physical impediment. Many of the highways that pass through cities tear through its urban fabric, displacing people from their homes and their communities, causing the separated portions of the city to experience segregation, abandonment and decay.

Also in this case, the role of architecture becomes important in overcoming the barriers created by the highways. A great example has been provided by the architect Lawrence Halprin that designed an urban park over the Highway Lid of Seattle' interstate 5. Through its design, the park is able to create a connection between the two separated sides of the city.

Literature Review

The concepts of divided space, of the borders and its limits need to be determined and defined in order to better understand the approach of architecture in attempting to overcome them. The following definitions will help to better understand the complexity of the border issue and its numerous interpretations. Every definition determines the next and each concept explained does not perfectly correspond to a defined, closed box. Each definition more closely resembles a natural landscape, where each part is distinguished from the other, but it is not necessarily clear where one ends and the other begins.

The Border

In this case, the wall is the physical representation of a line, the definition of a territory or property but at the same time, to establish a border means to establish a place, to define a fixed point as a start and to which to refer to. The definition of a place might give the appearance of fixed and stable border lines, but this is true only until the conditions that formed it come to change. The border imposes on the territory, with its markers and signs, it describes a closed, circumscribed condition and, unlike the frontier, offers security.

As thoroughly explained by Zanini in his book *Significati del confine. I limiti naturali, storici, mentali* (Meanings of the Border. Natural, historical, mental limits),⁷ the act of occupying a land is the first step to tracing any kind of border and claim any rights to it. Unlike planting the flag on the moon, the occupation

7. Piero Zanini, *Significati del confine. I limiti naturali, storici, mentali* (Testi e pretesti, 2002).

and the subsequent claim to a territory can only happen when it is durable and constant over time.

But even in more common territorial claim situations, the recognition of one's belonging to a specific place or community, can come from many, different, even volatile things; from the odors and perfumes that spread from the streets, spices and flavors, colors and materials, all evanescent examples of the precariousness of many place-bound identities and how the issues surrounding the borders are also very much social issues.⁸

Once the space has been occupied, it is necessary to measure it. To measure means to remove the pre-occupation reality from disorder and organize it in a personal manner, provisionally establishing its limits, making it become apparent, visible. Once measured, it comes to existence. Sometimes, the measurement of space is taken by the time needed to cover its entirety. Whatever the means to understand the dimension, it is only at the end of the process that the border can be traced and begins to identify and transform the space within it.

Occupation and measurement do not make the presence of a limit really tangible; they are preliminary operations. Marking a territory through particular elements becomes a founding act.

The border can only become completely visible and un-ambiguous when it is defined by signs, border stones, boundary markers, pillars, obelisks, lookout towers, walls, but also trees, elements of the landscape, architectures; even if it can exist, as it does, independently from the presence of the symbols themselves.

The border symbol then, whatever it is, declares that someone has occupied a space and exercises a right over it, it signals the beginning or the end of something.

The claim and stabilization of extremely large spaces need boundary marks of an appropriate scale; this is how the large border architectures such as the great walls, old and new are conceived, indicating, however, the great intrinsic vulnerability and fragility of these spaces and the great efforts needed to defend and contain them.

Through measurement, it is possible to compare and search for balance between the different sides, between their different interests and find an agreement (understanding).

Precisely because the border is the place of the encounter and clash between differences it can be both, a place for disagreements and violent conflicts that seem unsafe, as well as the place where imagination is invented and tested in the name of amicable confrontations.

8. Francesco Del Sole, "Building on the Border: Architecture as a Meeting Place," *Athens Journal of Architecture* 7, no. 4 (2021): 415-440.

The Frontier

The frontier on the other hand, represents the end of the earth, the ultimate limit beyond which to venture means to go against the will of the gods, beyond the permitted and the right, towards the unknowable. A great example of the Mediterranean frontier is the strait of Gibraltar, considered in pre-Colombus times, the end of the earth.

In English, Italian, Spanish and French the word frontier is made up of the noun “front” (fronte), the frontier is contiguous, it is facing toward (or against) something.⁹ On it, conflict seems like an unescapable consequence. In this case the *front* is mobile and can constantly change; the frontier is an artificial construction; it is born from social reasons and not geographical ones.

At the same time, in the nineteenth century, it was believed that nature itself could provide men with limits and direction for their developments. This idea gave a wrong sense of rightfulness to the artificial construct of borders and frontiers and that its originating ideal image was taken from the physical barriers that nature has spread across the earth.

Because they are naturally rooted on earth, natural borders are the most evident, the ones to rely on with most certainty and the ones that seem least questionable.

Like Matavejević describes the Mediterranean and its sea, in his *Mediteranski brevijar*,¹⁰ it is clear that this is not true, as natural borders are drawn in chalk, constantly drawn and erased, by the waves and the winds, by the enterprises and inspirations that enlarge or restrict them.

The frontier is the space of the confined, the precariousness, with no present, only a past and a future, the space of the suspension of all kind of relations, of loneliness, of fear.

But as soon as the fear is overcome, the gates open and its crossing becomes possible, so does occupying, measuring and tracing, transforming the frontier into a place of meeting, of commerce, with special characteristics of intermediate areas. Then, it becomes a region or zone of transition.¹¹

The frontier is constantly evolving, it does not have precise coordinates and can change from the inside or from the outside at any moment, it is a strip where it is impossible to distinguish what belongs inside or outside. It is unstable and its uncertainty is not only experienced on the political level but also spatially, and culturally. The front then, is the place where opposite forces confront one another, they may collide, or just meet, but in any case, they enter into crisis.

Moving Borders

Even when made through the use of natural features, boundaries are never “natural” as human technique and choice are still the main aspects of the process.

9. Zanini, *Significati del confine. I limiti naturali, storici, mentali*, 2002.

10. Predrag Matvejevic, *Mediteranski Brevijar* (CID Podgorica, 2008).

11. Marco Ferrari, Elisa Pasqual, and Andrea Bagnato, *A Moving Border: Alpine Cartographies of Climate Change* (Columbia Books on Architecture and the City, 2018).

At the same time, natural borders are also areas of contact and transition; rivers are often means of transportation and their administration is a collaborative act; mountain valleys may host towns and villages as well as provide passage between two regions.

A precise observation was made by Ferrari, Pasqual and Bagnato, while studying ice glaciers of the Alps, experience that concluded with *Alpine Cartographies of Climate Change*.¹²

Boundaries are frequently conceived as both fixed – in the sense that two states will not seek to change them – and static – in the sense that the line, once determined, will not move. The origin of the first, is traditionally much more recent than one might think, and the second, is simply inaccurate. Historically, there were many ways one could expand a territory, through alliance, marriage, purchase, conquest, or punishment; simply proving how a boundary was neither static nor stable. It is only after the 1925 League of Nations and Locarno Treaties that it was attempted, by solidifying the post-World War I territorial adjustments of Europe, to achieve fixed and static boundaries. Further agreements, like the United Nations Charter, have continued to promote territorial preservation.

Additionally, the modern idea of the boundary as an indisputable, evident line (with no with), is conceived on principles of the geological conditions of the earth that are not true everywhere in the world, but only apply for temperate climates. An important example is the issue of ice, either in the sea as an ice sheet or in the mountains as alpine glaciers, as it can be in solid or liquid form, depending on the time of the year, demanding changing legal-political administrations.

Earth is dynamic, changes can happen naturally: coastlines change, rivers drift courses or dry up, mountain peaks erode, desert lands expand, but also with the help of human activity, towns, streets, highways and railroads are built, rivers are dammed, canals created. Nonetheless, these processes are being sped up at unprecedented rate by cause of climate change.

Therefore, any single change or resolution to the boundary making process is to be considered a brief resolve.

It is interesting to notice that claiming and signaling borders does not necessarily mean to close them off and prevent access to others. At the same time, these markers do not need to be static but can be transferable, along with the limits they refer to.

The aboriginal *tijuringa* or the Chinese stone tablet are portable markers for controlling space and ways of claiming a right over it. Both serve to confirm the belonging of a community, at a given moment, to a specific place meaning that the claim on a specific territory is temporary and can be moved around. The symbols and cultural identity of these groups of people allow for a less rigid relationship with space and its borders along with the conflict that comes from them.

Similarly, in 2009, an unusual answer was proposed, when a different border agreement was deliberated between Italy and Switzerland. In the Chamber of Deputies of the Italian Parliament the concept of a “moving border” (*confine mobile*), was brought forward as a border proposition, “no longer permanently

12. Ibid.

fixed, but that depends on the gradual changes caused by erosion and reduction of the glaciers up to the extreme instances of their disappearance".¹³

This Italian-Swiss experience was then replicated on the Italy-Austria border and is a demonstration that in order to match the ever-changing nature of earth, all borders that navigate on it should be thought of as dynamic and not static, variable and even indefinite.

The Limit

The experience of the border always starts from the inside, to limit (to fence off), is the act of containing within, a controlled, watched over portion, a sort of culturally or self-imposed horizon.

For the romans, borders and its limits were considered important and were often marked and fortified. Although it is very rare in Latin to find the word *territorium*, and it does not directly translate to the modern understanding of territory, in Latin, other boundary words were more frequent such as, *fines*, *terminus*, *rigor*, and *limes*.¹⁴

Limes was initially a trail or path, for the military supply chain or simply a route between places, generally a connector rather than a separation. Only with time the meaning shifted into something more closely resembling a modern understanding of frontier, a zone contested between Rome and its enemies. *Limes* then changed from a line to an area, with width.

The limit also holds in itself the meaning of the threshold. It portrays the condition of inhabiting the edge, on the perimeter of something for a preliminary phase, of preparation, necessary to get to know what is on the other side of that threshold.

The limitless and spaceless causes fear and decreases the comprehension of reality augmenting vulnerability; the limit is fundamental as it highlights and makes the differences explicit as well as helping to understand where something begins and ends.

The limit defines a territory that, in the words of Michel Foucault,¹⁵ can be understood as a political technology, or a bundle of political technologies that administer the interactions between people, places and power. As boundaries do not cross flat, featureless lands, they need to be understood in three dimensions. The geophysical and socio-political nature of boundaries needs to be undertaken together.

Terrain should not just be considered as dry flat land, but a cumulative understanding of rivers, mountains, sea and sea ice, glaciers, river deltas, coastlines, deserts, swamps and marshes, airspace, and the subterranean and submarine, and a complicated and fluid relation between its physical and geopolitical aspects.

Territory is not a product; it is continually made and remade – by bordering, dividing, conquering, excluding, enclosing, controlling, surveying, mapping.

13. Camera.It. *XVI Legislatura - Lavori - Resoconti Assemblea - Dettaglio Sedute..*

14. Ferrari, Pasqual, and Bagnato, *A Moving Border: Alpine Cartographies of Climate Change*, 2018.

15. Ibid.

The Margin

A border exists only as a function for the center, usually established in a much more precise way, given its greater importance than the symbols delimiting its margin, appearing faded in comparison.

The idea, not only spatial, that the center holds all the positive characteristics of a society is still rooted today, making the margins become places for relief of negativity, of frustration and instability to the harmony of the center.

To inhabit a place also requires practice and experience, even violent, of its margins.

The border determines first of all an expulsion, delimiting a field, a clearing. Space gets cleared, and all the items placed on the inside considered useless, unfair or dangerous, are accumulated beyond its margin, or set aside near it. The margin then, is not really a place; it is composed of scarps, residues. It is, as Clément would call it, a third landscape.¹⁶ The idea of the end of the earth derived from the frontier only complicates things. The undesirable is placed at the margin, right before abandoning the known world and crossing the threshold of the frontier, these include waste landfills, industrial areas, refugee camps etc.

Marginality then, becomes a way to manifest one's identity, a way to balance not being in nor out. It is also a way to look and evaluate with certain distance, what is happening on either side of the border, a way to come to contact with a culture without belonging to it.

To inhabit the margin then, would mean to live and build in this third landscape whose core passes through and inside of the inhabitants, creating a borderland identity. For this reason, the passing through the margin, through the threshold that breaches two entities, two ways of being, two cultures, acquires new significance, almost supernatural or religious, it becomes ceremonial; to become one with a new world while still belonging to the old.

As explained in this literature review, all these concepts of divided space, borders, limits, frontiers, margins, are important to understand and distinguish as they all speak on the incredibly complex spatial, social and political issues surrounding border conditions. Border spaces are sometimes more visible than others and they are much easier to recognize where there is conflict. When analyzing the work of Ronald Rael along the US-Mexico border, the more commonly used word is *border*, along with *borderwall* indicating not only its definition but also indicating (partially) its physical representation, a wall (or fence). In some of the projects that foresee the *wall* becoming a different physical entity it may be more accurate to refer to these areas as *frontiers* or even *margins*. In the case of Lawrence Halprin, and the design of Freeway Park, the *limit* and *margin* embody the issues that the design of the park was keen on overcoming.

16. Gilles Clément, *Manifeste du Tiers paysage* (Paris: Sens et Tonka, 2014).

Methodology

This study revolves around two types of infrastructure and essentially focuses on defining them as barriers and finding ways for architecture to overcome these barriers. In particular, the works of two architects have been selected and compared. The scope of the research wishes to give a critical reading on the theoretical production of both architects as well as proposing a close reading of the projects as ways to physically experiment the theories developed.

On the one hand, Ronald Rael,¹⁷ utilizes a more academic approach. The use of irony and sarcasm are predominant in his book. It is clear that many of the projects proposed by Rael are not actually meant to be built but they are to be used as tools to envision new and different possibilities for the borderland issues on the U.S.-Mexico Border. Although very specific to the problems and environments of the U.S.-Mexico Border, some of the questions raised are actually universal and Rael's approach could be used for any type of constructed barrier. The concept behind the book is not only to go beyond the idea of the wall or the fence, in this case to reduce illegal immigration, but also invites the reader to reflect on possible scenarios where the border becomes an attractor of people, of jobs and resources.

On the other Hand, Lawrence Halprin is a landscape architect who has produced numerous projects within the urban fabric of the American cities. In particular, his themes of research and interest have led him to become interested in the aesthetic of the freeways. The results of his numerous studies on the subject ensued in the book *Freeways*: "The idea of freeways as a form of art in the city is a new one. Freeways in the past have been designed by many people with varying degrees of aptitude and different interests. Some freeways have been magnificent examples of engineering which have risen to the stature of exiting art. Many more have been inept and have demanded the cities which they were meant to serve. But all have brought a vibrant new dimension into our lives – the quality of high speed motion through space".¹⁸

The book illustrates how freeways have been built and their relationship with the landscape and with the city. It does not give design solutions; it only illustrates and reflects on freeways that have already been constructed and how they relate to their immediate environment.

Even though never explicitly declared by the architect, many of his realized works are really an attempt to find solutions to the issues noticed and analyzed while writing the book; in particular, the case of the Seattle Freeway Park. The idea of the park was briefly mentioned in the book *freeways*, only as a concept. Differently from Rael's works, Halprin's project was actually constructed. Later on in the years, on the same Seattle interstate other highway lids have been built and Halprin's experiment replicated within the same city. This approach has also been used in many other cases and not only in the United States. Many examples include the projects of Boston's Big Dig, Madrid Rio, Wohnpark Wilmersdorf in Berlin.

17. Rael and Cruz, *Borderwall as Architecture: A Manifesto for the U.S.-Mexico Boundary*, 2017.

18. Lawrence Halprin, *Freeways* (Reinhold Publishing Corporation, 1966), 5.

Findings

Security Infrastructure

Due to the state's necessity for clearly defined and fortified boundaries, new technological advancements became necessary.

With the increasing number of border wall fortifications, ways to evaluate their effectiveness also becomes necessary. For this reason, in 2007, the US Customs and Border Protection created the Fence Lab, a lab facility in Texas whose aim was to test the strength of the barrier that was to be constructed between the United States and Mexico. The mandate for this "technological" wall stated that "the fence must be formidable but not lethal; visually imposing but not ugly; durable but environmentally friendly; and economically built but not flimsy".¹⁹ The idea was to build a fence, not a solid wall, in order to give the impression of some permeability, even if only by being able to shake hands with the other side.

According to Ronald Rael and his book *Borderwall as Architecture. A Manifesto for the U.S.-Mexico Boundary*,²⁰ designing a fence instead of a wall does not qualify as a sufficiently designed solution. Through the use of provocation, the book highlights how the territory of the borderlands, third landscape that includes areas on either side of the border, are really places of union where communities come together. The design of the fortifications should not be solemnly focused on the issues of protecting one side, the U.S. side, from the evils of the other, the Mexican side. It should rather focus on dismantling the negative connotation associated to the "foreigner" by creating places along the border where exchanges are not only possible but encouraged.

The most fortuitous among his evocative projects has been the Teeter-Totter Wall (Figure 1) that, for around half an hour in July 2019, has allowed people of all ages to experience the fence as a hinge allowing the people on either side to push and be pushed by their foreign alter ego.

19. Los Angeles Times, *Immigration Reform's First Hurdle: Is the Border Secure?* (Los Angeles Times, 10 March 2013).

20. Rael and Cruz, *Borderwall as Architecture: A Manifesto for the U.S.-Mexico Boundary*, 2017.

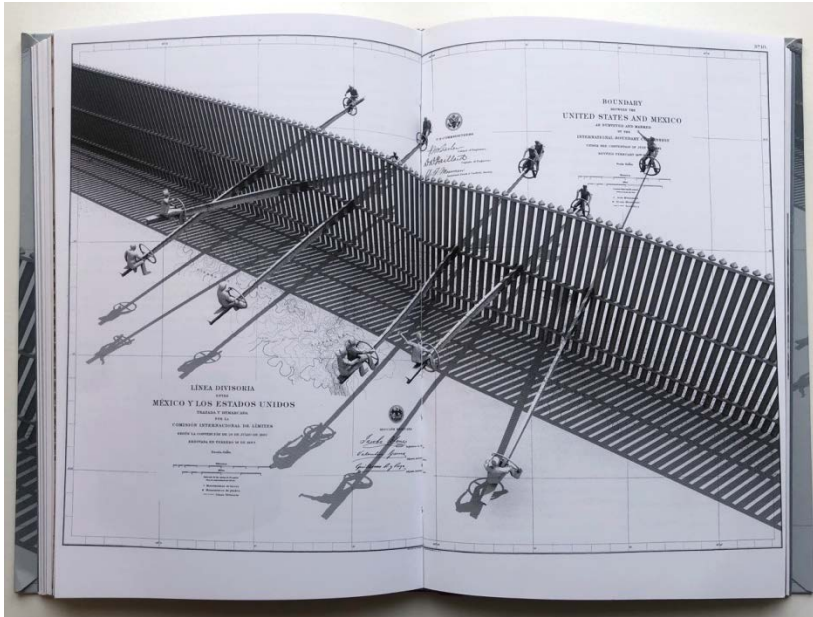


Figure 1. *Teeter-Totter Wall*

Source: Ronald Rael, *Borderwall as Architecture*.

Despite the short-lived pop art aspect of the experiment, people on both sides playfully experienced the codependency of the relationship between the two nations and how it is necessary to consider the border fence as two sided.

Similarly to the teeter-totter wall, other projects were explored, taking into consideration cultural aspects that are shared by both countries. These include the Confessional wall (Figure 2), where Rael envisions “a double-sided, perforated wall designed with a cruciform plan to enable private conversations”, allowing the wall to become the place for confession.

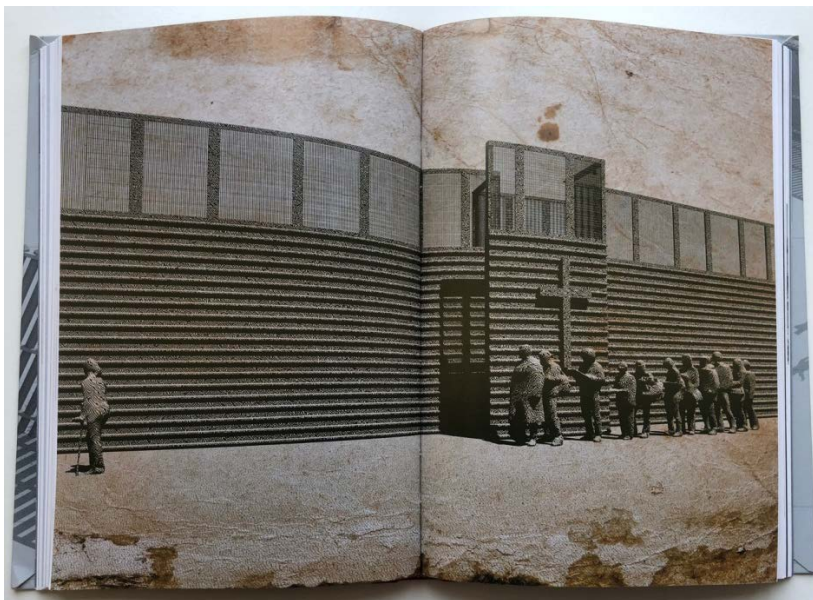


Figure 2. *Confessional Wall*

Source: Ronald Rael, *Borderwall as Architecture*.

A burrito wall was also designed, utilizing street food culture of both sides, providing built-in infrastructure for movable food trucks to park, along with seating to allow the sharing of culture, conversation and a good meal.

Directly referencing Haskell Free Library and Opera House, built directly over the U.S.-Canada border, a bi-national library was envisioned straddling the two sister cities of Nogales. Here the border fence acts as a bookshelf where books, knowledge and information can be shared.

The construction of a physical barrier across the state line of the two countries not only raised issues on social and communal levels but also endangered environmental aspects.

For this reason, Rael rethinks the steel wall with more ecological solutions, including the redirection of the funds used for the maintenance (and construction) of the border fence into creating different imaginations of barriers.

Another ecological issue caused by the construction of the borderwall, that passes through or is adjacent to many wildlife refuges and nature preserves, is the damage to the habitats. It prevents the physical movement of endangered animals between the two sides of the border, further jeopardizing breeding and access to genetic diversity, as well as interrupting their preferred migration paths.

Unfortunately, these problems involve birds as well. Some low flying birds for example, have difficulties flying over the border as fewer than one-quarter of their flights are actually higher than the average height of the border fence. The proposed solution in Rael's book is a "dedicated Wildlife Wall, [that] would provide gaps, ramps and sensors; create opportunities for shelter and safe nesting spots; and could be built in varying heights sufficient for the passage of native animals while still meeting security requirements".²¹

The overall message of the book does not focus on the necessity of the border wall but rather tries to identify possible solutions to the typological examples of barriers that have been built so far. Why is the wall or fence the only imaginable "object" able to be envisioned as a security infrastructure? Is it possible to envision a barrier that is not simply a wall?

Rael partially answers these questions by introducing different types of infrastructure to the borderlands. In particular, he envisions ways of solving actual problems and utilizing the border as an asset. Because of the desert nature of many of the cities on either side of the border, access to water is crucial and the city of El-Paso for example has come up with a storm-water levies to be collected from all landowners based on the amount of their property's impermeable surfaces, in order to reach a sufficient amount of money to construct a system of storm-water catchments to alleviate the effects of flooding.

21. Rael and Cruz, *Borderwall as Architecture: A Manifesto for the U.S.-Mexico Boundary*, 2017, 109.



Figure 3. Hydro Wall

Source: Ronald Rael, *Borderwall as Architecture*.

The project envisions the filling of an existing concrete basin (Figure 3) between El-Paso and Juarez with catchments creating a linear water park and the introduction of a riparian ecology. Additional collectors in the shape of shed roofs would be added in order to increase the amount of rainwater collected and they would create cool, shaded places for community gatherings, events, markets. The purpose of the wall construction is not to stop the flow of immigration from the south, but rather to slow it down. The Department of Homeland Security already recognizes rivers as natural obstacles yielding additional minutes for the border patrol agents. The water park, then, would become a sufficiently secure barrier while also, and more importantly, creating a secure, tactical, useful, social, ecological and hydrological infrastructure.

Along with illegal immigration, the issue of illegal toxins flowing to and entering the United States through an opening in the border wall that allows the waters of the New River to flow freely. The river is actually considered one of the most polluted rivers in the United States.²² A possible solution is the introduction of a Wastewater Treatment Wall (Figure 4) infrastructure located in the 2-mile-long wasteland between Mexicali and the Imperial Valley, known as America's winter Salad bowl, a major source of fruits, vegetables and grains for the nation. Rael envisions a relocation of the sum of money spent to create the walled portion of the border between Calexico and Mexicali. The money would be sufficient to build a wastewater treatment infrastructure composed of linear pond filtration and

22. California Water Boards, *Introduction to the New River/ Mexicali Sanitation Program* (California Water Boards).

purification system that, as mentioned before could also act as a secure border infrastructure. Additionally, some of the by-products of the treatment facilities, like methane, could be used to power streetlights, and irrigation water. This could allow for the creation of a network of illuminated green corridors that could link and encourage healthy social infrastructure between the growing border cities.

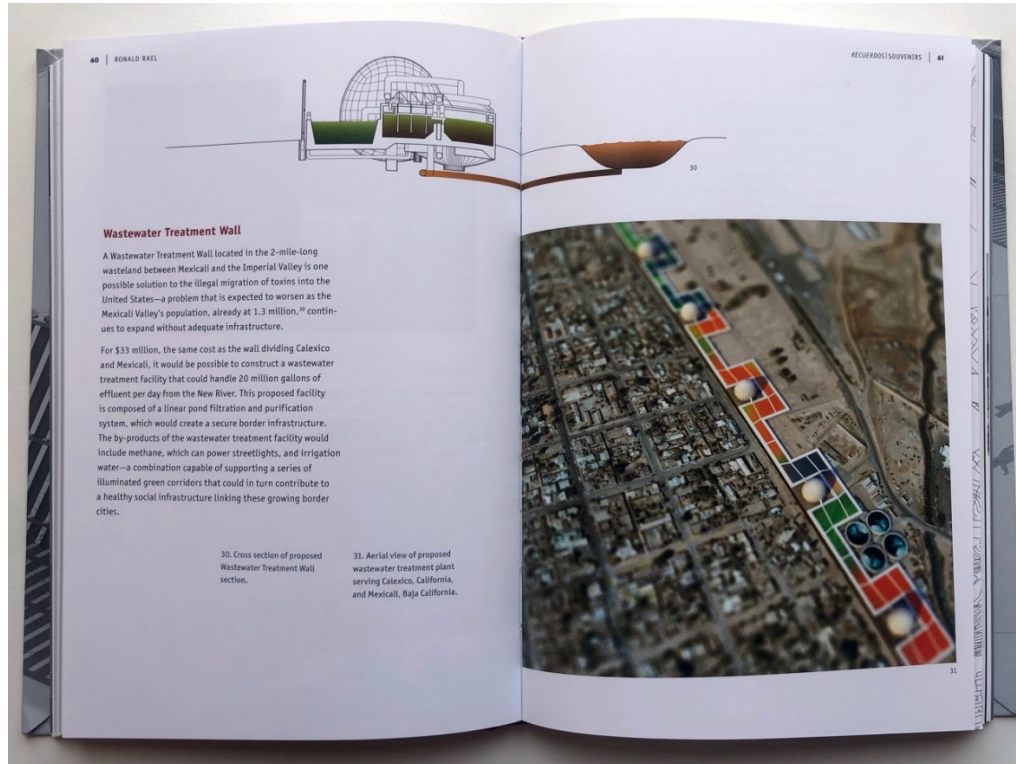


Figure 4. Water Treatment Wall

Source: Ronald Rael, *Borderwall as Architecture*.

Connecting Infrastructure

Barriers are built everyday but, instead of being designed as such, the isolating aspects seem to be cruel consequences. This is particularly true when it comes to highway construction and the immediate context that surrounds it.

Since the Federal-Aid Highway Act of 1956,²³ in the United States, new Interstate roads have been designed and built, in order to connect different Cities and States all across the country. The Act included specific guidelines that instructed how and where the highways were to be built, in particular, they were to be controlled-access expressways designed for high-speed driving with no level crossings or intersections, they had to have overpasses or underpasses. They would also have to be of at least four lanes and preferred to be elevated within city centers.

23. Richard F. Weingroff, "Federal-Aid Highway Act of 1956: Creating The Interstate System," *Public Roads* 60, no. 1 (1996).

Once the first interstate portions had been built, the unpleasant and unplanned consequences started to become evident. The highways inflicted a devastating tear through the urban fabric of many cities and neighborhoods, displacing people from their homes and their neighbors, along with dividing communities. Ultimately, the separated portions of the city experienced segregation, abandonment and decay.²⁴

In this regard, it is quite obvious to notice how the construction of Highways and Freeways has been interpreted as creating physical barriers that separate portions of city and community relationships. An emblematic example can be found in the city of Seattle and the unfortunate collocation of Interstate 5 (Figure 5).



Figure 5. *On the Left: Interstate 5 before the Highway Lid and Freeway Park. On The Right: Highway Lid and Freeway Park*

Since before the completion of the freeway in 1966, there had been uprisings by citizen activists requesting the construction of a lid over the 10-lane portion between the neighborhoods of Downtown Seattle to the west and First Hill to the east²⁵.

Because of Lawrence Halprin's published book *Freeways*²⁶ in 1966, and his work for the Federal Highway Administration's Urban Advisors Group, he was asked by the Seattle Parks Commission to design the park to be placed over the highway lid (Figure 6).

In the 1966 book Halprin explored how "In the city new vistas unfold because of elevated freeways: vast panoramic views are disclosed which were never seen before. Some of the greatest new urban experiences are those of driving into a beautiful city".²⁷

24. History.com Editors, *The Interstate Highway System* (History. A&E Television Networks, 2010).

25. The Architect's Newspaper, *Seattle's Brutalist Freeway Park is Reviewed for National Register and Approved for Renovation* (The Architect's Newspaper, 5 November 2019).

26. Halprin, *Freeways*, 1966.

27. Ibid.

For this reason, he did not wish to negate the aesthetic of the I-5 hiding it with vegetation but wished to create a visual integration between the two elements.

The idea of the Lawrence Halprin and Associates studio was to create a park atop the lanes of the interstate, serving as a bridge, able to reconnect the two neighborhoods. The 5.2-acre Freeway Park was completed in 1976 by the studio with Angela Danadjieva as the project designer.

Recognizing both the negative aspects of the freeway, like the noise and environmental pollution impacts and the creation of abandoned dead areas, Halprin also recognized the organizational value it had for motorists travelling through the city.

Freeway Park was meant to be designed for everybody, for the pedestrian travelling through the park to get from one side to the other, for the park goers but also the motorist driving by, scaling down the high impact of the freeway.



Figure 6. *Freeway Park View from the I-5*

The urban aspect of the park was also important to the design thus creating a new urban landscape, a new idea of nature.

The natural selection for the park included both native and ornamental plants in the attempt to give the park a naturalistic forest image, contrasting with the harsh geometrical architectural forms of concrete.²⁸

In addition, vegetation played an important role for its ability to reduce pollution as well as slightly muffle the sound of the freeway.

The success of the park is not only due to its strong aesthetic, but also to the fractal characteristic of the concrete elements that although similar, mutate to

28. The Architect's Newspaper, *Seattle's Brutalist Freeway Park is Reviewed for National Register and Approved for Renovation*, 2019.

become plazas, squares, “rooms”, ramps, stairs, fountains, “canyons” allowing for easy expansions and modifications. The park functions as a combination of clusters that can be attached, removed, enlarged, added, modified and the unity and architectural language is not compromised.

The 1984 addition of the Pigott Corridor, and the construction of the Washington State convention Center in 1988, where demolitions of some walls and original planters of the park were necessary, are clear examples of this characteristic.

The park is composed by a series of plazas of various dimensions, surrounded by geometric concrete planters and walls as well as intertwined and connected by tunnels, paths, ramps and stairs. Reoccurring materials include board-formed concrete, mainly evergreen plants and water.

In particular, the spaces are defined by the dynamism of their water features. In the Central Plaza for example, the water tumbles down a cluster of 10-meter-high concrete blocks and overhangs, conscious of the city and the highway with the use of materials, but resembling in character the Cascade of the Olympic Mountains (Figure 7). This water feature is consciously placed above the canyon of the freeway, where the sound of the cascading water almost completely covers the sounds of the speeding cars.²⁹

Because of Halprin’s belief in the user’s participation into spaces, the water features have been designed without any kind of barriers. On the one side the design invites adults and children alike to step onto the concrete slabs and play with water, on the other side, Halprin’s design relies on an explicit sense of danger inviting the user to be cautious (*prima facie*).

At the base of the “canyon”, a glass window allows the curious spectator to see the cars driving by on the freeway, creating a visual relationship between the park and the city, the freeway, the cars driving by, filtered by the water cascade.

29. JAWABSOALLIVE, *Topography of Terror - The Stranger* (Jawab Soal, 2 June 2022).



Figure 7. *Top Left: Fountain of Pigott Corridor; Top Right, Bottom Left: “Canyon” Fountain of Freeway Park; Bottom Right: Aerial View of Main Plaza of Freeway Park*

Conclusions

This paper represents a first stage in a larger, ongoing research but in the meantime, it is already possible to advance some considerations from the comparison between the two issues.

Where security infrastructure and connecting infrastructure are similar, is in their inherent way of separating, either by choice or as a consequence, but also in their way of bringing together by creating margin. The design strategies for these third landscapes unite these places.

In the case of Security Infrastructure, the separation aspects are neither unwanted nor undesired, but by simply keeping two sides separate, no issues are actually resolved. Ronald Rael recognizes the waste in designing an expensive infrastructure that is only able to one thing, not very effectively, as many people

actually have been injured or have died trying to cross the border. He actually recognizes that, by changing the surrounding context of “useful” problem solving infrastructure, the otherwise negative aspect of linear separation, becomes something positive. Other examples of projects designed on the border like “Invisible Walls” by José Bermudez, “Hinge Points” by Patrick Tighe Architecture, “The Prison Wall” by Estudio 3.14, “Border Breach” by M-Rad Studio, “The No Border Line” by Codena Concept Design, just to name a few, all express a willingness to “look over” the border and offer many different (even opposing) visions, all contributing to a broader architectural discussion to be had over these types of territories.

In the case of connecting infrastructure, on the other hand, the consequence of the physical barrier cannot be considered something positive. But, in order to be able to overcome this particular barrier, the solutions in terms of functional program are similar: the addition of functions, of stratification of uses and users. In the case of Freeway Park, along with connecting the two sides separated by the freeway, the design includes car travelers by allowing them to see and visually connect with the unexpected “floating” natural elements. Homeowners experience an increase of economic value to their asset as well as a general improvement of living conditions due to the decrease in air and sound pollution with the introduction of the park. Community park goes inherit an equipped urban park with green areas, for community activities, theater representations, places for kids and adults alike to play and meet. New parking spots have also been added underneath the park to serve both, the neighborhood and the convention center.

Many contemporary projects dealing with different types of infrastructure, pedestrian bridges like MVRDV’s project for Seoul or the bridge over the Carpinteira Stream by Carrilho da Graca, urban parks designed over the course of rivers like in Valencia or Madrid, repurposing of retired railway lines like the New York High Line or the Katy Trail in Dallas, are all ways that the architectural project has succeeded in returning livable pieces of the city to the community.

Adding stratified complexity of uses, functions, geometries, materials favors the meeting between people, places and environments.

Acknowledgments

A special thanks to my PhD supervisors from the University of Trieste, Giovanni Fraziano, Giuseppina Scavuzzo, Adriano Venudo for the availability and insightful feedback throughout the entire process of writing this paper. I also wish thank Thomas Bisiani, fellow colleague of the University of Trieste, for his help in revising this final draft.

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