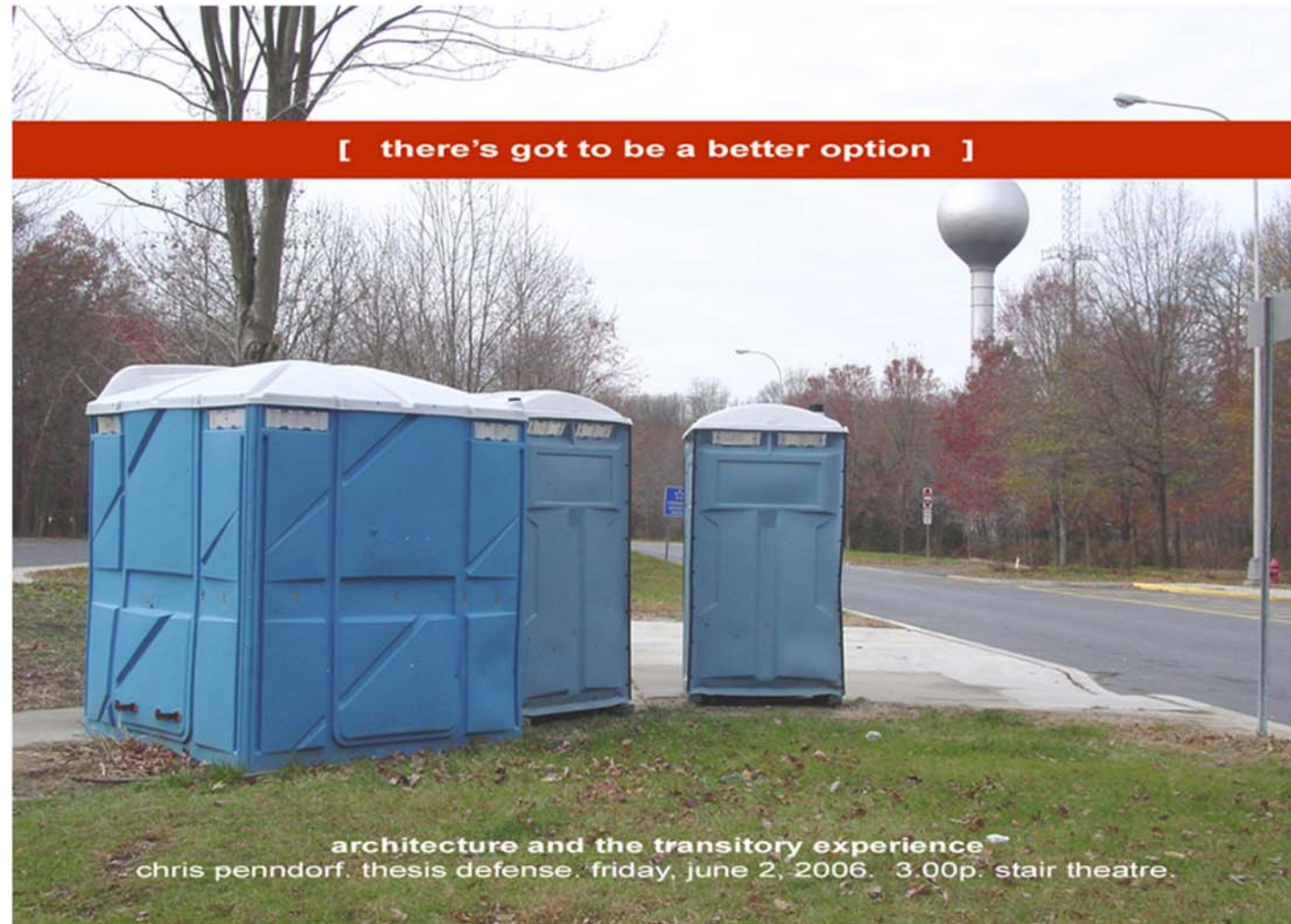


[there's got to be a better option]



architecture and the transitory experience
chris penndorf. thesis defense. friday, june 2, 2006. 3.00p. stair theatre.

Architecture and the Transitory Experience.
an exploration of the relationship between architecture and transportation

keywords: rhythm, transit, movement, resting, structure

Thesis submitted to the faculty of Virginia Polytechnic Institute & State University, College of Architecture and Urban Studies, by Christopher R. Penndorf, in partial fulfillment of the requirements for the degree of Masters of Architecture.

Approved

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2 June 2006

Washington-Alexandria Architecure Consortium
Alexandria, Virginia

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Architecture and the Transitory Experience.

an exploration of the relationship between architecture and transportation

Christopher R. Penndorf

thesis abstract

This thesis is a study of the act of traveling in its pure form: as a journey between two points; it is an act that requires both a point of origin and a point of destination. Yet, this study is not concerned with the logistics of either. Rather, it depends only upon the existence of these two locations as limits of both space and time between which exists a transient environment.

Complimentary to the constant movement embodied in the act of travel, the act of pausing and resting is fundamental to fulfilling a biological need that arises from the exhaustion that accompanies continuous movement.

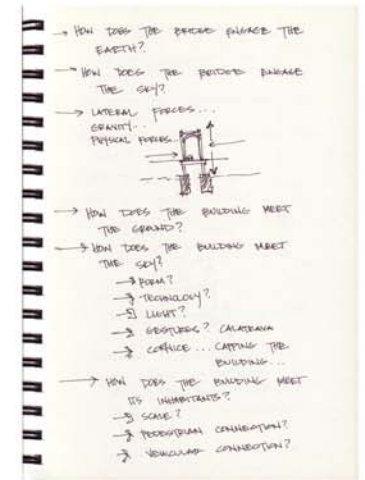
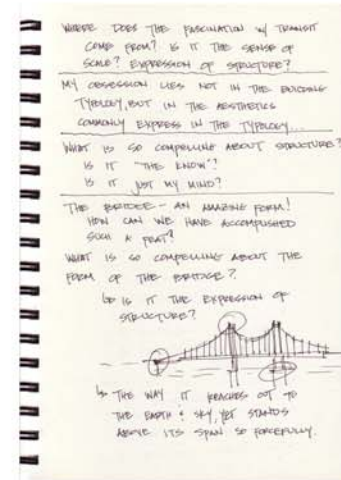
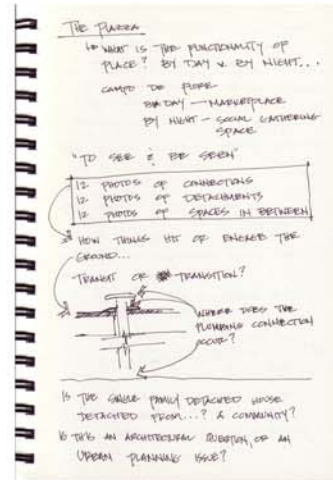
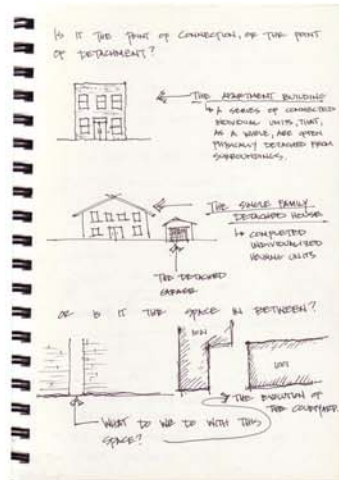
The modern highway rest area was selected as this thesis project because of its nature as neither a permanent origin nor destination of transit. It currently exists as an oft forgotten building type in architectural design, despite its significant role in the commonplace activity of transit.

This project seeks to provide the programmatic functions that satisfy these fundamental needs while engaging the nature of the building typology as a threshold through which the traveler passes. The architectural and structural expression and detailing are based upon the inherently rhythmic nature of the act of vehicular travel and are intended to reflect the changes in rates of movement that aid in the transition from moving to pausing. Thus, the average rates of movement embodied in various modes of mobility throughout the building inform the architectural decisions that aid in the choreographed movement into, through, and out of the design.

sketchbook entries.
a journalistic approach.

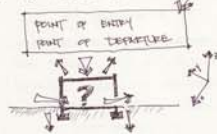
In order to better understand the focus of the thesis study, a stream-of-consciousness journal documenting the questions and ideas that defined the investigation was recorded concurrently with the photographic study.

The scanned images to the right are chronologically arranged to show the evolution of how each individual question influenced the next, leading to the ultimate series of questions addressed in the final design problem.



IS THERE A STUDY OF THE MULTI-DIRECTIONALITY OF A BUILDING?

- HOW DOES THE BUILDING MEET THE GROUND?
- HOW DOES THE BUILDING MEET THE SKY?
- HOW DO PEOPLE ENTER?
- HOW DO PEOPLE LEAVE?



- ENTRANCE & DEPARTURE MARKS AN ACTIVITY IN BETWEEN... WHAT IS THIS TRANSITORY SPACE? WHAT GOES ON IN BETWEEN?

- IS THIS A DISCUSSION OF PLACE V. NON PLACE, I.E. MORE ALSO?
- "IT IS POSSIBLE TO SEE THAT THE NOTION OF NON-PLACES HAS AN OBJECTIVE AS WELL AS SUBJECTIVE DIMENSION"
- ARE THE PLACES THAT I'M STUDYING "PLACES" OR "NON-PLACES"?
- THEY MUST BE "PLACES" TO ME NOW, AS THEY'VE TAKEN ON MEANING TO ME!

- HOW DOES ARCHITECTURE TRANSFORM A "NON-PLACE" INTO A "PLACE"?
- FROM NOTHING TO SOMETHING?
- THIS IS NOT NECESSARILY A GOOD POINT.

- A NODE IN AN INTERSECTION OF TWO MODES OF MOTION, LINES AND V. THIS, A POTENTIAL INTERCHANGE."
- from SEAM

"IN THE VOID OF TRAVEL, THE FORTUNEE 'KILLS TIME.' WAITING, SLEEPING, READING, TEXTING & CALLING ARE ALL NON-EVENTS THAT TYPEIFY THE JOURNEY BETWEEN HOME & OFFICE. SPATIAL MOBILITY THIS RESOLVES NOT ONLY THE LOGISTICS AND OBJECTIVES OF GETTING PEOPLE FROM A TO B, BUT ACCEPTS THAT THE PLACE YOU ARE AT IS THE IDEAL PLACE TO BE PART OF A TRANSITORY EXPERIENCE."

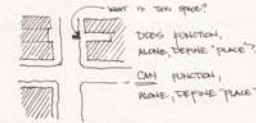
from SEAM

WHAT CREATES THE TRANSITORY EXPERIENCE?

- IS IT POSSIBLE TO CREATE BOTH THE PLACE & THE NON PLACE IN THE SAME SPACE?
- IMPOSSIBILITY?

- DO SOME BUILDINGS EXIST WITH AN INHERENT NOISE AS 'NON-PLACES'?
- IS THIS A SOLVABLE CONTRADICTION PROBLEM?
- IS IT DETERMINED BY SOCIETAL CONTEXT?

- ARE THERE NON-PLACES IN DENSE, URBAN ENVIRONMENTS?



- IS IT POSSIBLE FOR A TRANSITORY SPACE TO BE A "PLACE"?

- IS IT "DEPENDENT" UPON THE INHABITANTS?
- IS IT "DEPENDENT" UPON THE INHABITANTS' ROLE WITHIN THE SPACE?

REVIEW FOR TRIP

VARS → NEW YORK → 1-95 → 1-95 → NJTP → IN GOOD TRAVEL

GRAND CENTRAL TERMINAL

TRAIN EXIT → QUEUES AREA → WAITING AREA / FOOD COURT → MAIN HALL → 42ND ST

TRAVEL PARK

APPROACH → TRAIL / WALK AS "PLACE" OR "NON PLACE"

- WHAT OVER PROPOSE CONTRAST?
- TO VENTURE?
- TO ACTUAL/EVENT?
- IS IT EVEN SOMETHING?
- THIS IS CONTROLLABLE?

PHILADELPHIA 30th STREET STATION

CAR → TRAIN WAITING AREA

INCLUDING THE TRANSITORY SPACE OF ALL OF THE ELEMENTS OF THE TRIP...
LANDMARKS, ARCHITECTURE - SPACES, SCALE, URBANITY...

Reflections on A Journey...

- WHAT WAS THE ULTIMATE GOAL OF THE TRIP?

- WAS IT TO DETERMINE WHAT THE BASIS OF THE PERCEPTION IS?
- IS THERE A BASIS FOR IT?

- THE JOURNEY WITH A PURPOSE BASED SOLELY ON THE TRAVEL EXPERIENCE IS UNLIKE ANY OTHER...

- THE POINT OF VIEW SHIFTS ENTIRELY FROM THAT OF A LOCAL ORIENTED TRIP TO ONE OF OBSERVATION; OBSERVATION OF ALL OF THE ELEMENTS BETWEEN POINTS A & B.

- THERE'S ALSO A REALIZATION OF ALL OF THE ELEMENTS OF THE TRIP...
LANDMARKS, ARCHITECTURE - SPACES, SCALE, URBANITY...

WHAT ARE THE QUESTIONS THAT WERE ADDRESSED IN SOME CAPACITY ON THE NYC & PHILADELPHIA TRIPS?

- WHAT IS THE VIEW FROM THE ROAD?
- WHAT ARE THE STRUCTURAL ELEMENTS THAT AFFECT THE DEFINITION OF PLACE V. NON PLACE?
- WHAT IS THE DEPENDENCE ON HUMAN ACTION & INTERACTION?
- WHAT IS THE IMPORTANCE OF THE POINT OF ENTRY & DEPARTURE?
- HOW DOES THE BUILDING MEET THE GROUND?
- HOW DOES THE BUILDING MEET THE SKY?
- WHAT IS THE PURPOSE OF THE "SPACE BETWEEN" IN A BUILDING?

- HOW DOES THE SCALE OF A BUILDING & ITS CONTEXT AFFECT ITS EXPERIENCE?

- WHAT IS THE ROLE OF SIGNAGE & WAYFINDING IN ARCHITECTURE & TRAVEL?

- HOW DOES STRUCTURAL EXPRESSION AFFECT THE BUILDING?

- HOW DO BUILDINGS (THROUGH OTHER) HANDLE "THE WAITING" EXPERIENCE?

WHAT ARCHITECTURALLY CREATES THE TRANSITORY EXPERIENCE?

photographic studies.

initial observations in transit.

Before the site was selected and the program was written for the design of the thesis, the initial explorations of the idea began with observations of different aspects and modes of transportation and spaces associated with the act travel and mobility.

The range of topics represented in the photographic research is reflective of the conceptually open nature of the study in its beginning stages. The images selected represent a sample of the ideas explored as the thesis begins to take on definition, including structural expression, the act of pausing and waiting in travel, the view from the road, signage and its effect on movement, and points of entry and departure.



grand central terminal, new york, ny



42nd street, new york, ny



grand central terminal, new york, ny



parking signage, new york, ny



interstate 95, northern maryland



in transit between spain and morocco



grand central terminal, new york, ny



hauptbahnhof, berlin, germany



30th street station, philadelphia, pa



subway station entrance, 53rd street, new york, ny



30th street station, philadelphia, pa



vertical circulation, paley park, new york, ny



sony center, berlin, germany



vertical circulation, potsdamer platz, berlin, germany



deli entrance, new york, ny



commuter rail station, philadelphia, pa



sony center, berlin, germany



paley park, new york, ny

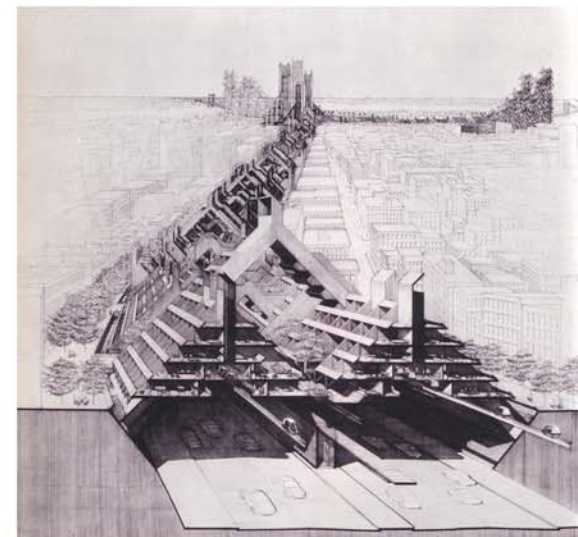
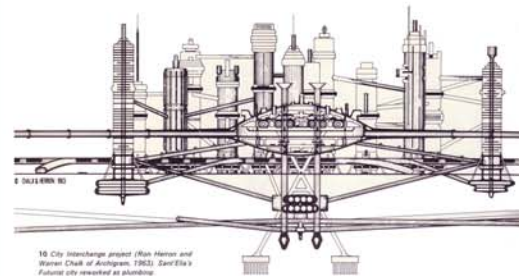


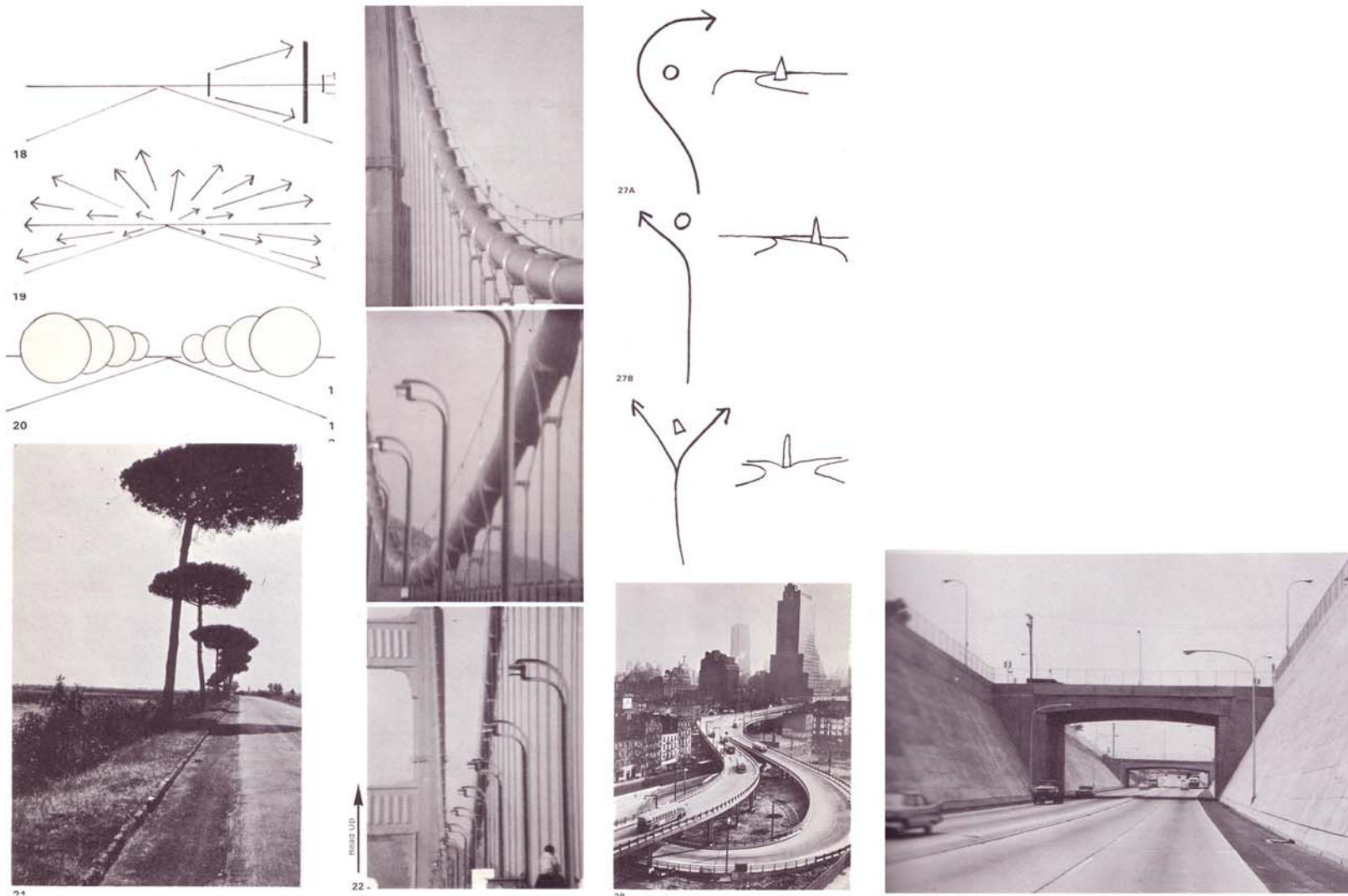
wind turbine, toll road in spain

precedent studies. megastructures

As a vehicle for studying building typologies and experiences associated with the transitory experience, precedent cases were researched and presented that illustrate the concepts of the thesis.

The images to the right were selected from Reyner Banham's Megastructures as examples of structures of various scales and complexity that incorporate circulation and movement as fundamental elements of design, integral to the success of each particular project, respectively.





methods of observation.
the view from the road

While the case studies of *Megastructures* illustrate ideas through designed and constructed projects, the concepts evident in *The View From the Road* [Dennis Appleyard, Kevin Lynch, & John R. Myer] help the reader to establish a methodology for more critical observation of the environment surrounding him/her while engaged in the act of transit.

The diagrams and images to the left are selected from the book to explain how different elements on or adjacent to the road can affect the overall experience of the rider in vehicular travel. One of the most influential studies researched during the thesis design problem, the set of diagrams and images to the far left are meant to illustrate how rate of movement and the visual rhythm of elements can affect and engage the sensory experiences associated with the act of driving, inducing physical reactions in the act, such as changes in speed.

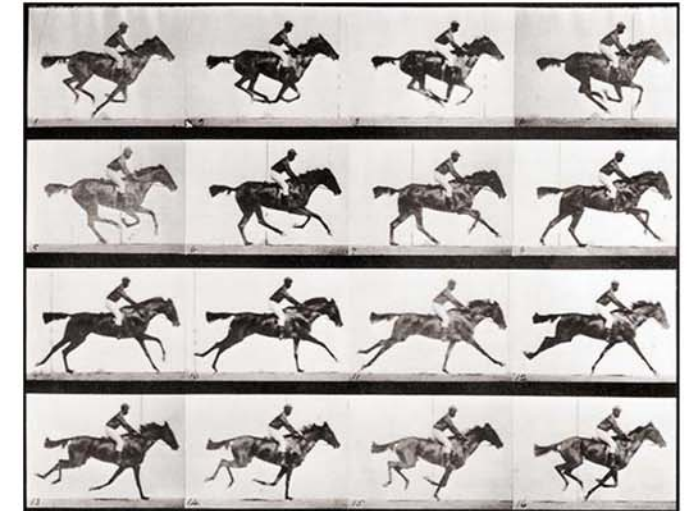
inspired visual studies. interstate-95.

Following the lead established by the studies documented in *The View From the Road*, the series of images to the right seek to dissect imagery captured as part of an initial study of visual stimulation on the road.

The sequence of time lapse images to the right break down the approach and path through one of the monumental events along the path of travel through New York - the George Washington Bridge. These still images, taken from a continuous video, show the rhythm dictated by the structural members holding up the road, as well as the forced perspective framed by the bridge members.

The study was also inspired by the imagery of Eadward Muybridge, whose work often deconstructs an action based upon a regular rate of movement [see above right].

While these images are representative of a particular event, it's important to note the drastically different experience of passing over the bridge on the lower level - devoid of the perspective and the ability to see the grand scale of the structure.



Photographic Study by Eadward Muybridge



| site information

While the studies conducted for this thesis focused on non-site specific issues, the selection of a location for the final design problem was a necessary exercise to develop a project that would address the other concepts to be studied.

Chosen as a result of an actual need for the project that was to be designed, the site documented in the following section consisted of two non-serviceable rest areas, the northbound and southbound road, and the land locked therein. The site is located at milepost 51 of Interstate 295 in Florence, New Jersey, and is currently operating as a storage and maintenance facility for the New Jersey Department of Transportation.

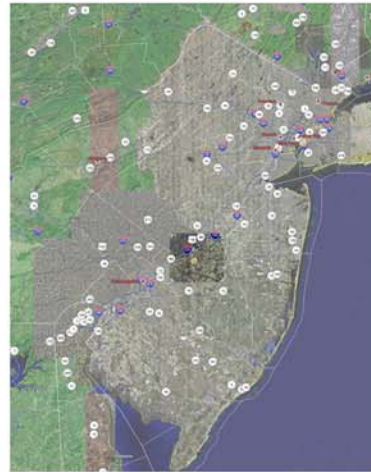
*aerial images reproduced in the following section are from a combination of images.google.com and GoogleEarth.

site.
overview and general information.

The images to the right help to show the site in its larger context within the state of New Jersey, as well as within its immediate contextual surroundings.

Located on Interstate 295, the site is just a few miles south of the roadway's merger with the New Jersey Turnpike, the state's main artery for northeastern travel. I-295 runs parallel to the Turnpike from the Delaware Memorial Bridge in the northbound direction for approximately 60 miles.

The aerial photo at the bottom right shows the lush vegetation that lines the scenic roadway for much its length. There are several rural townships, small villages, and suburban cities that exist off of the roadway, some of which are depicted in the image shown.





site.
existing condition photos.

The images to the left document the existing conditions of the site for the final project. Note that the abandoned rest areas northbound and southbound are mirrored about a point, creating nearly symmetrical conditions on both sides of the road.

Unlike their New Jersey Turnpike counterparts, the rest areas on this non-toll road do not house facilities for fueling stations and are typically smaller in size with fewer interior programmed spaces. Rather, the existing rest areas on I-295 in New Jersey serve as points to pause to fill the biological needs that arise from the exhaustion resulting from the act of travel.



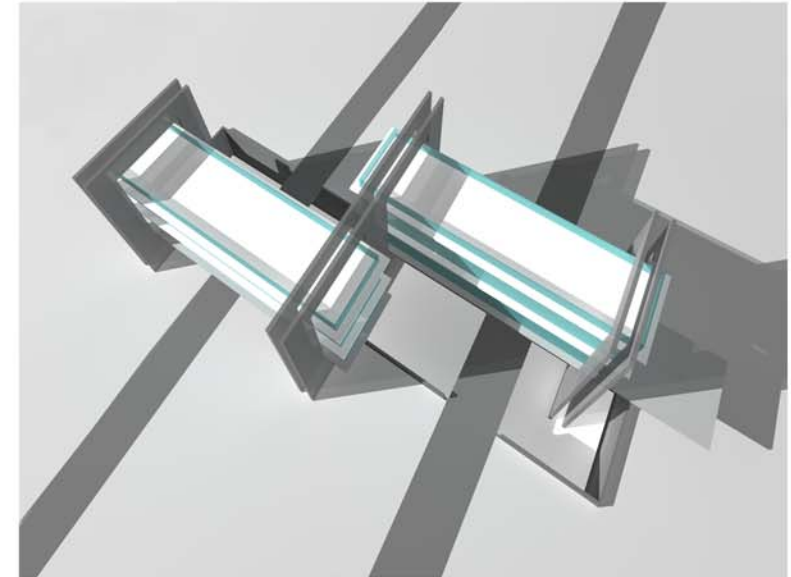
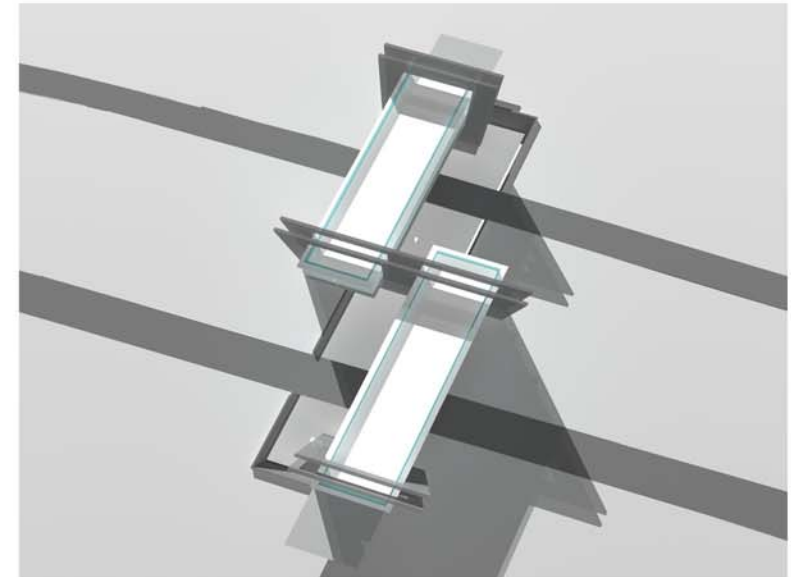
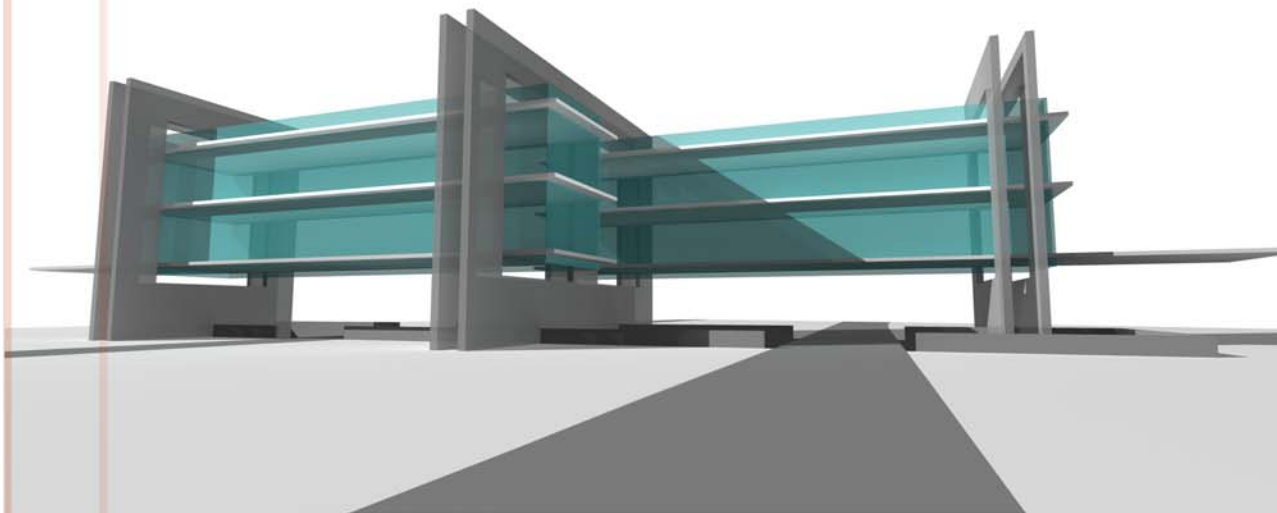
| initial design studies

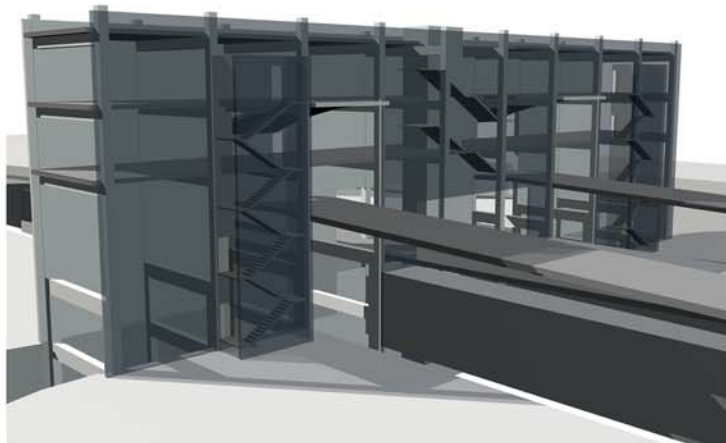
The following section documents the initial design stage of the final programmed sequence of spaces. Included in this section are images produced from three-dimensional computer modeling, physical study models, and sketches leading up to the penultimate defense presentation.

the initial design approach. orienting the building.

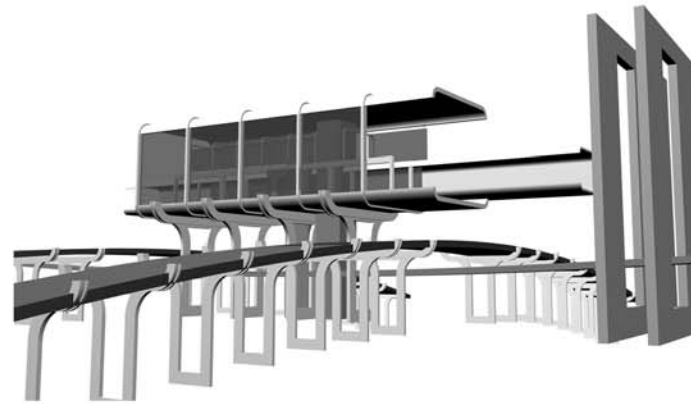
The initial stages of the design began with exploration of the effects of structures adjacent to or above the road on vehicles engaged in the act of travel. Based on the deconstruction of video taken of highway travel in the northeast corridor, the decision was made to orient the building perpendicular to the road. Such an orientation would ensure the engagement of the road by the building by a physical imposition on the site.

The images below and to the right are rendered from a 3-dimensional computer model of the initial conceptual design in which the expression of the vertical layering of the levels of the building related to the longevity of stay. As shown in the images, the building consisted of multiple floors above and below the level of the road, while the road itself served as the dividing point for programmed spaces for pedestrian travel [above the road] and vehicular parking [below the road].

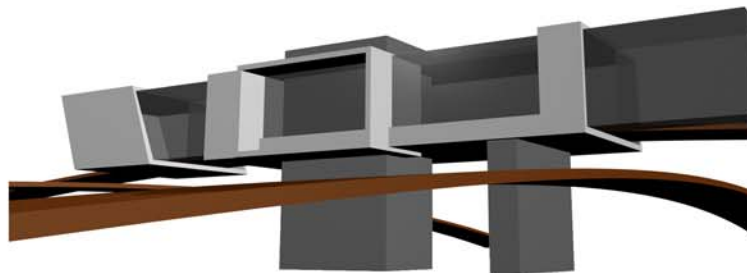




15 february 2006



22 february 2006



23 february 2006

development of the idea. the evolution of the design.

Proceeding with the development of the building oriented perpendicular to the road, the images displayed to the left and below are representative of the evolution of the design, chronologically, and are dated accordingly.

Experimentations with how the road interacts with the building can be seen in each iteration of the design. It should be noted, however, that in each version, the penetration of the road through the building is integral to the design.

The building begins to take on a bar-like form, spanning over both the northbound and southbound roadways, connected to the road below by a vertical circulation bar



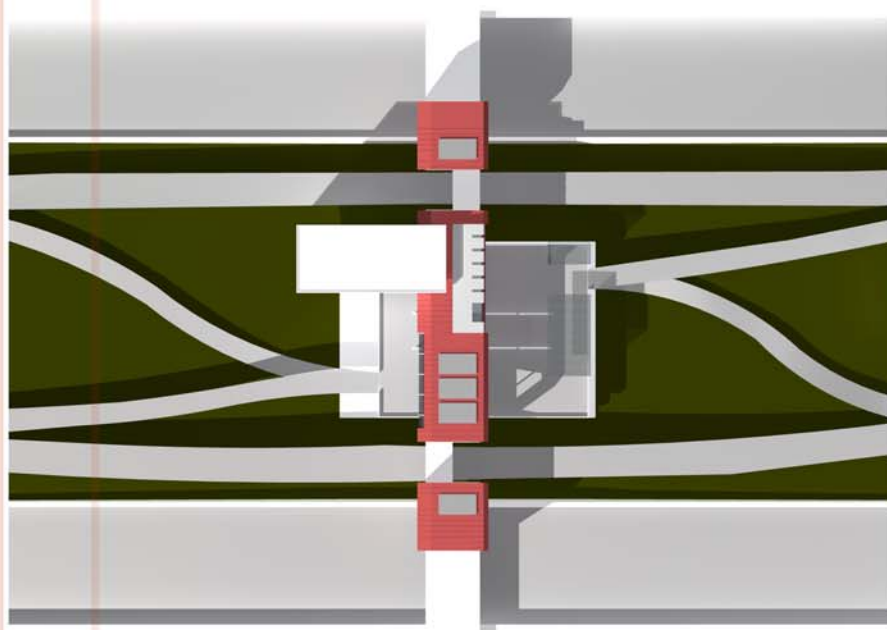
27 february 2006

the initial design approach.
the continued evolution of an idea.

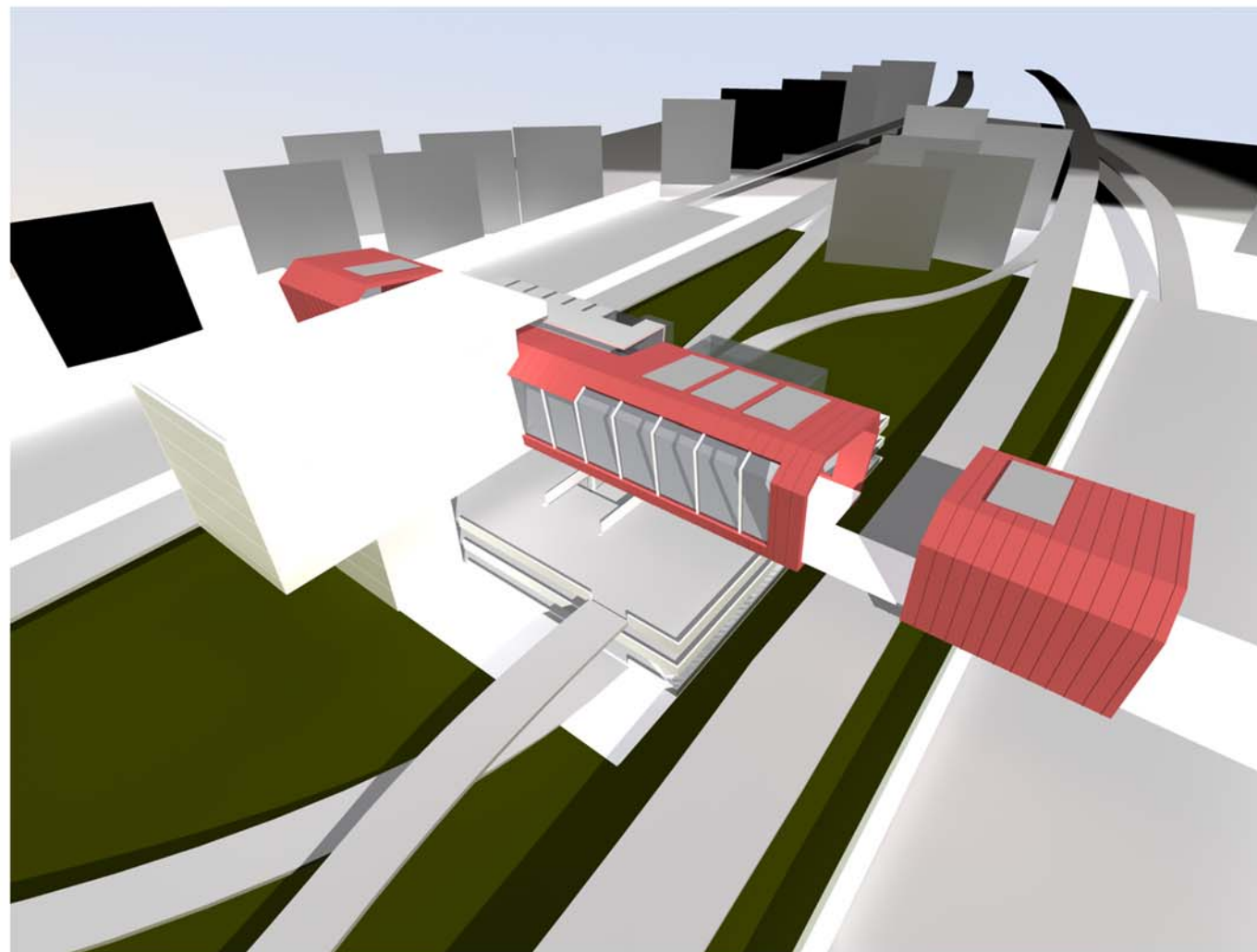
The final iteration of the perpendicular design approach came at the mid-term review and is documented to the right in the form of images from a computer model.

One can see the evolution of the two main components of the building, the horizontal bar that spans the road and the vertical circulation tower connecting the bar to the underground parking.

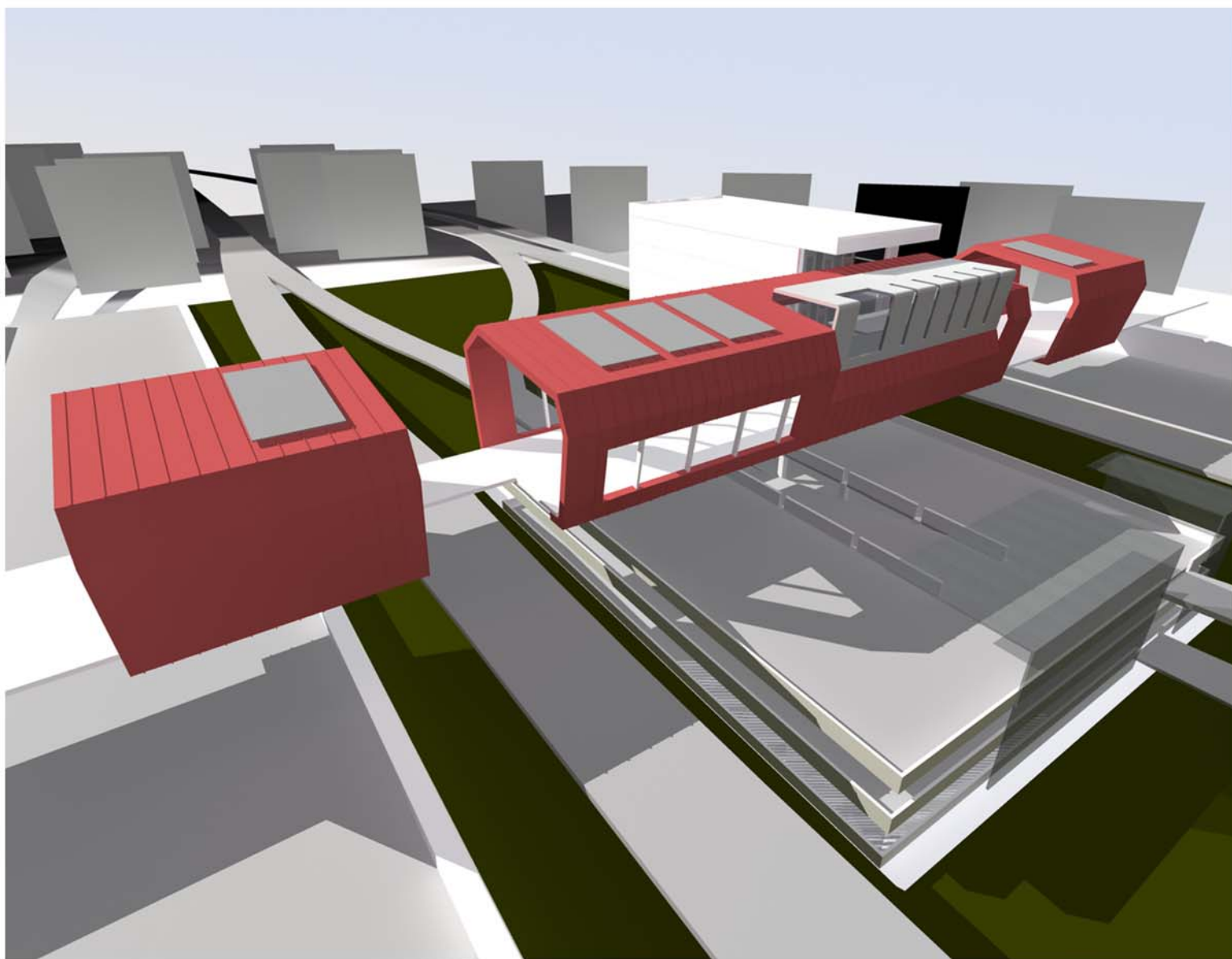
The aerial image below best illustrates the relationship of the building to the road in this particular concept as a momentary event along the journey in the transitory experience. It was this revelation of this relationship between the two that led to a new approach, which can be seen in the following pages.



aerial overall of perpendicular orientation



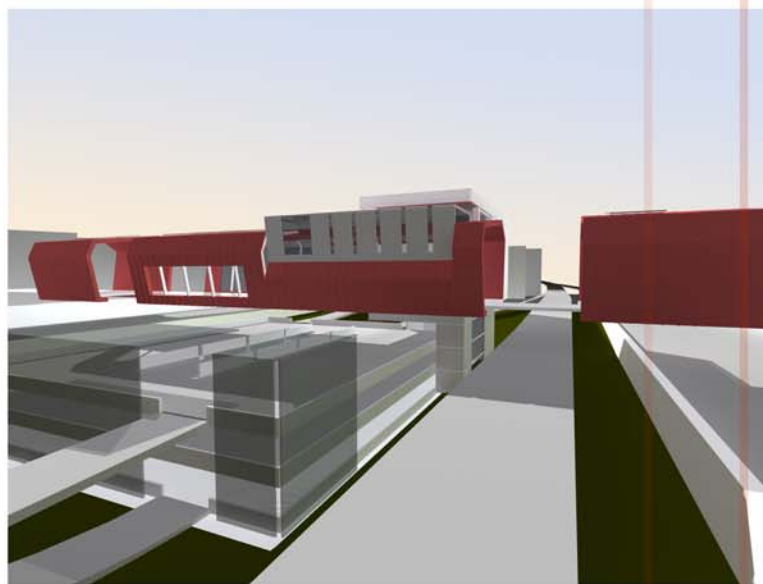
aerial view looking southeast



aerial view looking southwest



view from northbound road with circulation tower to the left



view from above the southbound road

a new approach. sketchbook entries.

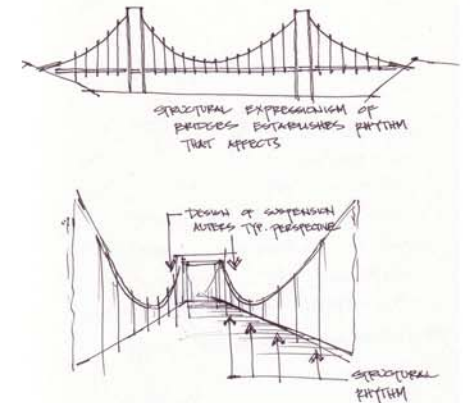
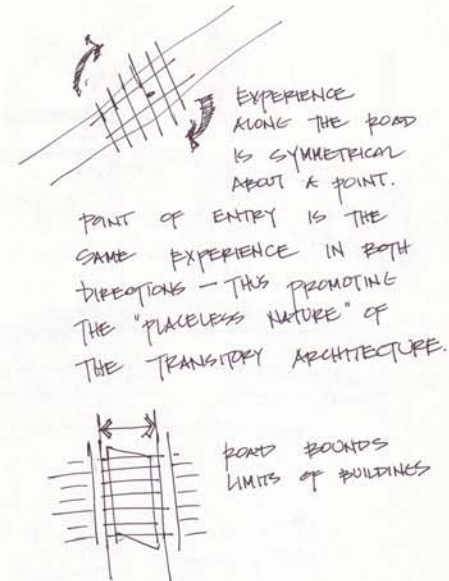
Acknowledging the fact that the perpendicular orientation of the building to the road was not successful in achieving the goals set forth by the thesis idea, a new approach was adopted in the design which sought to return to the roots of the study.

The sketchbook selections below and to the right are representative of this movement to re-evaluate the study as an attempt to understand the relationship between transit and architecture. Some of the excerpted pages are journal entries, documenting a similar thought process to the original formulation of the thesis, while others are explorations of how to reapply the ideas in building form.

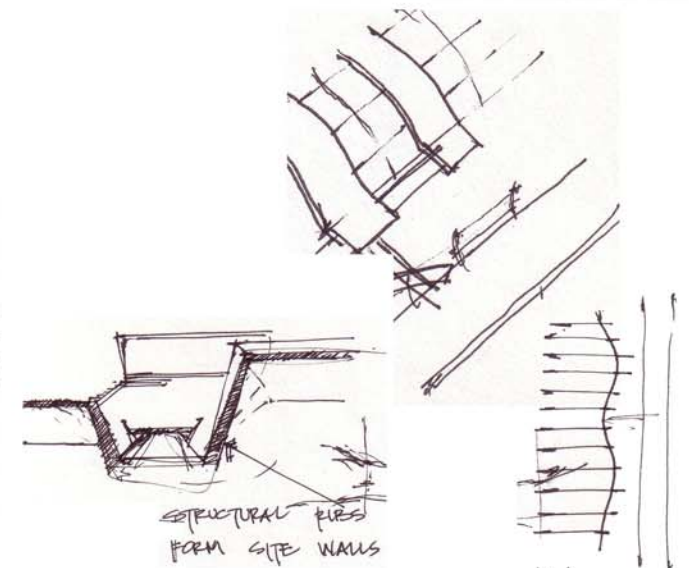
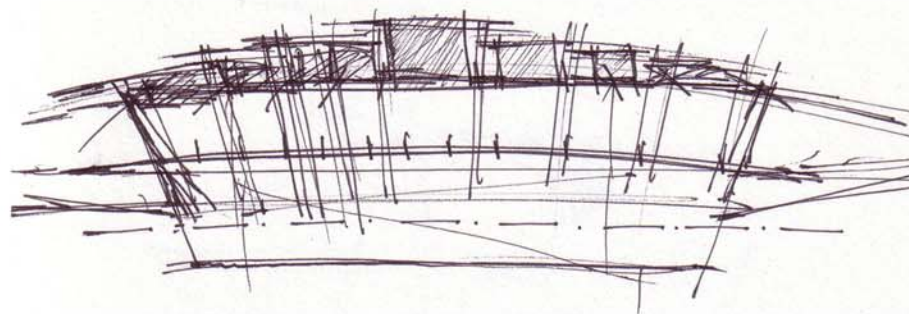
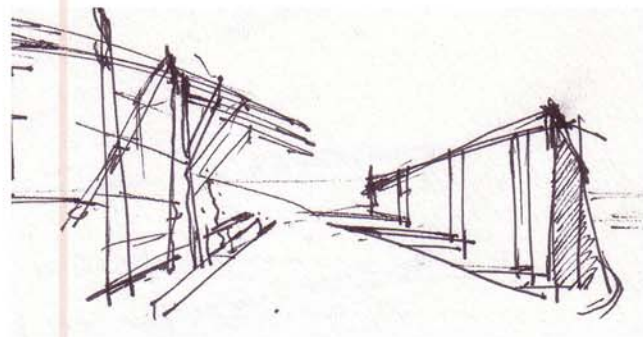
These studies revealed a new design approach aimed at engaging the innate rhythm of movement embodied in the act of transit. Some of the sketches diagram with conceptual approach of rotating the orientation of the building to be parallel to the road, creating a longer physical interaction between the building and the road.

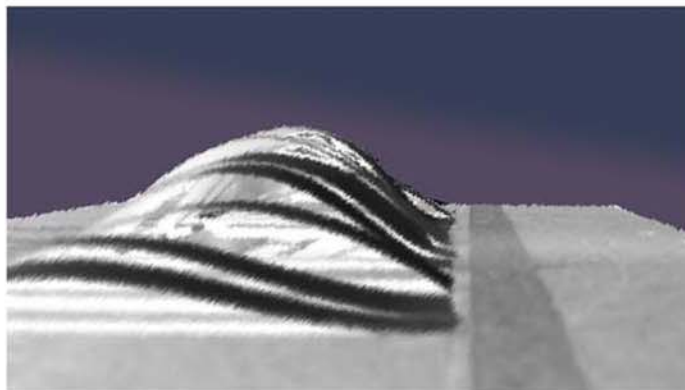
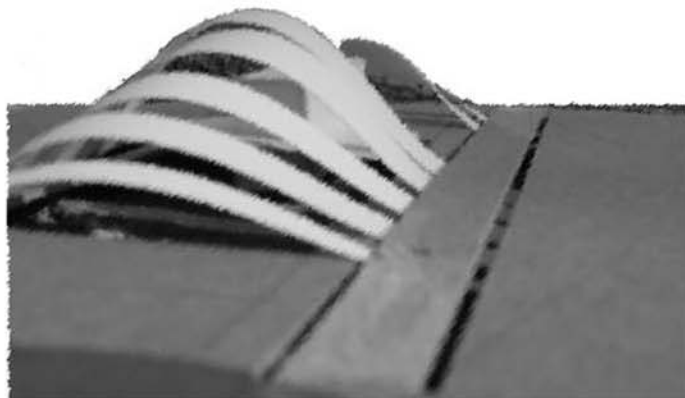
REVISITING THE THESIS...

- How SPEED, MOVEMENT, & LONGEVITY OF STAY AFFECT ARCHITECTURE.
- POINTS OF INTEREST...POINTS OF STUDY...
- ↳ CONNECTION BETWEEN BUILDING & ROAD.
- ↳ CONNECTION BETWEEN GROUND & BUILDING.
- ↳ WEIGHT & DENSITY AS A REFLECTION OF STAY - "HEAVINESS" vs. "LIGHTNESS"
- ↳ VEHICULAR ENTRY & DEPARTURE
- ↳ CHOREOGRAPH & ORCHESTRATE PATH FROM ENTRY TO DEPARTURE.
- ↳ EXTENDING THE LINEAR PATH - THE FLOW DIAGRAM - LONGEVITY OF STAY DICTATES DISTANCE TRAVELED
- ↳ UTILIZING STRUCTURAL RHYTHM TO INFLUENCE SPEED DURING APPROACH



SYMMETRICAL NATURE OF EXPERIENCE DOES NOT DIFFERENTIATE BETWEEN DIRECTION OF PATH OF TRAVEL - GEOGRAPHICAL LOCATION & ITS EFFECTS DETERMINE EXPERIENTIAL DIFFERENCES.

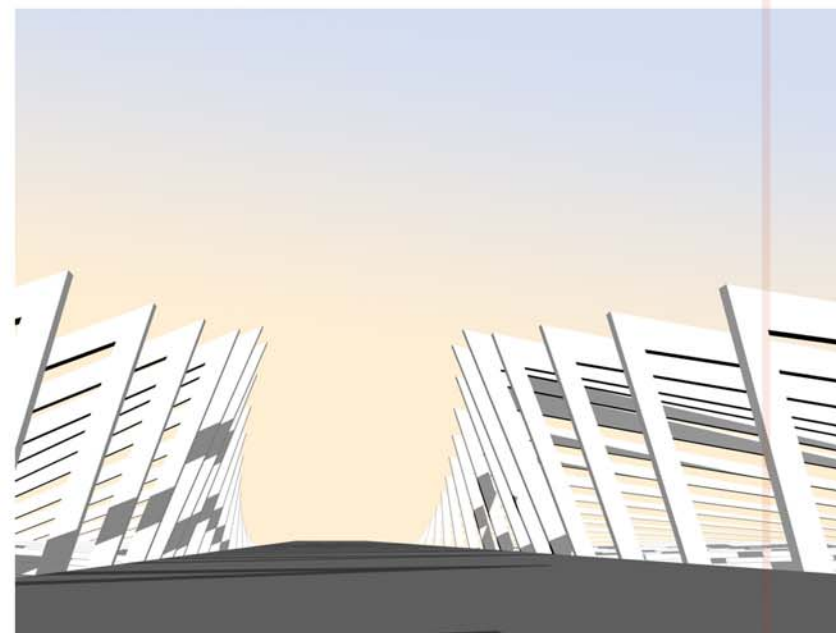




a new approach. model studies.

While the initial revisit of the thesis idea began in written and drawing form, those studies were done concurrently with the construction of study models looking at building form and structural expression.

The images to the left are photos of study models manipulated to focus on the structural rhythm and shadows produced in the building form, while the rendered image below is a first attempt at exploring how the structural elements could engage the road.



rates of movement.

translating speed infor building form.

The calculations to the right were done in an effort to establish a relationship between the various rates of movement in and around the building and the structural elements of the rest area. These average rates of movement helped to inform the structural spacing and architectural detailing in the final design, as can be seen in the documentation of the design in the following pages.

One can see the average rates of movement, as noted in the calculations, of different points throughout the building as pertaining to the appropriate mode of mobility for each one.

In addition to establishing a translation of rates of movement to tangible measurements that help to dictate the form of the building, additional calculations were done to understand the required amounts of linear feet required for a vehicle to safely slow down and stop, thus informing the overall length of the programmed spaces.


THE RELATIONSHIP BETWEEN STRUCTURAL MEMBERS AS A PRODUCT OF RATE OF TRAVEL...

RATE = MPH = FPS

AVERAGE RATES FOR VEHICULAR TRAVEL...

65 MPH = 95.4 FPS	48 FT
60 MPH = 88.3 FPS	44 FT
55 MPH = 80.7 FPS	40 FT
50 MPH = 73.4 FPS	37 FT
45 MPH = 66.0 FPS	33 FT
40 MPH = 58.7 FPS	29 FT
35 MPH = 51.4 FPS	26 FT
30 MPH = 44.0 FPS	22 FT
25 MPH = 36.7 FPS	18 FT
20 MPH = 29.3 FPS	15 FT
15 MPH = 22.0 FPS	11 FT

STRUCTURAL SPACING AS VARIABLE OF RATE



AVERAGE RATES FOR PEDESTRIAN TRAVEL

WALKING → MEN = 35 MPH = 5.1 FPS
 WOMEN = 30 MPH = 4.4 FPS

ELEVATOR = 200 FPM = 3.33 FPS

ESCALATOR = 100 FPM = 1.67 FPS

CALCULATING REQUIRED DISTANCES AT A GIVEN SPEED FOR DECISION MAKING & STOPPING.

GIVEN EQUATIONS FOR DISTANCES:

STOPPING SIGHT DISTANCE - DISTANCE TRAVELED DURING BRAKE REACTION TIME PLUS ACTUAL BRAKE DISTANCE FOR THE VEHICLE TO COME TO A STOP.

$$d = Vt + \frac{V^2}{2(a+Gg)}$$

V = DESIGN SPEED
 a = CONSTANT DECELERATION
 G = CHANGE IN GRADE
 g = 9.81 m/sec²
 t = 2.5 sec
 a = 3.4 m/sec²

$$V = 65 \text{ mph} = 104.585 \text{ m} / 3600 \text{ sec}$$

$$1 \text{ mile} = 1.609 \text{ km} = 1609 \text{ m}$$

$$65 \text{ mph} = 104.585 \text{ km/hr}$$

$$65 \text{ mph} = 95.3 \text{ ft/sec}$$

$$65 \text{ mph} = 29.05 \text{ m/s}$$

$$d = Vt + \frac{V^2}{2(a+Gg)}$$

$$d = 29.05 \text{ m/s} (2.5 \text{ s}) + \frac{(29.05 \text{ m/s})^2}{2(3.4 \text{ m/sec}^2 + (-3.05 \text{ m} \times 9.81 \text{ m/s}^2))}$$

$$d = 29.05 \text{ m/s} (2.5 \text{ s}) + \frac{(29.05 \text{ m/s})^2}{2(-26.52 \text{ m}^2/\text{s}^2)}$$

$$d = 58.1 \text{ m/sec} + \frac{(29.05 \text{ m/s})^2}{53.04 \text{ m}^2/\text{s}^2}$$

$$58.1 \text{ m/sec} + \frac{843.9025 \text{ m}^2/\text{s}^2}{53.04 \text{ m}^2/\text{s}^2}$$

$$d = \frac{29.05 \text{ m}}{1 \text{ s}} \cdot 2.5 \text{ s} + 15.91 \text{ m}$$

$$d = 74.01 \text{ m}$$

$$\frac{1 \text{ m}}{74.01 \text{ m}} = \frac{3.281 \text{ ft}}{x \text{ ft}}$$

$$x = 242.83 \text{ ft}$$

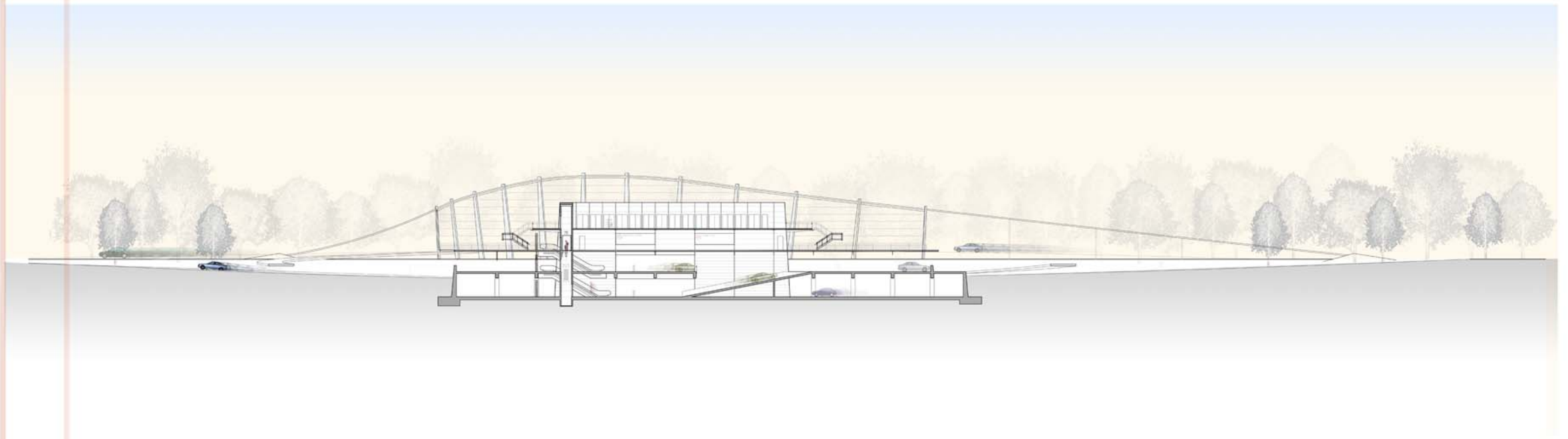
$$d = 242.83 \text{ ft}$$

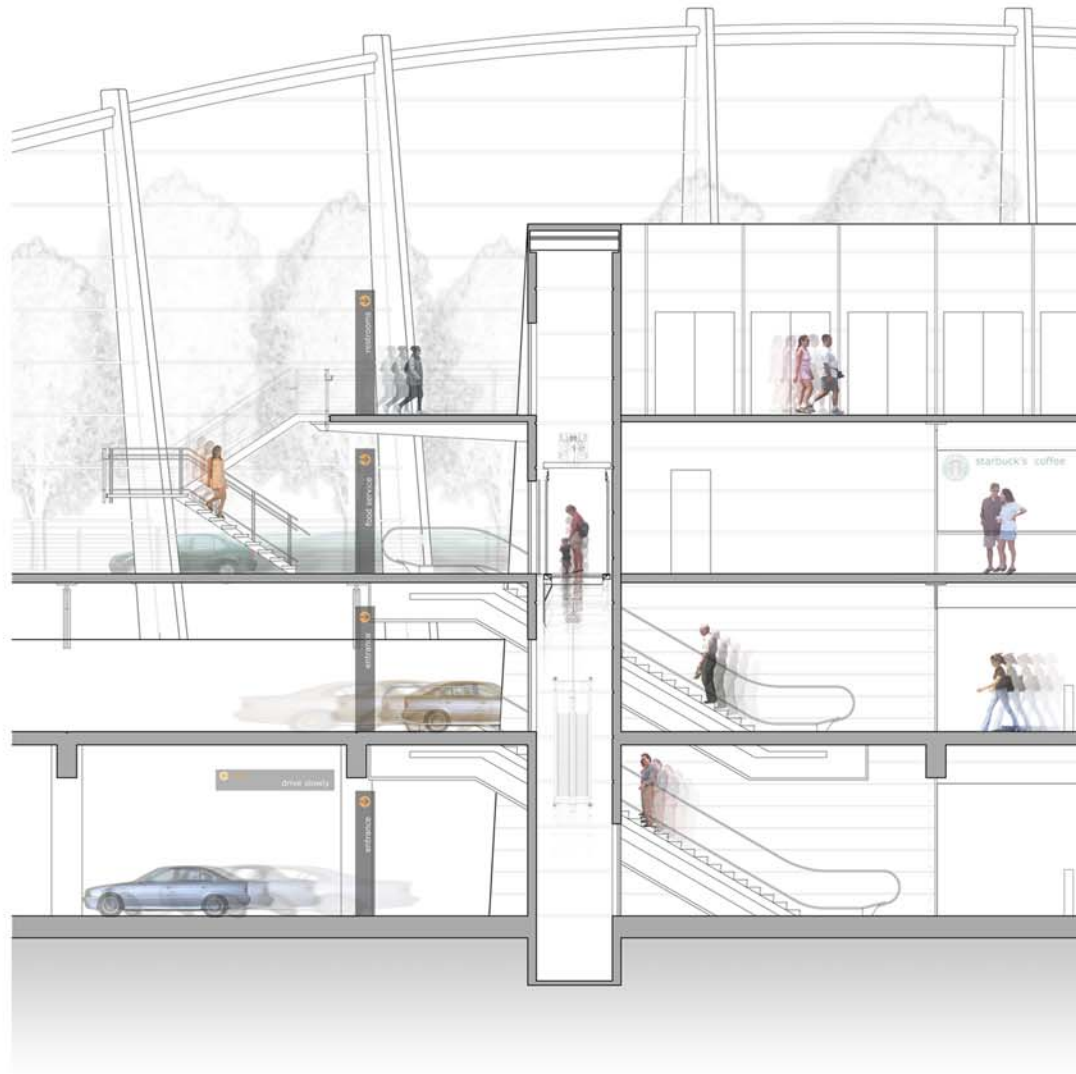
$$d = 242' 10'' \text{ LINEAR FEET}$$

pre-final design. longitudinal section.

Illustrating the direct translation of rate of movement into structural form, the exterior columnar spacing is reflective of the amount of time required to slow down from the average rate of 65mph to the posted limit in the parking structure of 15mph. The intent of the design is such that the visitor, if following posted speed limits will engage a regular rhythm of structural members [1 column per second] despite their reduction in speed.

This approach, rigid in execution, would later be modified in such a manner that the rates of movement would inform, rather than dictate, the placement of key elements within the building.





enlarged section. rates of movement.

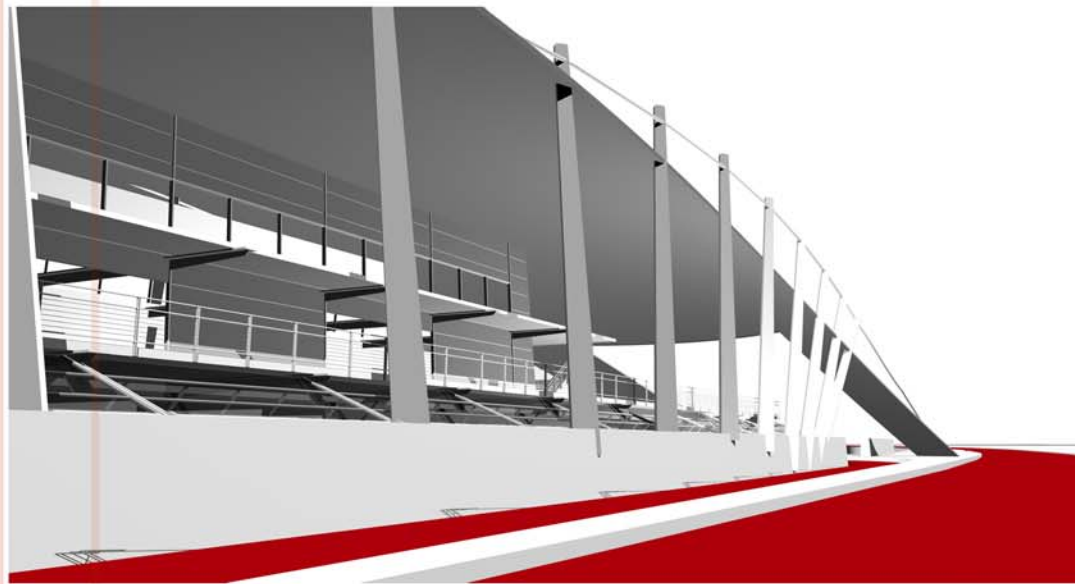
The section documented at the left is an enlarged area of the longitudinal section on the opposite page. Embodied in this composite drawing is a captured moment in time depicting the movement of various modes of mobility in and around the building.

The ghosted images behind all of the scale figures and objects in the section represent the linear distance traveled in one second of movement at their own respective rate. This diagram helps to show the relationship of the detailing throughout the building to the corresponding rate of movement of which it is a part. The study is a prelude to the methodology adopted in the detailing of the final design in the pages to follow; some of the details that relate to their corresponding rate of movement include the scoring of concrete in the elevator shafts, handrail locations, and exterior column placement.

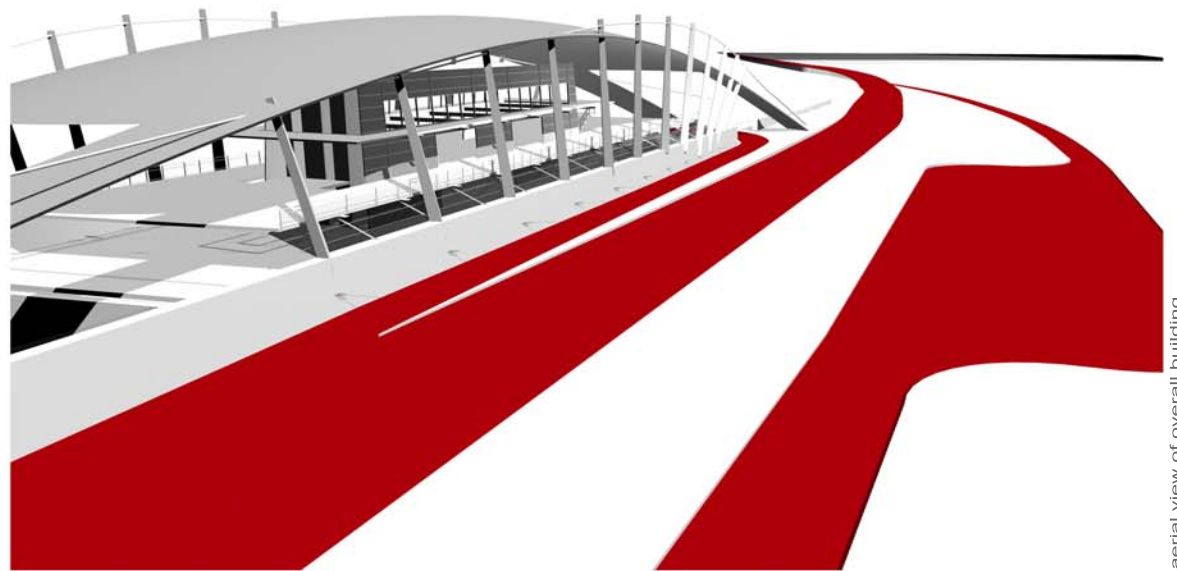
pre-final design.
rendered images.

The images below and to the right are rendered from a 3-dimensional computer model of the pre-final design documented on the previous pages.

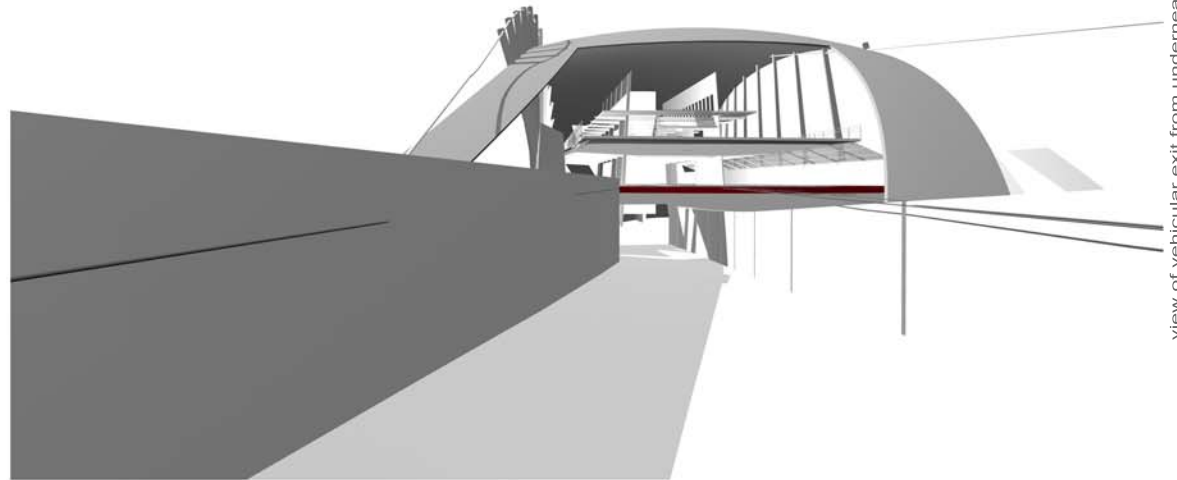
Labeled with their corresponding views, the images show the how the fanning structure changes position and its structural spacing to reflect the changes in speed in the approach to the building from the average rate of highway travel, 65mph. The other main element of the building envelope, the roof, curves to engage the ground plane and the surrounding site at either end of the building, so as to be sympathetic to the natural surrounding found in the structure's contextual environment.



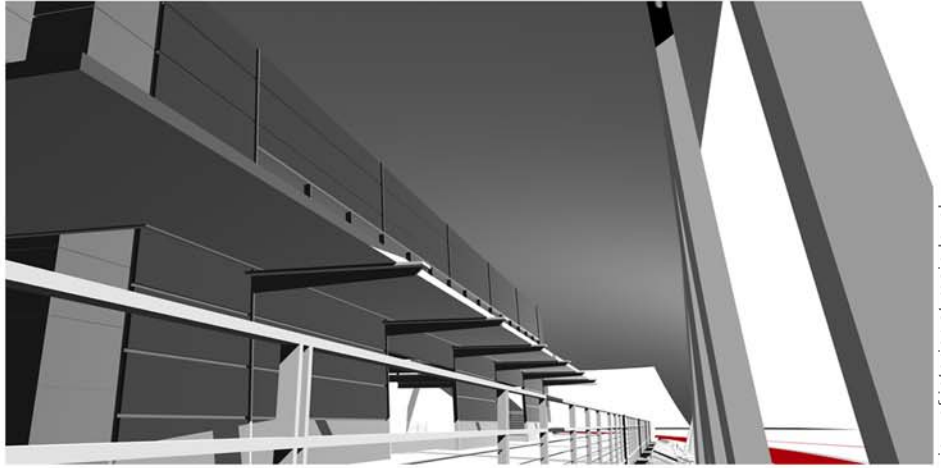
view of exterior structural skeleton from main road



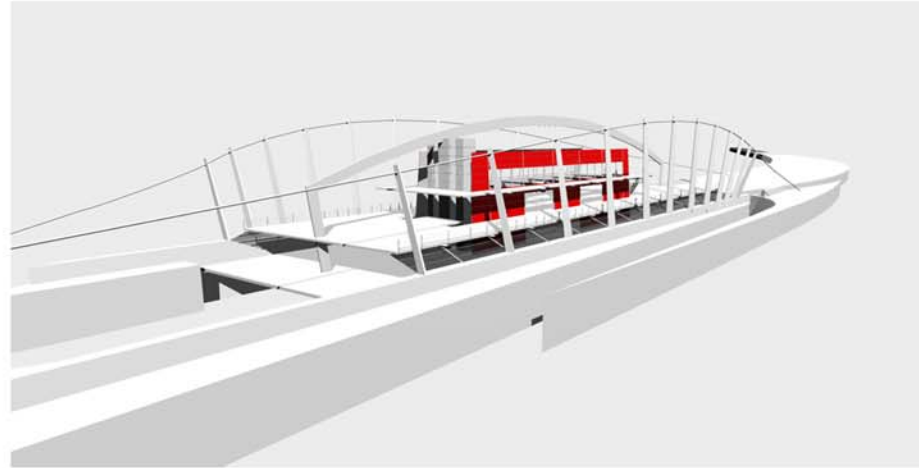
aerial view of overall building



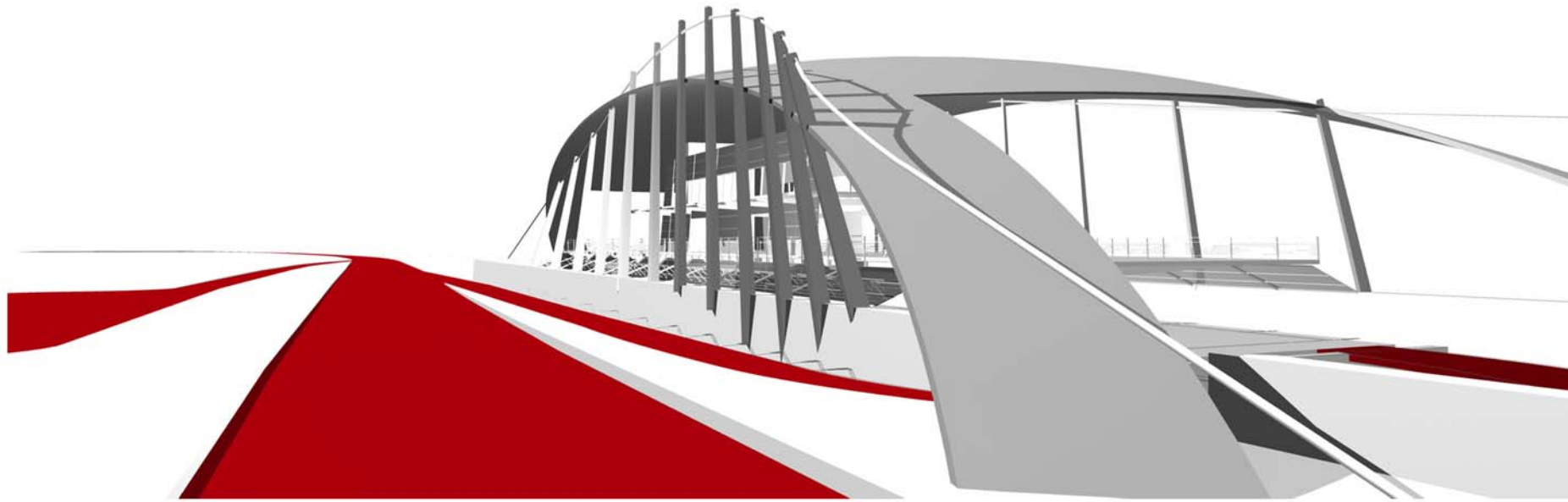
view of vehicular exit from underneath main building



view of interior at main level



overall of exterior skeleton



on northbound road looking back where roof engages the ground



| final design.

The following section documents the final design, as it was presented at the thesis defense on June 2, 2006 at the Washington Alexandria Architecture Consortium in Alexandria, VA.



aerial view.
composite site photo with final design.

The images below and to the left are from a composite site photo with the final design of the thesis project superimposed into the contextual environment. The building is situated in between the splayed northbound and southbound roads, affording passengers heading in both directions the opportunity to engage the structure in a seemingly identical experience, save the climatic and environmental conditions that might alter one's approach, most notably daylighting and the shadows that result from it.

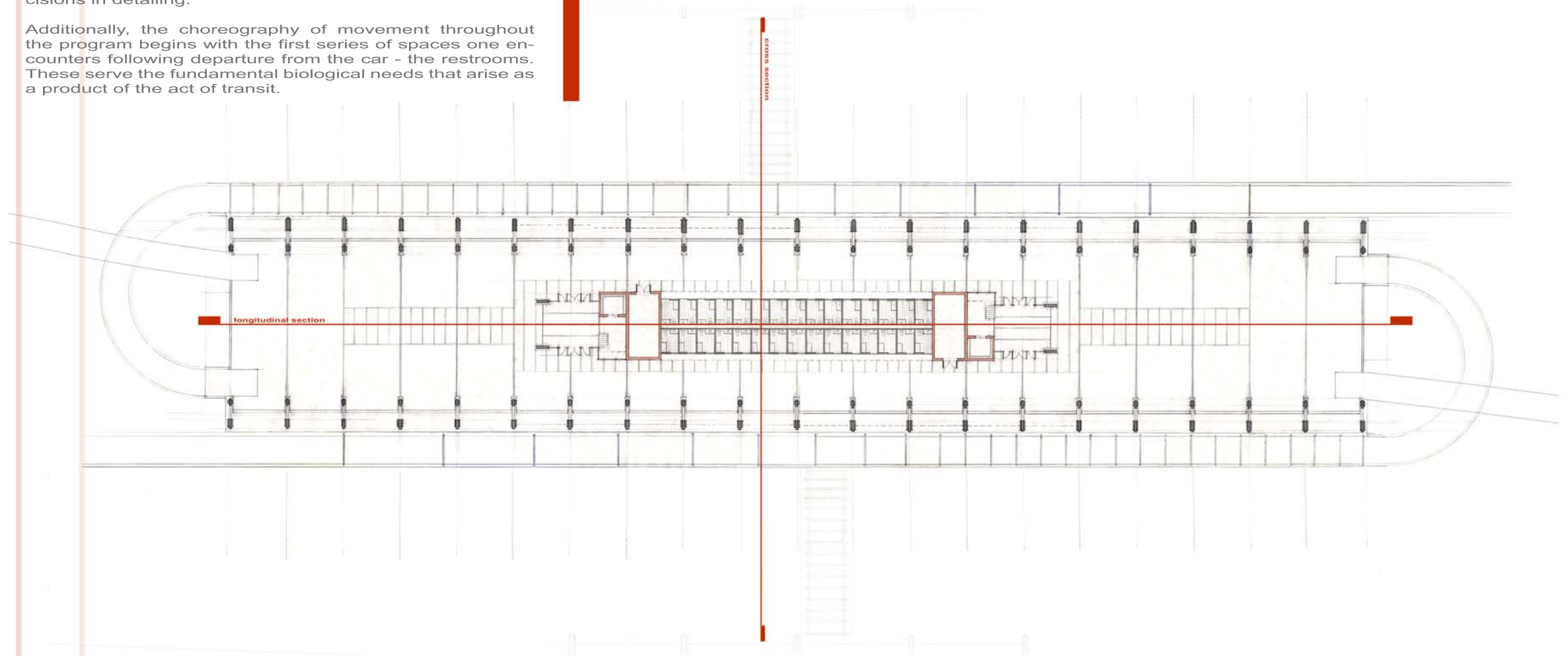
The minimized footprint of the more vertical design allows much of the existing built environment to be returned to the natural surroundings of the area.

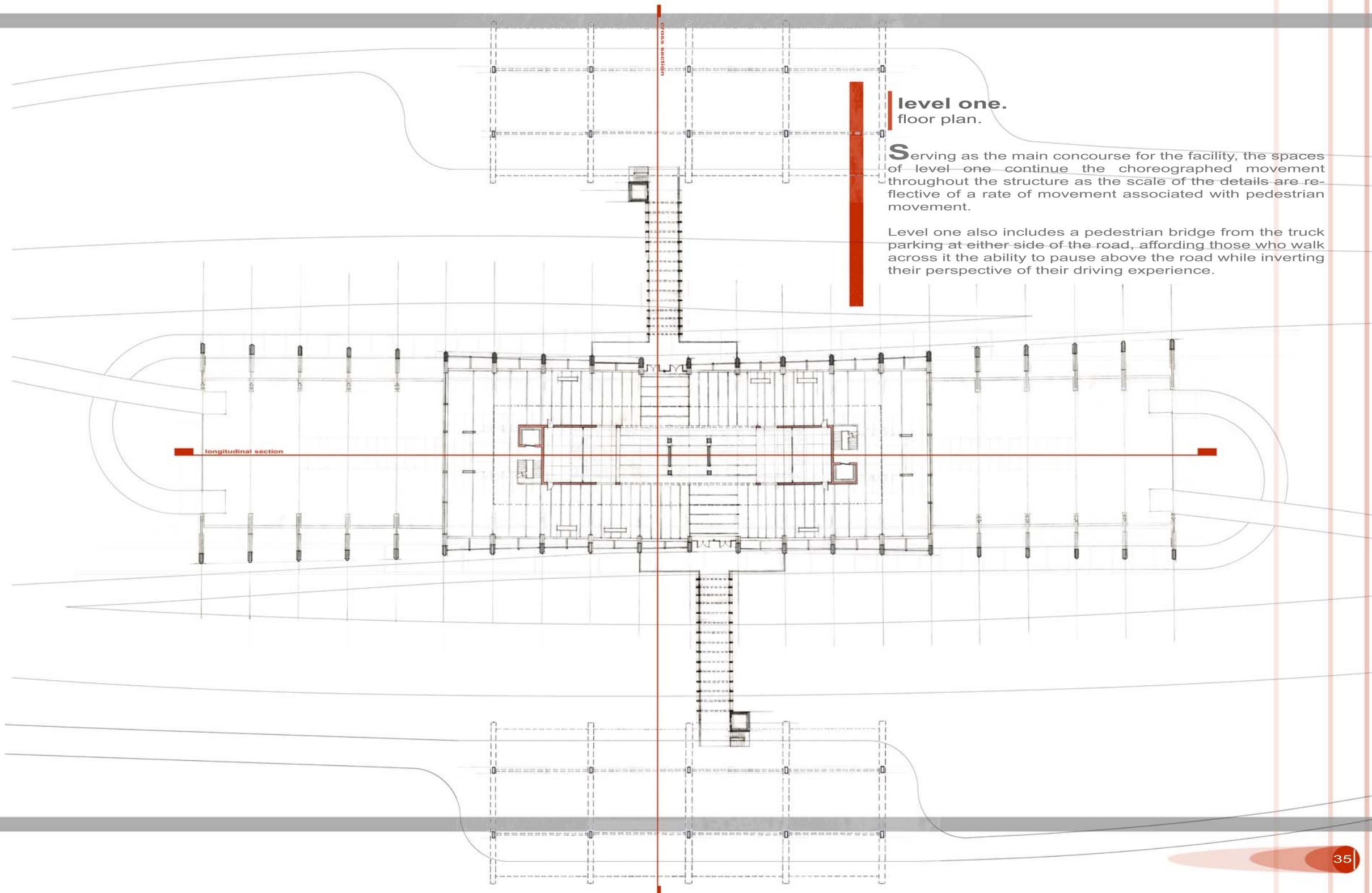


parking level. floor plan.

The parking level serves as the main access to the project for passenger vehicles. The structural bays and expansion joints in the concrete slab are spaced based upon average rate of movement within the parking desk, given at 15mph. The calculations previously shown help to inform these decisions in detailing.

Additionally, the choreography of movement throughout the program begins with the first series of spaces one encounters following departure from the car - the restrooms. These serve the fundamental biological needs that arise as a product of the act of transit.





level one. floor plan.

Serving as the main concourse for the facility, the spaces of level one continue the choreographed movement throughout the structure as the scale of the details are reflective of a rate of movement associated with pedestrian movement.

Level one also includes a pedestrian bridge from the truck parking at either side of the road, affording those who walk across it the ability to pause above the road while inverting their perspective of their driving experience.

mezzanine level.

floor plan.

The mezzanine, the destination in the orchestrated path through the building, affords visitors an opportunity to pause and reflect upon the journey in both directions, with clear views of the northbound and southbound roads, as well as the best interior vantage point for viewing the structural rhythm of ribs that support the building overall.

Just as in the lower levels, control joints in the concrete flooring and vertical spacing of handrail posts are reflective of the rate of pedestrian movement through the space, aiding the processing of slowing down to pause and reflect at this level of the rest area.

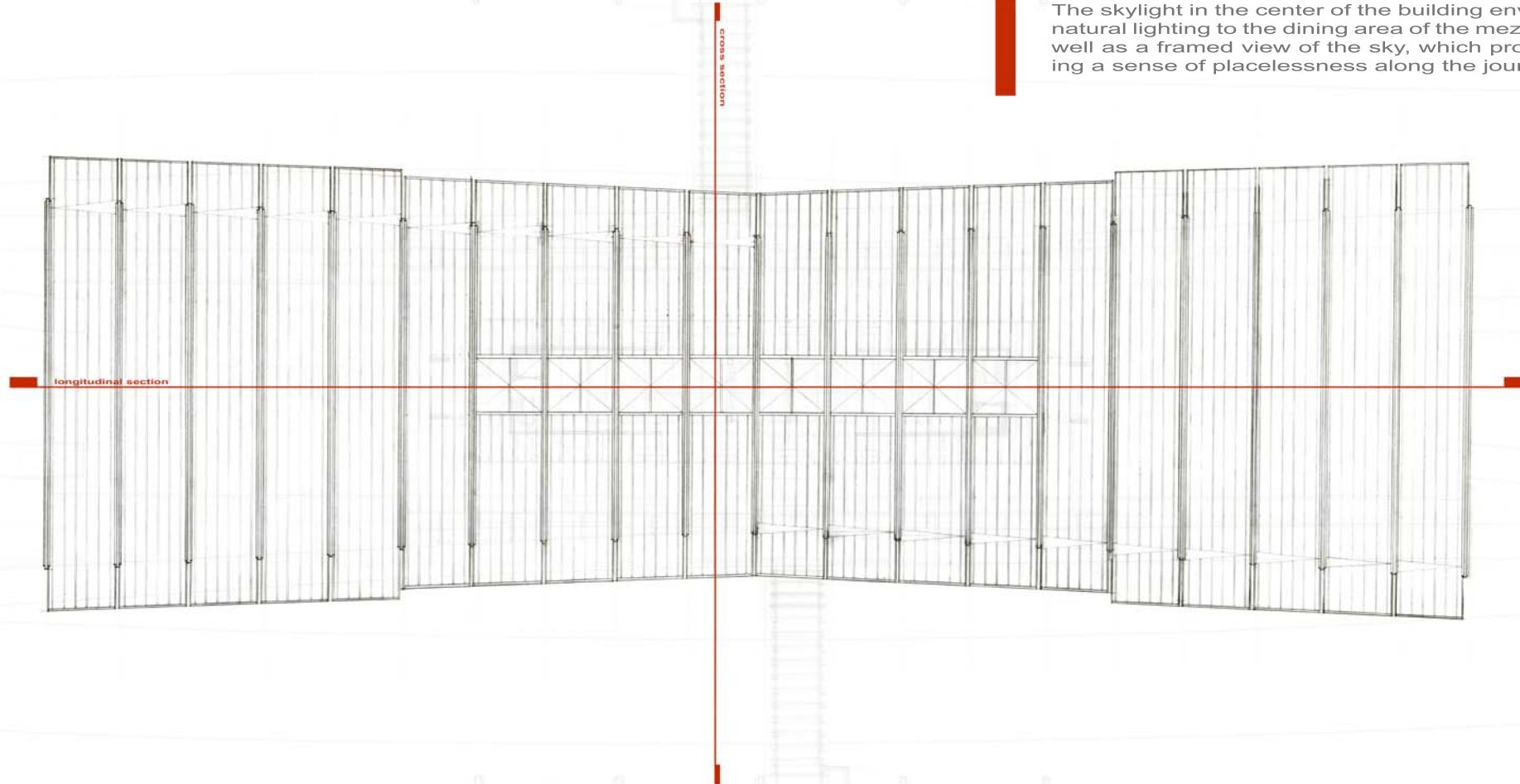
longitudinal section

cross section

roof plan.

The standing seam metal roof reinforces the implied movement evident in the structure of the rest area, as it forms the continuous visual wave that spans the length of the entire building. This is most clearly expressed in the sections and computer-generated renderings.

The skylight in the center of the building envelope provides natural lighting to the dining area of the mezzanine level, as well as a framed view of the sky, which promotes visualizing a sense of placelessness along the journey.

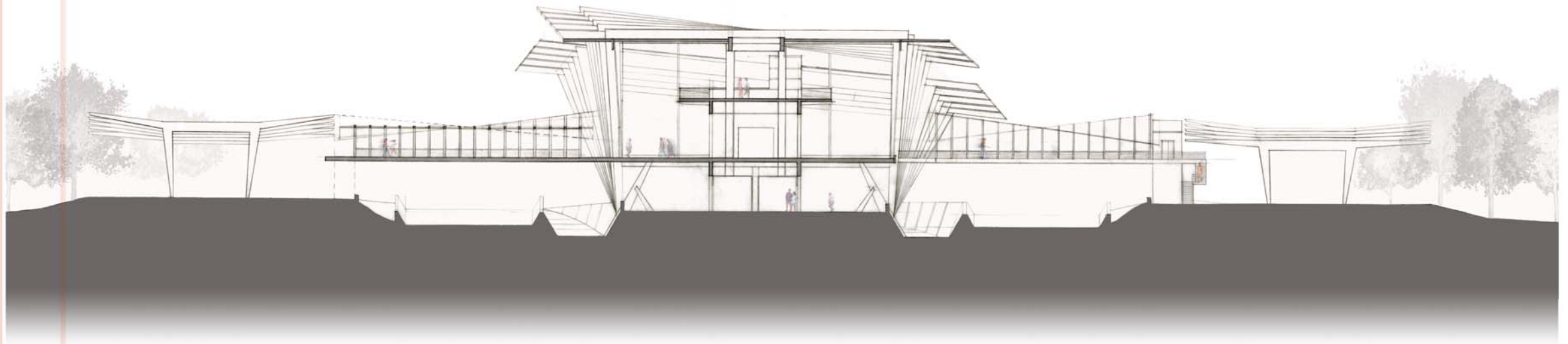


cross section.

looking north through the site.

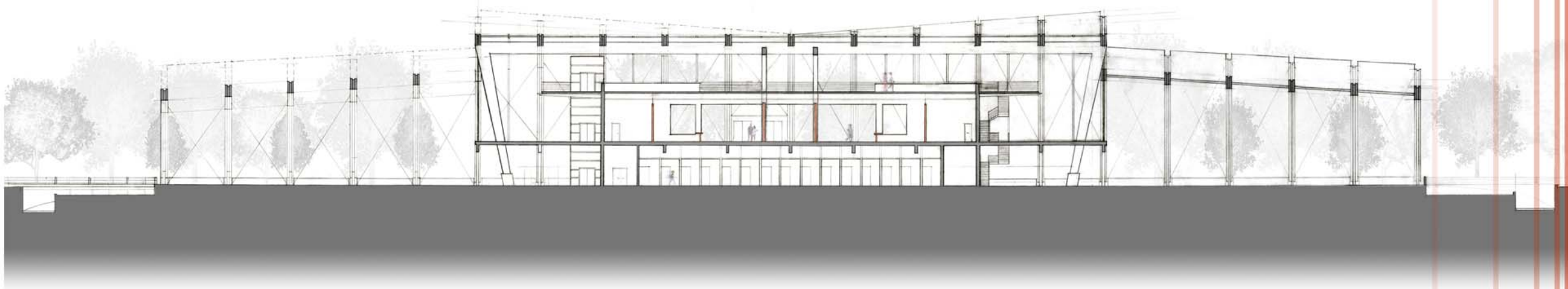
The Cross Section through the site is one of the best drawings for illustrating the implied movement of the structural rhythm, as it shows how the roof and individual ribs are incrementally shifted to engage the road.

Similarly, this drawing is the best illustration of the pedestrian bridge that crosses over the road in both directions, connecting the truck-stop area with the main service building. Each bridge also serves as an individual point on the journey at which one's perspective of the road is altered, no longer viewing the static objects from a moving point, but rather viewing the moving objects from a fixed position.



longitudinal section.
looking west.

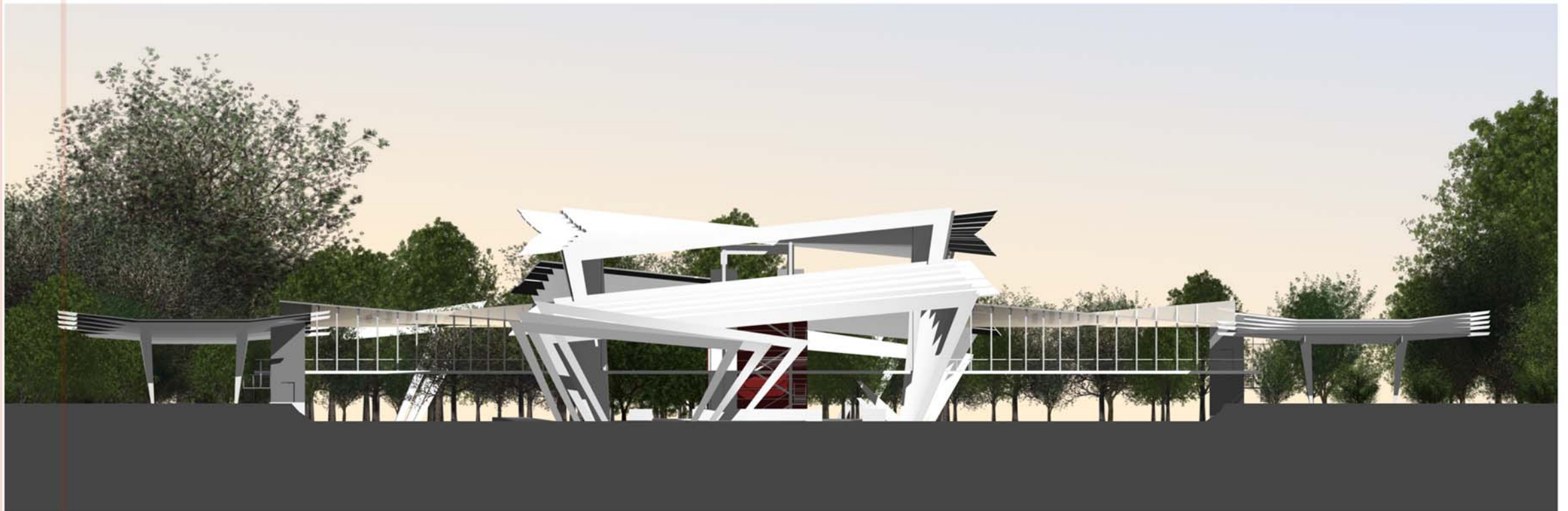
The Longitudinal Section illustrates how the orientation of the building is meant to engage the linear path of travel, as the main structural rhythm is directly reflective of the rate of movement of vehicles passing at a constant speed. This particular section also begins to show how the surrounding landscaping is designed to continue the rhythm established by the ribs out into the site, serving as a transition from the random patterns of the wooded surroundings of the interstate to the regulated structural system of the rest area.



south elevation.
cross elevation.

Depicting the vantage point that most clearly illustrates the complexity of the structure of the rest area, this end elevation is representative of the view that individuals will encounter in both north and southbound travel lanes as they approach the building.

This image shows the rotation of the roof plane from end to end, as well as the similar language and conceptual applications in the design of the bridge from the main building to the adjacent truck stop.



east building elevation.
longitudinal elevation.

Similar to the information displayed in the longitudinal section, this elevation depicts the implied movement achieved through the physical evolution of the structural ribbing and roofing that engage the road and the passer-by. This elevation also shows how the changes in elevation of the roof plane are intended to mediate the transition from the built structure back into the open landscape of the interstate's contextual surroundings.

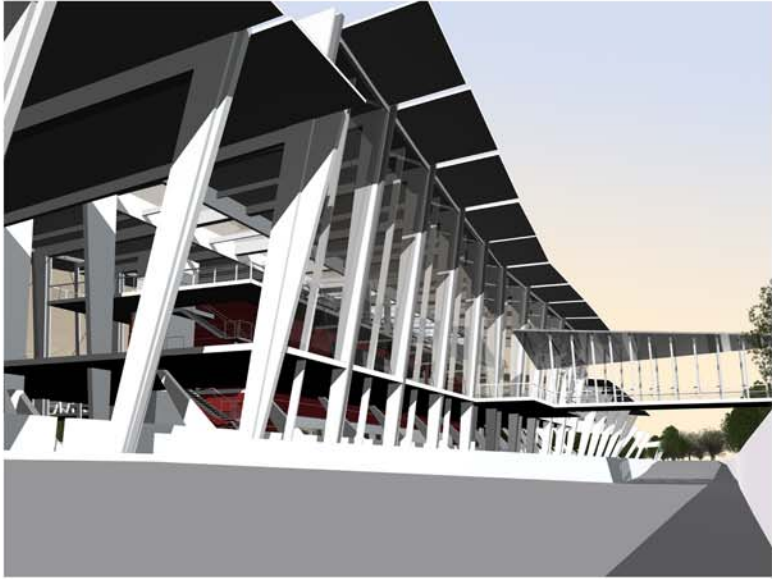


renderings.
exterior views.

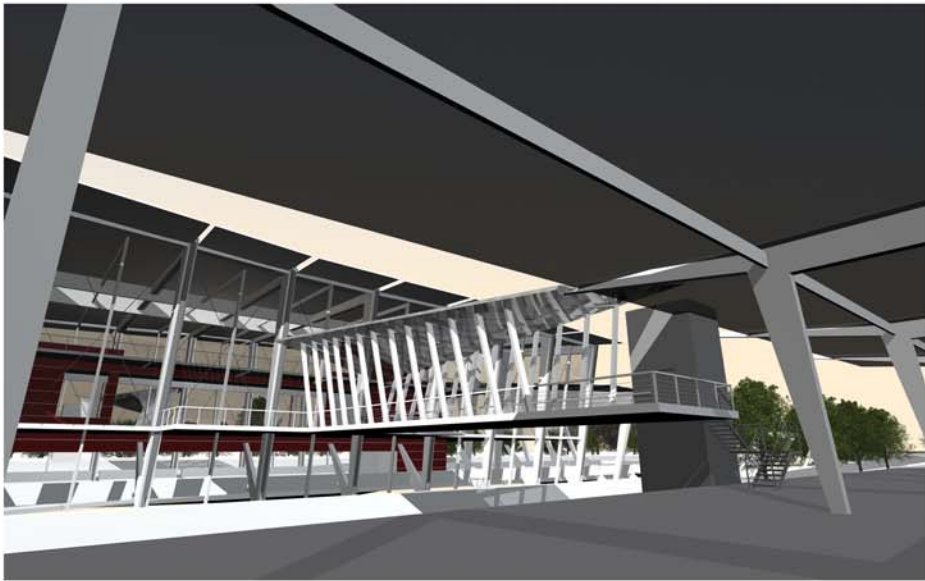
The still images to the right are exterior views of the overall design rendered from a 3-dimensional computer model.

Each individual image is labeled, describing the vantage point and the subject in the field of view.





view of bridge and exterior structural elements from the road



view of bridge from under truck stop canopy



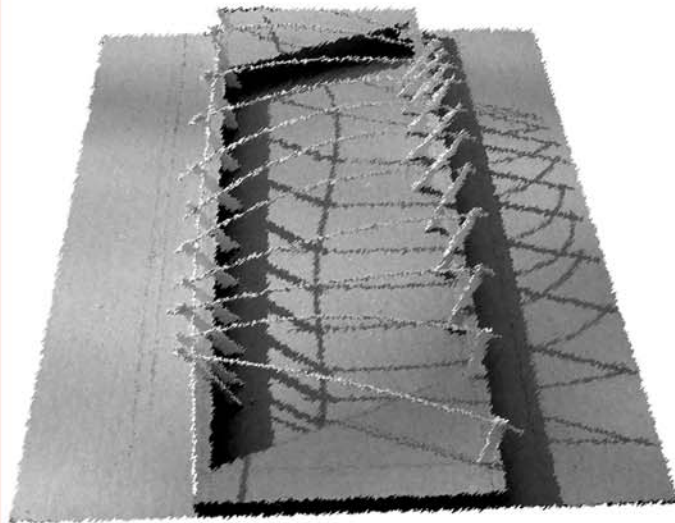
approaching the rest area in the northbound lane

models. photographs.

The images to the right are photographs of the physical models produced to illustrate the structural elements of the final design.

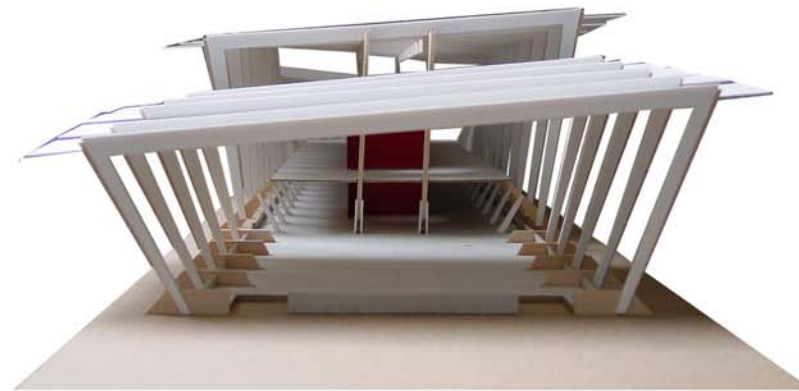
The photo below is the final study model produced in the exploration of the translation of rates of vehicular movement into a building skeletal form.

The final model, documented at the right and built at a scale of $1/16" = 1'-0"$, shows the implied movement of the building embodied in the ribs and roofing elements in the final design.



study model of light and shadow effects of structure

overall view of final model showing structural rhythm



view from end of final model



renderings. interior views.

The still images to the right are interior views of the design rendered from a 3-dimensional computer model.

Depicting two different levels within the rest area, the top image is a rendering of the mezzanine, containing the main dining section of the programmed space. This view also shows the strength of the rhythm of the structural ribbing that is just as present on the interior as it is on the exterior. As explained in the earlier drawings, one can see the correlation between the spacing of the vertical posts of the guardrail and the control joints in the concrete floor slab underfoot.

The bottom image, a rendering of the main concourse level housing the food service and the main promenade around the perimeter of the interior spaces shows the prominence of the circulation as a design element. The double height space allows for natural light to penetrate deep into the interior spaces, while also allowing individuals at both levels the opportunity to get a clear picture of the overall structure. In this image, one can also note how the spacing of the joints in the red paneling is reflective of the rate of vertical movement on the stairs, similar to the spacing of the guardrail posts and control joints of the floor.



Images are reproductions of photos of the reception desk for the new United States Presidential Helicopter Support Facility, taken by Jonathan Foote, professor at Virginia Tech, Washington-Alexandria Architecture Consortium

reflections. beyond the project.

The thesis is about a question - not necessarily the final product.

The thesis is not, however, about one single question, but rather the evolution of an idea and all of the individual explorations along the journey that help to inform decisions and an approach towards a problem. It's about being true to an idea, regardless of the sacrifices that may accompany such a loyalty.

The thesis is about helping to establish character within the individual who embarks upon the journey. It is about adopting a methodology and a mentality that can be applied not only to the thesis project, but to any design problem.

The thesis, if successful, is never complete. Rather, it is the beginning of a continuous evolution of thoughts, observations, and approaches towards design.

This thesis is just beginning...

