

An aerial photograph showing a long, straight border wall with a repeating geometric pattern of squares and triangles. The wall runs vertically through the center of the image. To the left of the wall is a dry, hilly desert landscape. To the right is a densely packed town with various buildings, including houses and a yellow school bus. The overall tone is warm and golden, suggesting late afternoon light.

BORDERWALL AS ARCHITECTURE

A PROACTIVE MANIFESTO FOR THE U.S. / MEXICO BORDER WALL

“But when one draws a boundary it may be for various kinds of reasons. If I surround an area with a fence or a line or otherwise, the purpose may be to prevent someone from getting in or out; but may also be part of a game and the players be supposed, say, to jump over the boundary; or it may show where the property of one man ends and that of another begins; and so on. So if I draw a boundary line that is not yet to say what I am drawing it for.” —Wittgenstein

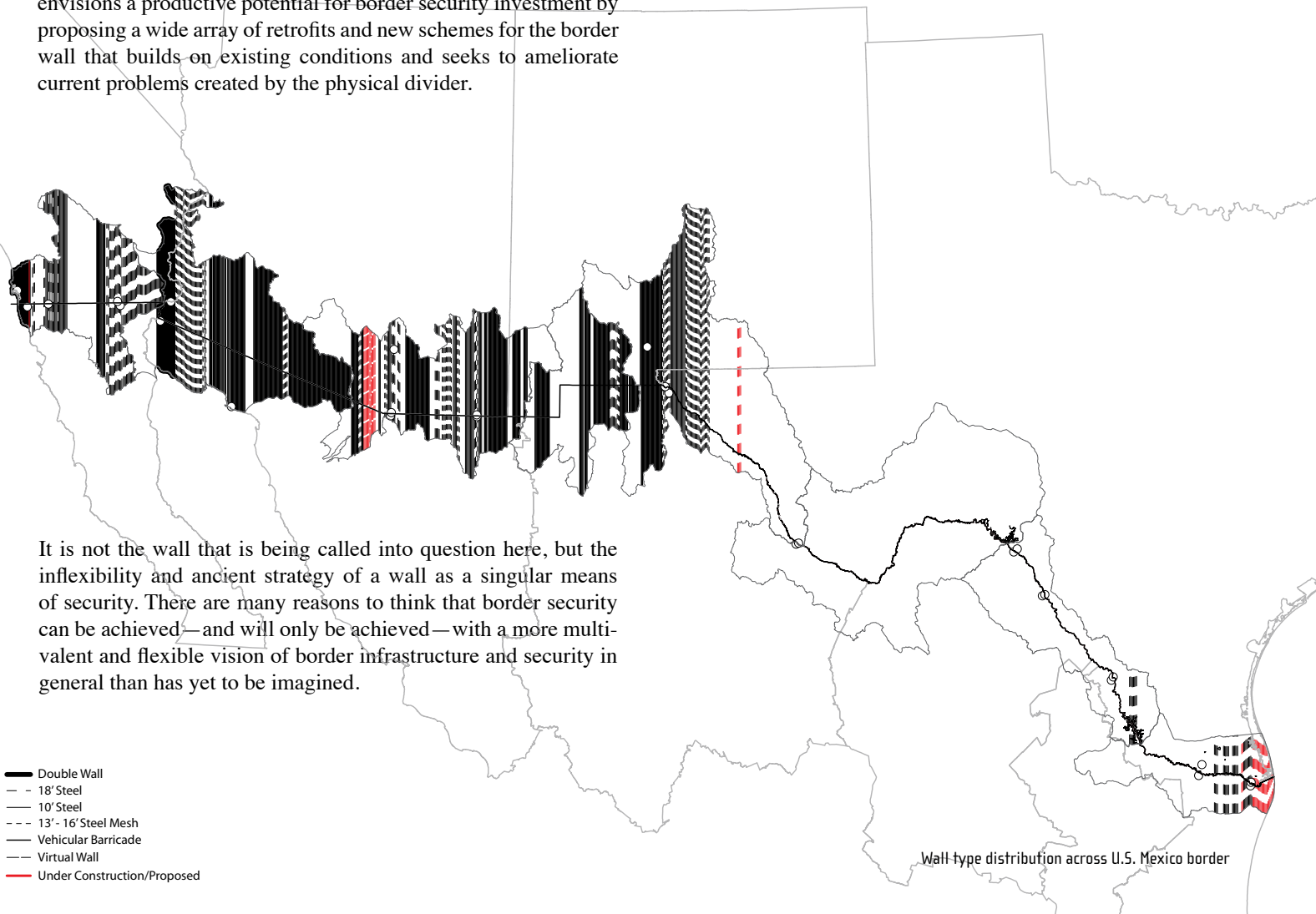
BORDERWALL AS ARCHITECTURE

A PROACTIVE MANIFESTO FOR THE U.S. / MEXICO BORDER WALL

ABSTRACT

The introduction of over 700 miles of double-reinforced fence built along the 1,969-mile long U.S./Mexico border has had tremendously negative consequences on large cities, small towns, and a multitude of ecological biomes. The planning for the wall was a utopian scenario, engineered for a conceptual tabula rasa defined by Department of Homeland Security Secretary Michael Chertoff who was given unprecedented powers by President George Bush to waive any and all laws in order to expedite the wall's construction, ignoring the rich and diverse contexts found along the border. This insertion not only raises critical questions of ecology, politics, economics, archaeology, urbanism and eminent domain (to name a few), it also radically redefines and transforms the territories of the frontera. Despite this militarization of the border, border cities on both sides are among the fastest growing and most populous. While the massive investment in a security infrastructure that divides territories has had radical consequences, the perseverance and adaptation of historic and new human settlements along the border, as well as the tenacity of local border ecologies, is a testament to nature's resilience. *Borderwall as Architecture: A Proactive Manifesto of the U.S./Mexico Border* envisions a productive potential for border-security investment by proposing a wide array of retrofits and new schemes for the border wall that builds on existing conditions and seeks to ameliorate current problems created by the physical divider.

"What I seek to convey is the historic truth that the United States as a nation has at all times maintained opposition—clear, definite opposition—to any attempt to lock us in behind an ancient Chinese wall." — Franklin Delano Roosevelt, Jan 6, 1941



It is not the wall that is being called into question here, but the inflexibility and ancient strategy of a wall as a singular means of security. There are many reasons to think that border security can be achieved—and will only be achieved—with a more multi-valent and flexible vision of border infrastructure and security in general than has yet to be imagined.

Wall-type distribution across U.S. Mexico border



Floating Fence: Calexico, CA

INTRODUCTION

By some measures, the U.S. Secure Fence Act of 2006 funded the single largest and most expensive building project in the United States of the 21st Century. It finances over 700 miles of fortification dividing the U.S. from Mexico at a cost up to \$16 million dollars per mile. In many locations it is fabricated of steel, wire mesh, concrete, even re-purposed Vietnam-era Airforce landing strips. Elsewhere, it makes use of high-tech surveillance systems— aerostat blimps, subterranean probes and heat sensors. In all cases, the concept of “national security” governs and militates construction and design of the wall, and the success of the wall has been measured in the numbers of intercepted illegal crossings. Borderwall as Architecture suggests that the wall, at such prices, should and could be thought of not only as security, but also as productive infrastructure—as the very backbone of a borderland economy. Indeed, coupling the wall with viable infrastructure— this proposal focuses on water, renewable energy, and urban social infrastructure—is a pathway to security and safety in border communities and the nations beyond them. Borderwall as Architecture is a proposition for a wide array of retrofits and new schemes for the U.S./ Mexico border wall that builds on existing conditions and seeks to ameliorate current problems created by the physical divider.

CURRENT CONDITIONS AND PROBLEMS

Over 700 miles of barriers have been constructed since 2006, at the cost of \$3.4 billion. Additionally, the new wall has been breached over 3000 times, incurring \$4.4 million in repairs. The construction and maintenance costs are estimated to exceed \$49 billion over the next twenty five years—and there are several hundred more miles of wall construction recently proposed.

BORDERWALL AS SECURITY INFRASTRUCTURE?

Recent statistics do show a 50 percent drop over the past two years in the number of people caught illegally entering the United States from Mexico. However, human rights groups put the number of deaths during attempted crossings at its highest since 2006 and almost 6,000 deaths have occurred since 1994. It might also be noted that 30 laws were waived or suspended for the construction of the wall, including important environmental, wildlife and Native American heritage protections.

Furthermore, in many places, the border wall is constructed as much as two miles away from the actual territorial border. Currently, the land we are suggesting for security infrastructure has lost its productive value. Removed from the market economy, it is essentially fallow.

In fact, by our estimates, there are 40,000 acres of U.S. land that already do--or are planned to--lie on the Mexican side of the border wall. That is equal to twice the size of Manhattan. It contains rivers, farms, homes, public lands, cultural sites, wildlife reserves and even a university. This land has been isolated from U.S. public access and economically neutralized. To counter this, security must be put to work.

The counterproposals herein create a productive border through site specific but also modular solutions, retrofits and new schemes focused on the following areas: Water infrastructure, Renewable Energy, and Social Infrastructure. This proposal will also highlight some of the potential benefits these productive improvements can engender.

PREFACE

EXISTING WALL TYPOLOGIES

The 700 miles of U.S. - Mexico border wall is organized in single, double, triple or more layers depending on the topography, incidence of crossings, available patrol resources and other factors. Congress recently passed a bill mandating the doubling of 320 miles of fence that are currently single wall construction. There are triple layers walls defining the border between San Diego, California and Tijuana, Mexico. Walls can be defined by the following typologies:

- Pedestrian*—Constructed to prevent pedestrian crossing and often has a high transparency for surveillance.
- Vehicular*— Designed to withstand the impact of a large vehicle, often with a heavy concrete base.
- Hybrid*— Contains features of both pedestrian and vehicle walls.
- Levee*— Used along rivers to control flooding and prevent illegal crossings.
- Natural*— Rivers, Deserts, Temperature extremes, Rough Terrain are all consider natural barriers.
- Virtual*— Employ technologies such as motion detection, radar, sonar, infrared, wifi and photography.

STIPULATIONS FOR PROPOSALS

The border wall has a surprisingly limited directive—to add 5 minutes to the time it takes an individual to breach the border; thus increasing border patrol's ability to mark and apprehend the would-be crosser. Needless to say, there exists far more potential in a construction project that is estimated to cost up to \$1,325.75/linear foot. *Borderwall as Architecture: A Proactive Manifesto of the U.S./Mexico Border* frames this potential using three basic premises:

All walls are Common Walls

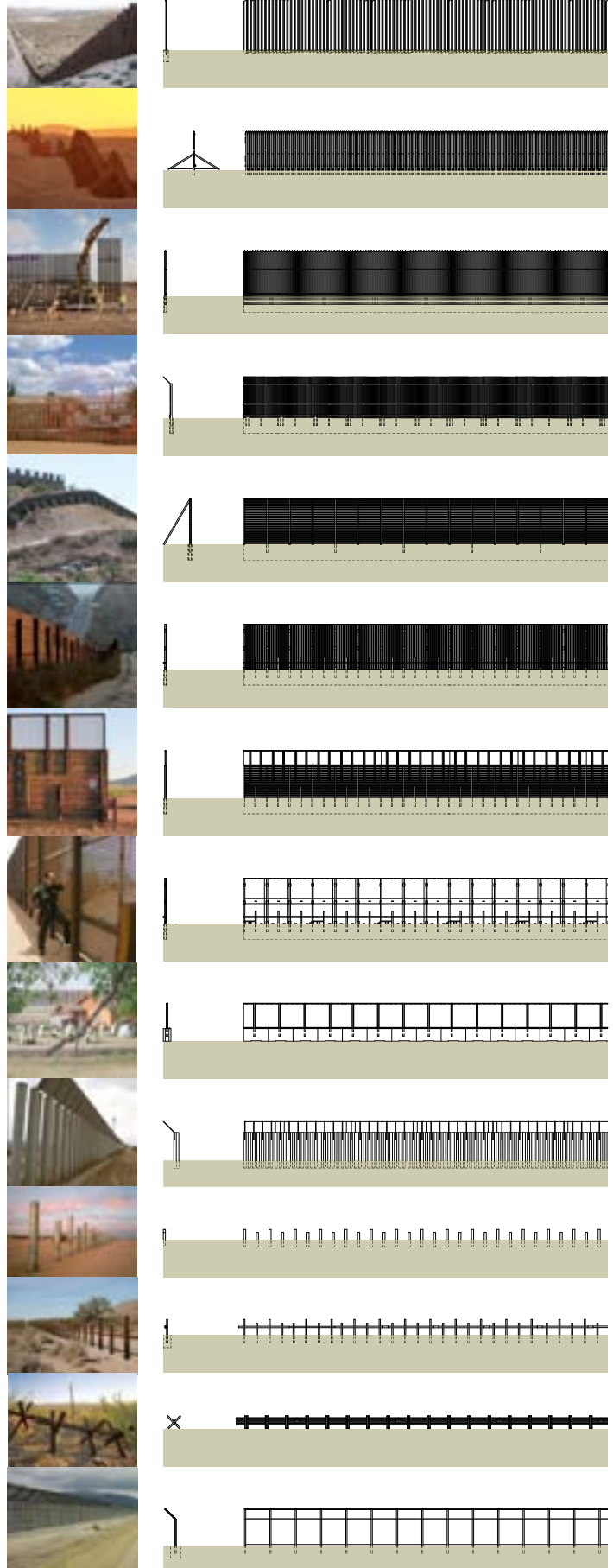
Special laws often govern walls shared by neighboring properties. Typically, one neighbor cannot alter the common wall if it is likely to affect the building or property on the other side. Each wall has two sides and breaking a wall on one side will break the wall on the other side.

All walls are attractors

The current border wall is meant to keep people out and away. Proposals should reconsider the design to serve as attractors that engage both sides in a common dialogue.

All walls are temporary

Each wall should be placed with the consideration that it will eventually be removed or reconsidered—creating an even more valuable post-border wall condition.





40,000 Acres
=
4,141,050 people at
the same density of
manhattan



40,000 Acres
=
360,000,000 lb of corn
a year



40,000 Acres
=
5,300 megawatts of
solar power



40,000 Acres
=
13,034,040,000 gallons of
water



40,000 Acres
=
64,830 grazing cows



\$49 Billion
=
650 miles of Interstate 70



\$49 Billion
=
204 Disney Concert Halls



\$49 Billion
=
500 miles of High Line



\$49 Billion
=
300 Seattle Public
Libraries



\$49 Billion
=
10 Denver
International Airports



1 mile of fence / \$16.5 million
=
11 LA Aqueducts



1 mile of fence / \$16.5 million
=
1.5 Golden Gate Bridges



1 mile of fence / \$16.5 million
=
41 miles of highway

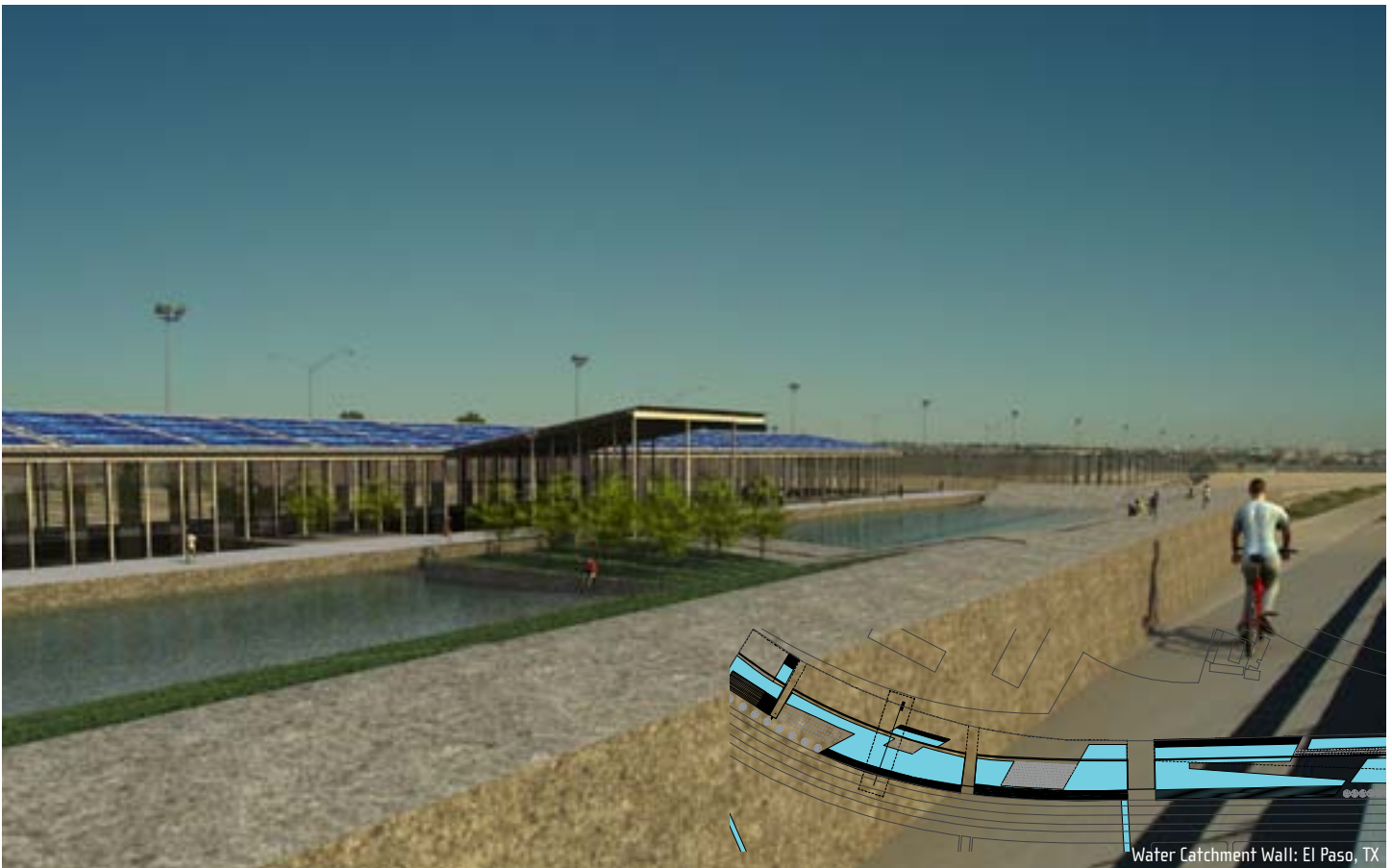


1 mile of fence / \$16.5 million
=
22 wastewater treatment plants



1 mile of fence / \$16.5 million
=
391 miles of solar panels





WATER SECURITY: EL PASO / JUAREZ

The border wall has already proven to be an effective, if accidental water collection system. Water from desert rains typically drain across the border – yet in areas such as Nogales, Arizona the fence acts as a dam. It not only prevents northern flows of immigrants, but funnels southerly water flows into nearby cities. If water collection were considered pro-actively along the border, it could be realized on a much larger scale with massive consequences for communities. For example, the city of El Paso levies storm water fees on all residents and businesses based on the amount of impervious surface that is located on a given property. This is then used to pay for a proposed storm water catchment system to ameliorate the consequences of flooding in the rapidly growing desert city.

El Paso plans to raise \$650 million for the entire project, which will distribute storm water catchment basins throughout the city. Here, we have taken the proposed storm water catchment basins and lined them up along The Rio Grande River, which currently sits bone dry between the cities of El Paso, TX and Juarez, MX. By locating the catchment basins along the river, a linear park and

riparian ecology could once again flow through the two cities. Locating additional rainwater collection shed roofs along the existing wall increases the amount of water collected, but also creates cool, well shaded places where performances, markets and events could take place. If this resource is then waterbanked, this could lead to the eventual re-opening of the river to the city.

This has important security implications as well. The purpose of wall construction is not to stop the flow of immigrants from the south, but to slow it down. According to the Department of Homeland Security, the wall gives border patrol agents 5 minutes more time to apprehend an illegal crossing. The department also sees rivers as natural obstacles that also offer 5 minutes of added time to border patrol's advantage. A linear water park along the wall that meanders on both sides can create a doubly-secure linear tactical, social, ecological and hydrological infrastructure. Allowing the River to once again flow, triples that security measure.



Water Treatment Wall: Calexico, CA

WATER SECURITY: CALEXICO/MEXICALI

The New River is the most polluted river in the United States. It flows north from Mexicali, Mexico, and crosses the border at Calexico, California. New River toxicity is comprised of chemical runoff from the farm industry, sewage, contaminants—such as volatile organic compounds, heavy metals, pesticides—pathogens like tuberculosis, hepatitis, and cholera—as well as fecal coliform bacteria, which at the border checkpoint far exceed U.S.-Mexico treaty limits. The New River then flows through the Imperial Valley, which is a major source of winter fruits and vegetables, cotton, and grain for both U.S. and international markets. While the Secure Fence Act of 2006 was enacted, according to President Bush, to “help protect the American people” from illegal immigration, drug smuggling and terrorism.” The new river represents a far more dangerous flow north from Mexico in need of containment.

A wastewater treatment wall located in the 2-mile long wasteland that buffers the dense border city of Mexicali from the

agricultural Eden of the Imperial Valley would offer a solution to the “illegal entry” of toxins to the U.S. The pollution problem is expected to worsen as Mexicali’s population—already at 1.3 million—continues to expand without adequate infrastructure. For \$33 million, the same cost as the wall that divides Calexico and Mexicali, a treatment facility with the capacity to handle 20 million gallons/day of effluent from The New River could be constructed. This proposed facility would be comprised of a linear pond filtration and purification system, creating a secure and invaluable border.

One positive by-product of the wastewater treatment facility includes methane and water. Methane could be used to generate electricity and light streets. The water could be used to irrigate parks. In fact, the combination of methane and water could fuel the needs for a linear urban park connecting the entire city through a series of lighted, green corridors, creating a healthy social infrastructure between these growing border cities.



SOLAR SECURITY

The most untapped potential for solar development in the United States lies along the U.S./Mexico border. Solar farms, in turn, are highly secure installations. What if we were to reallocate some of the funds used simply to construct and maintain the border wall for the construction of energy infrastructure along the border? We would actually create scenarios in many instances that are more secure than the existing wall, and that simultaneously provide solar energy to the energy hungry cities of the southwest.

Consider the 100-mile stretch of border between Nogales, Arizona and Douglas Arizona. There, 87 miles of border wall have been constructed at a cost of \$333.5 million. Compare that figure to the cost of the largest solar farm in the world, the Olmedilla Photovoltaic Park in Olmedilla, Spain, which cost \$530 million. For \$333.5 million, 54 miles of profit generating solar farm could have been constructed, 40 feet wide providing 60 Mega Watts of electricity. That is enough for 40,000 households. Electricity is

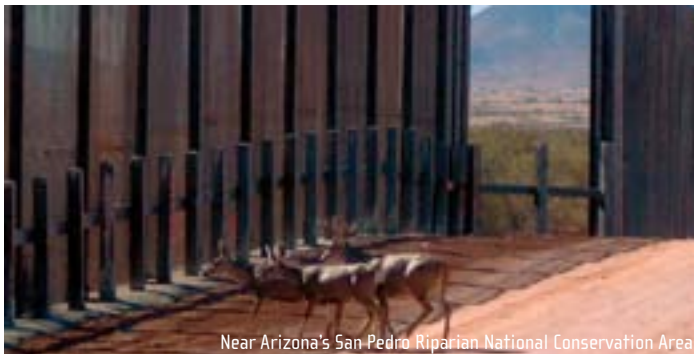
an important bi-national commodity. Many border towns share electrical grids and electricity could be sold across the border. Because transmission lines would also be put in place along the border, reliable electrical infrastructure would be available for both nations to tap.

The latent potential of a solar border is corroborated by the U.S. Department of Energy, who stated in a recent brief that: “one square foot of solar energy production along the border can power a dishwasher for 1 year”.

A powerful precedent for the endemic effects of a successful alternative energy program is Germany, a leader in the new solar economy; Germany’s solar farms can produce over 6,200 GWh a year and have generated over 10,000 jobs.



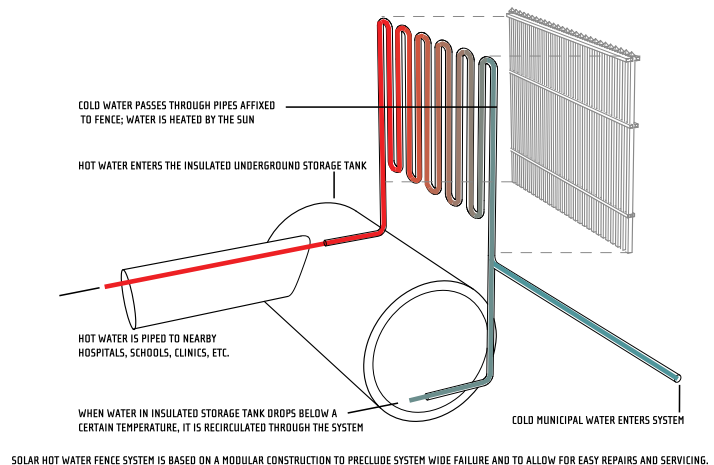
Crosses placed by family members of those who died while attempting to cross



Near Arizona's San Pedro Riparian National Conservation Area



Burrito Wall + Hot Water Wall



SOLAR HOT WATER FENCE SYSTEM IS BASED ON A MODULAR CONSTRUCTION TO PRECLUDE SYSTEM WIDE FAILURE AND TO ALLOW FOR EASY REPAIRS AND SERVICING.

SOLAR+WATER SECURITY

There are still further border improvements possible that combine heat gain with water issues. In urban environments, the border wall can be coupled with hot water production, creating low-cost additional resources that supplement the infrastructure of rapidly growing border cities. The massive steel walls are enormous heat absorbing agents, and they could easily be retrofitted with panels that produce hot water, which is a much-needed amenity in border cities. The hot water could then be used in markets, clinics, hospitals and schools.

When solar energy is coupled with water collection, it also offers a key component for the establishment of life safety beacons along the border. The principal cause of death among migrants

attempting to cross the border illegally is dehydration. Solar generated electricity could power beacons that inform border patrol of both immigrants or American citizens who find themselves in danger in the harsh extremes of the southern deserts.

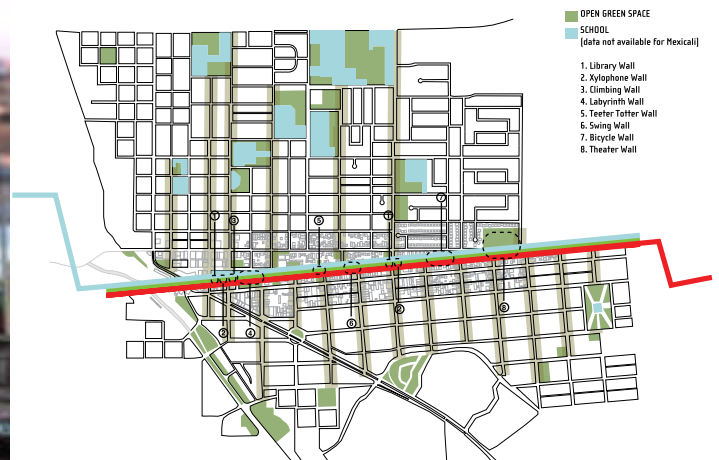
The photovoltaic panels would also be designed to collect water runoff; to power atmospheric water extractors; or to pump water from wells or rivers that could be stored, purified and dispensed as needed to distressed crossers in the desert. Engaging the water dispenser, or even approaching the life safety beacon would alert border patrol. Such devices could also improve wildlife's access to water when the normal routes have been cut off by the border wall.



Library Wall



Bike and Pedestrian Wall



Social Infrastructure: Calexico, CA - Mexicali, MX

SOCIAL INFRASTRUCTURE

While most of this work has been focused on public utility-style resources, we would also like to stress the importance of social improvements along the border. Sports, for example, are inherently social activities where networks between people with common interests are formed. The social capital produced by these networks is a core element in the fabric of communities: it produces safety and security, friendship and community, civic identity and economic value. Over time, social capital builds what may be termed “social infrastructure,” a key element in the success and health of communities. One of the most devastating consequences of border wall security in its present state is the

division of communities, cities, neighborhoods and families, and the erosion of social infrastructure. Sports have served as a way to cope with the realities of the wall, with binational yoga and volleyball becoming quotidian affronts to the imposed divide. In certain settings, the border wall can be repurposed as a linear urban park. When supplemented with green spaces connected to schools and other parks, the wall becomes the organizing condition for an urban park, offering pedestrian and bicycle routes through the city. The linear park, in turn, has the potential to increase adjacent property values and the quality of life on both sides of the border while providing an important green corridor through the city.

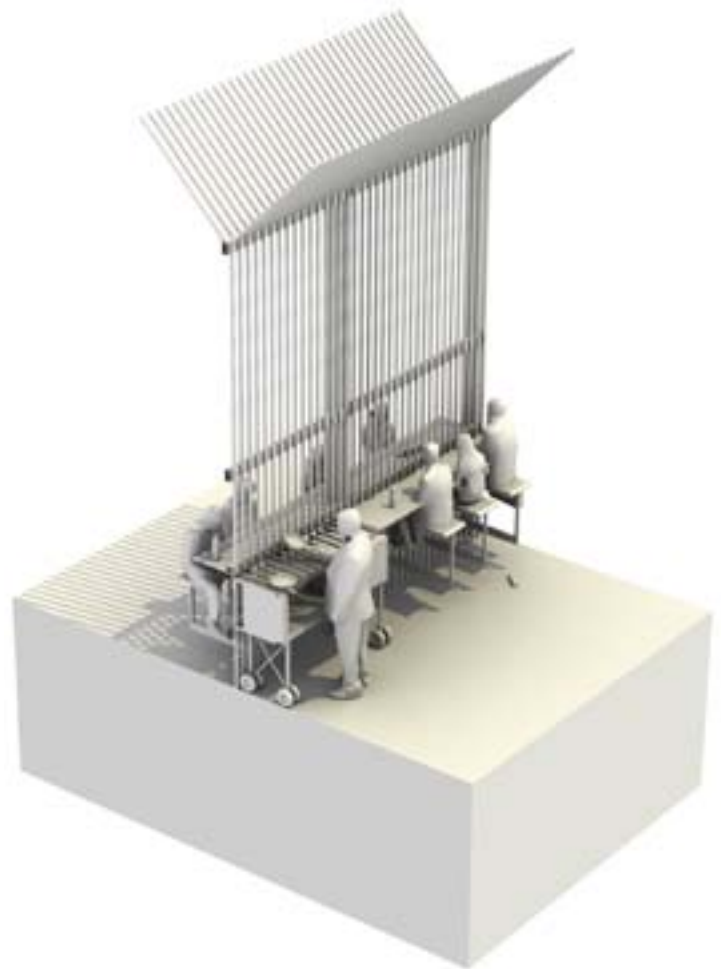
APPENDIX



Family Visits: San Diego, CA - Tijuana, MX

BURRITO WALL

Casual exchange is common across the border wall ranging from small talk, long visits with friends and family, and commercial exchanges of items ranging from food and bracelets to illegal merchandise. The Burrito Wall accommodates for a food cart to be inserted into the wall. The proximity to the wall and the security overhang create shade. Seating is built into the wall and food, conversation or a bi-national game of footsies can occur across the border.



Burrito Wall



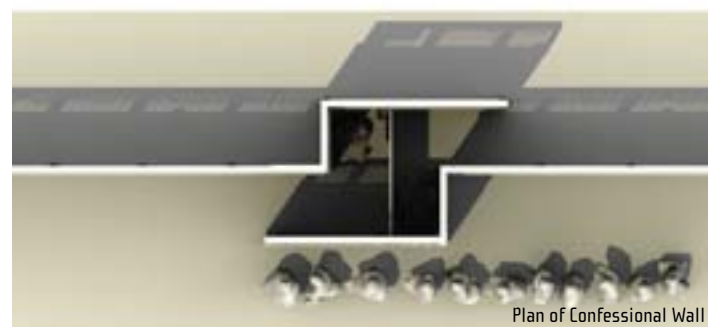
Section Through Confessional Wall

CONFESSIONAL WALL

The division created by the wall often heightens border exchanges. In Friendship Park, a beach park that spans both San Diego, CA and Tijuana, Mexico, intimate exchanges are common. Each Sunday afternoon Holy Communion is offered through the fence – increasingly as an act of civil disobedience. Here the fence serves as an opportunity for confession, with both confessor and priest must ask that his trespasses be forgiven as they must transcend the border to perform the rite.

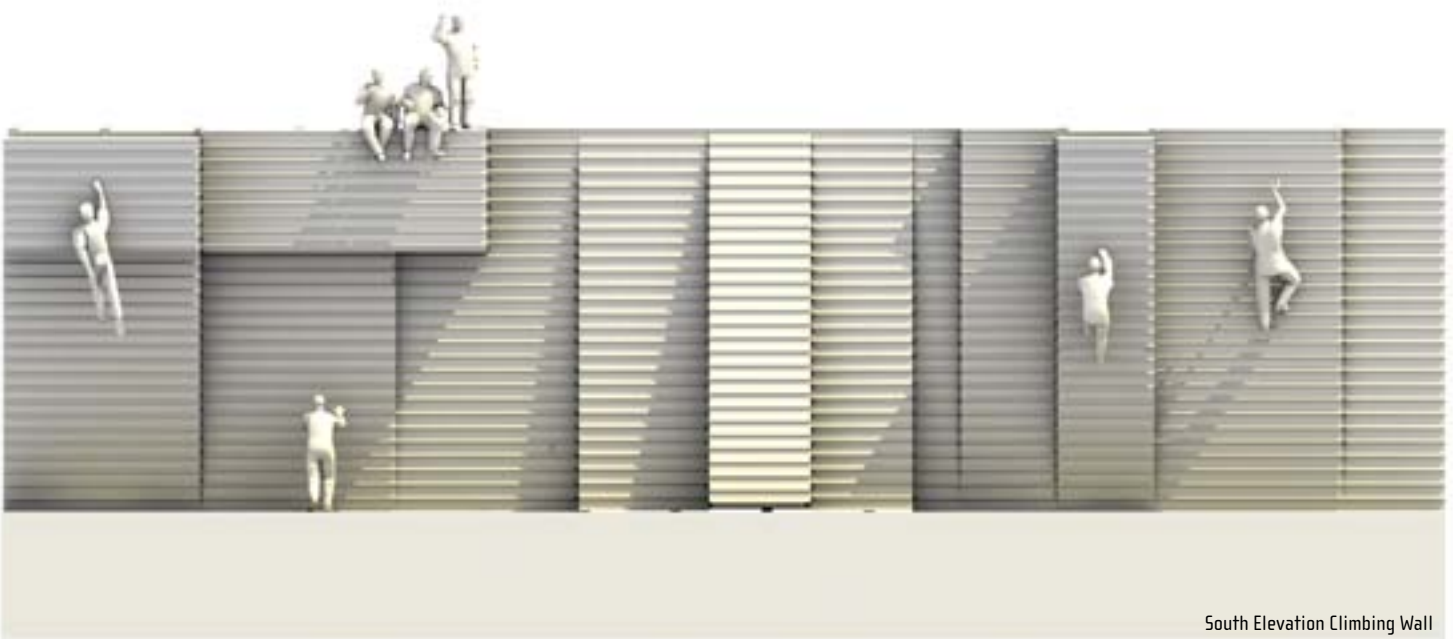


Cross Border Communion: San Diego, CA - Tijuana, MX

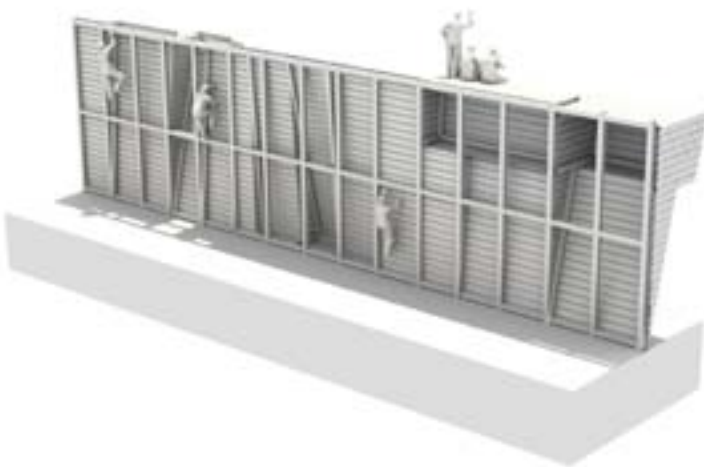


Plan of Confessional Wall

APPENDIX



South Elevation Climbing Wall



North Elevation Climbing Wall

CLIMBING WALL

“Show me a 20 foot fence and I’ll show you a 21 foot ladder” has become a mantra for describing the fence’s inadequacies. Various techniques have been used to surmount the wall. Artist Judi Werthein has created special shoes called Brincos (jumpers) – “crossing trainers” – designed to help illegal immigrants negotiate the sometimes deadly terrain they encounter when crossing the border from Mexico to the U.S. Various makeshift platforms/ramps have also been erected to allow cars to drive over the border fence. Here, the act of climbing the fence becomes not more difficult, but more challenging, as it takes on the language of a rock climbing wall with various routes and grading.



Ceaseless cat and mouse between crossers and border patrol agents

APPENDIX



Relocation of Sabal Palm



Truncated agriculture along the border

FOREST WALL

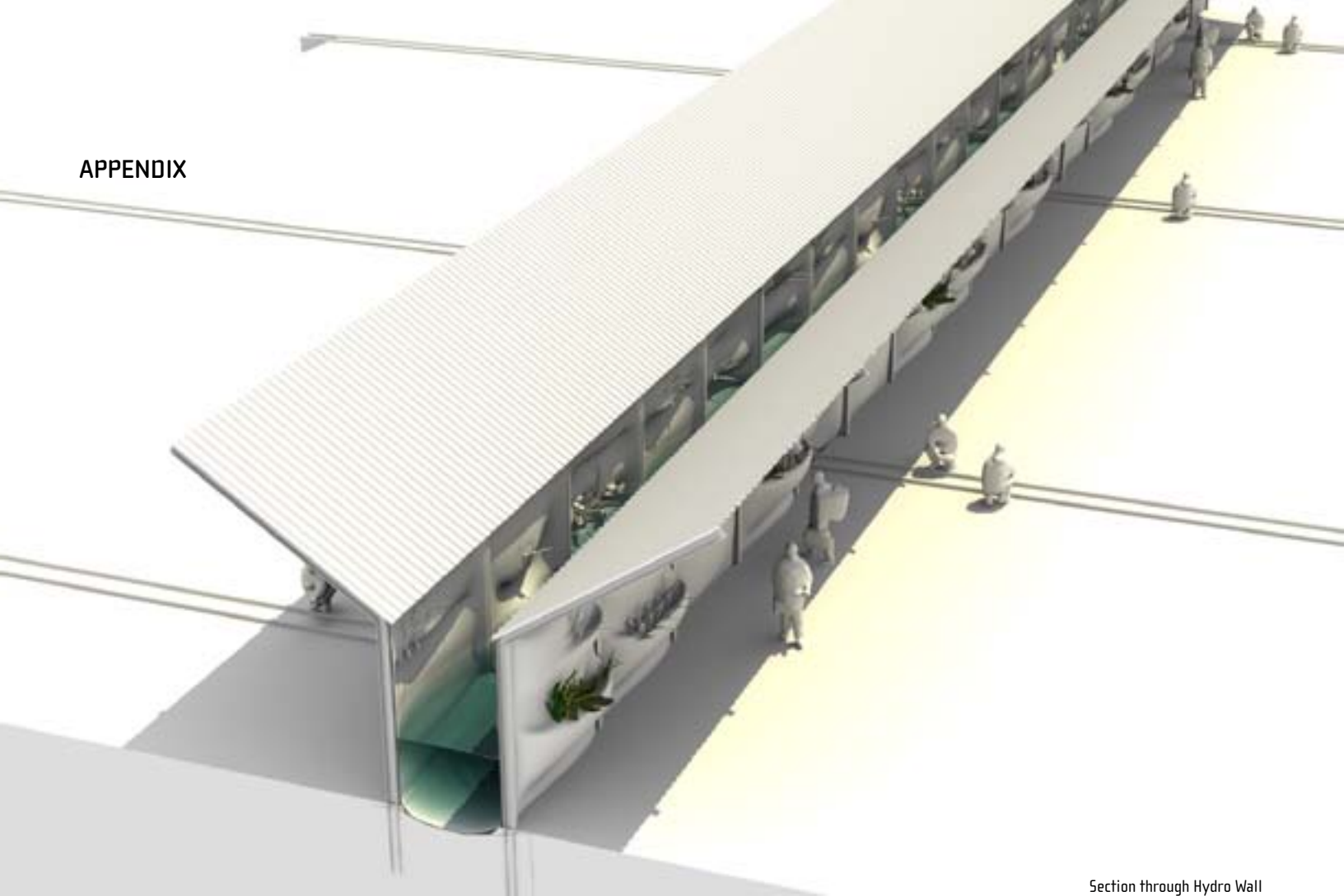
Once found across much of the lower Gulf Coast, sabal palm forests have all but vanished under the plow. While some scattered trees can be found on private lands in the region, the significant remaining stands of these towering trees are located at Lennox Foundation Southmost Preserve, the Sabal Palm Audubon Center and the Lower Rio Grand Valley National Wildlife Refuge. All three of these conservation areas lie in the path of the border fence. In order to save the sabal palms that would otherwise be leveled by fence construction, the Conservancy is partnering with the U.S. Fish and Wildlife Service and Audubon Texas, in coordination with the U.S. Army Corps of Engineers, to transplant the palms to safe ground, one tree at a time. The trees, which grow as tall as 65 feet and are up to 100 years old, are being uprooted and hauled to a number of locations, most within a mile of their original site, where they are then carefully replanted. It is a massive undertaking and a race against the clock. Each of the approximately 300 trees must be thoroughly trimmed and

the root balls carefully unearthed intact to ensure survival. The project, which is already underway, is expected to last through the summer.

Simultaneously, along the border with Eagle Pass, Texas, Mexicans, with support from their government, have begun to plant the first of 400,000 trees to form a “green wall” in protest of the fence. The tree-line will eventually stretch for 318 miles along the border between the Mexican state of Coahuila and Texas.

Forest Wall adapts the tree-line protest by proposing a double fence condition around the sabal palm preserve, thus addressing security concerns and protecting our environmental heritage. A forest surrounded by a double or triple fence is a perverse take on a reserve – a preservation of an ecology that in a post-border condition could serve to stitch the two sides back together again.

APPENDIX



Section through Hydro Wall



Massive flooding caused by build up of windswept debris against border fence

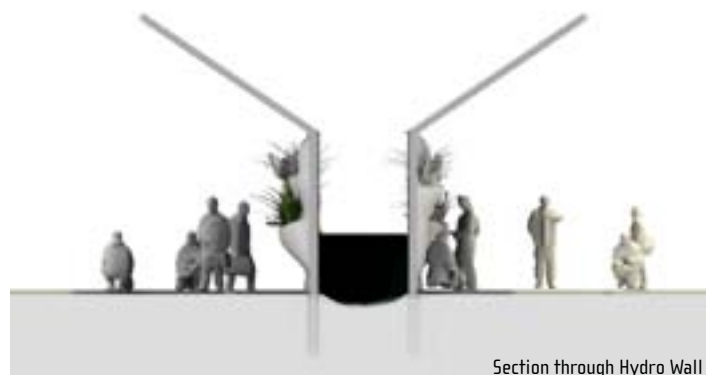


Flooding: Nogales, AZ

HYDRO WALL

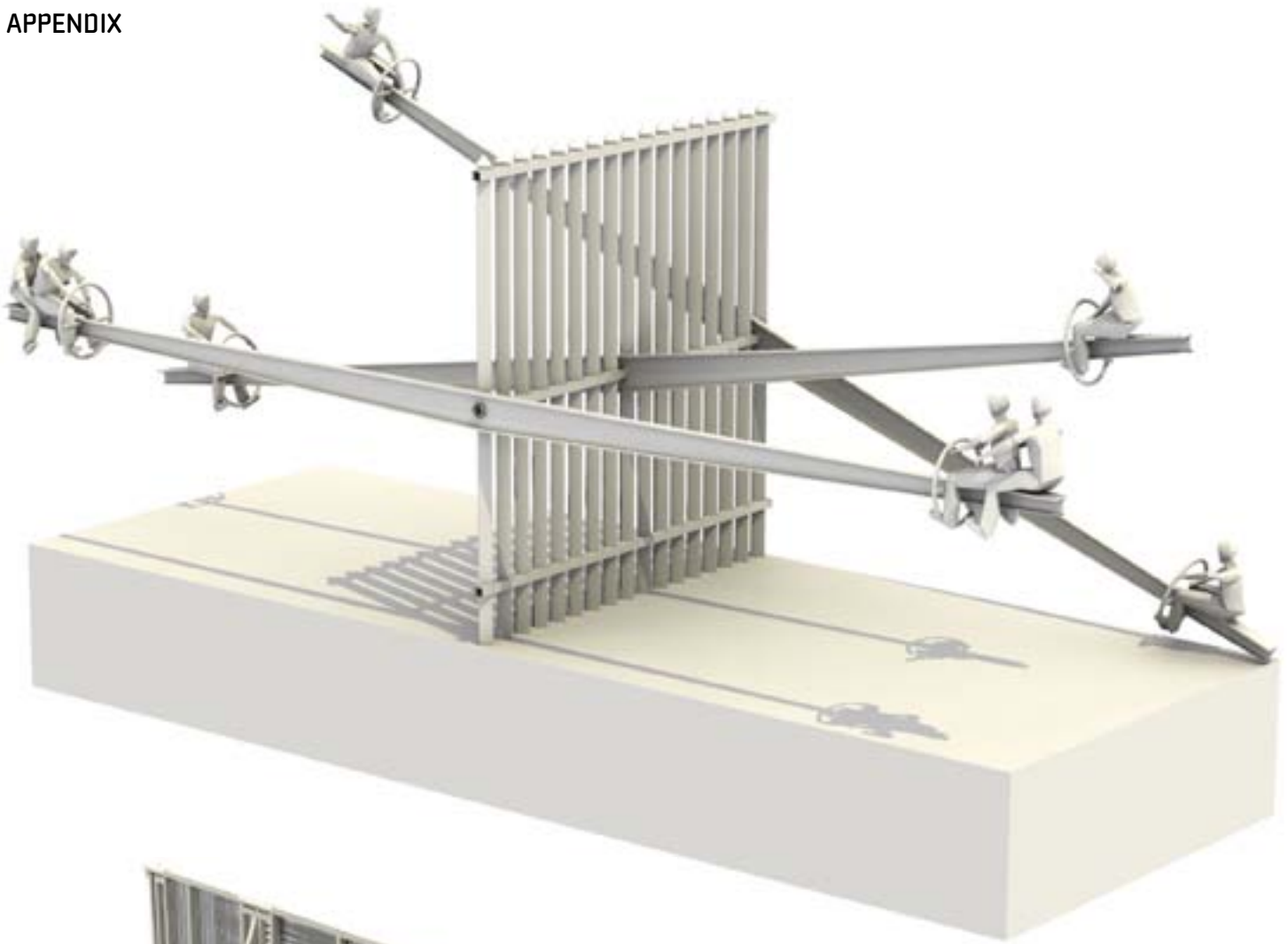
Water and air quality in the border regions suffer a disproportionate amount of environmental degradation compared to each nation's overall environmental standing. The 14 metropolitan areas along the border have abysmal air and water quality.

Water is the most limited resource in this primarily arid region. Many migrant deaths are caused by dehydration as they cross the harsh desert. The border wall has also caused severe flooding where rain has fallen, blocking natural drainage systems and damming in entire neighborhoods. A Hydro Wall would collect water and store potable safe water over the span of several miles for distribution on both sides of the wall.

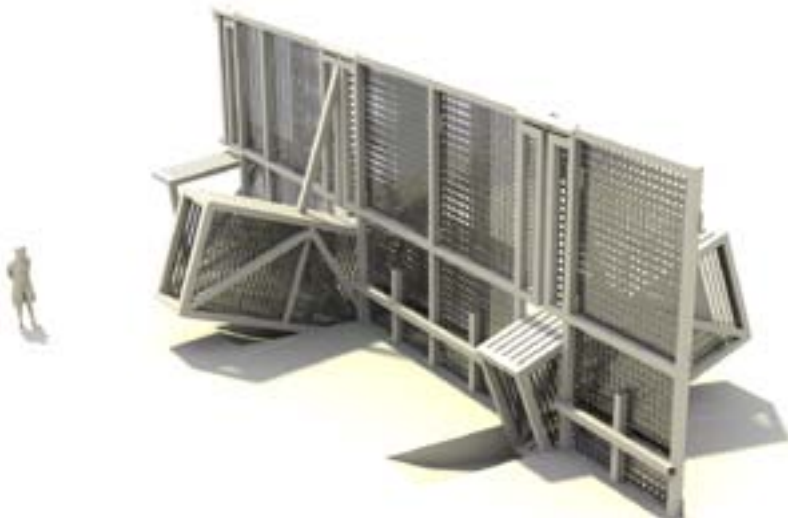


Section through Hydro Wall

APPENDIX



Teeter-Totter Wall



Swing Wall

TEETER-TOTTER WALL / SWING WALL

The trade and labor relationships between the U.S. and Mexico are in delicate balance. Mexicans throng to the U.S. to find work, but often long to live comfortably in their own country. U.S. industry and agriculture is dependant upon immigrant labor pools, yet the Department of Homeland Security, Border Patrol, and Immigration and Naturalization Services have made it increasingly difficult to attract foreign labor. These proposals demonstrate the delicate balances between the two nations.



Makeshift ramps and ladders used to breach border wall

APPENDIX



Jabalinas thwarted by the border wall



Defenders of Wildlife, Department of Homeland Security | MAP: By Nathaniel Vaughn Kelso and Gene Thorp, The Washington Post - April 19, 2008

WILDLIFE WALL

The Border Wall, existing and proposed, cuts through countless wildlife and nature reserves. The borderland between the U.S. and Mexico includes grasslands, mountains and desert habitats that support a diverse range of wildlife. The Lower Rio Grande Valley alone hosts 17 endangered or threatened species. Ensuring the free movement of critically endangered species between Mexico and the U.S. will have important impacts on breeding and genetic diversity for those animals. The biggest concern is that the barrier will break small populations of animals into even smaller groups resulting in fewer animals interacting. The wall could ultimately threaten entire species. The key is to have gaps in the fence that are sufficient to allow passage of animals while at the same time meeting security needs. A Wildlife Wall would contain special openings that allow for the passage of wildlife, and would create opportunities for shelter and safe nesting spots. It would also allow for people from each country to experience nature on both sides of the wall.



Deer waiting to cross near Arizona's San Pedro Riparian National Conservation Area

APPENDIX



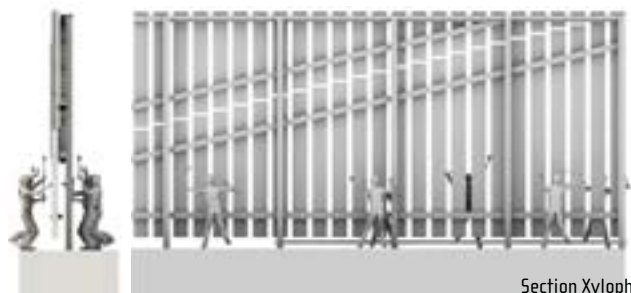
Xylophone Wall



Musician Glenn Weyant

XYLOPHONE WALL

Musician, Glenn Weyant, performs music on the wall that divides Mexico from the United States. Weyant places contact microphones on a section of the wall near Nogales, Arizona, and then he uses a cello bow against the metal of the wall to create exotic and avant-garde sounds. The Xylophone Wall allows for multi-person/bi-national informal and formal performances on the border.



Section Xylophone Wall

APPENDIX



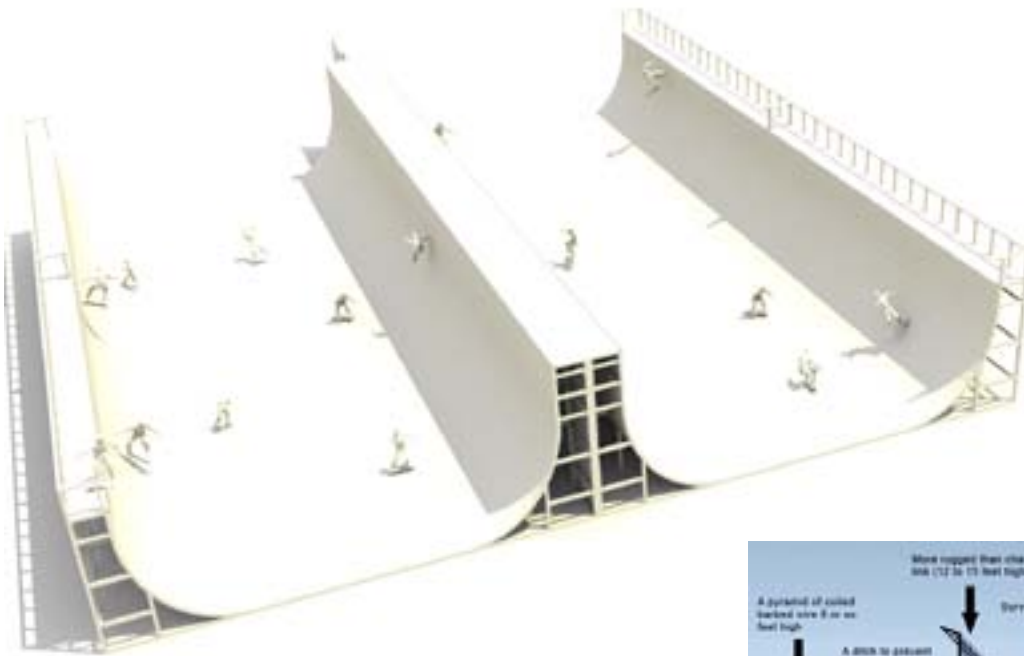
Theater

THEATER WALL

Many events take place through the border wall, bringing people from both nations together. These include yoga, volleyball, communion, prayer and deaf signing. A Theater Wall would allow for bi-national collaborations in performance, music, theater and film.



Cross Border Yoga



VERT WALL

The introduction of the double fence in many areas offers an opportunity to activate this interstitial zone. Vert Wall understands this area as a space of play, while also challenging the strategy of crossing. The double barrel section is reminiscent of initial security schemes that involved double ditches. This section also allows for the containment and distribution of water along the border channeling overflow away from flooded regions and diverting water to areas experiencing drought.

