RICE UNIVERSITY

AGENCIES OF REASSURANCE

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ABSTRACT

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With the onset of nomadic threats and non-state terror networks in the twenty-first century, ideas of centrality and monumentality in American metropolitan architecture must be re-examined. The attacks of September 11th identified the destruction of architecture, specifically ‘signature architecture,’ as the primary ambition of these networked threats. So it is necessary then for a re-evaluation of the protective measures applied to architecture, edifice, and culturally symbolic built forms. Network theory argues the only way to successfully fight a networked organization is with another networked organization. Therefore, this thesis proposes the networking of civic institutions in modern metropolitan Houston. The freeway system provides the organizational distribution for these portals, and the monumental scale of the freeway interchange offers a surrogate edifice on which the institutions may be grafted. In this manner new mythologies of safety and security are embedded within the metropolitan landscape. While not necessarily providing complete and real security, perhaps an impossibility, these agencies of reassurance (protective measures) fortify and diversify the municipal field, reinforcing civic identity and purpose.
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In early 2003 workers excavating former PATH tunnels underneath the Hudson River, destroyed during the September 11th terrorist attacks on the World Trade Center, stumbled across a junction box packed with a maze of cables. Unsure of their find, the workers called in an urban archaeologist who determined the find to be the defunct ‘Red Line’ telephone connection between the White House in Washington D.C. and the Kremlin in Moscow, set up during the Cold War as a last resort for direct mediation in the event of nuclear escalation. This dedicated communication line ran from Washington up the East Coast to Manhattan, and then through trans-Atlantic cable to London and Moscow.

The Red Line connection might be viewed as a response to a larger cultural paranoia; an attempt to soothe public perceptions whether or not an actually effective means to prevent disaster. It is not clear, for example, whether the Red Line was actually ever used in an emergency. This is irrelevant though, as its role was more virtual; the fact that its existence was known (exhibited in popular culture, movies, etc.) fulfills its intended role. The doctrine of Mutually Assured Destruction, the vehicle that fueled Cold War strategies, guaranteed, in a tectonic sense, the virtualness of these gestures, since in the event of actual nuclear confrontation, any concretely effective measures of protection would be inconceivable. The fact that no actual destruction occurred in these two cities as a result of Cold War hostilities reinforces the point. Under this assumption, perhaps architecture, in a manner similar to infrastructures such as the Red Line, can be viewed as an agency of reassurance, a discourse to assuage anxiety and distress originating from upheavals on the world stage, while not necessarily expected to provide any physical security in the event of catastrophe. This mythologizing of the built environment becomes essential as threats facing developed societies continue to transform and adapt to the modern age.
The 'Red Line' telephone connection between the White House in Washington D.C. and the Kremlin in Moscow, set up during the Cold War as a last resort for direct mediation in the event of nuclear escalation, existed almost as prominently in lore as it did in reality. It is unclear whether or not this communication link was ever used during tense diplomatic situations, but its effect on the public psyche was nevertheless pivotal. The myth of the phone was enough to reassure citizens of Cold War countries that the proper measures had been taken to ensure their security and safety. Since it was and is impossible for political entities to effectively guarantee the safety of their citizenry, the myth assumes great importance, potentially even superceding the role of actual 'defensive' measures, such as military materiel and troops. In the absence of real protection, the myth must be utilized to assuage public paranoia.
During the Cold War, existing infrastructures were appropriated and grafted with a dual programmatic identity, that of protection. The subway system in Moscow was designated as an emergency shelter in the event of a nuclear explosion. The effectiveness of this transformation relies on visibility to the general public as much as practicality, thereby rendering it a myth in a similar manner as the Red Phone. The knowledge that this infrastructure may behave as a protective agency is publicized through visible manifestations (blast doors in the subway.) Public reassurance arrises from the knowledge that civic protective measures are construed from that which already surrounds and constitutes society.

embedded security measures (blast doors)
The examples of the Red Phone and the Moscow Metro show that security measures, or agencies of reassurance, do not necessarily have to be grounded in fact or concrete reality, but that they often operate at the level of myth, providing assurances that are impossible to realistically exist. It is important that these architectonic mythologies not be understood as misleading or deceptive. Although not necessarily providing concrete protection against a threat, they allow society to function within scenarios where paranoia would otherwise reign supreme. Under the spectre of Mutually Assured Destruction, how is civil life expected to succeed while under the constant possibility of total destruction? As will be illustrated in the following sections, contemporary urban society in the United States faces a threat, that while different in nature and organization from the Cold War threat, still presses the menace of possible destruction. New myths must therefore be created to deal with this threat in a similar manner to the protective mythologies of the Cold War era.
With the end of the Cold War, traditional political, military, and social organizations experienced a rapid transformation. The detente that had existed between the West and the Soviet bloc had political and military ramifications that extended far beyond Europe and North America. The collapse of this detente brought rapid change to the entire world. Both the US and the USSR had created extensive associations throughout the world, often these alignments lost strategic importance with the end of the Cold War. As interests shifted, deeply rooted nationalistic and religious identities, which had previously been held in check by Cold War era institutions, were able to reappear and assert their presence. These new forces often erupted in violence as the Cold War power structure evaporated. New emergent threats, not related with the Superpowers of the Cold War, but rather stateless and nomadic organizations, began to project power through a new arenas, often with terrorist tactics. These organizations did not employ traditional structures of organization, but rather more nuanced, networked configurations. The new threat to the western world is not that of nuclear destruction under the Cold War, but rather terrorist acts from these newly emergent threats. The terrorist events of the past ten years, and the failure to prevent them or destroy the organizations that execute them prove that the prescribed methods of policing during the Cold War era are not presently effective in dealing with these new threats. The following section describes the potential defensive strategies employing the same network theory these threatening groups use themselves.
Network Theory dispenses with traditional hierarchical models in exchange for de-centralized, nodal power structures. The flexibility inherent in network models allows for the association as a whole to function, even as particular nodes or locations within the network are suppressed. The diagrams on the following pages describe a 'traditional' power structure with that of the Cold War, and then proceed to describe a further evolution into a networked organization. These diagrams are of particular interest to the built environment. If buildings and infrastructures of metropolitan areas are able to assume a networked organization, they stand a greater chance of surviving the new threats posed by the transformation of the world order, as previously described. The only effective way to counter a networked threat is with a networked response. A reorganization of contemporary civic institutions in such a manner would, in effect, build security into the physical configuration of these institutions.
Two entities are equally viable in this scenario. Strength of each entity is strongest near its locale.

Entity A's power exceeds that of entity B even at B's locale. The stability of the system, and the viability of entity B is conditional on entity A's intentions.

The strength of each entity increases with the distance from its locale, creating a scenario where the viability of each entity is dependent on the other. This represents the situation between the USA and the USSR during the Cold War, with ICBMs projecting power and strength over great distances. This is deterrence.
With the development of SDI, the US projected a defensive mechanism (not necessarily functional.) This created the perception that the USSR's projected strength had been diminished.

In response to the defensive projections of SDI the USSR became determined to develop defensive 'missile shield' system to maintain deterrence. This capital outlay diverted funding and resources from other sectors of civil society in the USSR.

The financial demands of matching the USA's defensive expenditures proved too burdensome for the USSR's economy, eventually leading to the collapse of the country. Thus defensive projection becomes effective offensive maneuver.
In hierarchical scenarios, the protection of an object is attained through the limiting of exposure to other objects.

However complete isolation is rarely possible in a complex society. Created boundaries are in reality much more porous than imagined. When point attacks transform into networked attacks, the inherent weaknesses in barrier defense become apparent.
A networked response to a networked threat is a more plausible defensive strategy. The 'point target' is replaced with a networked, multi-nodal target, foiling the efforts of networked attacks. The dis-aggregation of the point target additionally renders the barrier concept obsolete, embedding the protective measures within the 'target' itself.

The networked form. The protection of the whole is located within the whole. Viability is not dependent on spatial contiguity.
The diagrams on the preceding pages illustrate how traditional notions of security are inadequate to protect potential targets from networked threats. Many aspects of society have been quick to adopt this mentality. Morgan Stanley, which had offices in the World Trade Center destroyed on September 11th, has adopted a policy of diversification in its facilities planning. By spreading offices around New York City, instead of centrally locating them, the organization is a better position to effectively negotiate potential future attacks.

Lehman Brothers to Remain in New York with Purchase of Morgan Stanley’s New Office Tower
New York, October 9, 2001 — Morgan Stanley (NYSE: MWD) and Lehman Brothers (NYSE: LEB) announced today their agreement for Lehman Brothers to purchase Morgan Stanley’s new one million-square-foot office tower at 745 Seventh Avenue in New York, thereby keeping more than 5,000 jobs in New York City.

The 32-story tower, located in Times Square one block from Morgan Stanley’s headquarters building at 1585 Broadway, has been under construction since 1999 and should be ready for occupancy later this year. Terms of the transaction were not disclosed.

“This agreement reaffirms our commitment to New York and is a win-win solution to a difficult office space problem facing both of our firms and the city,” said Lehman Brothers Chairman and Chief Executive Officer Richard S. Fuld, Jr. “With a new, state-of-the-art headquarters building in Manhattan built specifically for investment banking and capital markets activities, we can relocate our operations quickly and efficiently.”

“Our agreement is in the spirit of Wall Street’s commitment to work together in the wake of the tragic events of September 11,” said Morgan Stanley Chairman and Chief Executive Officer Philip J. Purcell. “Morgan Stanley will continue to have a major presence in New York City and will be better positioned from a business continuity standpoint.”

Business continuity planning is a key reason for Morgan Stanley’s decision. With primary space at 1585 Broadway and 745 Seventh Avenue, the firm’s trading and backup facilities would be concentrated in two buildings within one city block that are dependent on the same transportation and power infrastructures.

Morgan Stanley’s global headquarters is in the 1.4 million-square-foot building it owns at 1585 Broadway. The firm recently secured new office space on Third Avenue in Manhattan, and it will continue to lease significant additional space at 750 Seventh Avenue, 1633 Broadway, Pierpoint Plaza in Brooklyn, and in several retail branch locations throughout the city.

Morgan Stanley co-developed 745 Seventh Avenue with The Rockefeller Group, a leading owner, developer and manager of corporate real estate. The Rockefeller Group’s ownership and development position in the building is unchanged as a result of Morgan Stanley’s sale to Lehman Brothers. A subsidiary of The Rockefeller Group, Rockefeller Group Development Corporation, will manage the building upon its completion later this year.

Lehman Brothers’ global headquarters were at the World Financial Center in downtown Manhattan, which was evacuated after the September 11 attacks on the World Trade Center. The firm remains committed to the downtown Manhattan area.
When considering the transformation of threat in the post Cold War world, and its implications to contemporary Houston, it is impossible to avoid the role of the freeway network. The entire metropolis grew around, and is completely dependent on, this network of transportation and commercial arteries to sustain daily activities. The development of the freeway closely mirrors the development of the city as a whole. Both systems did not experience much growth until the middle of the 20th century, with a huge explosion in development occurring in the 1970's and 1980's. The following diagrams plot the commercial development of the city alongside the development of the freeway network. Each black dot represents a commercial development constructed during that period. It is important to note that modern Houston is not even recognizable until the freeway system had become substantially developed, so intertwined is the system with the contemporary understanding of the metropolis.
After the initial analysis of the development of the freeway system, other, perhaps more subtle aspects may be considered. The role visible information plays in the system becomes very apparent. Without directional signage and indicators, the functionality of the system is impossible. Simply blocking out such signage and way-finding measures indicates how barren such a system could become. The directionality of a networked system thus assumes a pivotal role in the organization and utilization of the network. After exploring the importance of information through the removal of it, the question is asked, how could additional information be embedded within the freeway system to enhance its performance, or to provide additional security or reassurances to its users?
With the importance of systemic information realized, various formal methods of adding additional information are explored.
Besides adding additional input into the system, formal investigations are made to attempt to integrate the structure of the freeway with that of the surrounding landscape. The traditional urban fabric represents a structure of intersection and interaction, street corners and stoplights. How is this formally related to the smooth, contiguous organization of the freeway? These diagrams explore the transformation from a language of intersection to a language of tangency and bypass, and how additive elements may be located in each.
The ground underneath freeway interchanges is rarely utilized in any effective manner. Left empty, it misses any opportunity to engage the system with the surrounding urban context, creating instead a void over which the traffic passes unencumbered by any association with adjacent entities. The following drawings attempt to find formal opportunities to fill this space, and to perhaps graft the monumental scale of the skyline within, perhaps allowing the freeway to not only build a new sense of civic place, but also a civic identity, organized along the principles of network theories.
The following diagrams are concerned less with the actual spaces of the freeway network, but rather the virtual edifice put forth to the metropolis. Attempting to displace concrete monumentality with a diffuse accumulation of images that aggregate to form a unified vision, these proposals work in a similar manner as anamorphoses, visual constructions dependent on particular moments of perception to create apparitions otherwise not perceivable; in other words, to create visual myths.
The following images are initial design responses to the investigations carried out above. Not programmatic in nature, they are attempts to formalize the concepts of place-making, accumulation and aggregation, and the networked organizational structure of the freeway system. Built upon the existing structures and typologies of the system, these sketches attempt to extend the conventionality of the network, providing a palette onto which new programmatic conceptions and identities may be grafted. They attempt to realize that the freeway system is networked not only in its programmatic organization, but in its concrete physicality as well.
Based on the analysis of Cold War security myths, network theories of organization, and the context of the Houston freeway system, new and contemporary myths of security are proposed as a timely response to the transformation of threats faced by modern society. Four mythologies have been defined and designed: the Emergency Services Myth, providing a visual model of disaster response equipment, the Drive-Up Services Myth, grafting commercial sensibility and assurances into the freeway system, the Embedded Information Myth, providing responsive feedback data to users of the freeway system, and finally the Distributed Representation Myth, networking civic governmental institutions themselves within the freeway system.
The Emergency Services Myth provides the vehicles and equipment needed to fight new, indeterminate threats, such as decontamination equipment and advanced fire-fighting equipment. Ostensibly these vehicles would not see heavy utilization, so they are located sparsely along the freeway network, feeding into existing HOV lanes. This allows rapid access to traffic lanes with minimal congestion, providing quick transportation to any point in the city. The vehicle shed is created by lifting the surface of the freeway, utilizing a wave-shaped steel meshed structure, allowing visual transparency to the vehicles stored within. This visual access provides an additional layer of visibility and reassurance. A communications post further marks the site.
THE HOV/EVT LANE NETWORK, PROVIDING RAPID AND CONVENIENCE-PROVIDING ACCESS TO THE ENTIRE CITY

- Existing HOV Lane
- Expansion HOV Lane
- Access Point to Surface Streets
- Emergency Service Point
The ground underneath freeway interchanges is put to use rarely. This Drive-Up Distribution Myth locates driveup services within this space. The primary function is to act as a floogate for traffic, pulling excess loads off the system during peak hours. For instance, during rush hour traffic a motorist may decide to stop for a cup of coffee, or to pick up a prescription she had filed online earlier. The facility would also feature a city government services window, which would offer civic transactions at a drive-thru pace, associating civic identity within the freeway system. Functioning similar to an airport, the city would build the facility then lease out lanes, like gates at an airport, to various vendors. The gates could be requisitioned in an emergency, say for vaccine distribution. The remnant areas surround the facility could also be used as emergency staging areas, easily accessible from the freeway system.
Overhead signage located one mile before drive-up service exits indicates vendors present at the locations, as well as an estimated wait time, aiding motorists in decision making.
Drive-up services are located in the space directly underneath the freeway, nestled between freeway support piers. The drive-up structure entwines with the freeway structure, physically embedding the program within the framework of the freeway system.
The Embedded Information Myth locates real-time information within the structure of the freeway to give motorists accurate and ample information to help make routing decisions. By instilling traffic information into the system, individual drivers may take measures to avoid congested areas, helping to distribute traffic equally across the system and eliminate traffic choke points. Aided with this knowledge, motorists are 'in-control' of their trip, and feel the security and comfort of knowing the state of the system at any given time. In the event of an emergency, the system additionally allows for informed evacuation and relocation. Below, intelligent freeway signage adapts to changing traffic volumes throughout the day, allowing for optimal route selection at 'points of choice,' freeway interchanges. Yellow and red indicate heavy traffic on the signified routes, and green is the universal symbol for fluidity.
In an attempt to facilitate mobility along the freeway network, this proposal creates a series of real-time traffic monitors to be located along major arteries just prior to interchanges with other freeways. By providing current traffic conditions, the system allows drivers to make informed and efficient routing decisions. Additionally, signage surfaces become adaptive to traffic conditions, changing hue to reflect current traffic loads. Both systems allow drivers to make ‘step-by-step’ decisions to reach their final destinations. The premise that drivers will go out of their way to avoid traffic ensures that the freeway system as a whole becomes self-regulating and self-balancing, minimizing, to a point, traffic bottlenecks. Even if traffic accumulation is not avoided, the knowledge of the traffic landscape in itself becomes a reassurance to motorists, keeping them up-to-date.
As motorists respond to information on the traffic monitors, individual routes are adjusted to avoid congested segments of the network, creating a smoother and diversified flow across the entire system. This diagram illustrates how four different drivers may adjust their routes to get from the same starting point (red dot) various destination points (green dots.) In good traffic, all routes utilize the same freeway leg, however, if congestion becomes an issue on this particular leg, LCD monitors would alert motorists, allowing them to choose alternate paths to their final destination, distributing traffic more equally over the entire freeway system.
LCD monitors provide an instant visual overview of the entire freeway network, enabling motorists to adjust routing as required to avoid congestion, equalizing the system.
The city of Houston is currently divided into representative districts, with elected officials representing these areas in City Hall downtown. This centralized system not only physically locates representatives in the center of the city, but also symbolically locates the power of the city government in a commercially-saturated, centralized location. The Distributed Representation Myth re-distributes the elected representatives from City Hall into the actual geographic areas they represent, spreading the sphere of government power equally across the city. Grafting onto the existing distribution system of the freeway, elected officials are located in new facilities located within freeway interchanges. The increased visibility of the facilities, coupled with the bureaucratic de-centralization creates a porosity in the city government, strengthening the system both physically and metaphorically. As indicated previously in the network theory diagrams, this organizational system better responds to current social and political reality.
The central organizing structure is replaced with a diffuse network covering the entire city. City representatives are housed in facilities grounded in freeway interchanges located in the geographic areas that they represent. The At-Large council members roam the city along the freeway system, stopping off at various interchange facilities as required.

The current, centralized governmental organization.

Proposed de-centralized organizational diagram.
The relocation of elected officials from City Hall into a diffuse network allows for the actual building of City Hall to transform into the purely symbolic. The destruction of the building would not represent the destruction of the system.
DISTRIBUTED REPRESENTATION MYTH

The distribution allows for new reading of civic government to emerge. Here the city charter is expanded, creating a new porosity and allowing for the creation/insertion of new ideologies and adjacencies.
Since the security of civic government is now located within the organizational, diffuse structure, traditional building security elements may be dispensed with. The representation facilities may become as open and transparent as required. The increased permeability and exposure allows for greater interaction between the public and their elected officials. Located within the heavily travelled freeway corridors, the facilities became engrained within the everyday fabric of the city, metaphorically, and perhaps actually increasing participation within government.
The structure of the facility is intertwined within the structure of the freeway interchange. Where separation occurs, the independent structure is still derived from freeway typologies. The program of the facility becomes unified with the structure of the networked infrastructure, the freeway system, in a manner that welds the identity of the representative government system with that of the metropolitan utilitarian structure, engraining it in the everyday life and usage of the citizen.


