

**Perceptions in Procession:  
Architectural Interventions on Freeway Infrastructure**

by

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## ABSTRACT

The evolution of the automobile has directly impacted the formation of many cities but has played a major role in the development of Los Angeles, and is the reason for its extending urban forms with suburban growth. Freeways were initially designed to connect the citizens to all amenities of city life - a utopian ideal that has led to suburban separation - Households distanced from their neighbors, and communities from their centers.

This thesis takes on congested freeway travel and proposes alternative solutions using as an example the I-10 freeway that connects the heart of downtown to the Santa Monica Coastline. It analyses and documents how commuters experience freeway transportation, and uses this analysis to construct a three-dimensional abstraction and visualization of a multi-functional experience for commuters and pedestrians.

## ACKNOWLEDGEMENTS

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## CHAPTER 1: INTRODUCTION

Our infrastructure can form our cities, change our direction, manipulate our process, and separate our communities. It leaves us the opportunity to build upon unused interstitial spaces for a more meaningful experience. This thesis strives to understand and illustrate the possibilities of architecture within transportation and urban infrastructural development, while providing meaningful solutions for commuters and affected communities.

As our cities continue to grow and expand further from their centers, the infrastructural transportation challenges become increasingly important. My research follows the development of the complex freeway systems that circulate around America and culminate in our cities. Ultimately, designing for varied processional perspectives in order to develop infrastructural and community design that can mediate the highway, which “is the great neglected opportunity in city design” (Appleyard, Lynch, Myer 1964).

In order to have a comprehensible understanding of a city made-up of freeways, the study began with the conception of highways - from the original highways in Europe to the expansion of the interstate system of the United States. Slowly overtaking well designed parkways and boulevards, the freeway made it's mark across the America. This infrastructural adaptation saw many forms of public transportation and communities removed to pave way for the new roadways.

Los Angeles is the prime example of a city now fuelled by car culture. Webs of freeways form the city – freeways separating communities rather than connecting the city. The freeway infrastructure of the city disconnects the pedestrians and communities from their neighbours with their resulting impassable walls. The roads also neglect the commuter by visually segregating the user into its mindless concrete corridors.

Adding to Appleyard and Lynch's work, the identification of visual en-

gagements through turns, environments, views, and infrastructure help develop the methodology for establishing design principles. Secondly, I have analyzed the route based on cones of vision used by the Federal Highway Administration in their Guidelines for the Visual Impact Assessment of Highway Projects. These cones of vision, correlated with average speed, and contextual obstructions and attractors, have been made into a 3 dimensional analysis of the users perspectives. By computer and physical modeling current qualities we are able to understand the precise moments, locations and qualities for definition in design.

With this study of principles at hand this thesis has developed a design of both architecture and program to illustrate a transportation transition space that celebrates the use of the freeway and it's interstitial spaces. Adapting to the future use of the car, the current separation of community, and push for active transportation, the proposal pushes the systemic qualities of freeways and celebrates a future with the automobile.

### **Thesis Question**

How can a perceptual analysis of movement inform an architectural and programmatic intervention to develop infrastructure strategies that positively connect cities and communities?

## CHAPTER 2: THE FREEWAY

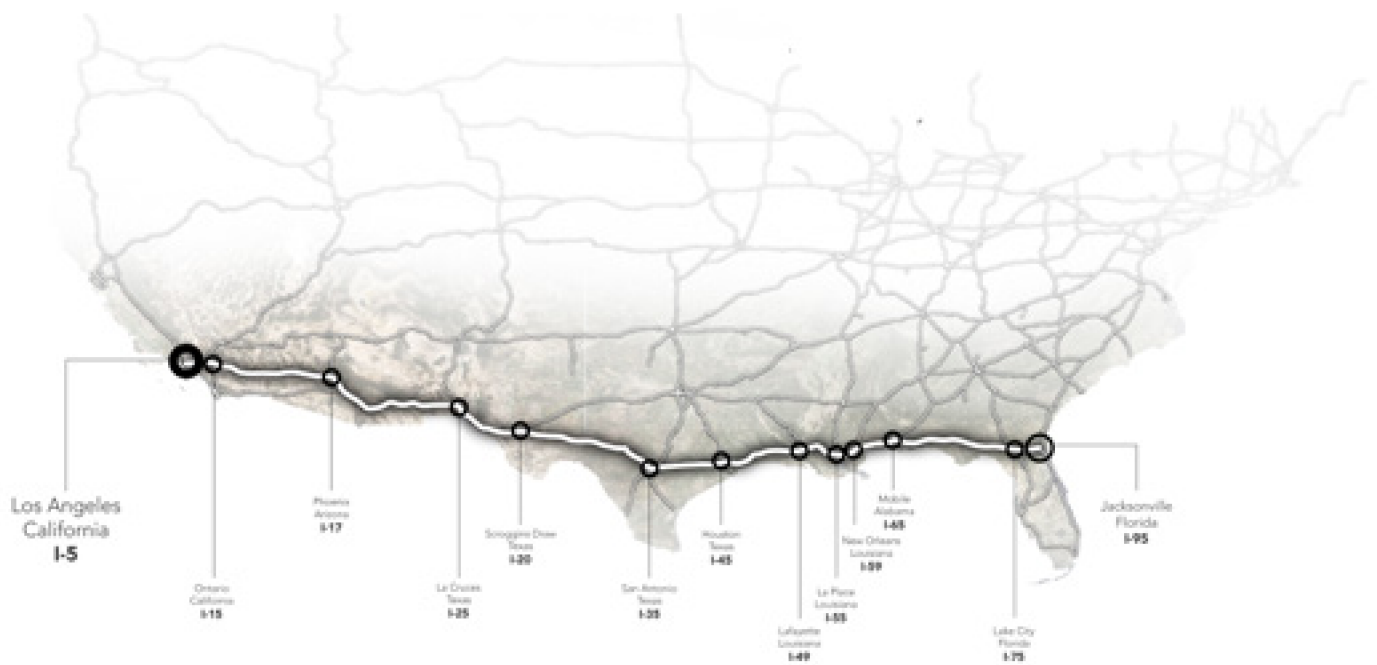
### Highway Invention

The first highways were designed specifically for the user experience. In Europe, Germany was the first country to test the highway system. This new highway (pictured below) was carefully placed in the landscape with ample trees along the thoughtfully designed curving roadway. The design was intended for a transportation connection between two cities, but was also designed to ensure a pleasant experience for the user.

The infrastructure that served as immediate forerunners of the freeway were the parkways surrounding New York City, which were built largely during the 1920s. The parkway was designed as a purely recreational facility (Orlin 1992). They provided an escape for American motorists with the opportunity to take leisurely drives on roadways routed through heav-



A German Autobahn in the 1930's (German-Autobahn. 2016)



Map of Interstate 10 running coast to coast connecting with other major interstates in the United States

ily landscaped environments within the city. The Henry Hudson Parkway (pictured right) can be seen connecting north and south Manhattan while allowing users an out-of-city experience through the treed landscape, curved roads, and waters edge.

A true park-way, which would combine the recreational attributes of a park with the transportation function of a thoroughfare, generally is out of favor today because the two uses are believed to be totally incompatible. Highway engineers, concerned principally with moving volumes of traffic smoothly and safely, are loath to compromise standards of "geometric" design meant to achieve these objectives. Rarely are sharp curves, steep grades, and narrow roadways planned purposely in order to exploit a scenic opportunity (Orlin 1992, 1).

The freeway was an urban, utilitarian adaptation of the suburban parkway (Brown 2005, 8). Keeping two of the prominent parkway qualities, freeways require: at-grade crossings were eliminated and the number of entry points was limited (Orlin 1992, 99). However, as the freeways expanded across North America, the attitude toward user design also declined, leaving utilitarian use and engineering efficiency the most prominent freeway qualities.

Although the Interstate system ubiquitously connects cities across the nation, this network had not been fully conceived until the 1950's. On June 29, 1956, President Dwight Eisenhower signed the Federal-Aid Highway Act of 1956. The bill created a 41,000-mile national freeway system. The system, which was modelled after the Reichsautocahnen in Germany, was said to eliminate unsafe roads, inefficient routes, traffic jams and all of the other things that got in the way of "speedy, safe transcontinental travel." The freeways now circulate through every state and major city in the United States, connecting industry, coastline, communities, and city centers (History 2010).

While the lines had been drawn for the broad interstate plan, urban planners were left to determine routes that cut through their city. This would have proven more site-sensitive and have led to less neighborhood destruction, but as historian Jeffrey Brown discusses, cities had to forfeit their visions for urban freeway development. "Cash-strapped cities surrendered planning control in exchange for state and federal highway dollars. Local engineers, planners, and public officials were left to make the occasional modification in alignment, but could not change the overarching logic that propelled the Interstate program" (Brown 2005, 3).



Aerial view of Henry Hudson Parkway, north from near 70 Street. ca. 1975 (Museum of the City of New York 2016)

## The American Dream

Many American cities that once relied on the public transit systems and walkable dense urban centers began expanding their borders. The accessibility of cars was used to extend housing past the city limits - creating the suburban dream of more space. Proponents identified many important beneficiaries of freeway development. Motorists would enjoy the benefits of reduced travel time, savings in fuel costs, and savings from reduced accidents (Brown 2005, 9). Freeways were designed with the intention to connect the city sprawl and build the utopian ideals of the suburban separation - Households distanced from their neighbors, and communities from their centers

While The American Dream ideals proposed a great future of America, the planners, designers and engineers could not have predicted the immense infrastructural pressures which this 'Dream' has created.

Although, "suburban developers would enjoy increased accessibility to their new subdivisions" (Brown 2005, 9), they could not have imagined their 10 lane freeways would soon be bursting at the seams. Even if "downtown interests would enjoy increased accessibility and revitalization of areas that had become or were in danger of becoming slums" (Brown 2005, 9), the decentralized cities now have areas more vacant than before. Planners believed freeways would reduce traffic congestion, revitalize downtown, and help them direct the shape of urban development (Brown 2005, 9). Although this may all be true in some aspects, the urban sprawl has increased congestion levels.



I-110 aerial view looking north towards Downtown Los Angeles (American Cityscapes, 2016)

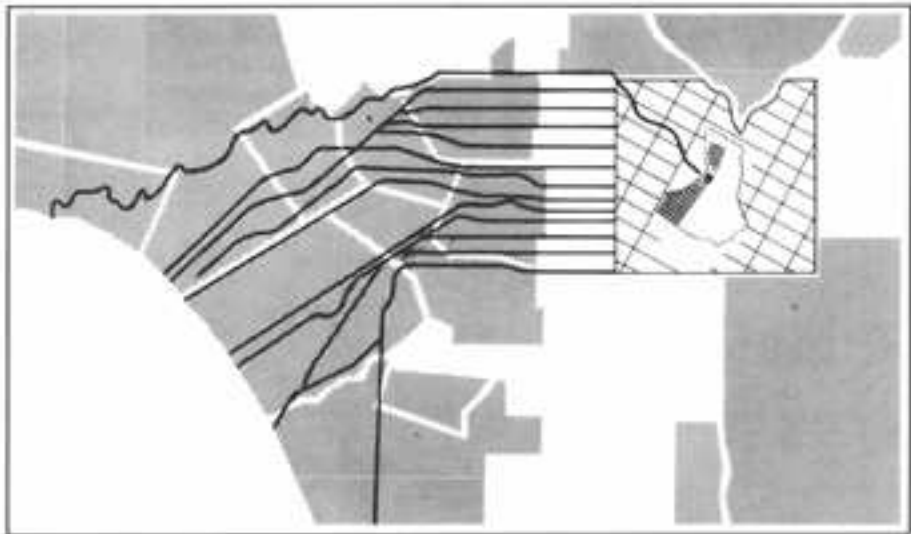


## CHAPTER 3: CONTEXT

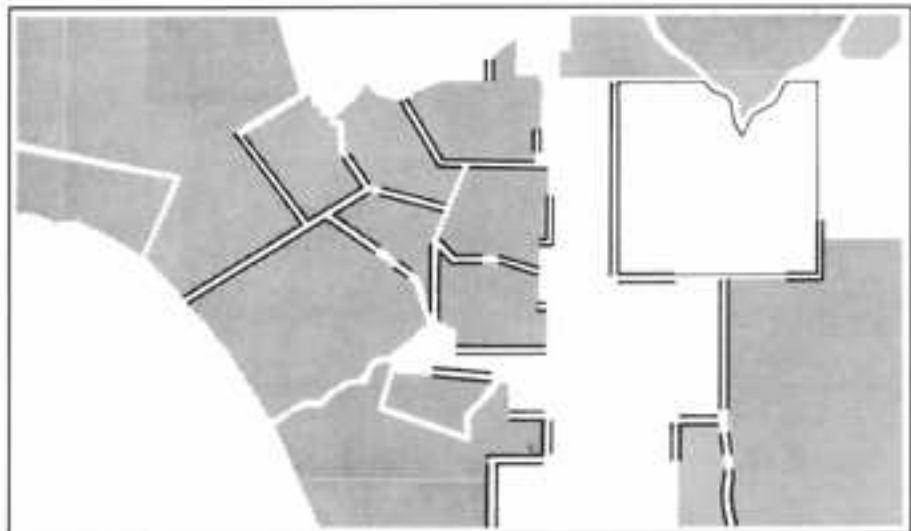
### Los Angeles

Los Angeles first developed as a Mexican Pueblo before Americans overtook and began developing their own city structure of roads. The Pueblo which we now know as Los Angeles connected to ranchos and towns that extended towards the water. Major Rancho boundaries can still be distinguished today by major blvds (pictured bottom left).

Modern conditions, showing the major east-west boulevards in relationship to the pueblo (square area), Ranchos (gray), and common lands (white). (Suisman 1989)

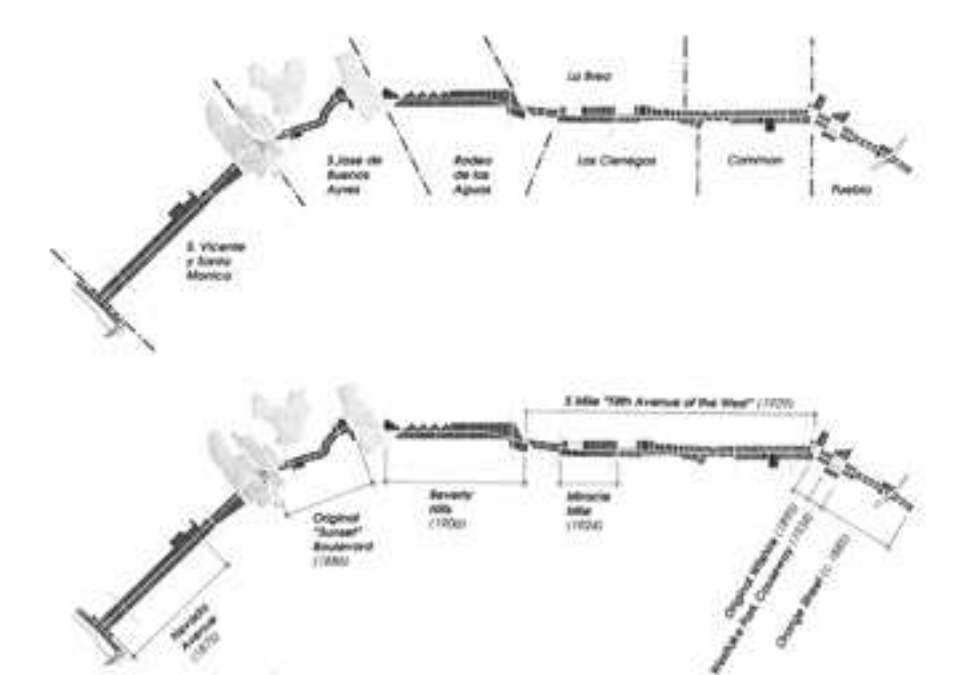


Segments of the existing boulevards which correspond to rancho or pueblo boundaries (Suisman 1989)



Wilshire Boulevard and its relationship to the pueblo, its common lands to the west, and five ranchos. (Suisman 1989)

Chronology and names of the various segments of development along Wilshire (Suisman 1989)

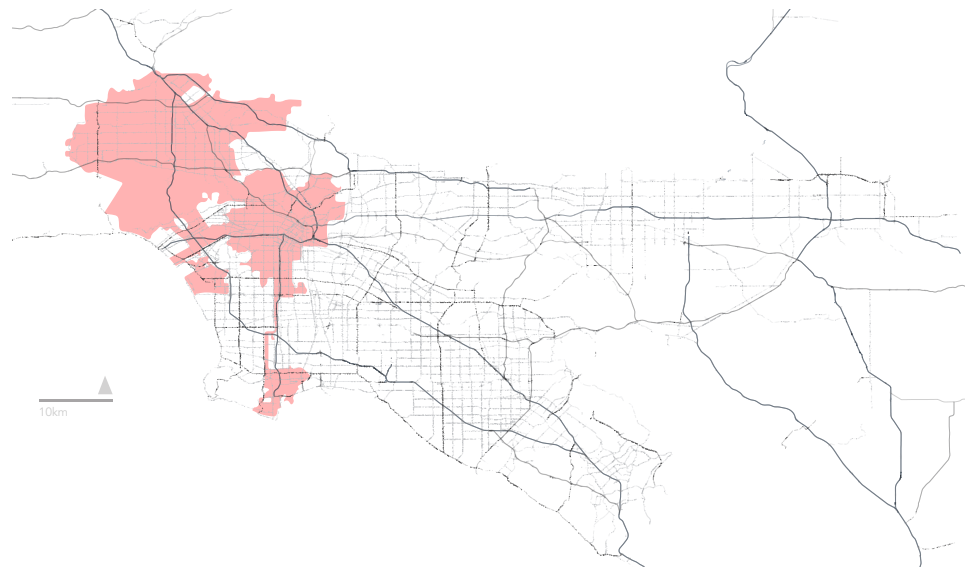


## Boulevards

Initially, the boulevards were seen as useless space, and just a means of connection to the towns. Soon after, the movie industry began grabbing the large plots of unused, highly accessible land. Virtually every studio founded in Los Angeles in the first two decades of the movie industry attached itself to one of the region's major boulevards (Suisman 1989, 31).

This use of unused space surrounding the traffic corridors allowed Los Angeles to decentralize and build communities along the routes. "... a fact which will come as a surprise to the millions of honest people who have been misled into thinking that Los Angeles is a city organized by its freeways; Los Angeles is a city whose freeways have been organized by its boulevards." (Suisman 1989, 31)

This notion of making use of unused, highly visible space, surrounding roadways is now marking a new age with freeway systems. Now with larger, faster and longer routes, we must adapt how we move around and fill interstitial spaces.



Los Angeles County map. Los Angeles City limits in red, with freeways and secondary roads (base map from GIS)

## LA Freeways

The city of Los Angeles, the second largest city in North America with a population of 3,792,621, and its metro area are served by an extensive network of freeways and highways. Ranked as the most congested in the United States, Los Angeles road traffic in 2005 left average traveller in Los Angeles experiencing 72 hours of traffic delay per year. (2010 Census, 2016)

When one thinks of Los Angeles, they can often attribute it to freeways, traffic, or even pollution. However, as mentioned previously, this city was formed from its boulevards. The freeways were an interruption in the city - creating walls of concrete between neighbourhoods that were one con-

nected. These massive infrastructural corridors allowed the connection of suburbs but ignored adjacent community interaction.

Lifting the commuters high above the surrounding communities, the freeways disconnect the traveller from engaging with his surroundings. Even on highways whose primary function is the carriage of goods and people, visual form is of fundamental importance and can be shaped without interfering with traffic flow. (Appleyard, Lynch, Myer 1964, 3)

Even though Suisman argues that freeways have no destinations, and strips have no neighborhoods (Suisman 1989, 7), it doesn't suggest these routes should be neglected any further in city design. There are useful streets, and the major boulevards provide an excellent secondary network in many parts of the city, but psychologically, all are felt to be tributary to the freeways (Banham 1976, 214). It is important we explore the untapped potential surrounding these infrastructural nuisances to create more efficient roadways for our cities, communities, and users.

Freeway Congestion northbound and the southbound lanes of the Interstate 405 in Los Angeles. (Hopper 2015)



Map of Pacific Electric rail routes, 1920. (Transit Map, 2011)



Map of Metro rail routes, 2016  
(Base map from Transit Map, 2011)



## Public Transit

The public transportation in Los Angeles took a large hit in the 1920's after the main transit line, Pacific Electric, was purchased and dissolved to make room for a new wave of diesel buses. This transition was intended to create faster and more flexible public transit, however it had a major impact on the city infrastructure - more congestion meant more roadways to be built (Fogelson 1993, 185).

The construction of new roadways and freeways overpowered the transit lines. The once extensive web of rail routes in the 1920's (shown top left) was quickly destroyed to make room for the wider roads and more efficient freeways. Currently, the Los Angeles Metro light rail (pictured bottom left) have been rebuilding to expand their minimal rail transit.

Although much of the Los Angeles rail network has been destroyed, the Metro Transit Authority has proposed important improvements to their system. First, they have committed to running rail service from Downtown Los Angeles to Santa Monica Coastline - Connecting two important areas of the Los Angeles area. Second, They have plans to connect downtown to Beverly Hills and UCLA. Unfortunately, both of these plans run East to West and leave no connections between the two lines except for at their origin, City Center. However, MTA has introduced an improvement to their public transit system to rival other top systems in the world. With the addition of transit bikes, the Transit Authority plans to place bike shares at all of the stations and throughout the city that connect to the transit passes. Creating a system that not only connects passengers, but introduces them to a new stream of active transportation (Metro 2016)



## CHAPTER 4: SITE

### Location

The chosen site lays along Interstate 10 between Downtown Los Angeles and Santa Monica, California - also known as the Santa Monica Freeway. Illustrated on the next page, the interstitial space bordering the north side of the freeway is surrounded by three other interchange roads, the free=



Map of the I-10 connecting Santa Monica Coastline and Downtown Los Angeles (base map from GIS and imagery from Google Maps)

way, Ballona Creek, and industrial, commercial and residential neighbors.

The map below illustrates the proximity of the neighbours as well as the massive infrastructural scars that have divided these communities.

North of the freeway we see industrial in blue, and health care in pink. South of the freeway is Culver City in yellow. All other Los Angeles residential and commercial as grey.



Map of the I-10 freeway separating Los Angeles and Culver City





Illustration of Culver City and its large art community (map from M-Rad Architecture 2015)

## Culver City

The previous page illustrates the boundaries of Culver City - a separate city within the borders of Los Angeles. Although the city is technically its own entity it is very much in the middle of LA, mainly segregated by the freeways that run on the north and west sides of the city.

While being set in the middle of a megatropolis, Culver City still manages to keep its small town charm. This area is blanketed with tree lined streets and unique shop-fronts. It is a concentrated and close-knit community of artists, designers, architects, production houses, tech startups.

The previous page shows the large amount of art galleries in Culver City, 41 in total. These galleries are part of Culver City's Arts District. This area is nestled in the northern most portion of Culver City and just south of the site and Interstate 10. Often, this area hosts art walks that brings the community together as well as people from across the city.

## Transit

Although not very well developed, Los Angeles Metro has just completed expansion of the Metro Expo train line from Downtown LA to Santa Monica. This important method of transportation not only connects those two important communities, but passes through many other communities, including two stops in Culver City. The Jefferson Street stop is located just 1000m from the interchange area on the freeway.

Shown in red in the below diagram, the Metro line is running right through Culver City, and very near to the infrastructure of Ballona Creek and the freeway. Unfortunately, for freeway drivers, this alternative mode of transportation is hidden out of sight.

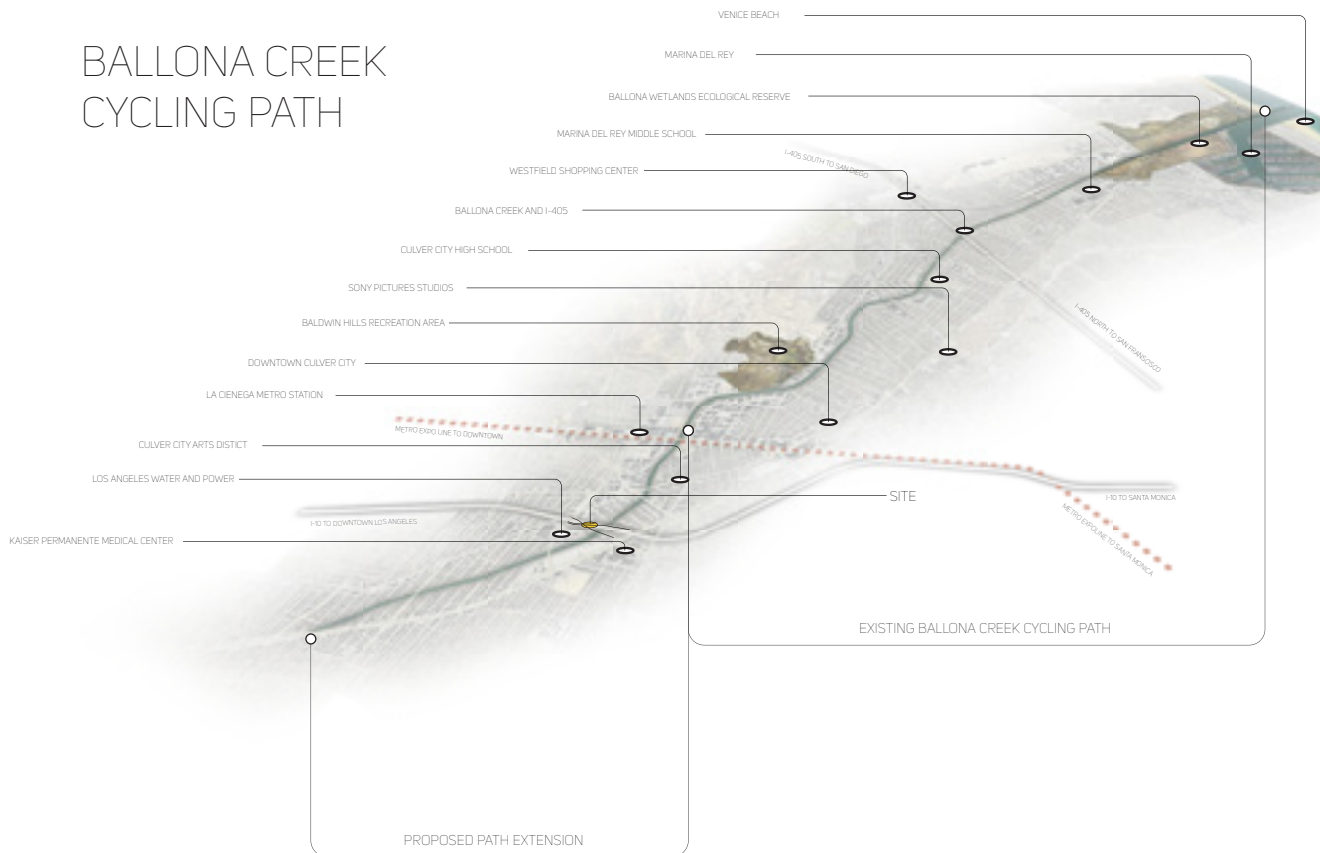


## River Infrastructure

Los Angeles provides other arteries that navigate the city, which are often overlooked and under-utilized. The concrete channels, that act as watersheds from the hills and a large part of the city, become barren and useless for most of the year as the draught continues through California.

Ballona Creek, like many of the other roadways, communities, and city infrastructures, is hidden, out of sight from freeway travellers. The Creek is

Map of the Ballona Creek, Freeways, public rail transit, and adjacent points of interest.



a man-made concrete watershed that runs from The Hills, but only appears above ground from the intersection of Venice Blvd and Cochrane Ave, and culminates in the Pacific ocean, between Marina Del Rey and Playa Del Rey (pictured below in blue).

This concrete watershed, which resembles a smaller version of the LA River, has miles of invisible infrastructure - hidden from drivers, pedestrians and cyclists. Despite its unknown presence, Ballona Creek hosts a cycling trail that runs directly from the beach to just short of the Metro Transit Jefferson Street Station.

Additionally, the creek borders many notable areas within the city (pictured left) such as Sony Pictures Studios, Baldwin Hills Recreation Area, Kaiser Permanente Medical Center, and Culver City Arts District. This small radius of medical, film, recreation, and arts potentially allows a diverse range of travellers to experience Ballona Creek.

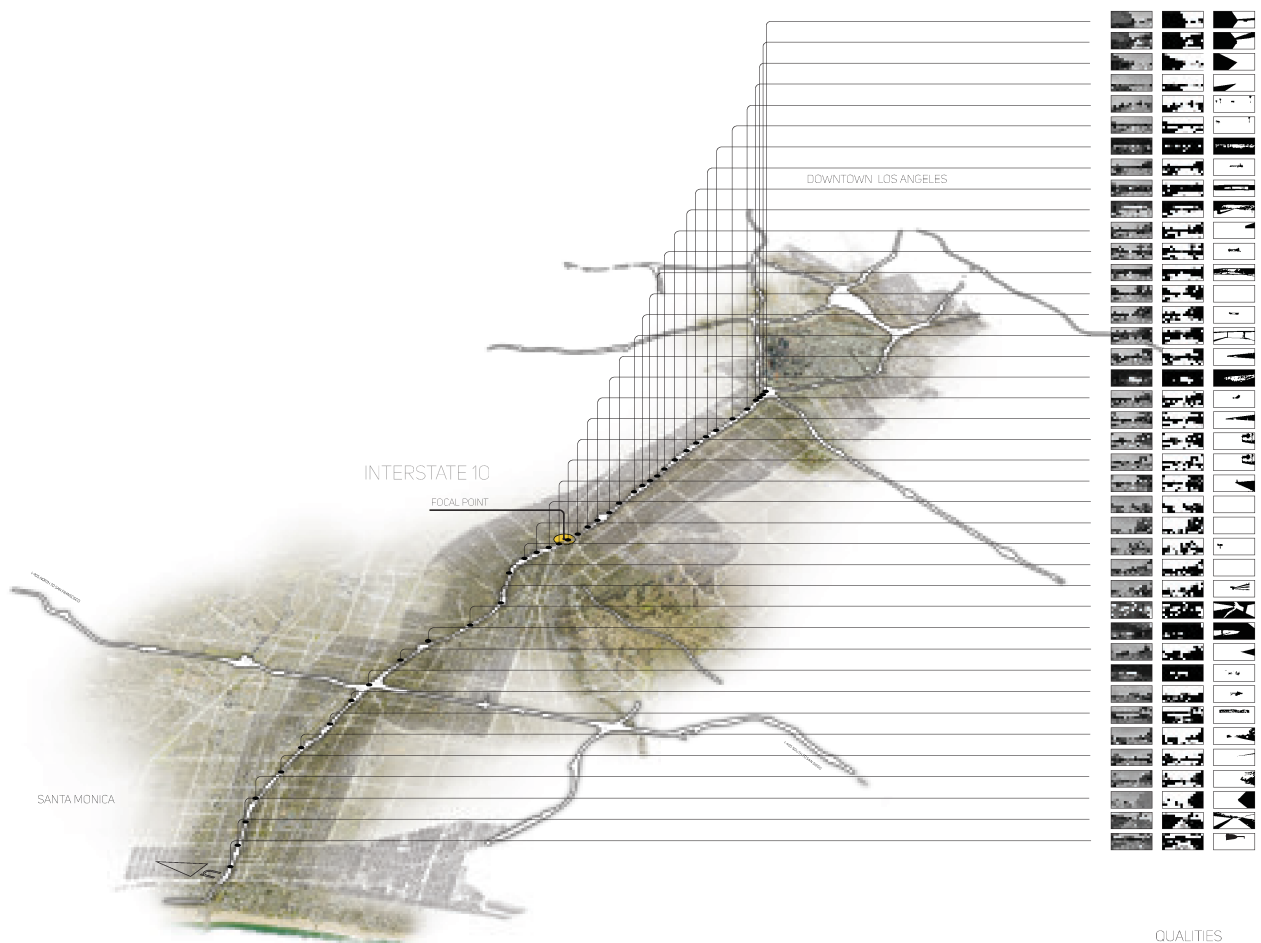
Illustration of proposed cycling path extension on Ballona Creek



## CHAPTER 5: PERSPECTIVES IN PROCESSION

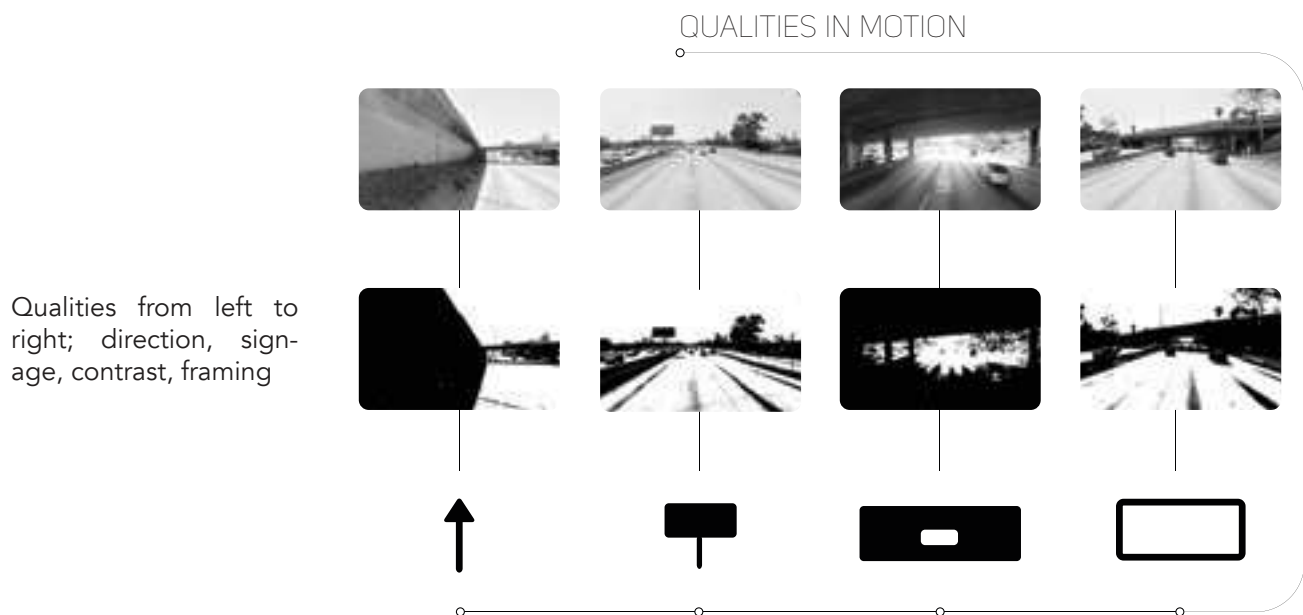
As we travel down freeways, off-ramps, on-ramps, roadways, and even sidewalks, our paths are choreographed. Signs inform us, barriers guide us, tunnels focus us, and turns give us new perspectives. As this thesis continues, I will illustrate my process as I study the various processional routes down the I-10 corridor between Santa Monica and Downtown Los Angeles and specifically around the La Cienega/Jefferson exits.

This illustration documents the initial investigation of the freeway procession. While moving westward, it analyzes selected frames and its visually prominent features. From this information I am able to extract the reoccurring qualities from this study, which are defined on the next page.



Procession from Downtown Los Angeles to Santa Monica along the I-10 (Base map from GIS and imagery from Google Maps)

Below is the extracted analysis from the freeway procession - four reoccurring qualities in motion. The first quality is that of direction. Mainly seen in large concrete walls, or thick tree lined road edges, these directional instances guide the users vision. Second, the signage - this quality is scattered beside, in the middle, and above the traveller, constantly grabbing their attention to inform the user. Third is the contrasting quality provided by many of the underpasses and tunnels. This element allows the driver to have focused vision to the brightest area (opposite side of the opening) and a burst of vision once he/she emerges on the other side. Finally, many of the overpasses, bridges, and other freeway infrastructure constantly frame views. Similar to the contrasting quality, but this framed view doesn't necessarily mean the commuter passes through the infrastructure.

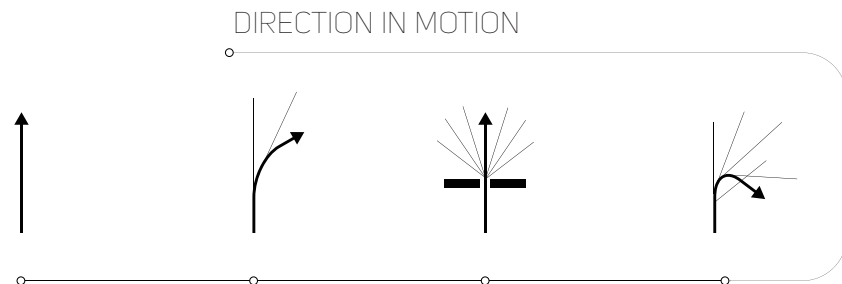


Next, my studies looked at the perspective analysis from Appleyard, Lynch, and Myer in their book *The View from the Road*. Throughout the reading, many aspects of visuals along roadways are mentioned, however, the most directly relatable to all roadways seem to be the direction in motion that

is described throughout the book. Below are 4 road geometries which I have abstracted from the reading and applied to my study.

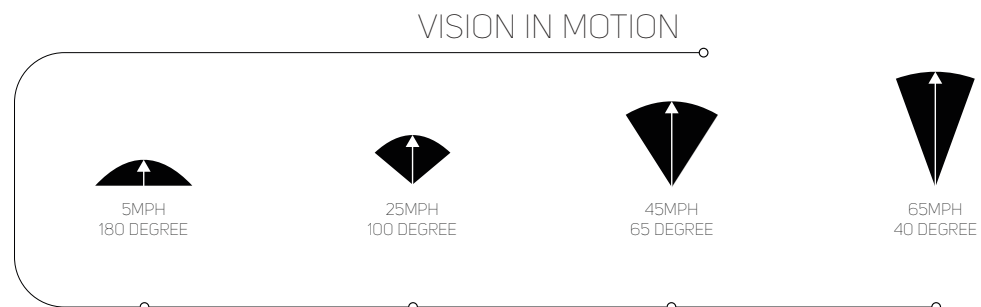
The first is the straight road which creates a tunnel like vision and avoids engaging with any adjacent space. Second is geometries with a slight bend in the road. This allows the user to briefly observe their surroundings as they navigate around the bend. Third, is the emergence from an obstruction. As mentioned in the previous qualities, this idea of contrast allows the user to have an explosion of vision as they try to navigate their abrupt new surroundings. Finally, is a sharper curve - An increased degree of turn creates a slower movement of travel and a more investigative perspective of adjacent space.

Direction in motion from left to right; straight, curved, obstruction, turn



The final portion of perspective analysis originates from the U. S. Department of Transportation's Federal Highway Administration (Federal 2015). Illustrated below are the relationships between the speed of travel to the cone of vision you experience. As the speed increases, the cone of vision narrows and the focal point moves further from the user.

Cones of vision based on speed as described by the Federal Highway Administration

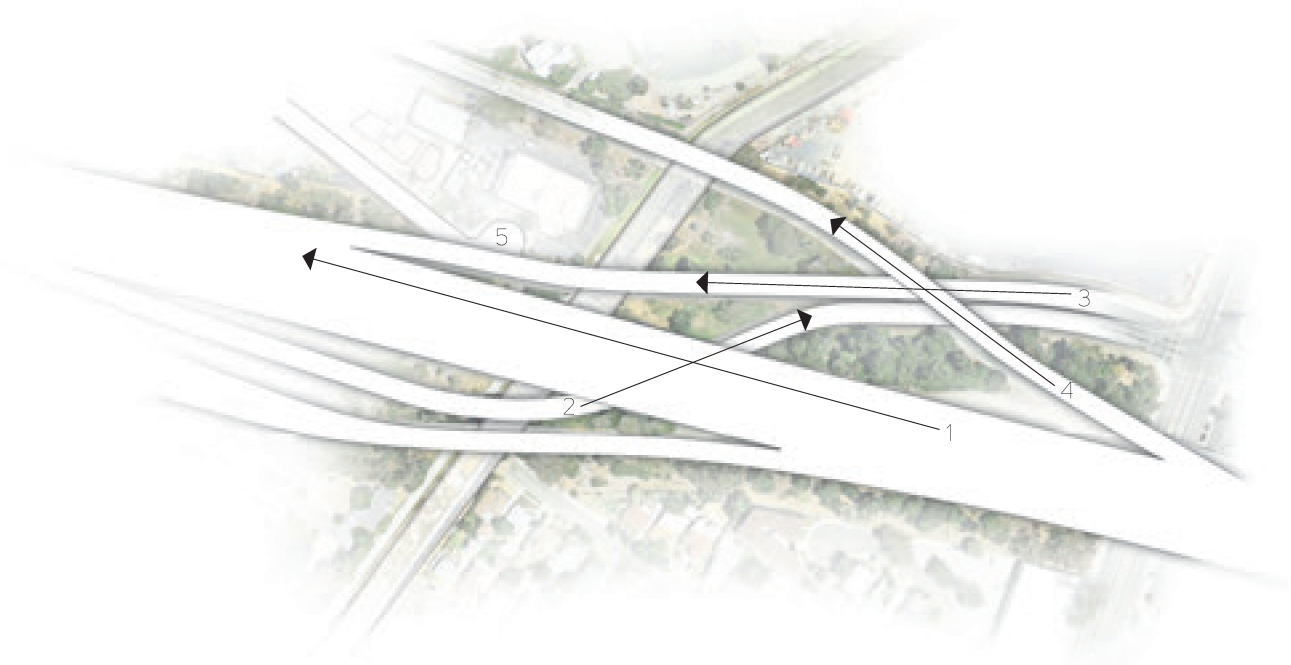




## Site Interpretation

A More direct analytical approach begins at a site located along the I-10 corridor. The selected area (shown below) was chosen for three reasons. One, being that it is located between two major centers - Santa Monica and Downtown Los Angeles. Two, the location supports numerous city infrastructures, such as Ballona Creek. Lastly, the freeway stretch boasts the most traffic per day along the entire Interstate (Federal 2015).

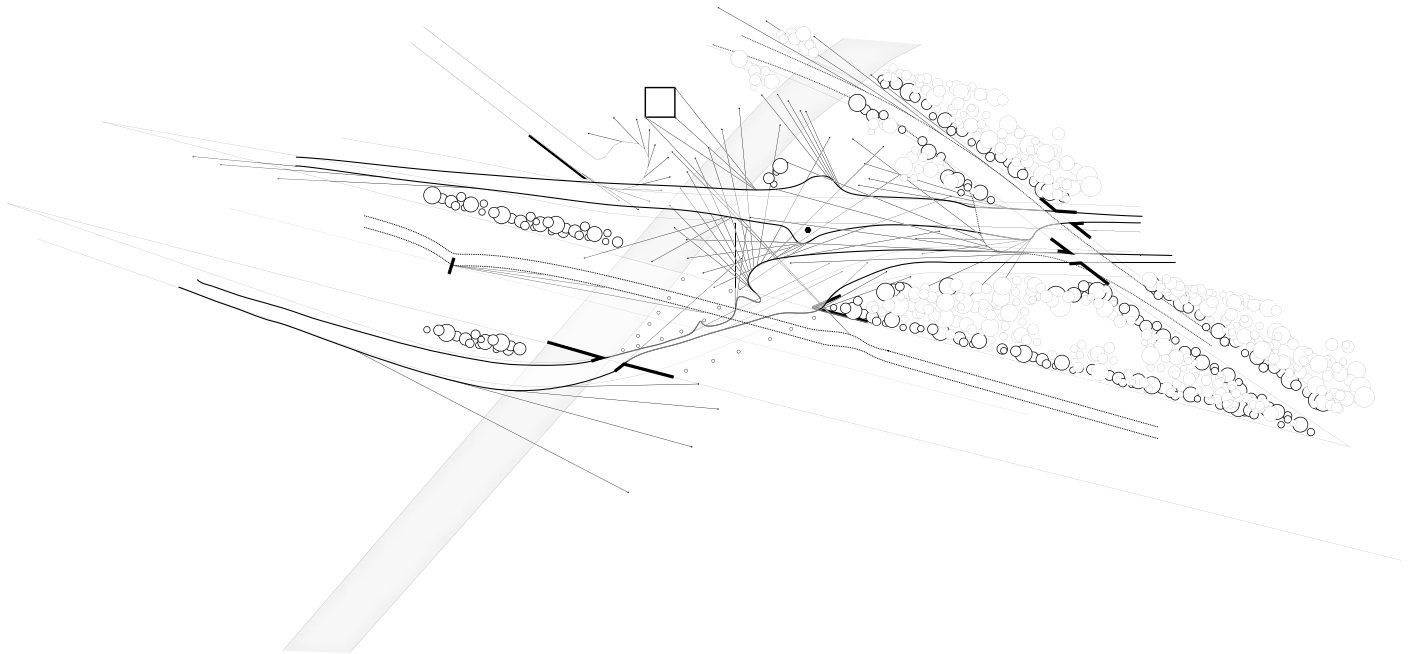
This site also provides a range of opportunity of processional study. With pedestrian zones, high-speed freeway travel, and multiple on-ramps and off-ramps with different qualities. The below illustration has each of these areas defined with their direction of travel:



Road identification with direction of travel 1. Freeway travel 2. Off-ramp, underpass 3. On-ramp 4. Off-ramp 5. Pedestrian zone.

With all of the previously mentioned processional characteristics and variables, and an area of study, I began to analyse the visual procession as you navigate this set of roads. On each of the roads I have identified the average speed for the width of vision. Additionally, visual characteristics such as signage, framing, and contrast were considered when illustrating the views. Also, the road geometry defined directional traits of the drivers vision.

I began to compile all of the characteristics in a 2 dimensional manner on the map below. This data was then used to translate into 3 dimensional properties in Rhino and further explored in physical modeling, which will be shown in more depth on the following pages.



Visual characteristics of paths circulating site

The three-dimensional qualities of the roads unfolded into the models shown below. Each of the models characteristics were formed from the previously mentioned study and are essential in the design of the project in the next chapter.

### Freeway

The freeway model formed a long and narrow path with very few distortions. Although we see the freeway at many different speeds, depending on traffic and lane location, this model summarizes the intended freeway speed in a neutral lane. Only deviating from the tunnel-like vision twice, the model shows brief interaction with signage along the freeways edges.



Freeway - 3-dimensional representation of perception in procession

### Off-Ramp

The off-ramp (underpass), encompasses many of the described qualities in its length. Traveling from left to right, the commuter experiences a decrease in speed as it exits the freeway and moves towards the underpass. As they reach the underpass their vision focuses to the light at the end of the tunnel. Once the driver emerges they have an explosion of vision as they re-orient themselves and then tapers off into a directional focus.



Off-Ramp - 3-dimensional representation of perception in procession

## On-Ramp

The On-Ramp to the west-bound freeway lanes is also another interesting combination of variables. The below model, read right to left, begins with a short pass under an off-ramp. This then frames the view for the next highlighted characteristic of the road - the stop light. Once at this crucial spot, it allows the traveller to experience a 180 degree analysis of the environment before accelerating towards the freeway and narrowing the cone of vision once again.



On-Ramp - 3-dimensional representation of perception in procession

## Off-Ramp #2

The model below represents the second off-ramp which is labelled #4 on the diagram on the previous page. The qualities of this experience are defined mainly by the heavily treed roadway and speed. As we move from left to right, the traveller begins to slow as it exits the freeway into a heavily treed landscape. With trees on both sides, the traveller has tunnel-like vision forcing him straight ahead, but with the repetition of trees he begins to slow. Breaks in the landscape allow slight directional changes in perspective.



Off-Ramp #2 - 3-dimensional representation of perception in procession

## Pedestrian

The Pedestrian model below is very sharp and dense. This is caused by the freeway infrastructure that, in its current situation, is a large obstruction. The slow speed of a pedestrian allows for a wide cone of vision, unfortunately in this case there are too many walls and fences for the pedestrian to pass around the freeway infrastructure. In this specific case, the cul-de-sac is prohibited from accessing Ballona Creek, or the underpass to connect with the community on the south portion of the freeway.



Pedestrian - 3-dimensional representation of perception in procession

## CHAPTER 6: DESIGN

The intention of this design is to communicate between all levels of circulation. If we can interpret freeway infrastructure in more city design and create moments of interaction and interpretation between users, modes of transportation, communities, and program, then hopefully we can create a more improved system that satisfies the needs of current uses and future uses for this iconic infrastructure.

As Arthur Loblow records, Rem Koolhaas's architecture "is very scripted, the way people move and the possibilities he leaves for people in his buildings ... the experiences are laid out. You go up and you have to look where you're meant to look." (Lubow 2000) This experience describes the design outcome this thesis aims to provide. By using the precise visual abstractions, the commuters perspective is taken on a journey from the first frame of the architecture through to the climax of the journey. This journey is not only meant simply for pleasure, but an exchange of information and discovery.

Although Koolhaas has great admiration for Frank Gehry, they see themselves as very different architects. While Gehry has beautiful buildings such as the Guggenheim Bilbao, Koolhaas argues that Gehry's process is to seduce the user, where as Koolhaas wants the seduction to be a by-product of the process. (Lubow 2000)

This concept of intention through to form, this design first attempts to direct the users view with every frame. Second it is important that frame has the ability to inform or push the boundaries of discovery - ultimately encouraging a new way of understanding and occupying our freeways. And lastly, to create architecture that encompasses the previous mentioned qualities while arriving with a beautiful product.

Coming back to the site analysis, the diagram below begins to highlight important, or “climax” areas of the procession. The red line is indicative of important visual directions and the circle is the most important areas of interaction.

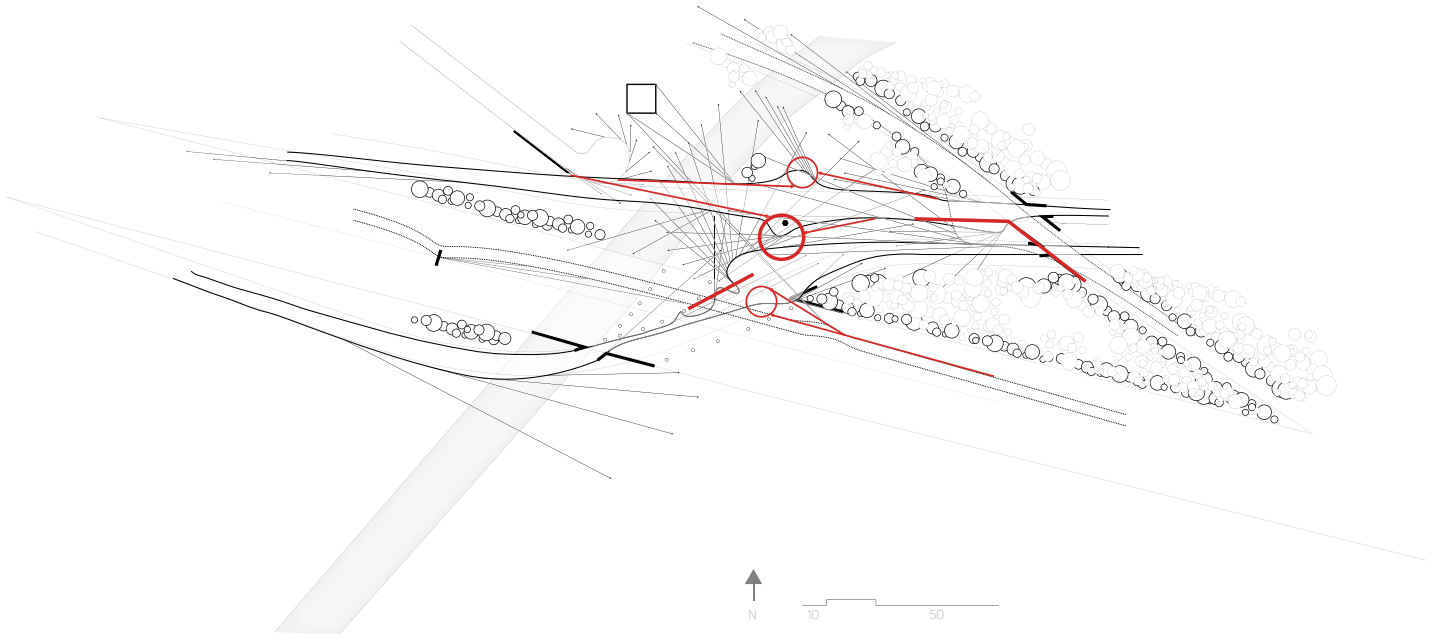
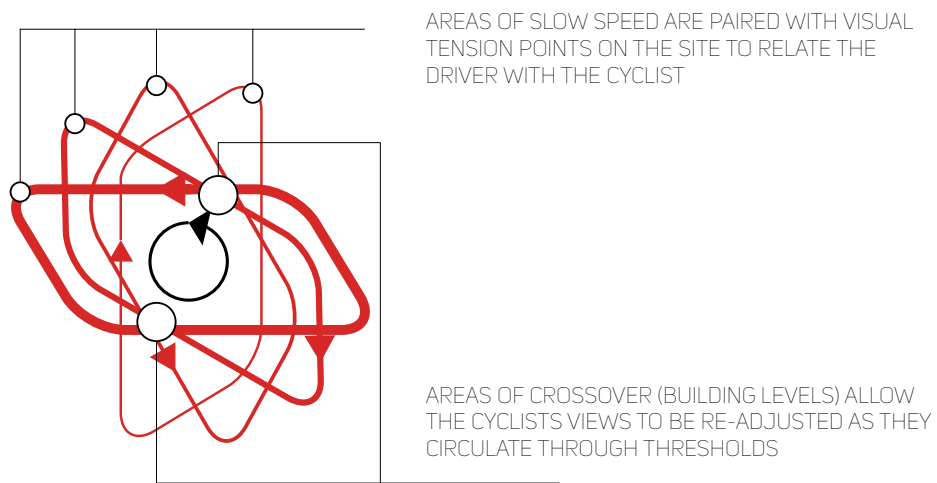
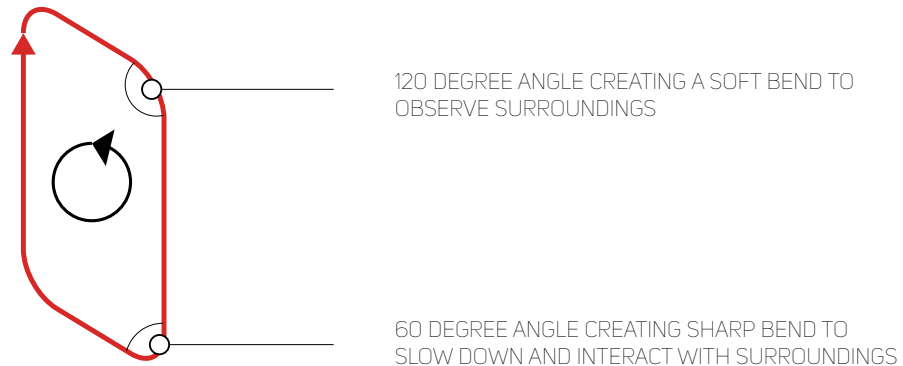
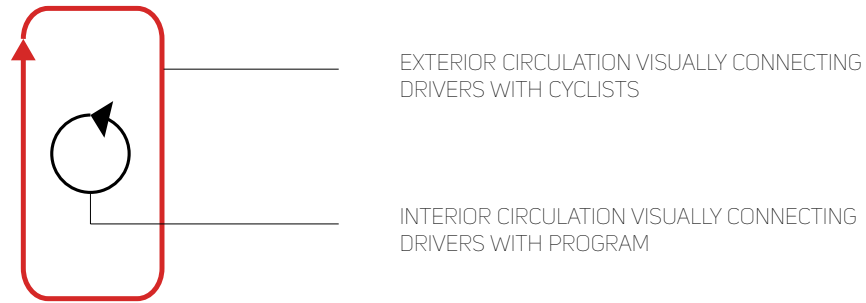


Illustration of important visual intersections

It is with this diagrammatic analysis, with the previously described processional models, and the initial characteristics that the design started to form. The diagrams on the right take you through the plan orientation of the design before we move into section and specific roads on the next pages. Beginning first with the process of alternating circulations, and a central core (describing the important core point on the building where the most interaction takes place) the plan of the building starts to emerge.

After adjusting certain points for speed and directional focus, the shape of the plan shifted to accompany the interaction with the different off-ramps and On-ramps, as well as the freeway. Making the plan distorted with 120 degree turns and 60 degree turns, the design is able to create very slow points of interaction for the circulation of both the cars and the cyclists which are intended to occupy this structure.

Finally, the bottom diagram illustrates the alternating floor plates which rotate 30 degrees. This rotating joint is one of the points for physical structure as well as the point the circulation passes through the framing to slow and focus the traveller.



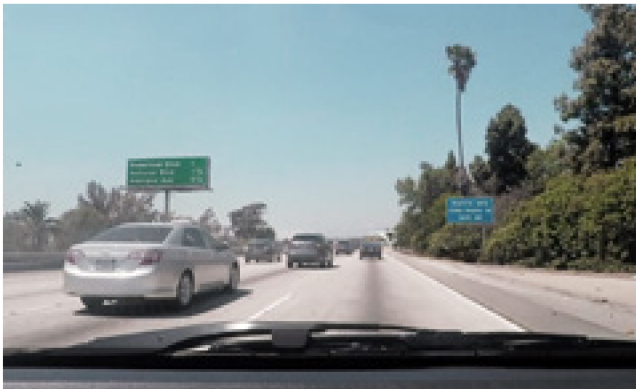
Diagrams describing the design process in plan with relation to illustration of important visual intersections



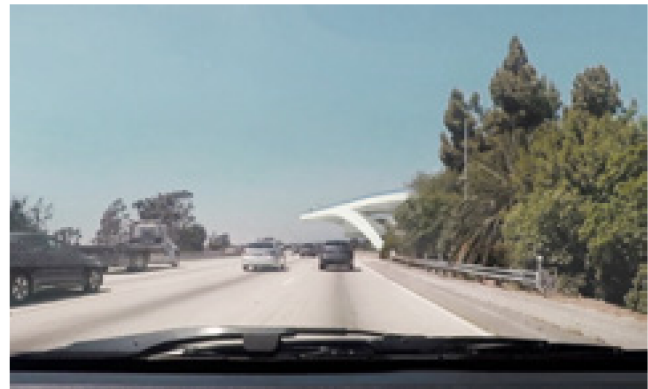
## Freeway

The introduction to the road-specific design components starts with the most important facilitator - the freeway. While driving down the freeway we experience a multitude of the characteristics, speed can range from 0 to 100 miles per hour (although illegal), signage is scattered throughout the road, trees and walls begin and end in a multitude of spots, and framing and contrast through overpasses are constant throughout most parts of the intercity freeways. However, on this, the busiest strip on the I-10, the infrastructure does not frame nor direct our vision, and landscaping is too minimal to guide us.

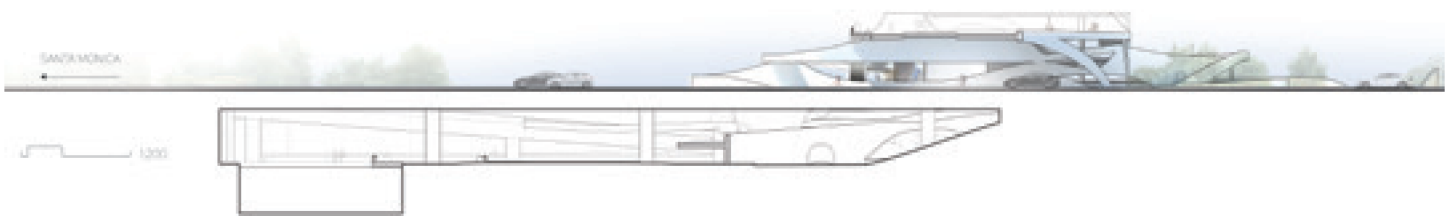
The most important aspect of this path then, is to communicate, inform, and orient the user through the design - creating signage. While the freeway is lifted above the adjacent communities, there leaves few points along the road that can be used as a way finding device.



Frame 1



Frame 2

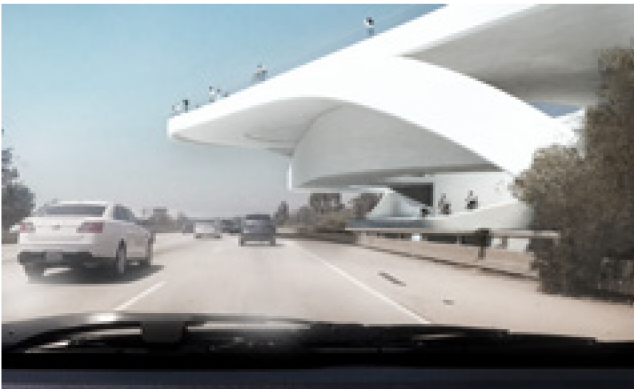


Section through the freeway , corresponding frames running westbound from right to left

The below images of the processional frames illustrate the intent to produce an aspect of signage that communicates to the driver there is an experience beyond the freeway. This experience capitalizes on the unique sightlines and cycling space, the introduction to cultural space that is plentiful in the area, and suggests there is additional space beyond the seen infrastructure.

Frame 1 and 2 on the left show the processional qualities of the design and how the design begins to guide your vision towards the design of the information.

Frame 3 below illustrates the interaction between drivers and cyclists to inform the commuter of alternative means of transportation. Additionally, at slower speeds, as you reach frame 4, you are introduced to the more apparent cycling track as well as the art space.



Frame 3

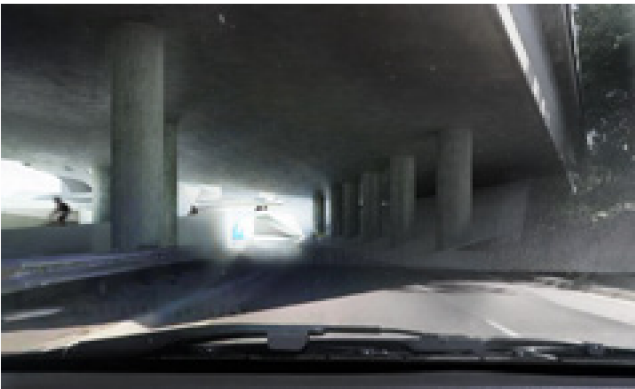


Frame 4

## Off-Ramp

Next we move to the off-ramp from the freeway, entering back into the communities. The specific community that lays near the end of the off-ramp is Culver City. This community, as we observed in chapter 3, has a very strong art and design community. The Culver City Arts District hosts a multitude of art galleries and is a home to many of LA's prominent designers and architects. Unfortunately, this community goes unnoticed from the freeway and its entry/exit points. It is with this pathway that the design intends to introduce the surrounding arts culture back onto unassuming travellers.

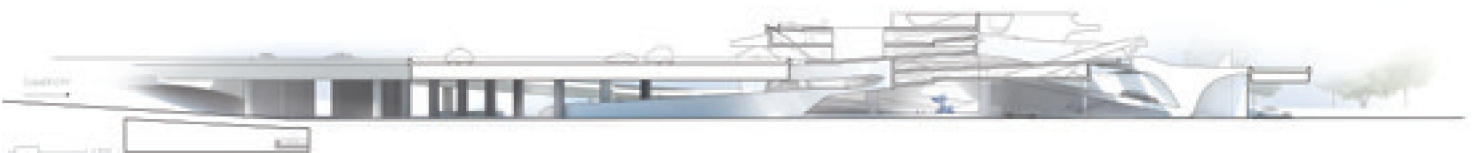
In the first two frames of the sequence, we start to pass through the underpass of the freeway. The contrasting nature of the light keeps the direction of our focus towards the end of the tunnel. Although we still have engage-



Frame 1



Frame 2



Section through the off-ramp , corresponding frames running left to right

ment with the cycling track on the left for short instances, there is still an overwhelming focus to the bright light at the end of the path.

When the driver emerges to the other side of the tunnel, their perspective immediately re-oriens and analyzes his/her new surroundings. With this new direction it is important to keep the viewers attention on the focal point on the path, the gallery space.

On frame 3 and 4 shown below, the design is using the core circulation of the building as a light-well to sustain the contrasting elements. The sculpture garden of the Go Gallery is set between the two roads and under an always changing light source. This portion of the Gallery is elemental in curating exhibits that harness the speed and light of the space to display art that is constantly reinterpreted from every passing interaction.



Frame 3



Frame 4

## On-Ramp

The On-ramp to the westbound freeway lanes is leaving Culver City. The direction of travel is towards the activity-centric coastline in Santa Monica. For this reason, this pathway is focusing on the active transportation systems which circulate the design.

Frame 1 shown below, while driving towards the freeway, begins to frame the view project with current infrastructure. As we move to frame 2 and emerge on the other side of the overpass, the design is using the directional qualities to focus on the cycling path above the roadway. Also, the contrasting elements that appear underneath the structure are there to being to focus and re-frame the attention of the driver forwards.



Frame 1



Frame 2



Section through the on-ramp, corresponding frames running westbound from right to left

In the third frame, there are three contrasting elements that are intended to frame the user: the traffic light, the Metro Cycle Exchange, and the vehicle entry into the structure.

The final frame in this sequence you are stationary as you approach the freeway entrance traffic signal. This moment allows for the driver to fully assess his/her surroundings for the optimal perspective of the Metro Cycling Share drop off/pick up point. Highlighting this cycling point illustrates the availability and easy access of this otherwise forgotten mode of transportation in Los Angeles.



Frame 3



Frame 4

## Pedestrian

The pedestrian path is treated slightly different from the previously described roadways intended only for vehicle use. By identifying residential and pedestrian accessed zones impacted by the freeway we can further guide this user group into the project.

Currently the pedestrian path is a cul-de-sac without any access to the Ballona Creek or any portion of the adjacent freeway space. On one side of the street there is commercial and residential space, and on the opposite side a large concrete wall directing you to the dead end of the street (Frame 1).

The past research suggests that at a walking pace you have a very wide cone of vision, yet a shallow focal point. This processional space allows the design to simply open up the pathway and use the edges of the current



Frame 1



Frame 2

infrastructure to guide us.

The design then moves the pedestrians (Frame 2 and 3) to either side of the impeding On-Ramp infrastructure. The route on the left side of the ramp will direct you to the Metro Bike Exchange and the other side will bring you into the gallery of the project.

Once you reach the final frame that brings you into the core of the project, you are surrounded by roads and immersed in light. This opportunity is given to curators for Go Gallery to approach exhibits at another speed and perspective - the pedestrian view.

As the cars drive by and overlook many intricacies of the art, it is important for the gallery to use the light and perspective to give the incentive to the pedestrian users to explore and discover what was missed from the passing cars.



Frame 3



Frame 4



Section through new/old pedestrian access, corresponding frames running right to left



## Cycling

Creating a transitional space from the car to an active mode of transportation, such as cycling, was one of the main facilitators of this thesis. As the design tries to create a dialog with the commuters of the freeway and the unused potential of freeway infrastructure, some new cycling infrastructure needs to be introduced.

The design incorporates cycling infrastructure, such as cycling shop, for rentals and repairs, and cycling track, as well as the previously mentioned Metro Bike Share. The cycling spaces have incorporated all of the same principals of speed and perception as the cars, using framing, direction, contrast and signage, the cyclist is not only at advertisement for active transportation, but enjoys a trip through unique views, gallery exhibits, and community connection.



Frame 1



Frame 2

Beginning with Frame 1, the cyclist (and pedestrian) enjoy an overlook of the freeway with views to the ocean and downtown Los Angeles. As the cyclist circulates down the track and through the building, it is constantly in dialog with the roadways. Frame two illustrates the interaction between the cyclist and the freeway commuter. Frame 3 shows the interaction between the cyclist and the off-ramp as it emerges from the tunnel.

Once the cyclist reaches the end of the buildings track, it connects with the extension to the city's Ballona Creek cycling infrastructure. Also, the opportunity to connect with the Metro Bike Exchange, Go Gallery, and pedestrian community access points.

The cycling provides the system connection to create a fluid transition for all transportation users, with the ability still interact with the prominent car culture and hidden community culture that surrounds the site.



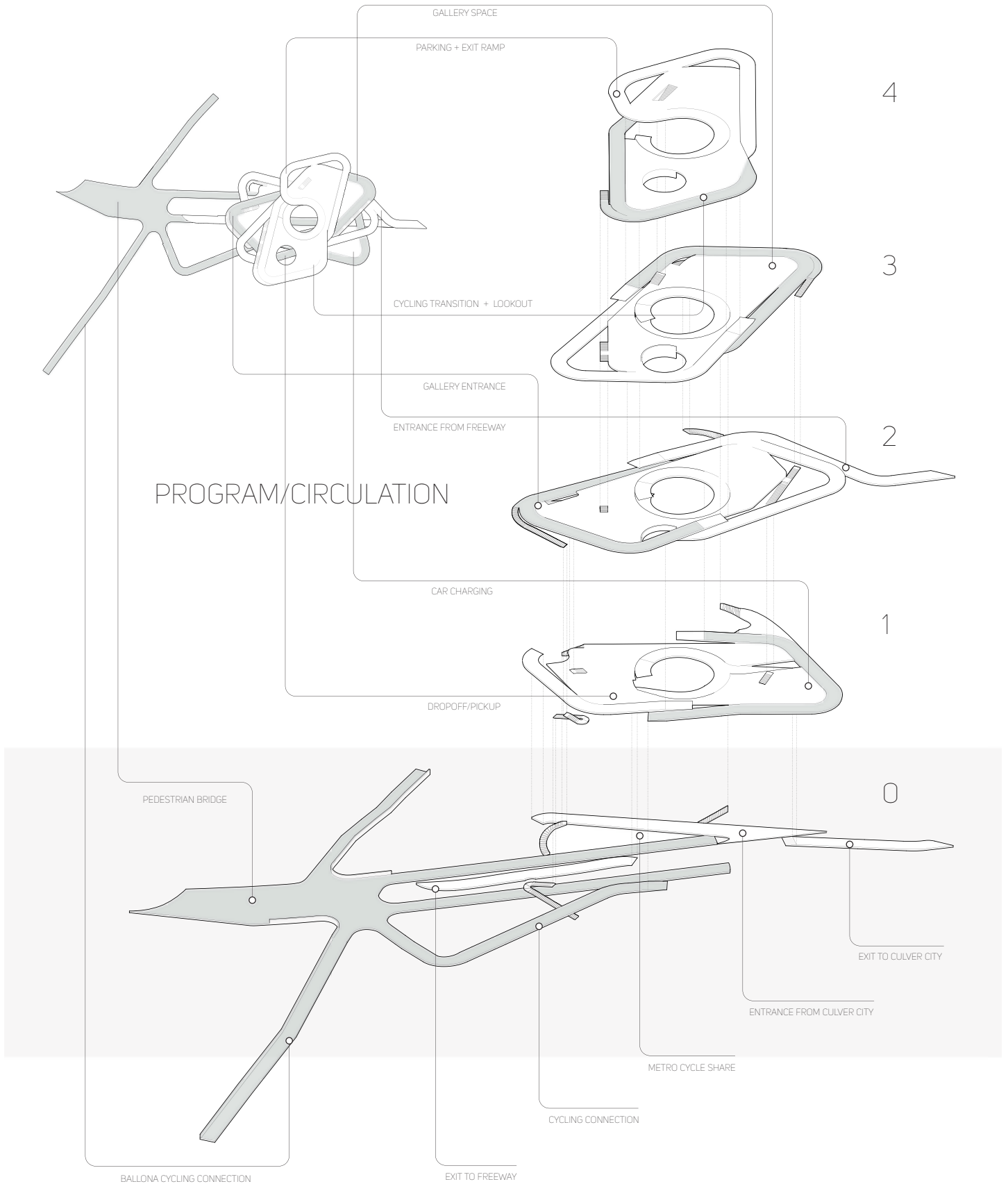
Frame 3



Frame 4



Cross section through design, corresponding frames circulate around the building



## Program

The gallery, embedded within the transportation transition center, would aptly be named the Go Gallery. Continually adjusting to new speeds, perspectives, lighting conditions and environments, the gallery provides opportunity for the community and car culture to collaborate. Creating exhibits that are constantly changing do to the viewers perspectives leaves an incredible opportunity for artists, curators, and visitors.

Throughout the gallery it is intended to be viewed and accessed from many different speeds and variables. With adjacent roadways, cycling, and pedestrian traffic, there is ample opportunity for different viewpoints to be access. The intention is to use artwork with movement and light, creating instillation of video and stills that change as if you are watching an illustration sequence of a cartoon or movie.

The figure on the left illustrates the breakdown of the circulatory paths, as well as the programmatic separations of the gallery areas, cycling center, and transportation transition areas, such as parking, Uber drop off/pick up, and Metro Cycle Share.

Level 0 is the connection area of the systems. Linking the roadways, Bal-lona Creek, the pedestrians, Go Gallery, and cycling track. As you move up in levels, the dark grey pathway represents the cycling path. Opposite the dark grey is the upward circulation of the car traffic. Once you reach level 4, the vehicle traffic uses the center core circulation to connect back to the on or off ramps.

The Gallery space on level 2 and 3, and 0 for the outdoor sculpture area, are surrounded by circulation. The space flows inside and outside and is passed by cyclists throughout the space, as well as in the interior light well, cars exiting the space will have a constantly changing perspective of the exhibits as it spirals back down to the exits.

The Go Gallery and its cycling programmatic partner are intended to introduce a new dialog to the unused and overlooked freeway interstitial spaces. Using speeds, perspectives, infrastructure and architecture geometries, this integrated transportation transition center should speak to commuters, pedestrians and communities alike - constantly interacting and exploring new engagement to encourage a new use of the freeway space.

## CHAPTER 7: CONCLUSION

Through the expansion of many of our cities we have seen the development of freeways change the qualities and dynamics of the cities they navigate. The freeways original intention was to provide a more efficient connection to the sprawl of urban development. Now, those efficiencies are becoming deficiencies within our cities, often separating adjacent communities, pedestrian flows and the freeway driver the person they are serving from where they are. Therefore this thesis takes the attitude that freeway expansion can no longer be seen as a viable stand alone system any longer.

This thesis reinterprets the I-10 freeway and the interstitial spaces adjacent to this infrastructure, by designing with a set of common characteristics and principals in movement, it sets the parameters for how architecture can frame, engage and interact with commuters and communities. It uses each roadway and approach as a new entry point of systematic interaction, creating a constant dialog with the user to facilitate the engagement of the freeway users to their surrounding contexts and highlighting an important dialog that encourages engagement on multiple levels. a) connecting and visibly framing active and alternative transportation methods to freeway travel, and b) introduces other programs that reconnect the commuter with their environment and the communities near these infrastructures. Therefore alleviating the over-crowded, mindless freeway commute through these added programs and interventions, which allows for more social interaction between the adjacent community the commuters. This Thesis appropriately paired car transportation with new forms of active transportation, public transportation infrastructures and an Art Gallery that connects to the existing arts community, in Culver City creating unique experiences for commuters, tourists, cyclists or pedestrians.

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