

OFF-RAMP.

Architectural opportunity in the mobile landscape.

OFF-RAMP:
ARCHITECTURAL OPPORTUNITY
IN THE MOBILE LANDSCAPE

by

Blake Anthony Preszler

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Architecture

in Architecture

MONTANA STATE UNIVERSITY
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April, 2009

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Abstract.

The ubiquitous character of automobiles and mobile infrastructure has formed a series of un-exploited relationships with our built environment. The automobile and architecture continue to operate as unsynchronized functions. While the automobile is constantly evolving as a means of technology and space, architecture is trapped in a vacuous state, slow to adapt, un-evolved, submitting to the will of the car. Since its invention, the automobile and the infrastructures it travels, has remained a challenge to architecture. The relationship between automobile and architecture has reached a tipping point, and therefore needs to be re-questioned.

Thesis.

The intent of this thesis is to create an environment where a reciprocal relationship between the automobile and architecture emerges. Therefore, this project proposes infrastructural and programmatic opportunities where automobile and architecture operate synchronically.

Mobile Infrastructure.

'Made evident during the 20th century, massive transformation of the urban landscape occurred as a result of mass industrialization and mass mobility.'¹

John H. Daniels

'Democratization of mobility: The Interstate Highway System has facilitated an unprecedented expansion of mobility and in a democratic manner—no nation on earth can equal the mobility that is available to the overwhelming majority of American. More than 90% of the nation's households have access to automobiles.'²

The Interstate Highway Act of 1956 marked a zealous movement of expanding America's mobile infrastructure. Conceived by President Eisenhower, the 42,000 miles of Interstate signaled an era of the pro-road urge to spread the fabric of America. These new infrastructures manifested prosperity within the heart of America, symbolizing freedom, democracy, most importantly, mobility.

The fervor to expand America's road system irreversibly imposed a system of infrastructural organization upon America's cities that generated a continental mode of unilateral expansion premised on mass mobility. These mobile infrastructures: Highways, roads, parking lots, have become the dominant effigies of the contemporary city.

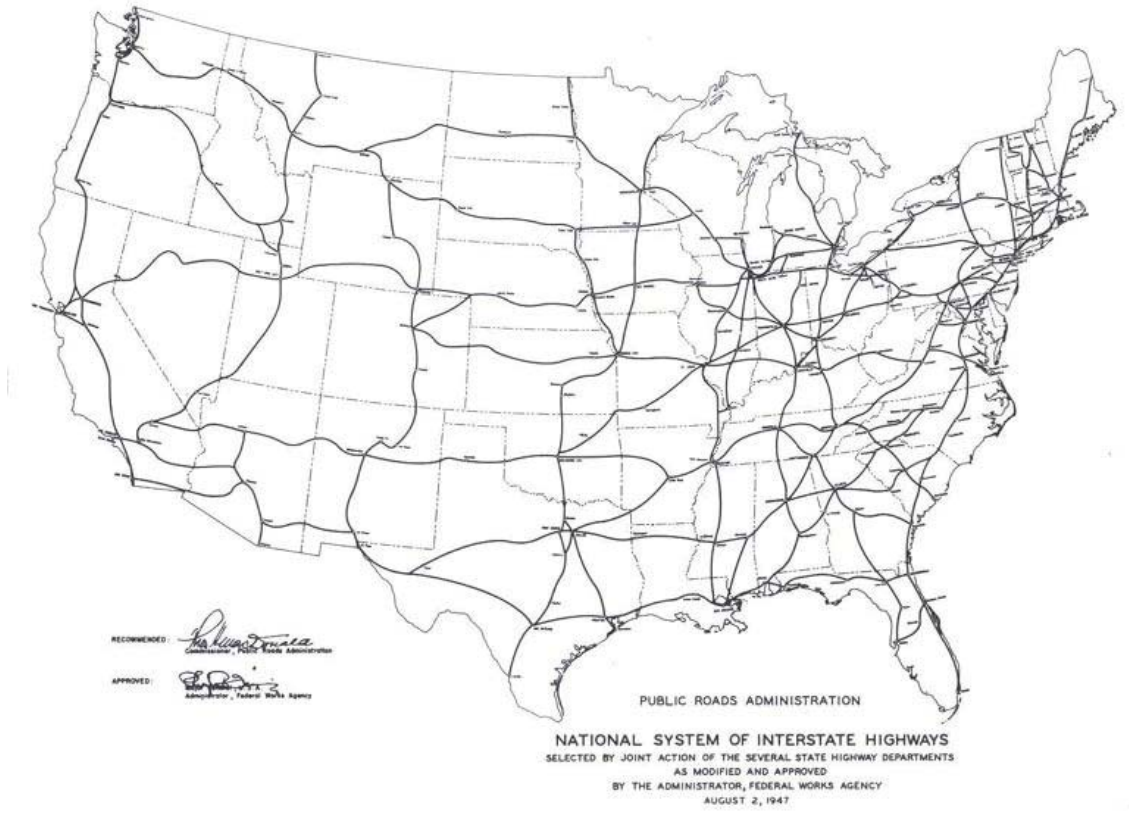


Image: www.fhwa.dot.gov

3

The modern city is sustained by its infrastructure. Highways, off-ramps, and roads form the fundamental groundwork for mobilizing the contemporary urban environment.



Image: Los Angeles. Google Earth



Image: Phoenix subdivision. Google Earth

Since the advent of 20th century mobile society, infrastructural systems of mobility have re-shaped the urban form of our cities.

Mobile Landscapes.

'The motor car has killed the city; the motor car must save the great city.'³

Le Corbusier

The infrastructural forms of motorway intersections, highways, off-ramps and car parks, foreground the reciprocity between the mobile landscape and architecture. Early Modernist architects like Le Corbusier saw the automobile as a device for architectural opportunity. His car-centric schemes such as Plan Voisin (1925) and Plan for Algiers (1932) were early attempts to create auto utopias where the highly mobilized society and architectural planning synergized. According to Corb, the automobile and was only useful to the city if it facilitated a mutual relationship, both aesthetically and functionally with its environment. Despite the early Modernist attempts of creating synergy between the mobile environment and the built environment "the mass-produced automobile has remained aesthetically and stylistically detached from the surroundings it travels through."⁴

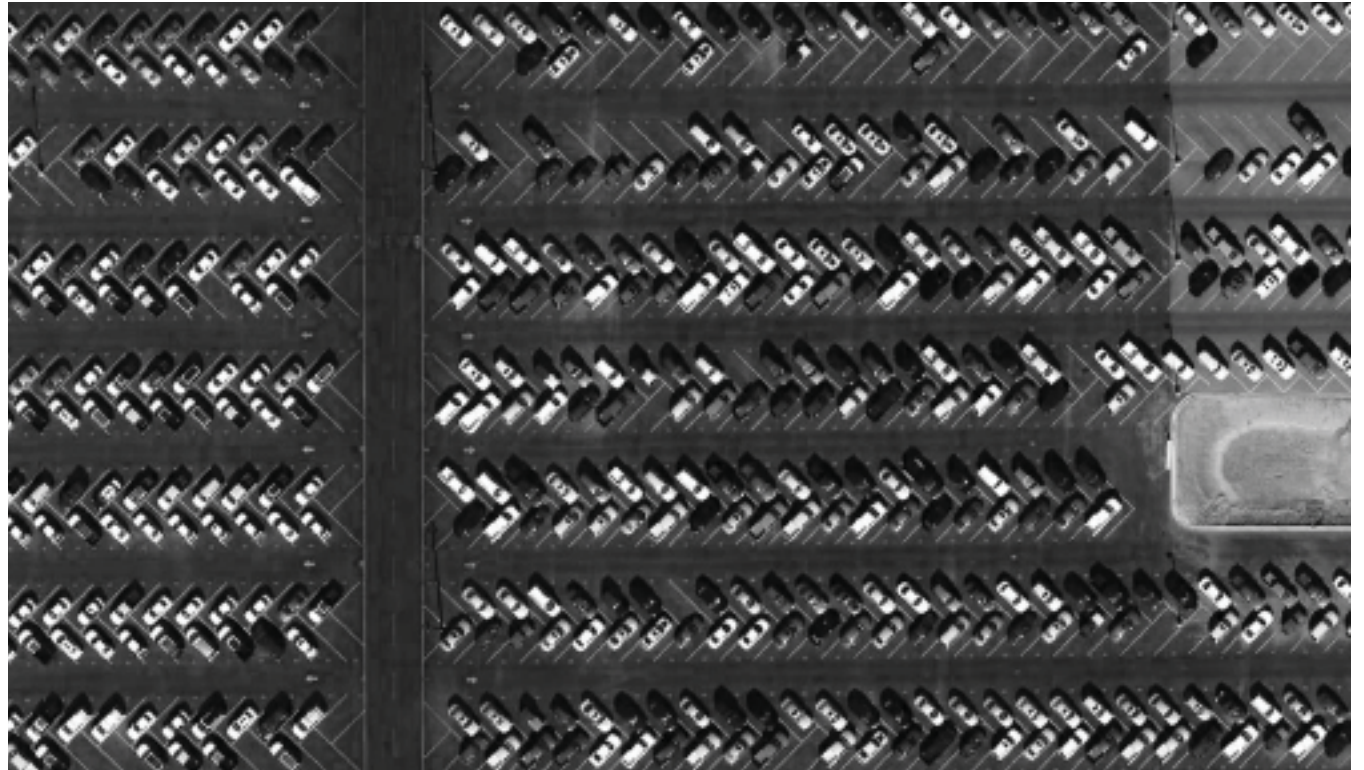


Image: Parking lot in Detroit. Google Earth



Image: Las Vegas. Google Earth

'In newer North American cities, the patterns of development, land-use, and land coverage were all determined by the requirements and presumptions of car-dominated transportation from the beginning of their major growth. Each new act of city building required appropriate parking to be included at the outset, and wide urban streets were laid out and constructed with the specific goal of assuring car access. Buildings, the distance between them, and the sequences of entering and exiting them all deferred to the demands of the car. The result was an unprecedented scale and pattern: large amount of paved open space devoted primarily to roadways and parking, with structure interspersed at distances.'

Moshie Safdie

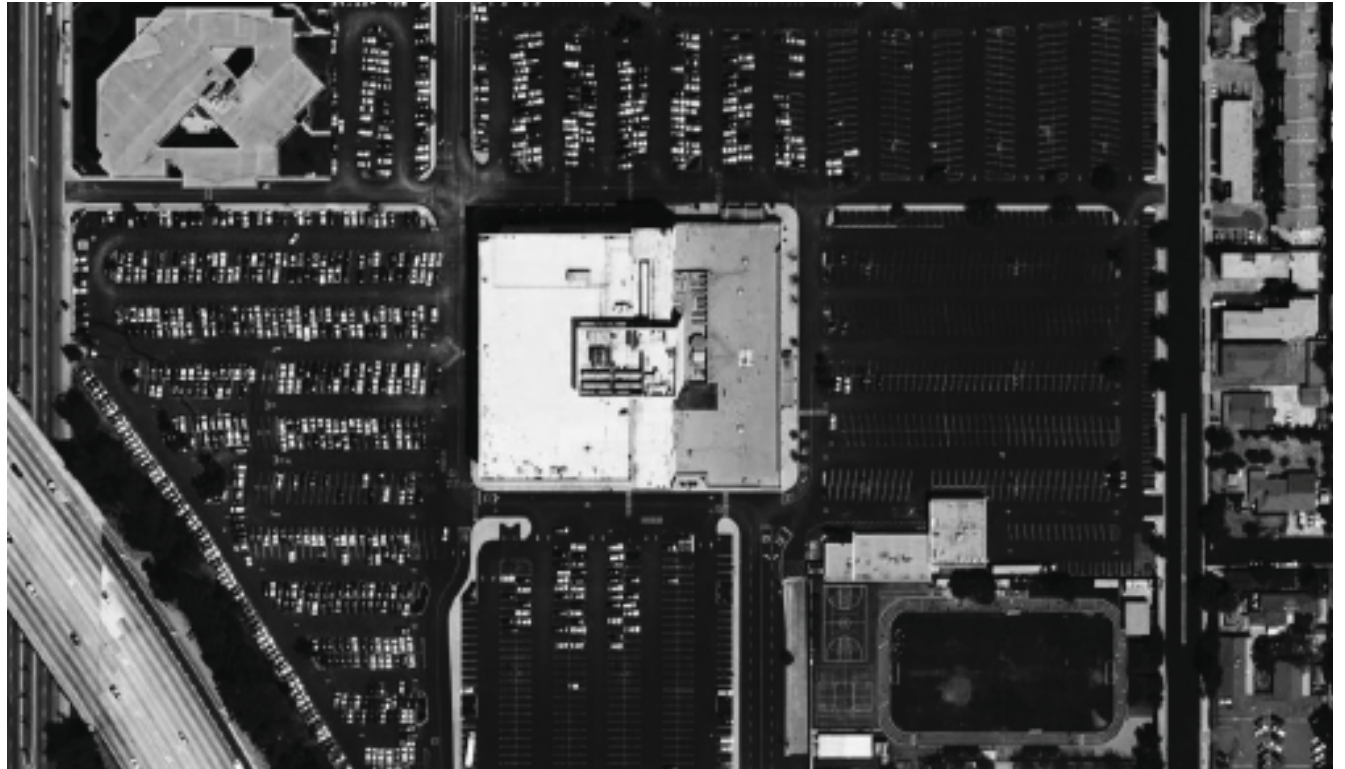
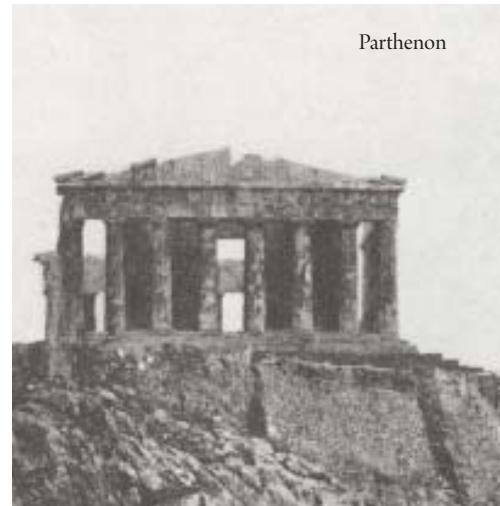


Image: Shopping Center in Phoenix. Google Earth

The result of our contract to mobilize has rendered the built environment in which we live a flattened panorama of highway and parking lot.

Corbu on Cars



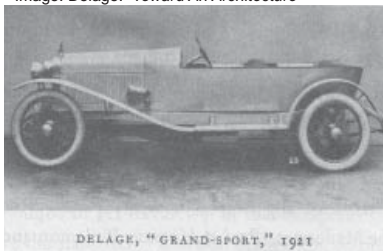
Parthenon

Image: Parthenon. *Toward An Architecture*

‘The motor-car marks the style of our epoch!’⁶

‘Lets us display, then, the Parthenon and the motor-car so that it may be clear that it is a question of two products of selection in different fields, one of which has reached its climax and the other evolving. That ennobles the automobile. And what then? Well, then it remains to use the motor-car as a challenge to our houses and our great buildings. It is here that we come to a dead stop. “Rien ne va plus.” Here we have no Parthenons.’⁷

Image: Delage. *Toward An Architecture*



DELAGE, "GRAND-SPORT," 1921

'Today, technology transference—the information and technology exchange between the car industry and architects—reveals not only the deep-seated cultural differences between the two industries, but also the need to overcome contradictory political messages about the value of cars—and cities—within our society.'⁸

In *Toward an Architecture*, Corbusier vehemently argued that the automobile must be a challenge for architectural technology and standardization. At the turn of the century, mass-industrialization sparked new waves of automotive technology, establishing the automobile as symbol of the industrial age. Today, the ever-changing continuity of car design shadows the sloth like progress of architectural innovation and technology. "While little may have changed in the building industry, today's automotive technology has been revolutionized."⁹ It is as though architecture cannot embrace the future of technology while the automobile wears it on its sleeve. Since the insertion of the automobile on our landscape, the built environment has evolved by the totemic power of the automobile. At the center of the struggle between auto and architecture is that latter of the two is fundamentally slow to adapt in terms of how it assembled. While new automotive technologies are rapidly evolving to facilitate the desires of the consumer, architecture has reached an impasse, still constructed of traditional materials and archaic methods.

Strip Mall.



Image: Strip Mall. Bozeman



The contrast between contemporary architecture and the modern automobile is impeccable.



Image: Ford assembly line. motortrend.com

Assembly of an automobile

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Image: Suburban home. flickr.com



Image: Interior of a Dodge Caravan. dodge.com

Car = Living Room



Image: Interior of an RV. fleetwodrv.com

Carchitecture.

*ger, lower buildings: off-ramps that barely curve as they link colliding freeways; retail parks and service centers that expand exponentially the closer they are to a road: these are the products of the new era of carchitecture. As speeds increased, our world has stretched; ramps lengthen curves become shallower, architecture longer, lower and leaner.'*¹⁵

Simultaneously, the automobile has been friend and foe to architecture. The pessimist might consider the relationship between automobile and architecture an environment of auto dystopia. But perhaps there is a cause for optimism; maybe carchitecture is the way of the future? Carchitecture's definition may be positive or negative depending on how one embraces or denies the influence of the automobile. Consequently, by our unwillingness to challenge the automobile we have created landscapes of stasis, sprawl, a land of car supremacy. If we are to overcome our own automotive inadequacies we must challenge our dependency on vehicular activity and acknowledge that the automobile is an integral component of our architecture, cities, and our society. Bell states:

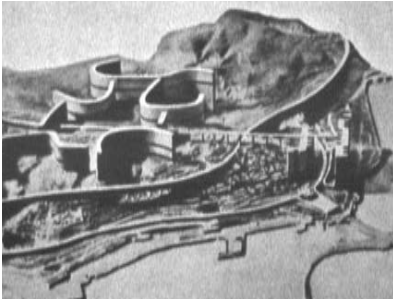
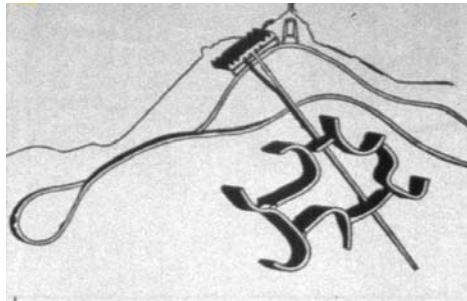
*'Yet to deny the car in the city is to deny our lived experience of urbanism. The automobile and architecture have always interacted, playing off one another in complex and inter-related ways. Today it is fashionable to decry the destructive intrusion of the car, claiming it has swept away traditional urbanism, leaving blockaded, decaying inner cities surrounded by sprawling suburbs. However, the future-the immediate future-will almost certainly be as focused on four wheels as the past 100 years. It is how the four wheels will look, and the ways in which we will use them, that will determine the carchitecture of tomorrow.'*¹⁶

In sum, the automobile is a mechanism for decoding a city-physically, architecturally, socially, spatially.¹⁷ If you want to make unity of city's urban fabric, you must get in your car, using the windshield as if it were a lens, amassing context-linking time, experience, and environment. We must not deny our auto-centric society, nor treat the car and architecture as isolated factors. There needs to be an environment where automobile and city become integral fac-

tors of design, one that transforms the technological and social aspects of the automobile into architectural invention. Perhaps there is a way forward, where architecture the automobile can have reciprocating functions within our cities. "At the heart of the relationship between architecture and cars is the capacity to adapt, a two-way process that confounds the demand for swift and certain change."¹⁸ A new formulation of carchitecture must be established—an off-ramp where the dilemmas between car and architecture exit, and where a symbiotic relationship between car and architecture enter. In this environment the automobile becomes an integral device of articulation and experience, where the parking lot becomes shopping center, where road becomes residence, where highway becomes main street.

*'The carchitecture of the future will be the environments in which we drive, not the environments we drive through.'*¹⁹

Precedents.



Images: planum.net

Le Corbusier's Obus Plan for Algiers (1931)

Conceived as a highway city, the system of implementation included linking the whole of the city via a highway. The highway connected two major suburbs. Although never realized, the plan provided fast circulation in-and-out of the city and included residential and commercial structures. The main idea

of Corbusier's plan was to involve the speed and efficiency of the automobile into a livable highway that could be connected with national and multinational highway cities. The highway would act as the main artery, linking residential, commercial, and civic functions.

Images: planum.net

Marina City Chicago

Designed to be a city within a city, Architect Bertrand Goldberg sought to integrate the automobile with residential and commercial programs. Ultimately, it was the automobile that dictated scale and circulation. 'Parking at Marina City is intergral to this vision; no parking structure is so tall of slender, or assumes so complete and embodiment of the spiral.'

residential.....

commercial.....

parking

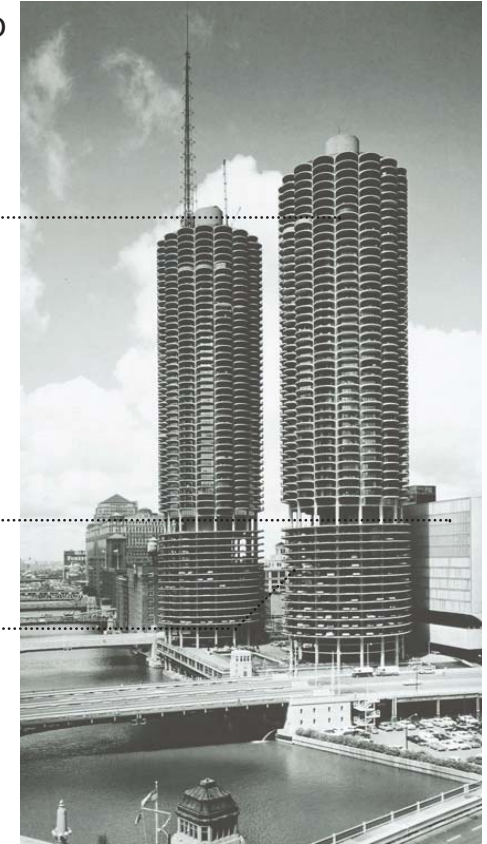
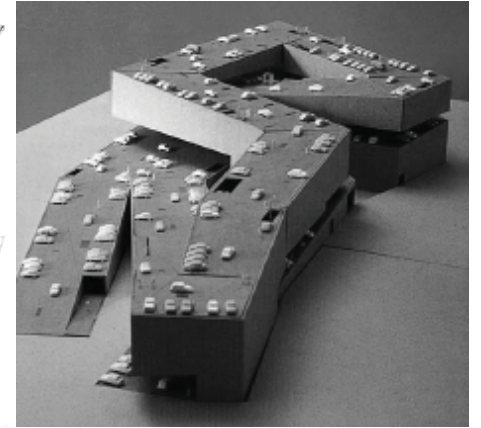
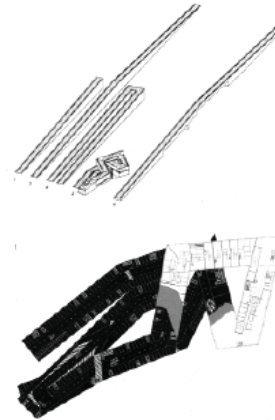


Image: wikipedia.com



Freeway Interchange Tower
The Freeway Interchange Tower was a proposal to utilize the freeway and the "throw-away" space it creates. By using transportation nodes, the project links car and California's freeway context.



Images: *The Architecture of Parking*

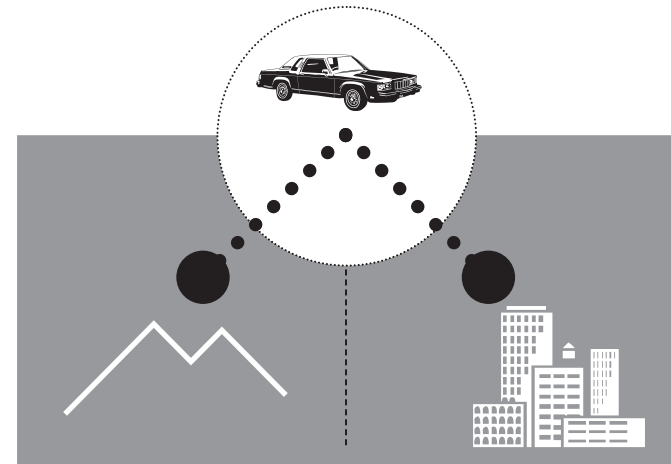
NL Architects Parkhouse/Carstadt, Amsterdam

NL architects combined car park and mixed-use architectural program into this project. The automobile was the catalyst for program activity. By fusing architecture with infrastructure, though un-built, this project embodies the principles of a carchitecture of the future integrating parking with program.

Packaging Machine.

“Packaging machines are products that are designed, by means of deliberate allusions, to elicit experiences beyond the products themselves.”²¹

from SNOOZE:IMMERSING MASS ARCHITECTURE IS MASS CULTURE



Cars act as packaging machines. When you buy a car, you are essentially buying an experience beyond what the car is. The car allows a myriad of experiences behind the windshield. Driving is a sensory experience. A journey across a city offers a plethora of view frames—windshield, driver side, passenger side, rearview mirror, side mirror—allowing you to decode the environment. When you buy a car, you are buying the experience of driving which allows you to engage the environment: spatially, physically, socially, and architecturally. The experience of driving elicits perception.

Visual Frame

the view frame from which we see determines interpretation

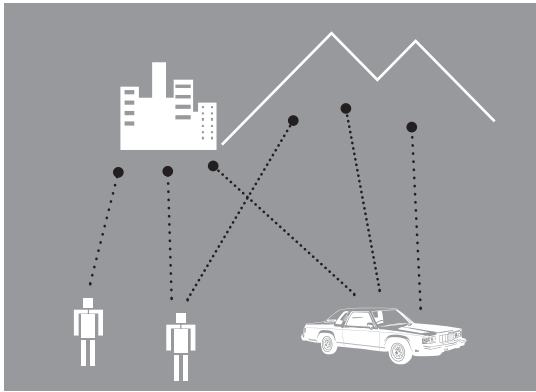


Visual Environment

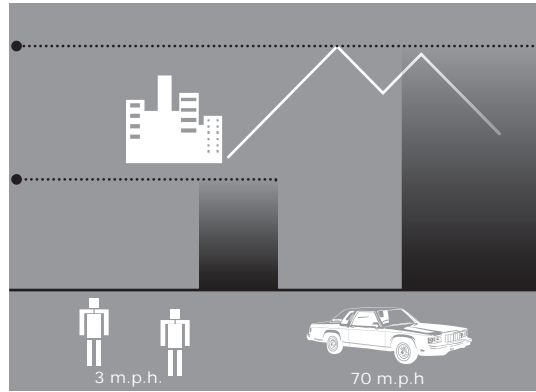
what we experience is qualified by view frame



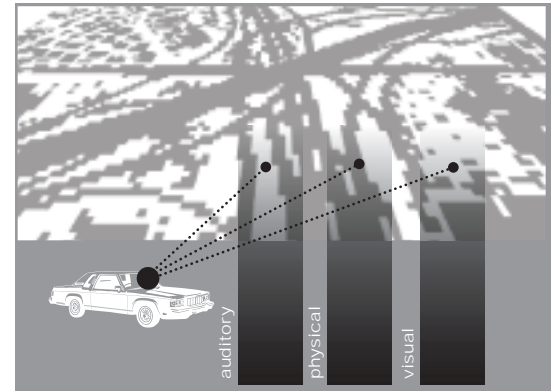
Visual perception is determined by frame of view



Visual analysis is variable by speed



Driving elicits a multitude of sensory experiences



Interstate 90.



Boston



Cleveland



Sioux Falls



Albany



Chicago



Billings

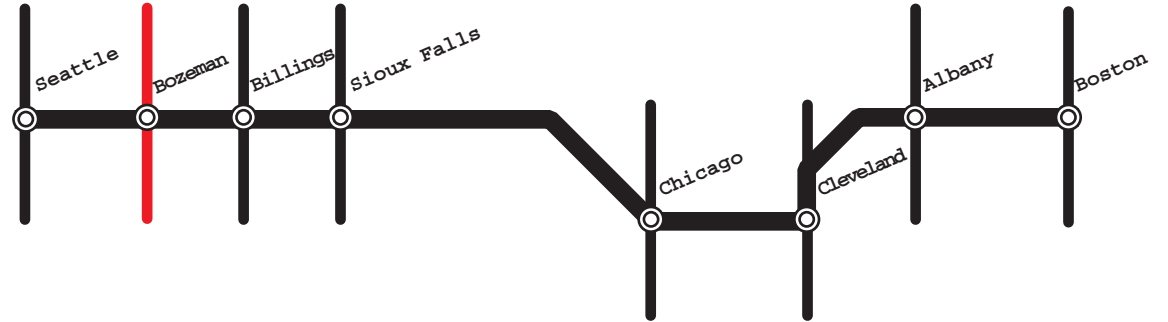


Bozeman



Seattle

Interstate 90



3,020mi

Images: Webcam images along Interstate 90. weatherbonk.com

American Highway Landscape.

'...the entire highway system is Junk-space, a vast potential utopia clogged by its users, as you notice when they've finally disappeared on vacation.'²²

Rem Koolhaas

The American highway landscape, like a Potemkin village, is a coagulation of engineered land, fabricated boxes, signs, glacis, and industrial buildings determined by short-term planning and economic efficiency. "Ever more scientific in means and pragmatic in its ends, development seeks no other gradient but the one of least resistance: whether the continuous predatory stop-gap activity of "efficient market theory" or the "fast, cheap and out of control" breeder logic of self-regulating capital."²³ This state of contemporary American cities is on a continuum of exploiting urban identity for capital gains and economic profits. The highway sets to isolate itself from the

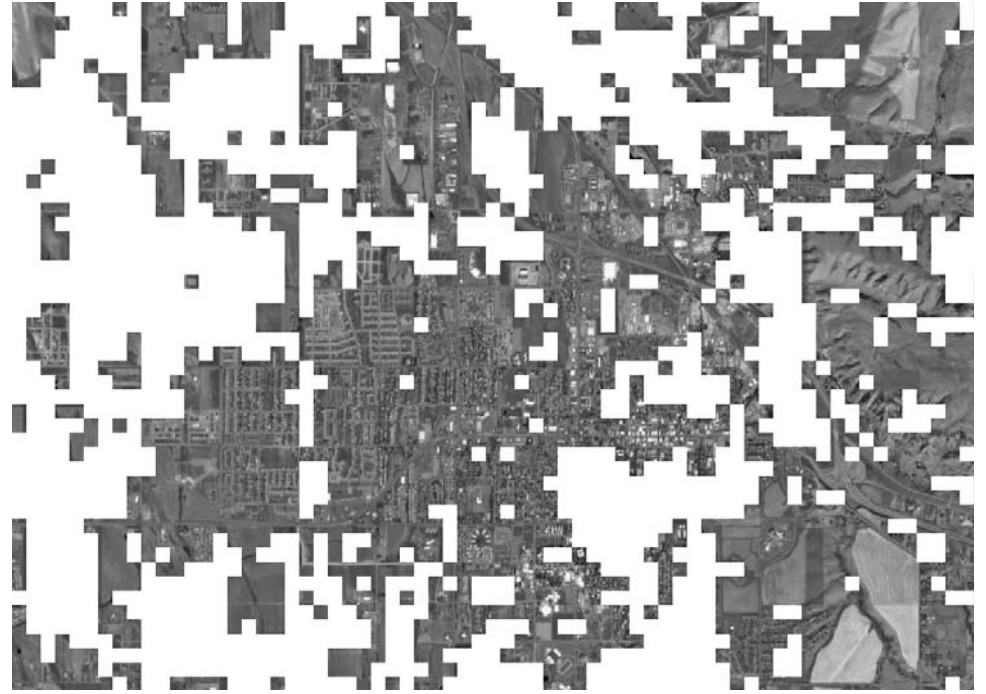
city. It is devoid of social substance, culture, tradition, place, time, and context.²⁴ The highway is a vortex of emptiness, a black and white boundary where the city ceases to exist. Moshie Safdie explains in *The City After the Automobile*:

'Highways separate office parks from shopping centers, which are separated from hotels and housing. Schools are isolated in residential suburbs, distant from cultural and recreation facilities that remain in the traditional centers. The distinguishing pattern of dispersed land uses is not a composition, but an isolation of different activities.'²⁵

Highways and its counterparts cut through our cities with razor sharp fitness- a pursuit to extract capital from the territory underneath it. "Modern development no longer fixes on single buildings, but rather on extended production unit that typically number into the hundreds, cutting- and within months, filling-swathes through the landscape at scales that, until, recently corresponded to centuries of development in time and entire cities in scope."²⁶

Moreover, rampant modern development along highways begins to create a new kind of urban artery, isolating the city into a fragmentation of insulated residential and corporate developments that are detached from urban cores. Like a parasite sucking the blood of its host, highways draw the intrinsic characters out our cities- excreting the effluence of sameness.

The city of Bozeman, Montana is at major national intersection along Interstate 90 and it fails to establish itself as a distinctive location on the map. It has fallen victim to mega-scale, mega-corporate industries proliferating in every other highway city. After the highway, the hotels, bulk food centers, strip malls, car dealerships, and the acres of parking lots we are left with an environment of stasis, blurring where you are and stripping the identity of place; it disengages you from where you are, where you were, and where you are going. Bozeman has lurched itself into the ecstasy of the generic- the "anywhere USA"- pixilated reflection of an American highway city. As a result of apathetic city planning,



A pixelation of Bozeman showing the pattern of dispersed land uses as result of the highway.

Image: Aerial of Bozeman. Google Earth



Image: Highway Gas Station. flickr.com



Image: Standard highway motel. scenicdakotas.com

'From metalled roads to off-ramps, workshops to assembly lines, motorways to car parks, service stations to motels, the car has shaped the architecture of the past century like no other object.'²⁸

Jonathan Bell

Re-learning from Las Vegas



Image: Learning from Las Vegas

‘The vernacular road is a true vehicle for contemporary architecture, one that looks to advertising as a source for an architecture of iconography.’²⁹

Robert Venturi

Decorated Shed

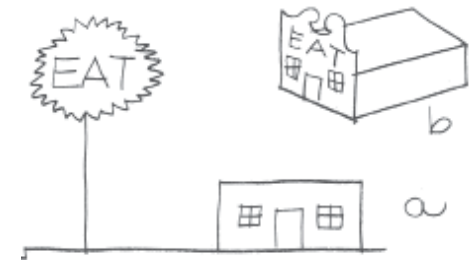
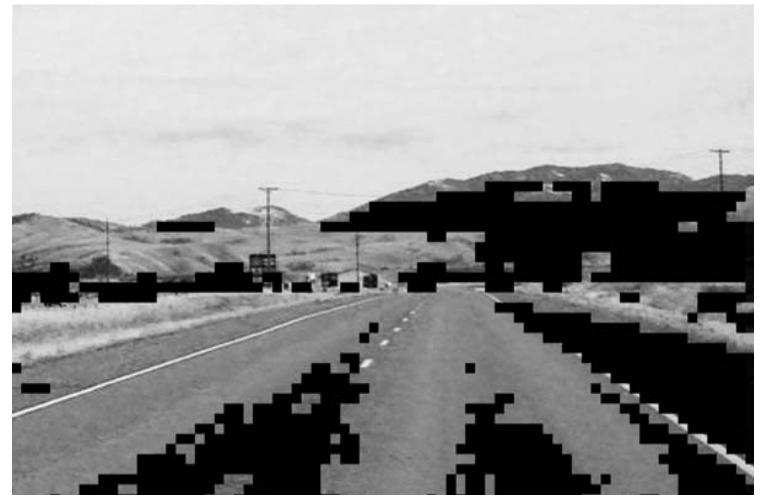


Image: Decorated Shed. Learning from Las Vegas

The highway is a vessel in which symbols dominate space, designating speed, direction, and place. Signs make verbal and symbolic connections through space, communicating a network of meanings and associations within seconds from far away.³⁰ The highway is a habitat for symbol; the architecture of symbol indicates space; the symbol defines place. "This architecture of style and signs is antispatial; it is an architecture of communication over space; communication dominates space as an element in the architecture and in the landscape." Architecture in the highway landscape must communicate significance—functionally and contextually symbolic at high speeds far away. The highway gives architecture an advantage for creating visibility, accessibility, and branding. Architecture in this environment is about establishing a relationship between the highway and the design of a building. "Relationships between signs and buildings, between architecture and symbolism, between form and meaning, between driver and the roadside"³¹ are critical in this landscape. According to Venturi, a "decorated shed", space and structure are denoted by its program. For instance, architecture on the highway landscape should suggest a program relative to its context. Iconography, in this case, forms an association with context; it offers symbolism as a reference point.



Without signs there is only place.
Iconography is a result of sign and symbol.

Image: View from I-90 in Bozeman

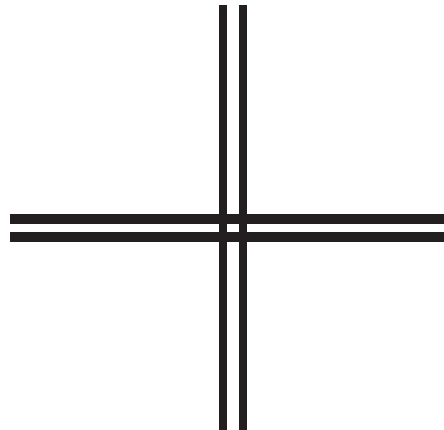
Proposal.

The aim of my proposal is to create a HYBRID SPACE where infrastructure and parking are integral to the buildings program. The intent of this project is to create an interface between the junction of North 19th St in Bozeman and Interstate 90 into a layered environment of interaction consisting of a multitude of uses and programs that facilitate local, regional, and national modes of mobility, thus forming a transportation nexus between city and region, region and nation.

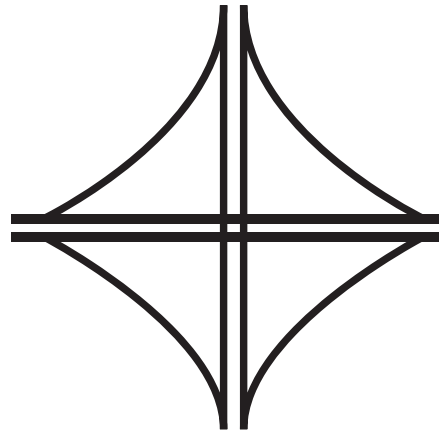
Interstate 90



Interstate 90 and n. 19th st. junction



Existing off-ramps



Interface diagram linking program with infrastructure



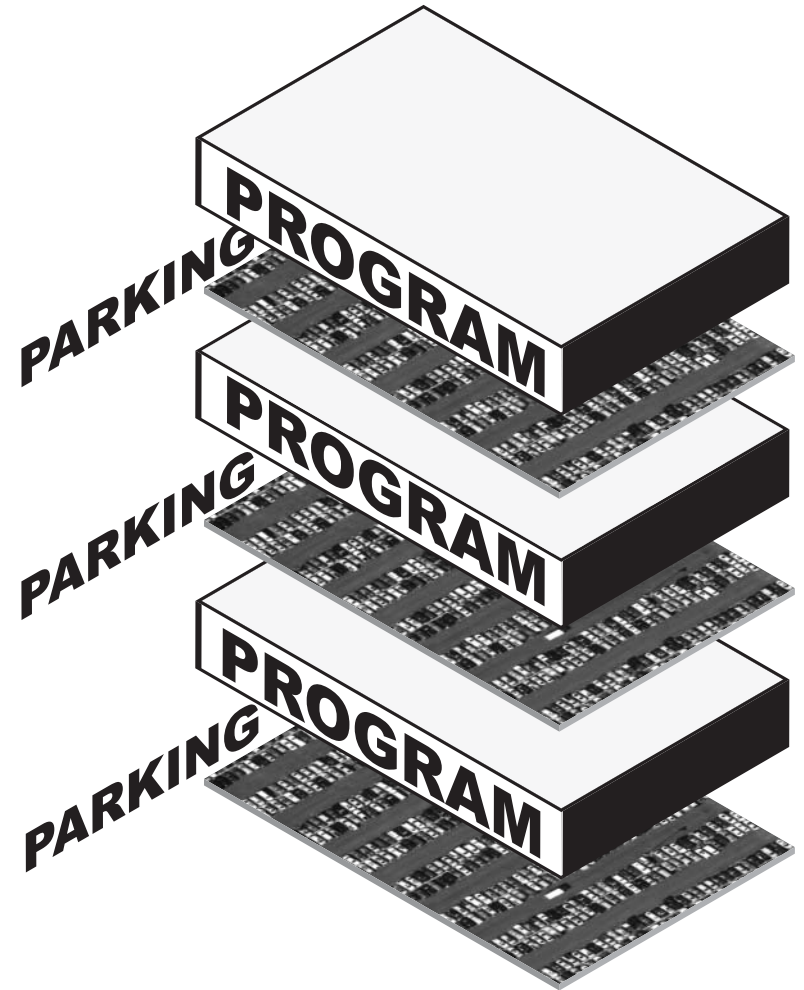
Hybrid Space.

Instead of insular parking schemes where the process of parking is spatially detached from the buildings program, the building cultivates the experience of driving and parking by synchronizing the spatial relationships between parking and program into HYBRID SPACES, each dedicated to, and equipped for specific program functions. Synchronization occurs throughout the building, spatial requirements for automobiles connect and define program, allowing flexibility of circulation and programmatic functions.

typical parking program

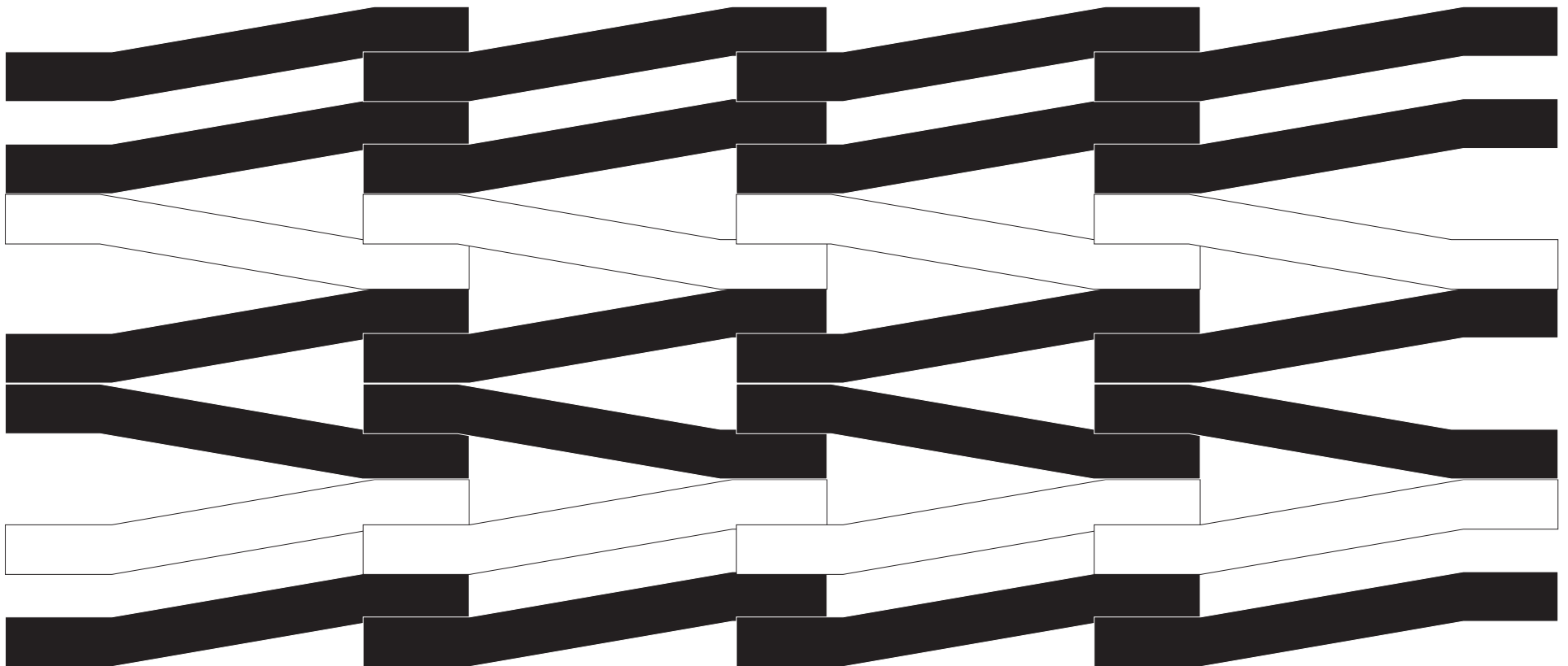


current= MORE PARKING LESS PROGRAM



future= MORE PARKING MORE PROGRAM

Unfolded Hybrid Space Diagram.



CIRCULATION/PARKING



PROGRAM



Program.

Parkn' Camp 100 sf program = 135 sf parking > **90,000 sf program = 121,500 sf parking**

Motel 100 sf program = 90 sf parking > **80,000 sf program = 64,000 sf parking**

Commercial 100 sf program = 135 sf parking > **62,500 sf program = 84,375 sf parking**

Bus Terminal > **20,000 sf** [based on standard bus dimensions]

Gas Station > **20,000 sf**

Program Total = 685,875 sf

Program Logic.

Standard Parking Ramp Diagrams

Dietrich Klose, classification
of ramped car parks, 1965



remote access



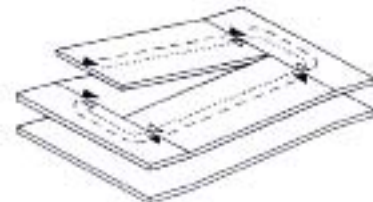
helical remote access



stitched



stitched scissor

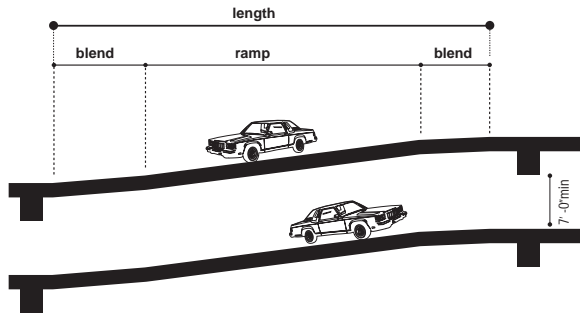


integral



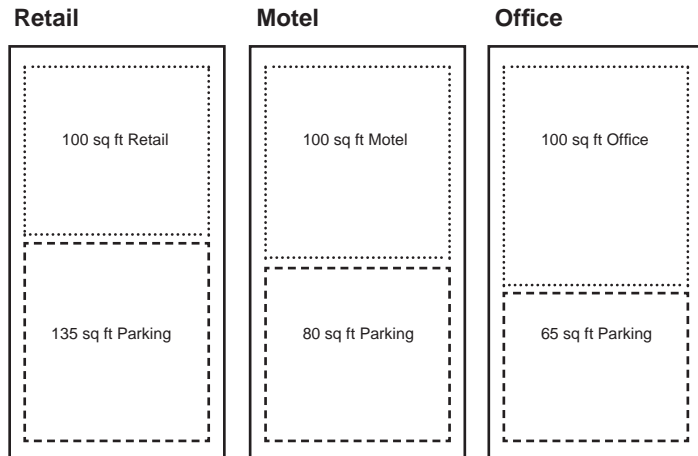
integral scissor

Standard Ramp Design



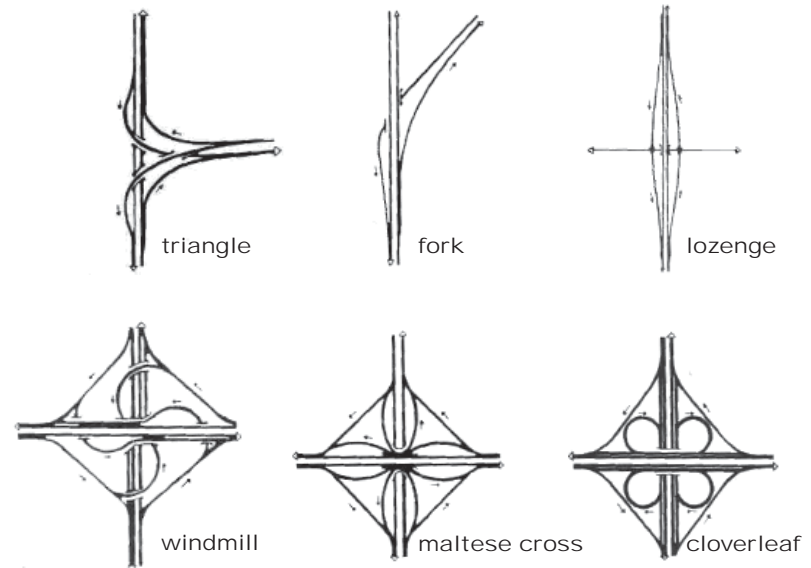
length	<65'-0"	>65'-0"
blend length	10'-0"	8'-0"
blend slope	8%	6%
ramp slope	16%	12%

Standard Parking Space Allocations



Source: Materials, Structures, Standards

Standard Motorway Diagrams



Source: Neufert Architect's Data

Code Analysis

This project will comply to all Assembly Group A Code Requirements

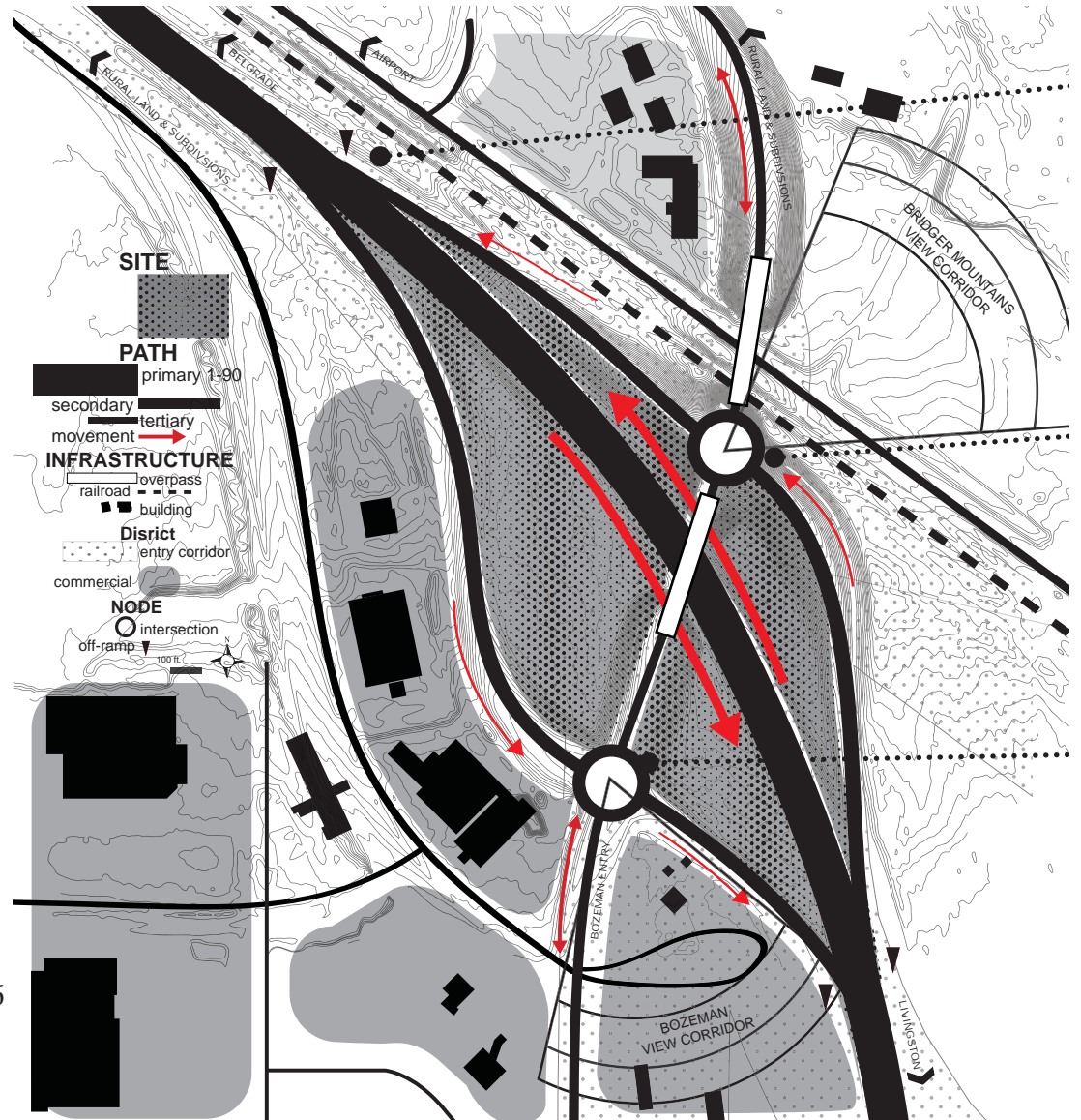
303.1 Assembly Group A. Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering together of persons for purposes such as civic, social or religious functions, recreation, food or drink consumption or awaiting transportation. A room or space used for assembly purposes by less than 50 persons and accessory to another occupancy shall be included as a part of that occupancy.

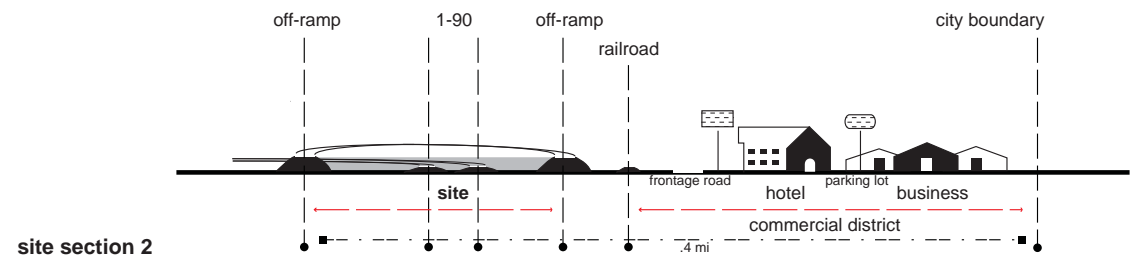
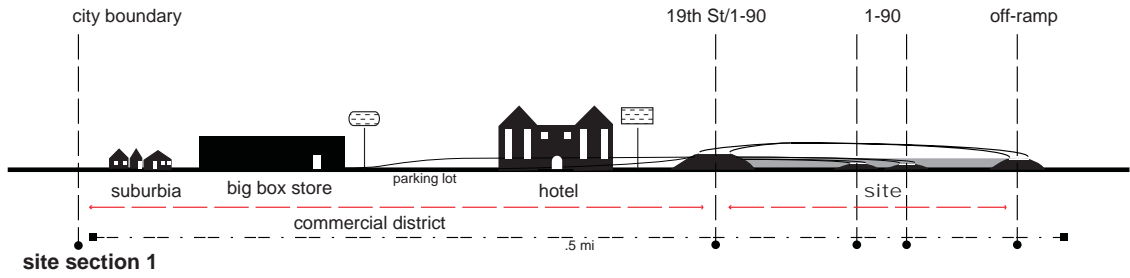
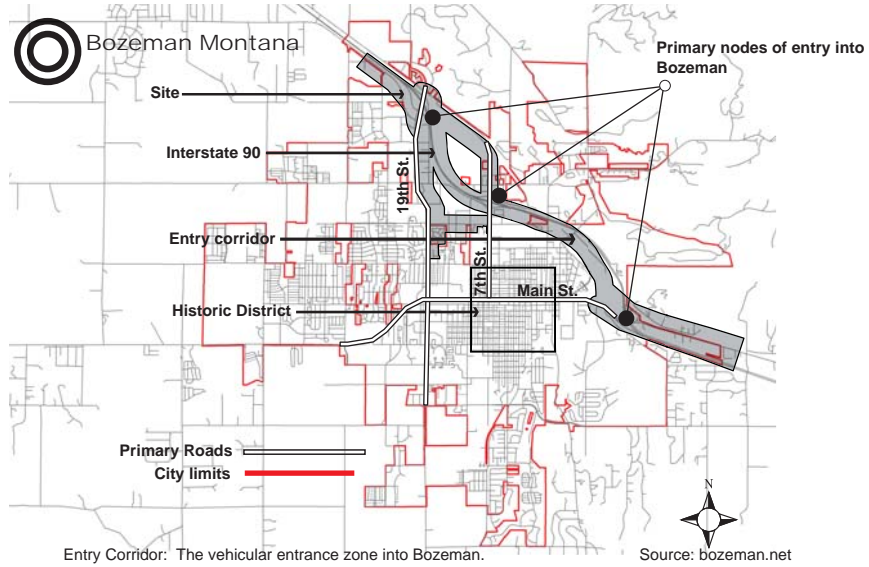
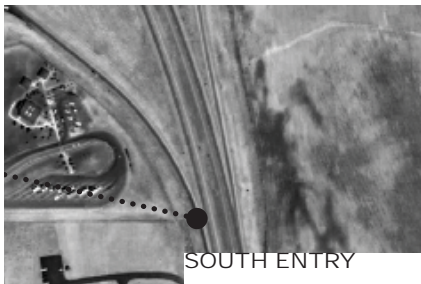
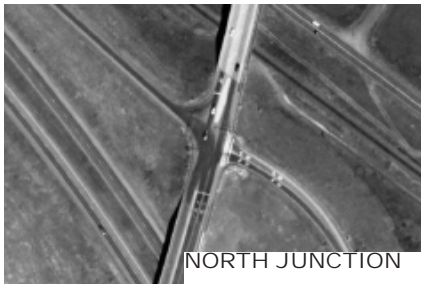
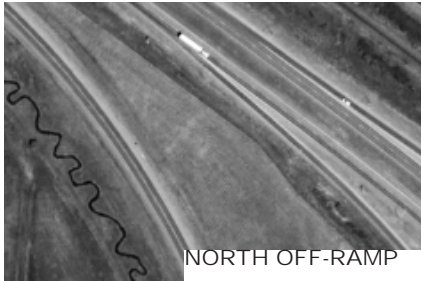
Site Analysis.

North 19th and Interstate 90: a collision of city and highway. Today, this axis remains to be the most heavily traveled intersection in Bozeman. I am proposing to utilize the left-over space created by the crisscrossing of Interstate 90 and North 19th and the oblique forms created by the off-ramps. The main site strategy is to link with existing infrastructural conditions (I-90 and N. 19th) in order to create a transportation nexus where a dialogue between local and national modes of mobility are synergized.



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