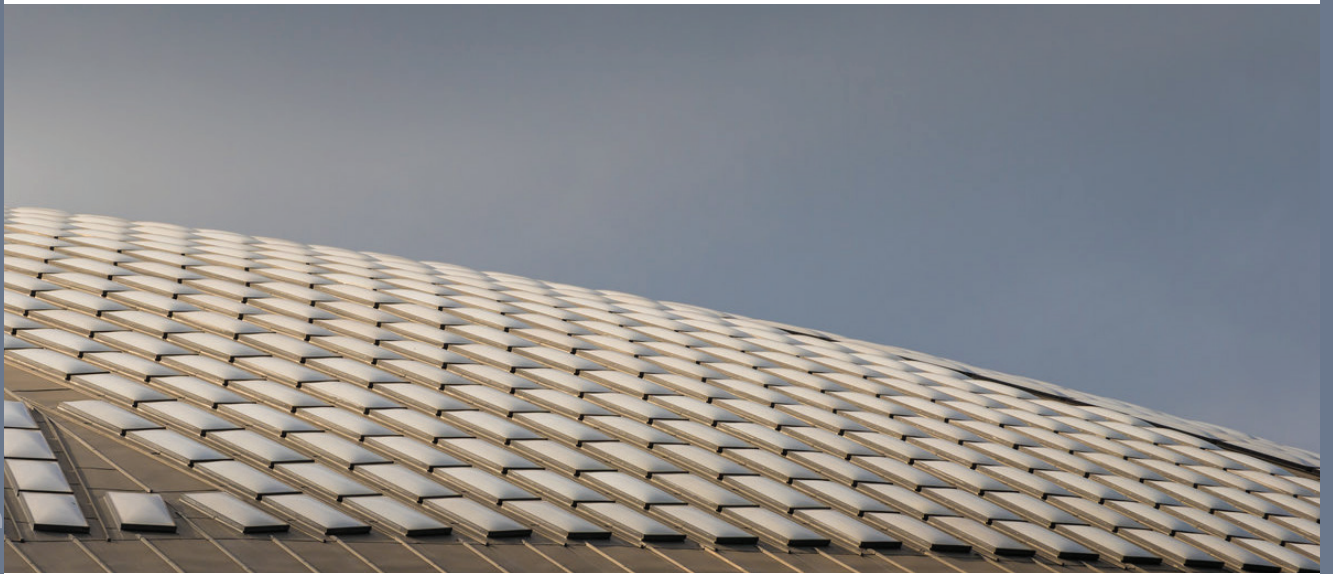


Houston Astrodome Harris County, Texas

December 15–19, 2014



The Astrodome Harris County, Texas

A Vision for a Repurposed Icon

December 15–19, 2014

About the Urban Land Institute

THE MISSION OF THE URBAN LAND INSTITUTE is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. ULI is committed to

- Bringing together leaders from across the fields of real estate and land use policy to exchange best practices and serve community needs;
- Fostering collaboration within and beyond ULI's membership through mentoring, dialogue, and problem solving;
- Exploring issues of urbanization, conservation, regeneration, land use, capital formation, and sustainable development;
- Advancing land use policies and design practices that respect the uniqueness of both the built and natural environments;
- Sharing knowledge through education, applied research, publishing, and electronic media; and

- Sustaining a diverse global network of local practice and advisory efforts that address current and future challenges.

Established in 1936, the Institute today has more than 34,000 members worldwide, representing the entire spectrum of the land use and development disciplines. ULI relies heavily on the experience of its members. It is through member involvement and information resources that ULI has been able to set standards of excellence in development practice. The Institute has long been recognized as one of the world's most respected and widely quoted sources of objective information on urban planning, growth, and development.

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About ULI Advisory Services

THE GOAL OF THE ULI ADVISORY SERVICES program is to bring the finest expertise in the real estate field to bear on complex land use planning and development projects, programs, and policies. Since 1947, this program has assembled well over 400 ULI-member teams to help sponsors find creative, practical solutions for issues such as downtown redevelopment, land management strategies, evaluation of development potential, growth management, community revitalization, brownfield redevelopment, military base reuse, provision of low-cost and affordable housing, and asset management strategies, among other matters. A wide variety of public, private, and nonprofit organizations have contracted for ULI's advisory services.

Each panel team is composed of highly qualified professionals who volunteer their time to ULI. They are chosen for their knowledge of the panel topic and screened to ensure their objectivity. ULI's interdisciplinary panel teams provide a holistic look at development problems. A respected ULI member who has previous panel experience chairs each panel.

The agenda for a five-day panel assignment is intensive. It includes an in-depth briefing day composed of a tour of the site and meetings with sponsor representatives; a day of hour-long interviews of typically 70 to 100 key community representatives; and two days of formulating recommendations. Long nights of discussion precede the panel's conclusions. On the final day on site, the panel makes an oral presentation of its findings and conclusions to the sponsor. A written report is prepared and published.

Because the sponsoring entities are responsible for significant preparation before the panel's visit, including sending extensive briefing materials to each member and arranging for the panel to meet with key local community members and stakeholders in the project under consideration, participants in ULI's five-day panel assignments are

able to make accurate assessments of a sponsor's issues and to provide recommendations in a compressed amount of time.

A major strength of the program is ULI's unique ability to draw on the knowledge and expertise of its members, including land developers and owners, public officials, academics, representatives of financial institutions, and others. In fulfillment of the mission of the Urban Land Institute, this Advisory Services panel report is intended to provide objective advice that will promote the responsible use of land to enhance the environment.

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Acknowledgments

ON BEHALF OF THE URBAN LAND INSTITUTE, the panel thanks the sponsors the Harris County Sports and Convention Corporation and the National Trust for Historic Preservation for their invitation to address questions regarding the future of the Astrodome as an indoor park. The panel is honored to have been given a rare opportunity to participate in such a monumental undertaking. In addition, the panel would like to extend its sincerest thanks to the community: from the Houstonians who offered their

ideas, experiences, and input in writing to the more than 75 persons who volunteered their time for interviews. Without such commitment, many of the ideas proposed in this report would not have been possible. As such, the panel thanks them all for their contributions and compliments their collective enthusiasm.

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Background and the Panel's Assignment

THE WORLD'S FIRST MULTIPURPOSE, domed sports stadium, once nicknamed the Eighth Wonder of the World, the Astrodome is a cultural icon and engineering marvel built in 1964. Its legacy extends far beyond its revolutionary structural design as the host to thousands of events from Major League Baseball (MLB) and the National Football League (NFL) to rodeo and live music performances.

Today, however, the Astrodome is a shadow of its former self, and it is a future point of contention for the voters in the region who originally funded its construction. Over the years, the Astrodome has been subject to many proposals—from reuse and revitalization to redevelopment to demolition. Despite dozens of proposals for the Astrodome's reuse as well as previous calls for demolition, to date none has proved functionally or financially palatable. As recently as 2013, a bond referendum for redevelopment was narrowly defeated by voters. Today, the Astrodome lies vacant.



The Astrodome and the adjacent NRG Stadium.

Study Area

NRG Park—NRG Stadium, NRG Center, NRG Arena, and NRG Astrodome—spans 350 acres in the heart of Harris County and provides parking for up to 26,000 automobiles. The complex is located just north of Interstate 610's southern loop, with Kirby Street to the west and Fannin Street to the east, and near the terminus of the Houston light-rail line's southern terminus. To the north is the Texas Medical Center, the world's largest medical center and regional economic driver and employment center.



An aerial view of the Astrodome from the late 1980s.



Regional map.



The other buildings at NRG Park include, left to right: the NRG Arena, the NRG Center, and the NRG Stadium.

The Houston metropolitan area is blessed with substantial resources, both human and financial. It is a city with a deeply committed citizenry, known for having both grand ambitions and grand achievements. One can see some of those ambitions and achievements at NRG Park, home to the NFL's Texans, the Offshore Technology Conference (OTC), and the truly remarkable Houston Livestock Show and Rodeo (HLSR).

The Panel's Assignment

At the invitation of Harris County in cooperation with the National Trust for Historic Preservation, a ULI panel was convened to provide strategic advice regarding the reuse of the Astrodome. As noted, the Astrodome was the standard bearer for future domed stadiums, but it has been vacant since 2008. The Harris County Sports and Convention Corporation (HCSCC) asked the panel how the Astrodome could be used as a public park space.

The panel quickly realized that the historic value of the site made retaining the Astrodome structure essential. Also clear was that any reuse of the structure needed to consider the impact on the two primary tenants of NRG Park, the NFL Houston Texans and the HLSR.

Each of the ten experts from around the country who volunteered his or her time for this panel brought a particular point of view that provides a wide range of expertise. The Advisory Services team included a developer, a historic preservation architect, a senior land economist, the vice president of a global entertainment group, an experienced market analyst, a landscape architect, a public administra-

tor, an urban designer, a planning consultant, and a ULI senior resident fellow for urban development.

The panel members spent two days deliberating, framing the issue, and writing their report. A summary of the panel's overarching recommendations was presented to the public at the end of the week's visit, before release of this report. The vision suggested by the panel is a grand civic space that enhances the entire NRG Park complex.

Summary of Recommendations

The panel proposed the following specific recommendations for creating a grand civic space that best complements NRG Park's current and future needs, as well as those of the surrounding community:

- Recognize the Astrodome's history and create a new vision that rehabilitates the dome and the surrounding portions of NRG Park.
- Redevelop the Astrodome as a multiuse facility.
- Develop 1,500 additional parking spaces in the lower levels of the Astrodome.
- Create a new ground floor in the Astrodome interior that can accommodate a variety of uses, including a park.
- Create a new outdoor public space or live oak allée as a promenade between the light-rail station and the east entrance to the Astrodome.
- Construct permanent outdoor covered pavilions along the allée.

- Enhance the outside of the Astrodome with hardscape and landscape features.
- Reuse the various floors of the Astrodome for a variety of programmable space, such as new space to extend the game-day experience for the Houston Texans, new spaces for the HLSR, and added space for the OTC.
- Use these programmable spaces for activities such as community festivals, farmers markets, movie nights, charity events, and private events that will create new revenue streams.
- Identify and tap into a series of sources for new capital and operational funds.
- Create a new leadership initiative to unite vision with action. The panel recommends a new organizational structure that would allow the panel's recommendations to be implemented.

The remainder of this report elaborates on these primary recommendations.

The Vision

THE PANEL'S VISION FOR THE FUTURE of the Astrodome rests on a single idea—the panel concluded that the Astrodome can and should live on. The success of such a vision, ultimately adopted and shaped by the NRG complex's many stakeholders, however, is contingent on the same bold, creative, and determined leadership that created the Astrodome 50 years ago. Without such leadership, plans to repurpose the dome to the highest and best use will prove futile. The panel feels strongly that the Astrodome can serve all of Harris County and beyond, be the scene of many more historic moments, and provide a home to many activities that will enhance the quality of life for Houstonians.

Future as a Living Public Park and Grand Civic Space

When considering the Astrodome's role in the broader context of NRG Park and the region, the panel determined its best use is that of a multiuse park. Moreover, based on historical and financial considerations, the future of the structure warrants incorporating the existing dome into the physical design of the entire park. The concept proposed by the panel aims to serve NRG Park's existing tenants and accommodate a wide variety of public uses. The panel firmly believes this concept has great potential. The panel hopes all stakeholders will share its enthusiasm for creating a bright future for the Astrodome by developing

a grand civic space that communicates the can-do spirit of Texas, Harris County, and Houston to the world with a one-of-a-kind, publicly accessible cultural and recreational destination for residents and visitors alike.

Conceptual Ideas and Potential Uses

The panel is very grateful to the many stakeholders—private citizens, public officials, corporate and community leaders—who shared not only their big ideas for the Astrodome's future but also their personal memories of the Astrodome's past. There is truly a wealth of history and community experiences to draw upon as Harris County and the surrounding community look forward to a repurposed future for this important architectural and technological icon. As the Astrodome's future begins to take shape, many opportunities will present themselves. Key among them are the following themes.

Honor the Special History of the Astrodome

A museum celebrating the unique history of the Astrodome as the world's first multipurpose, domed sports stadium could serve as a symbol of the can-do spirit and technological innovation that Houston and Harris County are known for the world over. Interpretive exhibits focusing on Houston's key industries—space exploration, oil and gas technology, and medical research—could feature both permanent collections and traveling exhibits. Educational

The Astrodome under construction in 1963—Judge Roy Hofheinz, pictured here, was the driving force behind the domed-stadium concept.



programs focused on STEAM—science, technology, engineering, the arts, and math—could round out museum offerings, enhancing local school curricula and learning opportunities for the region’s youth.

The many historical events that took place in the Astrodome could also be celebrated. They include, but are certainly not limited to, Billy Jean King and Bobby Riggs’s “battle of the sexes” tennis match in 1973; Evel Knievel jumping 13 cars in 1971; Houston beating UCLA in collegiate basketball’s 1968 “Game of the Century”; and the Mets edging the Astros in a 16-inning game 7 showdown for the 1986 National League championship.

Recognize the Rodeo and the NFL Texans

Since its inception in 1932, the HLSR has made innumerable contributions to the culture of Houston and Harris County. Over the years, the rodeo has committed nearly \$375 million to scholarships, research, educational endowments, and agricultural research projects. With its more than 30,000 volunteers, representing every ZIP code in Harris County and donating many hours of service to the show every year, the HLSR is truly a community-wide event.



A museum honoring both this contribution and the HLSR itself could find a home at the repurposed Astrodome. The collection could include oral histories, tributes to the HLSR legends—both rodeo champions and volunteers—and professionally archived photographs and artifacts that preserve the history of this important event and recognize its contribution to the region’s culture and heritage.

The Houston Texans and previously the Houston Oilers made the Astrodome their home. NFL game days bring a huge influx of people and revenue to the Houston region. With a record crowd of more than 71,000, the Texans’ impact on local businesses is significant. A gallery and museum honoring the NFL contributions could include the history of the two teams, spotlight stars, and provide another venue to celebrate the same.

Celebrate Houston’s Diversity

The Houston metropolitan area is the most racially and ethnically diverse metropolitan area in the nation, surpassing even the New York metropolitan area. The region’s burgeoning racial and ethnic diversity represents an opportunity to illuminate how Houston can lead the nation in the transition to a fully inclusive, unified multiracial and multiethnic region. Modeled after the University of Pittsburgh’s Nationality Rooms, the repurposed Astrodome could house a series of rooms designed to represent the respective cultures of various ethnic groups represented in Houston’s richly diverse region.

Create a Great Civic Space

The Astrodome’s famed vast interior space—as one author called it, “the biggest room in the world”—can accommodate a variety of public space and civic experiences, some simultaneously, others on a seasonal, rotating basis.

These spaces include parks, gardens, and green spaces. The large interior space is well suited to offer a variety of parklike spaces featuring trees, gardens, and flowering plants. Agricultural uses could also accommodate suggestions ranging from partnering with the University of Houston’s aquaponics research lab to creating a center for sustainable farming. A wealth of potential partnerships can

be explored, including alliances with the Houston Botanic Garden, the Houston Arboretum and Nature Center, and many more local or regional organizations.

Houston and Harris County host many outdoor festivals celebrating everything from arts, music, and cultural events to beer and wine, food, and film festivals. The ample civic space at the Astrodome offers another location for festivals within this dynamic region.

Seasonal programs and celebrations can also be hosted by the repurposed Astrodome—giving residents and visitors multiple reasons for repeat visits.

In addition to offering a variety of park experiences and events, the Astrodome could offer more active recreational pursuits. Activities could include indoor rock climbing, zip lines, mountain-biking trails, and exercise trails. Public facilities within the Astrodome could include a natatorium, a skate park, and an indoor track.

Activate NRG Park with a Variety of Uses and Users

Although demand may be tepid in the early years of the repurposed Astrodome, the panel recommends including some leasable commercial space within the structure. Such space should be flexible and could be used to attract target tenants, such as innovative medical technology firms working in partnership with the nearby Texas Medical Center or an incubator space for technology start-ups or filmmakers.

Create a Welcoming Public Realm

The critical park space between the METRORail and the Astrodome can serve as the formal entrance to the entire NRG Park. The panel has suggested a live oak-lined allée to focus visitors' eye-level vision up the slight grade toward the Astrodome and the background of the NRG Stadium. This promenade would create a pedestrian corridor emblematic of the region, with broad walks lined with live oak trees and edged by pavilions that provide shade and rain protection, surrounding the central lawn. The central park space will be a central lawn, flat in the center to allow

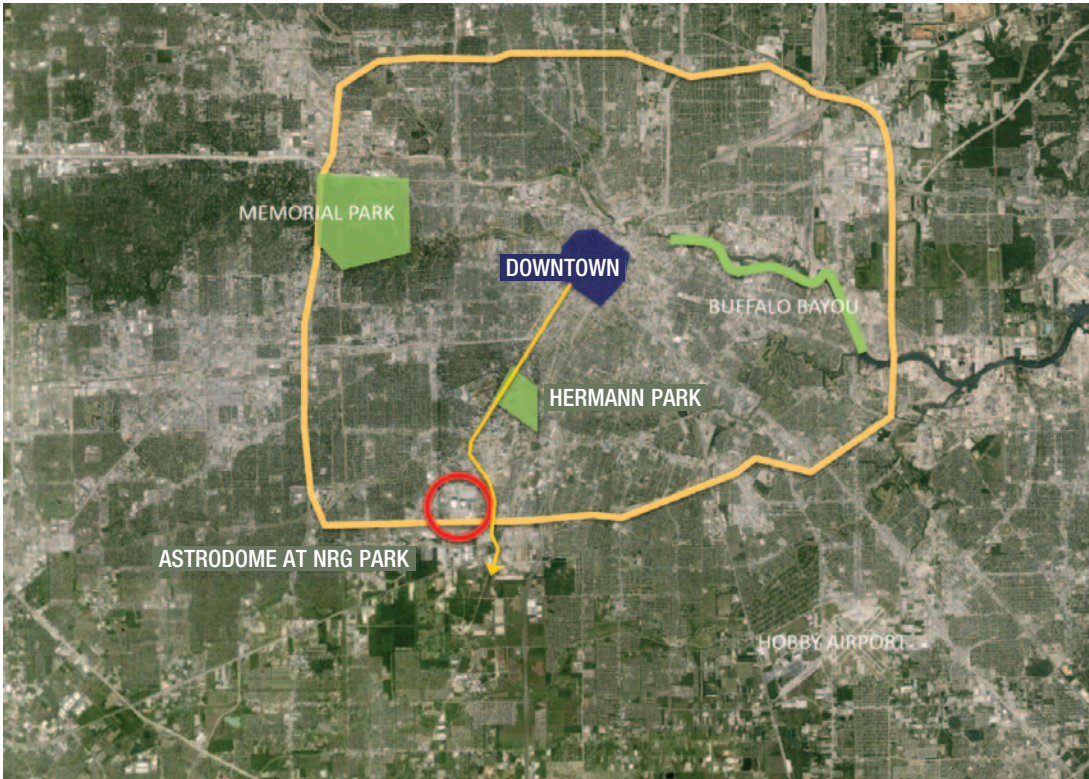
informal field sports and lined with gently rolling edges to allow seating and children's play.

Guiding Principles

Before embarking upon the monumental task of repurposing the Astrodome for public use as a programmable indoor park and grand civic space, the panel strongly recommends Harris County adopt a framework of guiding principles to ensure high-quality development that provides value to the NRG Park, its users, and the community. The repurposed Astrodome must be aesthetically and historically sensitive as well as functional and self-sustaining. The panel has outlined the following guiding principles as means to these ends.

A successful vision for the Astrodome rests on the following guiding principles:

- The Astrodome will remain and be rehabilitated.
- The Astrodome is a civic place, open to the community, the citizens of the county, and the city.
- The Astrodome is accessible and connected—by train, by bike, by car.
- The Astrodome's historic and architectural importance deserves respect (the exterior and the interior), but it should not be treated as a relic; rather, it should be enjoyed as an active, dynamic public space.
- The Astrodome is a regional destination for residents and visitors alike.
- The Astrodome is place to celebrate—arts, education, technology, innovation, and history.
- The Astrodome plays a significant functional role within the entire NRG Park.
- The Astrodome must be an asset to the current users, the Texans, the HLSR, and the OTC.



The Astrodome is located five miles southwest of downtown Houston.

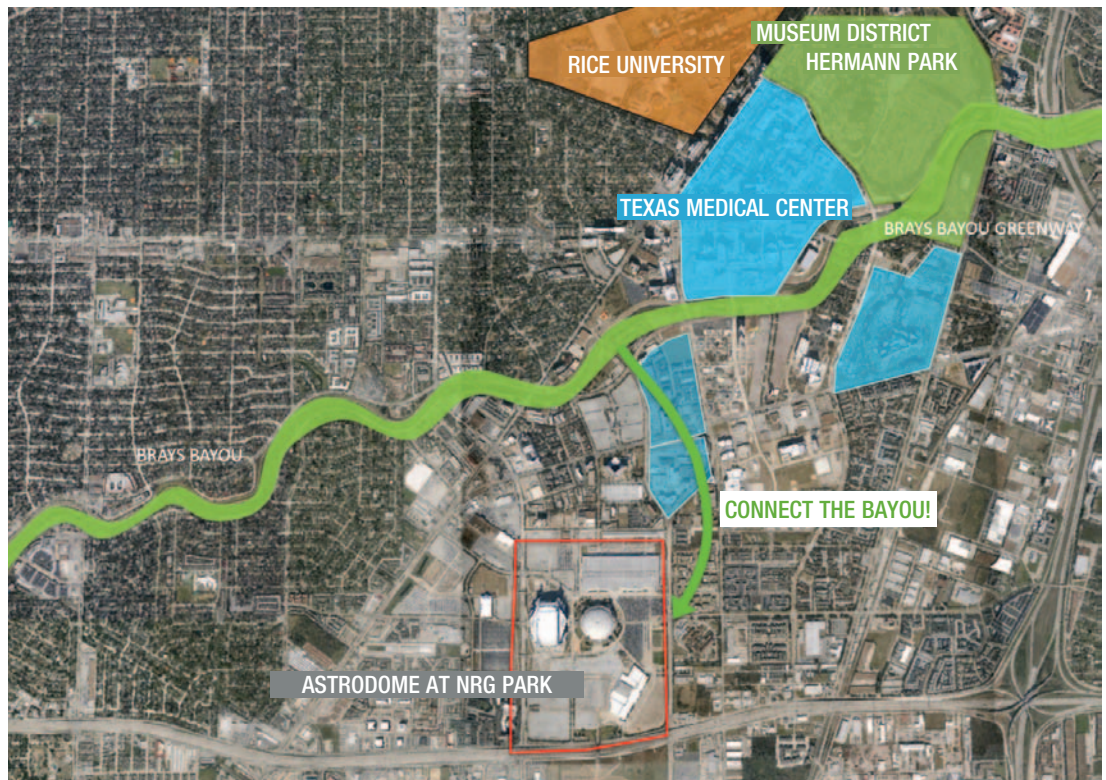
Design Principles

In addition to adopting a sound set of guiding principles, the panel strongly recommends Harris County adopt a complementary set of design principles. These design principles are crucial to transform the existing space into one that is woven seamlessly into the broader urban fabric in which it resides—one that will continue to change over time. It is important to look at the future of this quadrant of the city, create green space, and densify the edges over time. In this way, Astrodome revitalization is best thought of as a catalyst that will provide stakeholders beyond the NRG Park perimeter access to appropriate uses year-round. By way of design, a repurposed Astrodome will meet current and future needs of the NRG complex, its users, and its tenants.

The design principles outlined by the panel are as follows:

- Respect the Astrodome.
 - Give it space and stature within the park.
- Provide a sense of arrival and procession.
- Elevate its role in NRG Park.
- Celebrate the four primary architectural assets of the Astrodome:
 - The large-scale, singular space;
 - The domed roof with daylight;
 - The mesh wrap; and
 - Access to the experience on the upper tiers.
- Make it green.
 - Plant the live oak promenade with a lawn for play, interactive water jets, and pavilions.
 - Create a green bowl.
 - Create an indoor adventure park.
 - Use landscape materials of the Gulf coastal plains.

- Use solar power and other alternative forms of energy where possible.
- Make it energy efficient and forward thinking.
 - Largely open air, with circulation and conditioned places within.
- Bring it alive throughout the day and throughout the year.
 - Program events.
 - Create flexibility.
 - Use lighting at night.



The district context of NRG Park and the Astrodome includes the Texas Medical Center, Rice University, and the Museum District.

Development Program and Design

BUILDING THE ASTRODOME was an exercise of innovation—and audacity. Built in a time of prosperity and nearly limitless optimism, this structure came to symbolize the innovative spirit of Houston and Harris County. It is big, it was first, and building it took some chances.

True to its Houston and Harris County roots, the Astrodome came to be because a group of visionary Texans decide it should, then just went ahead and did it. As such, the Astrodome transcends architectural, engineering, and historic significance.

It is a landmark for audacity. The idea of a bold, new civic space that celebrates this ethos continues the audacity. The panel proposes the following structural and physical changes in and around the existing structure to accommodate the previously mentioned opportunities:

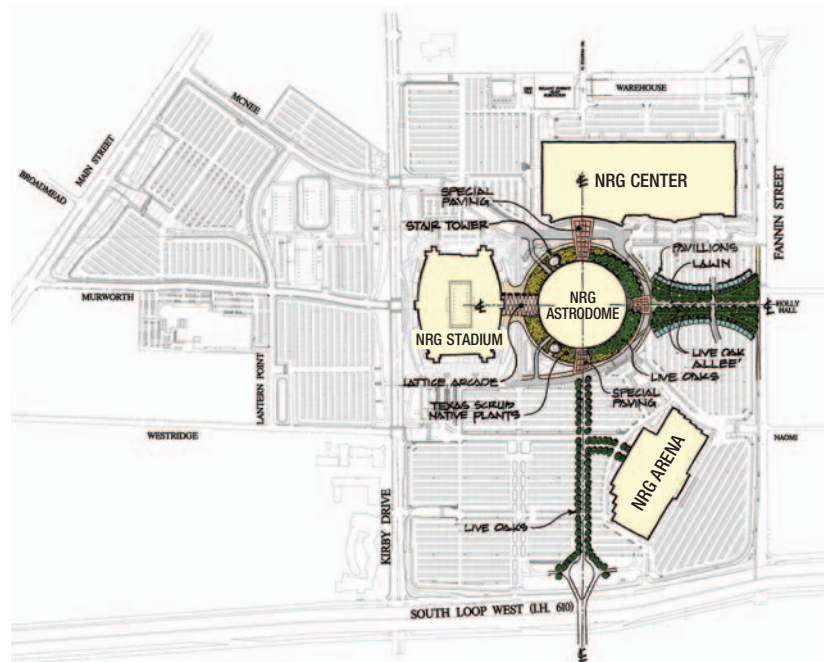
- Renovate (make it hospitable, occupiable, and exciting).
- Create new outdoor space (adjacent to pavilions).
- Incorporate new parking underneath (1,500 new spaces on levels 1 and 2).
- Add a new ground-floor park and event space inside the dome (level 3).
- Build new outdoor pavilions space along the allée.
- Create other event space inside the dome.
- Create other exhibition space inside the dome.

Site and Approach

The Astrodome must serve as the nexus of the experience. This can be achieved by incorporating the following design elements:

- The Astrodome's central approach—from the METRO-Rail stop and surrounding parking areas—will be framed by a live oak allée that subtly rises as it approaches the main entry.
- The Astrodome entry will be above the current grade (because the pit will be filled in with a two-level parking deck), allowing the dome to receive visitors, facilitating a “procession” through the dome itself, and easing circulation to other facilities on site, such as the NRG Stadium and the NRG Center.
- This logical entry and procession elevates the Astrodome. It becomes the “nexus of the NRG Park experience”; it provides the central entry point to the park and a sense of order and hierarchy that creates a more legible visitor experience.
- At the base of the Astrodome, tent areas and locations for vendor trucks will be provided.

Improvements to NRG Park should include a live oak allée lined with covered pavilions and robust landscaping to enhance the visitor experience. This conceptual approach to NRG Park improvements includes logical connections between the Astrodome and the other buildings and parking areas on the site.





A conceptual design for the grand entrance to the Astrodome from the METRORail stop.

Architecture: The Building Shell

The Astrodome is to be rehabilitated and returned to its original design intent. Skylights will be rehabilitated with energy-efficient yet clear material—either Lucite or glass. Shading devices that were added to the roof over time will be removed. A ventilation cap will be added at the roof's crown.

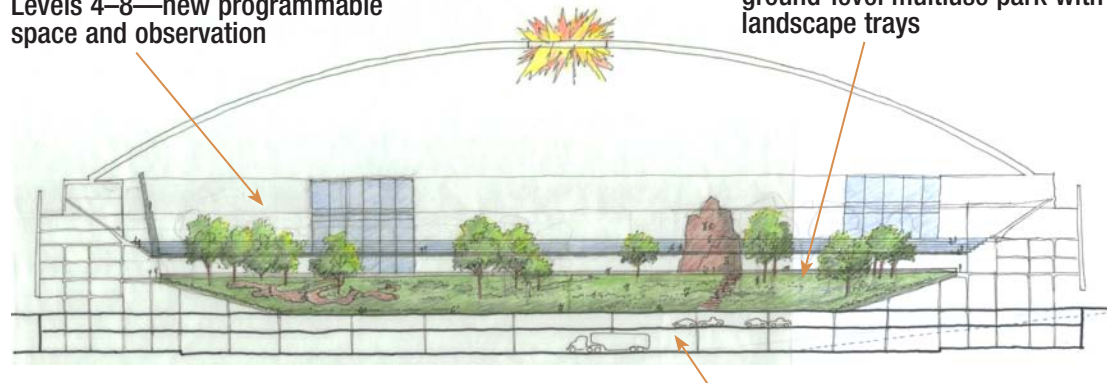
- The existing dome will remain. Skylights will be rehabilitated. The cap will be ventilated. Ceiling fans will be added. Shading devices in the dome will be removed.
- Some seating trays will be removed to open up the interior volume at the lowest level. The first tray above the floor plate will be for landscape material—trees, shrubs, and some seating. Some upper trays will be for specific

uses—pods (e.g., Astrodome history pod). The top trays will be kept as seating.

- A parking garage will be located in the base of the dome—two levels comprising 1,500 parking spaces, expanding to 2,000 spaces. Part of the lower level can be used for stables, truck and trailer storage.
- The interior of the auditorium area is unconditioned. Pods are conditioned.
- The perimeter of the building will be commercial use. Separate cores (stairs, elevators) will be provided for each zone.
- The base of the building (from exterior) will be glass. This area will serve as an entry for commercial uses above. It could also serve as permanent retail or pop-up retail on game day.
- Existing precast perforated screens will be retained, cleaned, and reused. Nonperforated screens will be removed and replaced with perforated screens. Vertical precast columns (exterior, decorative) will be retained, cleaned, and reused.
- Additions from the 1980s—including the curtain wall and glass shafts—will be removed and returned to original configuration and design intent.
- The power transformer at the entry on the Astrodome's east side will be relocated, reconfigured, and put underground where possible.

Levels 4–8—new programmable space and observation

Level 3 and seating trays—new ground-level multiuse park with landscape trays



Levels 1 and 2—new parking with lower level allowing height clearance of 20 feet

A conceptual design for the redevelopment of the Astrodome includes the creation of parking on the first two levels and a new multifunctional "park" space on the third level. This grand civic space can be both shared by current tenants and open to new civic activities.

- Base building egress stairs and elevators will be added. Cores will be segregated by use.
- A covered canopy will link the Astrodome to the football stadium at grade, thereby completing the procession through the building.
- Celebration of arrival—the procession from the train or parking area to the event with the Astrodome serving as the nexus of experience.

Zones A and B

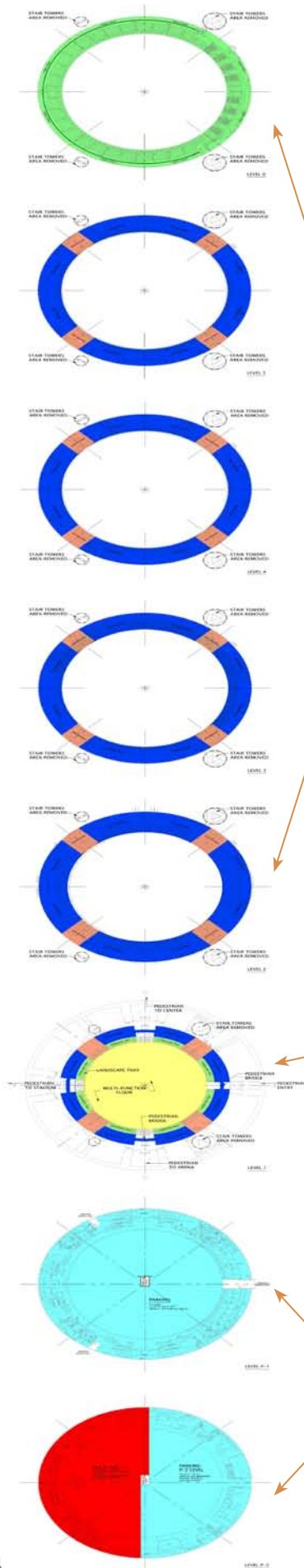
Because of its size, the Astrodome has been divided into two zones for analysis. Zone A consists of the auditorium volume with large column-free open area and seating under the dome. Zone B comprises the perimeter volume under the current seating and facing parking lots.

Zone A: The Auditorium Volume

This is the large column-free open area and seating under the dome. Within Zone A are currently seating trays for spectators, supporting approximately 65,000 people. The majority of the original seats have been removed. The panel's scheme proposes reducing or modifying these trays to increase the multifunctional capacity of the auditorium. A lower tray will be modified to create a landscape band, running horizontally around the auditorium. This band will include trees, shrubbery, and seating areas for pedestrians. Other trays will be used to accommodate activity pods, such as an Astrodome history pod and Harris County and Houston history pods.

This proposal envisions an unconditioned auditorium area. Air movement will be critical and will be assisted by the use of ceiling fans. Each pod will be conditioned with heating, ventilating, and air conditioning. Ventilation will be critical. Side walls will be opened up. Existing perforated vertical screens will be kept for reuse. Nonperforated screens will be replaced with perforated material. The dome cap will be modified to allow ventilation.

Pods will be scattered within the open auditorium space to serve as points of architectural expression and excitement.



Levels four through eight will provide as much as 450,000 square feet of leasable space in addition to observation decks. Some of this leasable space could be used for permanent exhibits such as galleries and museums as well as retail and office space.

Levels 4–8—new programmable space and observation

Level 3 and seating trays—new ground-level multiuse park with landscape trays

Levels 1 and 2—new parking with lower level allowing height clearance of 20 feet

Each pod will have its own architectural design, reflecting the entity it represents.

The Astrodome will serve as a multifunctional space in support of the sports venues on site. It serves as the axis of the pedestrian experience—the nexus of procession through the site—and celebrates what is best about Harris County and Houston.

Zone A: Parking Deck

This parking deck does not currently exist but can be added to a lower level of the Astrodome. The panel proposes adding a two-level parking garage in the lower level of the dome, bringing the activity level of the dome up approximately 30 feet and making it more conducive to serving as the nexus of the entry procession.

- Level 1—lowest level; floor-to-floor height minimum 20 feet: This level will be used to house livestock stalls and associated vehicles. A large freight elevator will be added linking this level with the main auditorium

floor and grade; approximately 500 parking spaces will also be added at this level to accommodate patrons. Staircases and pedestrian elevators will be added to support this use.

- Level 2—10-foot floor-to-floor height minimum: This level will be used specifically for automobile parking. Approximately 1,000 parking spaces will be added at this level. Egress stairs and pedestrian elevators will be added to support this use. As a parking garage, air will need to be introduced; ventilation will be critical.

Zone B: The Perimeter Volume

Zone B is the area on the perimeter of the Astrodome and under current seating trays.

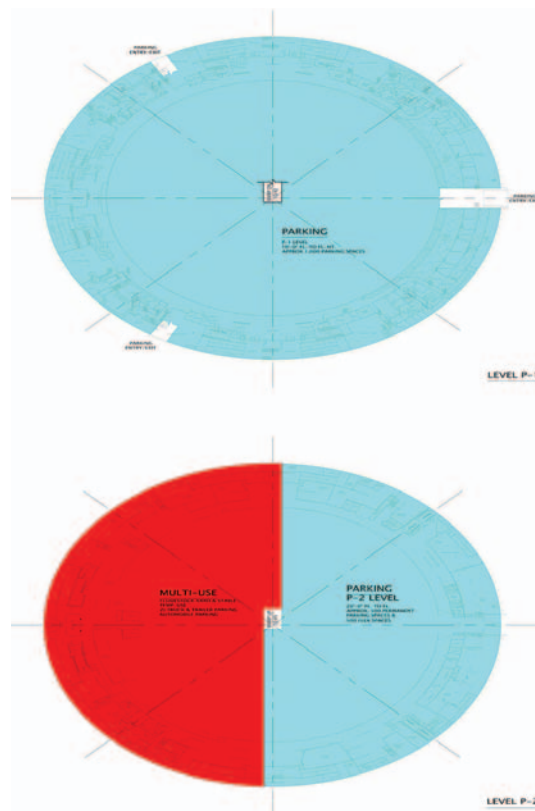
Approximately 450,000 square feet of leasable space can be provided within the perimeter of the Astrodome. This commercial area will be conditioned and could accommodate a variety of institutional and commercial tenants.

Exterior glass walls will be added behind the existing perforated screens on the perimeter. Interior glass walls will be added where possible to allow views to the interior auditorium space.

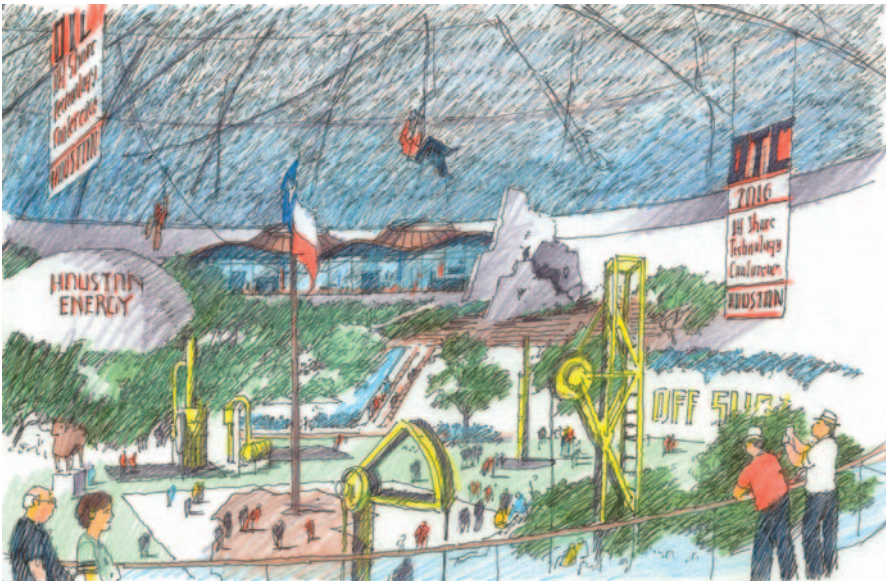
Stairs and elevators serving the perimeter commercial areas will be added and will be segregated from the public access areas. Stairs and elevators serving commercial tenants will also extend to the parking area below.

The ground-floor spaces will face out into the interior of the Astrodome, with the potential for “outdoor seating” in the berm area.

Restaurants and retail shops on the first floor can be either permanent or pop-up and will enjoy front-row seats to central Astrodome activities. Retail shops for the rodeo, the NFL on game day, and the OTC could also be accommodated on this first level. Other potential tenants include a public library, medical laboratories, offices, an innovation center, and the University of Houston aquaponics laboratory (20,000–30,000 square feet).



Levels 1 and 2 provide an additional 1,500 parking spaces for use by the Texans and the Houston Livestock Show and Rodeo.



The opportunities and variety of potential uses for the multifunctional park space could include game-day experience for the NFL and exhibition space for the Livestock Show and Rodeo and the Offshore Technology Conference.

The Panel's Conceptual Approach to Cost

For more than ten years, various reuse options have been considered for the Astrodome. Many have included cost estimates. In a one-week effort, the panel cannot hope to undertake an analysis necessary to account for all planning, design, and construction costs for either the renovations of the dome or the associated improvements to the site. However, the 2012 *Reliant Park Master Plan Analysis* completed

by CSL International provides an excellent starting point for estimated costs. The CSL report includes assumptions derived from historical construction costs for work similar in scope. The ULI panel's development team reviewed this information and is comfortable that the cost estimates as shown in the accompanying table are generally reliable. Of course, the panel is also clear that once a general approach has been agreed upon, the county will need to undertake an extensive due diligence process to refine these costs.

Conceptual Construction Cost Estimate

Item	Site/parking	Retail/other AC space	Garage	Total
Allowance	—	—	—	—
Off-site utilities and site work	—	—	—	—
Site/demolition	\$18,450,350	—	—	\$18,450,350
Concrete	—	\$6,000,000	\$60,000,000	\$66,000,000
Masonry	—	\$3,125,000	\$2,060,000	\$5,185,000
Metals	—	\$4,097,000	\$350,000	\$4,447,000
Wood and plastics	—	\$55,000	\$15,000	\$70,000
Thermal and moisture protection	—	\$12,840,000	\$300,000	\$13,140,000
Doors and windows	—	\$43,325,000	—	\$43,325,000
Finishes	—	\$6,950,000	\$9,240,000	\$16,190,000
Specialties	—	—	—	—
Equipment	—	—	—	—
Furnishings	—	—	—	—
Special construction	—	—	\$545,000	\$545,000
Conveying systems	—	\$1,700,000	\$1,380,000	\$3,080,000
Sprinkler systems	—	\$1,250,000	\$1,800,000	\$3,050,000
Plumbing systems	—	\$4,000,000	\$2,100,000	\$6,100,000
HVAC systems	—	\$24,000,000	—	\$24,000,000
Electrical	—	\$4,500,000	\$6,000,000	\$10,500,000
Subtotal	\$18,450,350	\$111,842,000	\$83,790,000	\$214,082,350
General conditions	\$1,291,525	\$7,828,940	\$5,865,300	\$14,985,765
Fee	\$987,094	\$5,983,547	\$4,482,765	\$11,453,406
Bond	\$165,832	\$1,005,236	\$753,105	\$1,924,172
Total construction cost	\$20,894,800	\$126,659,723	\$94,891,170	\$242,445,692
Cost per square foot	\$42.79	\$253.32	\$79.08	

Development Strategy

THIS SECTION ELABORATES on the recommendations for the Astrodome's proposed new uses, expanded opportunities, and cost-saving possibilities that the plan produces. Although the county will take the lead on most of these actions, dedication to the redevelopment must include other entities that will benefit from these actions.

Organizational Actions

The panel recommends the following organizational strategies be adopted to realize the vision for a repurposed Astrodome:

- **Assign county organization/staff member.** Designate a “czar” to lead in bringing the project to fruition. Reporting directly to the county, this person must be granted the authority, through the county, to convene meetings, make decisions, hire consultants, and execute contracts. This assignment should occur immediately.
- **Dedicate additional staff resources.** Each entity involved in the existing fabric should have a definitive buy-in, giving it the ability to partner in the betterment of this historical and significant illustration of Texas's greatness. The following stakeholders should be included:
 - Harris County;
 - Harris County Sports and Convention Corporation;
 - National Trust for Historic Preservation;
 - City of Houston;
 - Houston Texans; and
 - Houston Livestock Show and Rodeo.
- **Identify and empower an NRG Park “champion.”** The champion could be one person who wants to take

the reins or a group that will do so. Possible champions include the following:

- Business leader;
- Not-for-profit organization; and
- Conservancy.

Master Plan Update

With the repurposing of the Astrodome in mind, the panel recommends the following strategies for the master plan update:

- **Hire an independent market consultant.**
- **Hire an independent design consultant with internationally recognized expertise in projects of this nature.**

The panel recommends that the county ensure a systematic approach for the engagement of these consultants, including completing due diligence and having all proposals reviewed by the county board. The goal of this process should be to create a credible approach that, in turn, creates community and stakeholder buy-in and support.

Review Process

The panel recommends establishing a community workshop process. The goal is to have a draft report developed by the selected design professional to distribute for stakeholder and possible public comment by the end of the first year. To achieve this goal and expedite the community workshop process effectively, the panel recommends the following actions:

- **Hold a public charrette.** Local concerned citizens must be included in the process.

- **Issue the consultant's report.** A first draft of the consultant's report and design should be completed and assessed so any comments can be reviewed and revised as necessary.
- **Take stock of the review process.** Working hand in hand with the National Trust for Historic Preservation is important. Flexibility in design and repurposing of the building are necessary to allow uses that create opportunities to tell the story of not just the Astrodome but also Texas, Harris County, and Houston as a whole.

Public Initiatives

After reviewing the current programs and budgets of the state, county, and city, the panel recommends an exploration of the resources available to pay to fund this development project. A number of avenues and sources of capital could be available:

- Federal, state, county, and city funds;
- Tax increment reinvestment zones (TIRZs);
- Historic tax credits;
- Harris County redevelopment; and
- Philanthropy.

Even involvement with various university and medical center initiatives may be a valuable source. Having a conversation at a minimum should be a part of the plan.

Catalyst Project

A catalyst project is important to kickstart the broader vision and ensure the project to repurpose the Astrodome is executed in an efficient and timely manner. Depending on the plan to be undertaken, these identified catalysts can occur within the second year:

- Entry promenade (live oak allée): The creation of an inviting entry into the park leading through the Astrodome is paramount. This should be done as

soon as possible to gain momentum in creating the overall feel and framework for the park.

- Parking lot softening: The parking lot needs some softening to create a more inviting experience for all attendees.
- Signage and wayfinding: Wayfinding signage needs to be more prominent throughout park.

Astrodome Repurpose

The panel recommends a thorough and completed plan that allows the HCSCC to break ground swiftly and effectively. This plan needs to be completed before the 2017 Super Bowl. The HCSCC should aim to have an initial ground-breaking ceremony so the site shows activity before the Super Bowl. The panel recommends the following actions targeted specifically around Super Bowl 2017:

- **Complete a plan.** This plan can be a mixture of a number of the uses and suggested by those within the community. The plan should be finalized by the second or third quarter of the second year so advertising can focus and visualize a definitive program as the Super Bowl nears.
- **Advertise during the Super Bowl.** The national spotlight will be on Texas, Harris County, and Houston. What better opportunity to showcase to the nation and world this historical monument and what will be done to create the celebration of the Astrodome's structure and history? Advertising will entice visitation to the state and create buzz for those who have forgotten about this phenomenal structure and its role in changing the way all sport and entertainment venues are created and used.
- **Create a fence screen.** If the condition of the property leading up to and during the Super Bowl is a concern, creative ways exist to show that Texas, Harris County, and Houston are serious and progressing toward completing an attraction that is to be experienced by all. Create a fence screen or full dome screen that creates a rendering of the finished dome.

Timeline and Phasing

This table provides a conceptual approach for completing the work program suggested by the panel.

	2015	2016	2017	2018	2020–2025
Organizational actions					
Assign county organization/staff member	X				
Identify/empower NRG Park “champion”	X				
Dedicate additional staff resources	X				
Master plan update					
Establish community workshop process:					
Hire independent market consultant	X	X			
Hire independent design consultant	X	X	X		
Involve concerned citizens	X	X			
Issue consultant’s report	X				
Review process					
Historical (expedite)	X				
Public initiatives					
Review:					
TIRZs	X				
Historic credits	X				
Harris County redevelopment	X				
Undertake catalyst projects					
Entry promenade	X	X			
Parking lot softening	X	X			
Core area parking	X	X			
Signage and wayfinding	X	X			
Astrodome repurpose					
Complete plan	X	X	X		
Advertise during Super Bowl		X	X		
Fence signage		X	X		
Break ground/construction			X	X	
Future public/private project opportunities					
Hotel development					X
Mixed-use development					X
Retail development					X

Capital and Operational Financing

THIS SECTION IDENTIFIES A NUMBER of revenue and financing possibilities. Houston is indeed blessed with many financing and funding opportunities. The program suggested by this panel will require funding from a variety of sources. From a capital perspective, the use of tax increment financing or TIRZ and a county bond issue will likely be required. From an operations perspective, the panel believes a combination of earned income, licensing and fees, and philanthropic sources could be tapped.

Capital Financing Options

The capital needed to revitalize the Astrodome and create the new gateway and site improvements will be a significant investment that should be shared by the county, the city, and private entities. The panel suggests the following approach, recognizing that as the planning and design are further refined, the proportions of capital from each source are likely to change. From the panel's preliminary modeling, the project appears feasible. Numerous partners and sources can finance this project, and the following sources should be pursued:

- The county's revenue from TIRZ24;
- The HOT tax funds from the county and city;
- Philanthropy;
- County bonds to meet the project costs, including deferred maintenance costs; and
- Other resources.

The past bond referendum did not provide enough detail about the redevelopment programs to the citizens, which from the panel's perspective was part of the reason the bond failed. The panel has proposed as a program including both the building renovations and the site improve-

ments that will help existing tenants and attract new users and participants.

From the project itself a variety of value can be achieved, including the following:

- Historic tax credits;
- New Market Tax Credits;
- Conversion tax credit;
- Federal energy funds; and
- State energy funds.

Operational Objectives

The success of these investments depends not just on an inspiring design and the funds to construct the facility, but also on a viable operating strategy that ensures the park remains a world-class destination for years to come. This strategy requires the development of a governance structure for the Astrodome and its surroundings; a tenancing and programming strategy that ensures an engaging, activated environment year-round; a sustainable financial plan that aligns with its governance structure and programming; and the creation of a reserve fund that protects the future of the Astrodome and greater NRG Park.

Governance and Stewardship Model

The panel considered a variety of structures for the financing and operations of the reinvented Astrodome, ranging from private models to fully public models. The panel believes that Houston should build on its precedents for success, where governmental and civic leadership have partnered in the creation and operation of its great civic spaces. Many of these efforts have included innovative approaches to revenue generation to support operations and

maintenance, ranging from earned income from programming to strong philanthropic campaigns. The implementation portion of this report goes into further detail regarding the “grand bargain” and the new management entity to ensure that the redevelopment is successful.

A Successful Urban Civic Space

Houston has a long list of successful urban civic spaces, from Discovery Green to Hermann Park. The operational structure of the new Astrodome would build upon the successful local models of partnership, engaging a variety of parties in the management entity (e.g., potential board members):

- Harris County and city governments and their respective component units;
- Large-scale institutional tenants of the Astrodome;
- Existing tenants of NRG Park, including the Texans and HLSR; and
- Civic, private sector, and community leaders.

A New Management Entity

To be successful, the governance structure must seek to align the greater economic development objectives of the city and the county beyond the Astrodome and boundaries of NRG Park, as well as align the interests of the institutional and commercial tenants within the facility and NRG Park. The panel therefore recommends the creation of a new independent entity to oversee the visioning, development, and operations of the new Astrodome and its environs. The new management entity would be responsible for the following:

- Creating a vision for the Astrodome and a business plan for its development and operations;
- Overseeing the tenancing of the facility with institutional and commercial tenants that complement the overall vision of the facility and respect the needs of the existing NRG Park tenants;
- Operating and maintaining the Astrodome facility, specifically its park interior and immediate surroundings,

primarily the landscaped promenade leading from the METRORail station to the Astrodome;

- Conceiving and executing an exciting programming strategy for use of the interior park and promenade to activate the property year-round, including innovative means to generate new earned income; and
- Coordinating with the HCSCC and its tenants in use of the Astrodome and promenade during event days, thereby respecting an important objective of the Astrodome to serve the greater sports and convention uses occurring at NRG Park.

Sustainable Financial Plan

The Astrodome financial plan would align with its governance structure, building on the public/private models set forth by Discovery Green and other successful Houston collaborative initiatives.

Operating Expenses

Operating expenses are expected to include conservancy staff salaries and benefits, common area maintenance activities for the facility and the promenade, utilities, and insurance. The specific costs of the institutional and commercial “pods” in the Astrodome are expected to be borne triple net by the tenants, potentially including some common area maintenance fees. The common areas in the Astrodome are open air, helping reduce operational costs.

Park precedents offer a range of operation and maintenance (O&M) fees. O&M costs can vary greatly, depending on the size of the park, its visitation, and the intensity and type of its programming. The following per acre O&M costs reflect an illustrative sample of signature urban parks:

- Brooklyn Bridge Park, New York City: \$460,000
- Yerba Buena Gardens, San Francisco: \$590,000
- Millennium Park, Chicago: \$676,000
- The High Line, New York City: \$1,300,000
- Bryant Park, New York City: \$1,600,000

The annual operating costs of the Astrodome and promenade would be highly dependent on the eventual buildout of the facility and adjacent landscaping, the re-creation of the vertical concourses in the building, and the type and intensity of programming. Using a preliminary estimate, the ULI panel would expect O&M costs in the range of Yerba Buena Gardens and Millennium Park, potentially increasing beyond that, should the plan and programming grow more ambitious, though likely well below that of Bryant Park or the High Line.

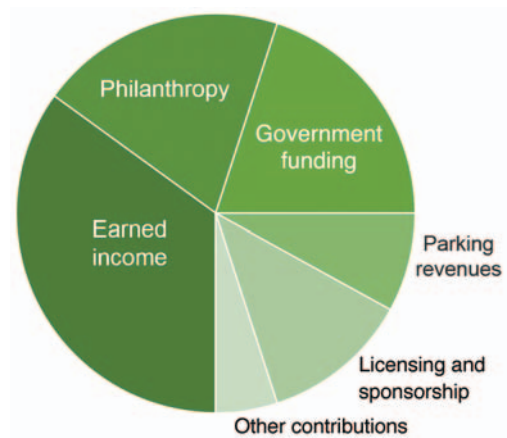
Operating Income

Successful urban parks have tapped a wide variety of public and private sources to fund operations. Like many signature parks, the Astrodome's success will hinge upon its ability to retain a variety of sources.

- Discovery Green provides a successful local model for operating funding. Of its approximately \$4.5 million annual budget, it derives revenue from the following sources (estimates approximate):
 - Earned income, primarily from restaurant: 25%
 - Philanthropic contributions: 25%
 - Sponsorship and licensing fees: 25%
 - City contributions: 25%
- The panel anticipates a similar model for the Astrodome, pulling from a variety of sources:
 - Earned income from use of the exhibition space for major events (e.g., OTC, HLSR), special event rentals, tenant rents, and program event fees;
 - Parking revenues from the parking at the base of the Astrodome, expected to bring a net increase of 1,500 spaces (2,500 total spaces less 500 displaced) in the availability of parking at the site and more proximate to the core NRG Park facilities;
 - Philanthropic contributions from major supporters and an Astrodome "friends" group;
 - Sponsorship funding from naming rights opportuni-

ties, event and installation sponsorship, and other marketing rights;

- NRG Park tenant contributions for the maintenance of the public grounds accessible to event patrons; and
- Government contributions from the county commensurate with investment in other public parks, to fill the remaining gap.



Leveraging Support from Stakeholders

In addition, opportunities may exist to leverage support from other stakeholders to improve the operations of the Astrodome and NRG Park. For example, the park could work in partnership with NRG to introduce renewable energy technologies to the campus to reduce overall utility costs that accrue to the county. Also, the city of Houston is seeking state approval for the development of a Business Improvement District that would improve and maintain the environs around NRG Park and the broader Main Street corridor.

The Teamwork of Financing

Harris County, and its principal city, Houston, is a strong, rich, and vibrant community. In 2013, the county sought a bond issue to cover all the costs associated with a still undetermined redevelopment of the Astrodome. The vote and approach failed. Therefore, the panel is recommending a different approach, financing and operating the new

Astrodome through a public/private partnership based on a clear vision. Houston has a robust tradition of public/private projects, like Buffalo Bayou and Discover Green, and county/city arrangements such as the soccer stadium and possibly a joint justice complex.

Today, the county has many competing and needed priorities, while the site has both tremendous history and tremendous potential. However, right now at NRG Park the sum of the parts is less than the whole, and everyone here knows that resources are not aligned with needs. The panel learned that the recent defeat of the bond issue was the result of not being clear on the vision while drawing too heavily on the county property tax alone to support the redevelopment of the Astrodome.

Philanthropy and the Business Community

In support of a vision for a new Astrodome, the county needs to partner with the city and the business community to share responsibilities and, most of all, the cost to achieve and maintain this vision. One material example is the need for greater support from hotel taxes generated by the NRG Center.

In addition, the existing financial relationships, laid out in agreements dating back nearly 20 years or more, need a full review to account for today's financial conditions and to assure each of the partners that the relationships are equitable and fair. These documents also need to prepare for a higher level of maintenance and operations, from the details such as including inflation factors for the replacement and reserve funds to the very division of responsibilities.

Given the timing of the upcoming Super Bowl and the experience of the BBVA Compass Stadium, the county must act quickly to partner and align the resources to meet the needs and respond to each partner's interests. For example, the city might, if convinced of a benefit to the city, join the county in TIRZ24, matching the county's property tax allocation with its own. In addition, the county should support the city's effort at the state legislature in Austin to create a management district.

The panel also believes that the HLSR and the Texans might, in return for deferred maintenance, additional protected parking, permanent pavilions, and all-weather exposition space under the Astrodome, be interested in improving and maintaining conditions at the Astrodome. In addition, as with Discovery Green, opportunities for leadership and support from the business and philanthropic communities from major supporters and friends of the Astrodome must be a first-tier priority. Reliance on a new bond issue should come only after costs have been apportioned to each of these other sources. The appeal to the voters for such bond funds should be made by the partnership based on a clear vision.

Investigate New Funding Options through Partnership

Although the panel believes a balanced public/private partnership will lie at the heart of a new Astrodome, the county should investigate and take advantage of the state and federal grant and tax credit programs that may be available, as outlined in the earlier section on Capital Financing Options. In doing so, the county should focus its efforts on those programs that offer the biggest financial payoff. At the same time, the county should partner with the Texans, the HLSR, the city, and others to ensure that any legal or corporate arrangements are entered into during the drafting of the partnership agreements rather than as amendments. Programs that require tremendous efforts for only a small percentage of the development costs should be identified and then sidestepped; efforts should focus on the higher payoffs (e.g., new market tax credits versus historic credits).

Shared Vision

If these actions are taken, then the county should not redevelop the Astrodome alone. The Astrodome is not merely an economic engine for the region but a shared icon, and the panel believes it should be treated exactly that way during its redevelopment and operation. The project the panel has laid out creates a new premier space, drives job creation and regional visitation, and sup-

ports neighborhood real estate investment. These goals can be achieved through the kind of partnership many in the Houston region have known and participated in. If all partners work together, the panel believes the needs of the key tenants, the board, the county, and the community at large can be achieved in time for Super Bowl kickoff.

Reserve Fund for the Future

A sound financial plan must also include a reserve and replacement fund. Separate funds should be created to care for each of the facilities within NRG Park, as well as its grounds. Finally, and as important as developing the new Astrodome, is maintaining all the facilities at the NRG Center. In simple terms, the current approach will not meet visitor expectations over the long term and needs to be revamped to accommodate not only the new Astrodome but also the existing NRG Center, Stadium, and Arena. First, all the existing financial agreements must be reviewed and updated. For example, the 1998 financing agreement for the stadium needs to be amended to allow for inflation and proper allocation of funds. Second, the current setup for replacement and reserve funds needs to be thoroughly reviewed and pertinent language revised to create dedicated funds for each structure. These funds should be prepared to replace 10 percent of the development costs per year and should be derived from the following sources:

- An event ticket surcharge;
- A parking ticket surcharge;
- The city's participation in TIRZ24, at set limits, apportioned to each fund and the site; and
- Amendment of the 1998 financing agreement to account for inflation and proper allocation of funds.

Implementation

REDEVELOPING THE ASTRODOME calls for a unity of governance and a level of collaboration that are critically important if the badly needed improvements to the Astrodome and NRG Park are to be realized soon.

The panel is honored to have been asked to work with the panel sponsor this week to suggest a plan for the transformation of the Astrodome, but frankly the panel is puzzled. In a city that is legendary for a can-do attitude, the panel wonders why the Astrodome has been allowed to deteriorate for years.

The panel reviewed the various plans that have been commissioned on reuse and talked with more than 80 people who have their own ideas of what to do with the building. Harris County is hot—not just the weather but the economy. The region's population is booming, significant development is taking place, and the Medical Center is growing. The Astrodome is the iconic building of Houston. It is an embarrassment now. It can represent not only the city's past but also its future. It is the place to tell the remarkable story of the city while at the same time showcasing its future.

The panel believes that the sponsor for the panel is at an intersection of a series of choices:

- To act rather than to procrastinate;
- To demand quality rather than settle for mediocrity;
- To be bold rather than timid;
- To create a common interest rather than simply protect self-interests; and
- To protect the status quo or to reach for the future.

The challenge is not one of ideas; rather the challenges are creating a common vision, entering into shared leadership,

and making a commitment to quality. It is about embracing change rather than protecting the status quo.

To align those interests, the panel calls for the creation of what it calls a “grand bargain.” Presently, the Astrodome creates no value for the Texans and the HLSR, and it is a liability for the Harris County. The grand bargain attempts to address the present and future interests of the parties with four elements:

- A common vision;
- Focused leadership and partnership;
- Insistence on quality; and
- Financing the dream.

A Common Vision

To reach a grand bargain, the interests of each party directly involved with the property need to be addressed. A common vision is created as the result of a partnership to enhance opportunities for the Texans and the HLSR as well as to provide a new, exciting civic experience for the citizens of Harris County in a transformed Astrodome within a well-designed environment.

Without this vision, the ability to sell future bond referendums and the ability of the many stakeholders to rally around a shared theme is compromised.

Focused Leadership and a Committed Partnership

Who can provide the leadership to bring the parties together, to forge a partnership around a common vision with a commitment and urgency to act? The panel believes that Harris County leadership must fill this role. The county

leadership needs to effectively lock representatives of the Texans, the HLSR, the city, and the HCSCC in a room with the task of developing a plan. When the door opens, the county needs to have formed a partnership.

The panel hopes all stakeholders will share its enthusiasm for creating a bright future for the Astrodome by developing a grand civic space that communicates the can-do spirit of Texas, Harris County, and Houston to the world with a one-of-a-kind, publicly accessible cultural and recreational destination for residents and visitors alike.

The revitalization of the Astrodome cannot be one of many responsibilities for a single organization. This task should be undertaken by an entity that focuses solely on the Astrodome. The panel recommends creation of new entity—a task force—with the sole focus of implementing the recommendations of this report. The panel suggests that prominent community leaders cochair this task force. The commitment and leadership inherent in such an entity

raises the transformation of the Astrodome to the prominence it deserves.

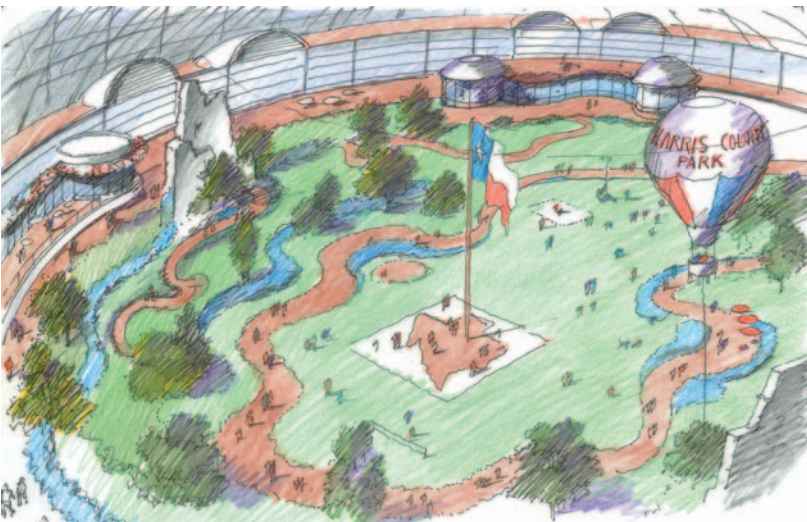
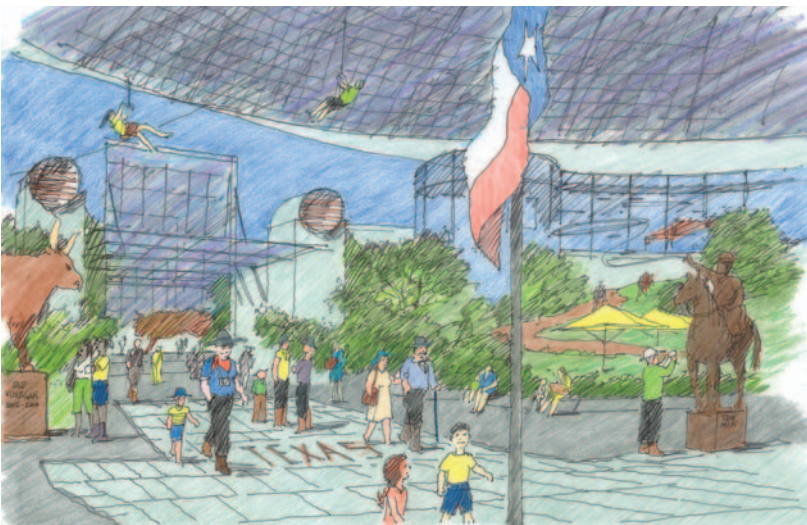
Insistence on High Quality

Buildings and public spaces all over Harris County and Houston have won awards for the quality of their design. The panel is surprised that Houston and Harris County have not been able to solve the problems with the Astrodome. Houston and Harris County are building new magical places along Buffalo Bayou, in Memorial Park, and in a host of other regional locations because of leadership and partnerships.

So why has the region let its most iconic building fall into such a state of disrepair and allowed the property surrounding it to be a wasteland without attractive landscaping or even an attractive entrance? This is one of those choices every city makes: “It’s the best we can do; it’s all we can afford; it is all we can agree on.” Houston is not a mediocre city. Insist on high quality. The panel has suggested some options to reach for. Clearly property has been developed from a transactional point of view over the years, with the Astrodome increasingly being marginalized. Stop approaching improvements to NRG Park from a transactional point of view.

Financing the Dream

Lack of funds is most often the reason given for good ideas remaining on the shelf; in fact, the problem is less about the lack of funds and more about the priority of the idea. This is the case with the Astrodome. The panel believes that there is a menu of funding sources, public and private, that can address the Astrodome’s revitalization, the future interests of the Texans and the HLSR, and the improvements of the surrounding property. The panel believes the property needs to be developed concurrently rather than consecutively because deciding who will go first and who will go last has the potential to paralyze the whole opportunity.



Conclusion

THIS REPORT OUTLINES A BASIC framework with which to transform the current Astrodome into a usable, functioning structure that can contribute to the overall park experience, whether that is during the rodeo, while at game day with the Texans, or during the Offshore Technology Conference. Further, the creation of a truly unique indoor park, accessible to all in the region, harkens to the early 1960s by providing an innovative, provocative approach to how public space is created and used.

In his recent book *The Astrodome: Building an American Spectacle*, architect and author James Gast wrote: “Led by a brilliant and colorful politician, this collection of architects, engineers, oilmen, scientists, and ballplayers created the Astrodome. What they built forever transformed the way baseball and other sports were played and viewed—for better and for worse. More importantly, theirs was a uniquely American achievement that reflected the place and extraordinary times in which it was constructed.” In the panel’s opinion, it is inconceivable that the Astrodome should not be the centerpiece of NRG Park.

It is the panel’s sincere hope that the leadership of the community can take these suggestions and begin the difficult but appropriate task of reestablishing the Astrodome as once again the eighth wonder of the world.



About the Panel

Wayne Ratkovich

Panel Chair

Los Angeles, California

Ratkovich is the founder and president/CEO of the Ratkovich Company (TRC), a Los Angeles development firm whose mission is to “profitably produce developments that improve the quality of urban life.” Specializing in urban infill and rehabilitation projects, TRC’s accomplishments range from large-scale urban planning and entitlement endeavors to retail, office, entertainment, and mixed-use projects. TRC engages in both new development and the imaginative reuse of existing buildings, including 18 buildings of historic landmark status.

Ratkovich has developed more than 15 million square feet of office, retail, entertainment, hotel, and residential properties. TRC is the developer of the Alhambra, a 45-acre and 1.2 million-square-foot urban community consisting of office, retail, and residential uses in Alhambra, California. TRC is also the developer of the prominent landmark, 5900 Wilshire, a 30-story, 491,000-square-foot office tower with panoramic views located directly across from the Los Angeles County Museum of Art in the Miracle Mile District of Los Angeles.

Currently under development is the firm’s Hercules Campus, consisting of 11 buildings originally built by Howard Hughes and the Hughes Aircraft Company. The Hercules Campus is now home to media, entertainment, and technology companies, including Google’s YouTube, Japanese game maker Konami, and the advertising firm 72 and Sunny. The company’s most recent project is the Bloc, a mixed-use project in downtown Los Angeles consisting of a 495-room Sheraton hotel, a 750,000-square-foot office building, 400,000 square feet of retail shops anchored by Macy’s, and 2,000 parking spaces.

TRC’s work has been recognized with awards by the city of Los Angeles; the Los Angeles Conservancy; the University of California, Los Angeles; the University of Southern California; and several civic organizations for its contributions to the real estate industry and the urban environment in Los Angeles.

In his 34 years as a member of ULI, Ratkovich, through its Advisory Services program, has chaired nine expert panels formed to tackle some of the country’s most difficult and now successful urban development challenges. Ratkovich is the recipient of the prestigious ULI Robert O’Donnell Award for outstanding contributions to its Advisory Services program.

Ratkovich was recently elected as a life trustee of the Urban Land Institute, one of 13 in the organization’s history. He is a governor of the Urban Land Foundation, has served on 11 committees, and chaired the national ULI Awards of Excellence jury on three occasions. For two years, he served as chair of ULI Los Angeles. Ratkovich is an emeritus trustee of the National Trust for Historic Preservation, having served on its board for nine years.

Amy Barrett

Charleston, South Carolina

Barrett’s background in urban planning and community development adds an important perspective to the Permar team. Because real estate development rarely occurs in a vacuum, Permar’s clients rely on her expertise in land use and development patterns to shape their real estate development and entitlement strategies.

Since joining Permar in 2005, Barrett has worked on a diverse range of large and small projects. From exploring ways to improve community life in new suburban neighbor-

hoods to understanding the target market for urban apartments in a retrofitted 1930s department store, she brings an appreciation of and respect for the built environment and the people who live in it to every aspect of her work.

Recently, Barrett was instrumental in evaluating private development potential for the redevelopment of Union Pier Terminal. Working closely with the interdisciplinary consultant team, she helped bring a market perspective to a highly iterative planning process, ensuring that, in addition to respecting the historic fabric of the city of Charleston, the resulting master plan optimized value for the client.

Before joining Permar, Barrett worked for Economics Research Associates (now AECOM). She also served as a U.S. Peace Corps volunteer in Central America; was a neighborhood planning consultant for Mary Means & Associates, a community planning firm; and was an adjunct professor at the Department of Urban Affairs and Planning at Virginia Tech.

Barrett has a BA in urban studies and political science from Furman University and a master of urban and environmental planning from the University of Virginia, where she specialized in community development and land use planning. She is also an active member of the Urban Land Institute.

Peter Hasselman

Orinda, California

Hasselman is an architect, urban designer, and perspectivist providing consulting services to clients across the United States. He began an unusual career after graduation from the University of Illinois and completion of military service: his first “client” was President Lyndon B. Johnson, for whom he designed the 1964 inaugural pavilion (by competition). Then as a designer with several leading firms, Hasselman was associated with such projects as the Pennsylvania Avenue master plan; the new town of Reston, Virginia; the Baltimore Interstate Highway system; and the rehabilitation of the Amtrak stations and the design of new maintenance facilities between Washington and Boston.

As a design principal, Hasselman designed numerous mixed-used, office, residential, industrial, and educational projects on both coasts. To organize his professional life around the areas of his particular expertise, he now provides consulting services in planning, architectural design, and presentation drawings. Representative consulting projects include the development of Ford Island, Pearl Harbor; urban developments in Australia and Malaysia; resorts in southeast Asia, the Caribbean, Mexico, Spain, and Japan; a state-of-the-art theme park in Dubai; development of Long Beach Harbor; numerous U.S. town centers; illustrating the future uses of the Presidio of San Francisco; mixed-use projects in historic Prague and Utrecht; and the master plan for the transportation system of Izmir, Turkey.

As a frequent member of the American Institute of Architects (AIA) and Urban Land Institute panels, Hasselman has participated in studies of 16 cities in the United States. He was also a member of a small group of American architects who traveled to the Soviet Union to redesign the Armenian city of Spitak (which was destroyed in the 1988 earthquake) in the first such collaboration between American and Soviet architects. In addition, he was a member of an AIA multidisciplinary team that advised Atlanta on how that city should respond to the planning opportunities raised by the Olympics in 1996 and a ULI team that advised New Orleans after Hurricane Katrina.

Hasselman is generally known for his ability to integrate many viewpoints and interests into his work, the active character of his drawings, and a high rate of productivity. He is a member of the Urban Planning and Design Committee of the AIA, a periodic visiting critic at architectural schools, and an editorial cartoonist on architectural subjects. He was elected to the College of Fellows of the AIA in 1983. A number of his projects have been recognized by competition award, design award, or design citation.

Cary Hirschstein

New York, New York

Hirschstein is a partner at HR&A Advisors Inc., a leading real estate, economic development, and public policy

consulting firm with offices in New York, Los Angeles, and Washington, D.C. For more than 30 years, HR&A has provided solutions to the most complex urban development and economic growth challenges in cities across the United States. Since joining HR&A in 2004, Hirschstein has specialized in the management of large-scale urban development, real estate advisory services to nonprofit institutions, and the structuring of effective policies and programs supporting environmental sustainability and resiliency.

As project leader for some of the firm's most complex predevelopment work for large-scale urban development, Hirschstein manages multidisciplinary teams through technical review, conceptual planning, negotiations, and preapproval processes. He is currently representing David Beckham and his partners in their efforts to secure a stadium location for a new Major League Soccer franchise in Miami and directed Major League Soccer's initial efforts to develop a new 25,000-seat stadium in New York City. Hirschstein led Macerich and AvalonBay Communities' proposal for the redevelopment of the Willets Point District in Queens, New York City, with a first phase of mixed-use development totaling more than 1.2 million square feet. For five of New York City's leading health care institutions, he managed a multidisciplinary team in the strategic planning and preliminary design of a pioneering new collaboration to develop a 1 million-square-foot shared biomedical complex in Manhattan.

Hirschstein also serves as a trusted development adviser to a diverse range of nonprofit institutional clients. He has led the development of long-term real estate strategies for organizations such as the City University of New York, the 92nd Street Y, the United Federation of Teachers, the Isamu Noguchi Foundation, the New York Blood Center, and the New York City Health and Hospitals Corporation. His work has helped institutions envision their physical spaces, optimize their real estate holdings, and lay the groundwork for future redevelopment opportunities.

In addition, Hirschstein advises clients on the economics of sustainability, including a focus on policy and program

design for improving the energy efficiency of existing buildings. He has served as an adviser to New York City's Office of Long-Term Planning and Sustainability and the Urban Green Council; contributed to PlaNYC 2030, New York City's long-term plan for sustainability; and managed the design and implementation of large-scale residential and commercial energy efficiency initiatives for the New York State Energy Research and Development Authority.

Hirschstein coauthored a study for Deutsche Bank Americas Foundation and Living Cities, analyzing comprehensive retrofits across some 230 multifamily buildings to formulate a methodology for underwriting loans inclusive of energy savings projections and supported the development of the New York City Energy Efficiency Corporation, the nation's first quasi-public independent energy efficiency financing entity. Most recently, as part of the New York Rising Community Reconstruction Program, Hirschstein led the development of a community-based plan for improving the resiliency of Lower Manhattan through the investment of \$25 million in CDBG-DR funding, allocated in response to Superstorm Sandy.

Hirschstein holds a master of urban planning from the Wagner Graduate School for Public Service at New York University, as well as a BS from Cornell University.

Todd Mead

Berkeley, California

Accredited by LEED (Leadership in Energy and Environmental Design) and the American Society of Landscape Architects (ASLA), Mead is a landscape architect and urban designer with PWP Landscape Architecture in Berkeley, California. He has led a broad range of work, including urban parks, gardens, urban infill redevelopment, and campus projects involving complex, integrated teams throughout the United States. This work often involves the rehabilitation of natural systems as a means of making healthy urban places that amplify their social, economic, and ecological context. Mead is currently involved with the rehabilitation of Constitution Gardens on the National Mall in Washington, D.C., the redevelopment of the Parkmerced

residential community in San Francisco, and landscape architectural work on the University of Texas at Austin campus.

Mead has been actively involved with the Urban Land Institute, serving previously on the Gerald D. Hines Competition jury in 2013/14. He has presented at the ULI national meeting and other national conferences, including the American Public Works Association, the Associated General Contractors of America, and ASLA. He has been a frequent critic at the University of Colorado at Denver and Boulder, was a juror for the ASLA student design awards at Colorado State University, and participated in peer review for Bushwick Inlet Park in Brooklyn, New York.

Before joining PWP, Mead was a principal with Civitas, contributing to design practice and firmwide leadership. He received a master of landscape architecture from the University of Colorado and a BS in natural resources from the University of Wisconsin.

Robert Mills

Richmond, Virginia

Accredited by both the American Institute of Architects (AIA) and Certified Interior Designers, Mills is a founding principal of Commonwealth Architects. With more than 35 years of experience, Mills is involved in all aspects of the firm's practice in architecture, historic architecture, interior architecture, planning, and management. Throughout his career, Mills has provided a full range of design services for a wide variety of corporate, government, university, and commercial clients. His vision for the revitalization and repopulation of urban centers led to the creation of Commonwealth Architects over 15 years ago. Since that time, he has led the firm in its focus on rehabilitating existing buildings that serve as catalysts for community rebirth and weaving in contextual infill designs that respect a sense of place. He engages community input in a collaborative process to design new buildings that appropriately fill in the gaps of the urban fabric. His well-recognized commitment to the rehabilitation of existing structures across the region is a hallmark of Commonwealth Architects' comprehensive services.

Mills's experience in securing Historic Investment Tax Credit incentives for clients and his ability to successfully coordinate the goals of both the building owner and the appropriate state/federal review agencies has resulted in a level of service that often proves critical to a project's feasibility and economic viability.

Commonwealth Architects' projects have received more than 40 national, regional, and local awards. As the firm's principal in charge, Mills has overseen the design and execution of corporate headquarters, university, and government facilities and the transformation of existing structures into vibrant mixed-use developments that contribute to the revitalization of communities.

Mills earned his BS in horticulture/landscape design and his MA from Virginia Tech. A sought-after resource on rehabilitation practices, he is a widely quoted expert in the local and regional media and has lectured extensively on architectural and urban planning issues, including historic investment tax credit utilization and urban revitalization.

His contributions to excellence in the built environment extend beyond his leadership in the architectural profession. Mills has helped shape urban renewal and has made a positive impact on the planning and development of the city of Richmond by volunteering his time to several review boards. He served on the City of Richmond's Planning Commission for six years, three as its chairman, and spent ten years on the City of Richmond's Commission of Architectural Review, which he chaired for three years. He currently participates in the Commonwealth of Virginia's Art and Architectural Review Board, of which he was recently made chairman.

Mills has contributed to AIA as vice president of the Virginia Society AIA and a member of the board of directors of the James River Chapter. In 2008, Mills was honored with the Virginia Society AIA's Award for Distinguished Service. In 2011, Commonwealth Architects received the T. David Fitz-Gibbon Award from the Virginia Society AIA as the firm of the year.

Tom Murphy

Washington, D.C.

Murphy is a senior resident fellow, ULI Klingbeil Family Chair for urban development. A former mayor of Pittsburgh, Murphy joins other ULI senior resident fellows who specialize in public policy, retail/urban entertainment, transportation/infrastructure, housing, real estate finance, and environmental issues. His extensive experience in urban revitalization—what drives investment, what ensures long-lasting commitment—is a key addition to the senior resident fellows' areas of expertise.

Before his appointment as senior resident fellow, Murphy had served as ULI's Gulf Coast liaison, helping coordinate with the leadership of New Orleans and the public to advance the implementation of rebuilding recommendations made by ULI's Advisory Services panel last fall. In addition, he worked with the Louisiana state leadership, as well as with leadership in hurricane-affected areas in Mississippi, Alabama, and Florida, to identify areas appropriate for ULI involvement.

Before his service as the ULI Gulf Coast liaison, Murphy served three terms as the mayor of Pittsburgh, from January 1994 through December 2005. During that time, he initiated a public/private partnership strategy that leveraged more than \$4.5 billion in economic development in Pittsburgh. Murphy led efforts to secure and oversee \$1 billion in funding for the development of two professional sports facilities and a new convention center that is the largest certified green building in the United States. He developed strategic partnerships to transform more than 1,000 acres of blighted, abandoned industrial properties into new commercial, residential, retail, and public uses, and he oversaw the development of more than 25 miles of new riverfront trails and urban green space.

From 1979 through 1993, Murphy served eight terms in the Pennsylvania State General Assembly House of Representatives. He focused legislative activities on changing Western Pennsylvania's economy from industrial to entrepreneurial, and he authored legislation requiring

the Commonwealth of Pennsylvania pension fund to invest in venture capital. In addition, he authored legislation created the Ben Franklin Technology Partnership, which is dedicated to advancing Pennsylvania's focus on technology in the economy; and he authored legislation to encourage industrial land reuse and to transform abandoned rail rights-of-way into trails and green space.

Murphy served in the Peace Corps in Paraguay from 1970 through 1972. He is a 1993 graduate of the New Mayors Program offered by Harvard University's Kennedy School of Government. He holds an MS in urban studies from Hunter College and a BS in biology and chemistry from John Carroll University.

He is an honorary member of ASLA, a board member of the Pennsylvania League of Cities and Municipalities, and a board member of the National Rails to Trails Conservancy. He received the 2002 Outstanding Achievement of City Livability Award from the U.S. Conference of Mayors and was selected for the 2001 Pittsburgh Man of the Year award by Vectors Pittsburgh.

David Panagore

New Haven, Connecticut

Panagore is currently executive director of the New Haven Parking Authority. He has 20 years of experience managing major municipalities and city development organizations.

Panagore was previously chief administrative officer for the city of Hartford, where he managed more than 2,200 staff members and the city's \$554 million budget. He led the city through a significant mayoral transition period. Upon his leaving the city, the *Hartford Courant* called him "an urbanist with vision." He also served as chief development officer, leading the city through a community-driven comprehensive planning process called "One City, One Plan." Panagore was also instrumental in launching the iQuilt arts-based place-making strategy. His efforts at arts-based economic development in Hartford were recognized by the National Community Development Association with the Audrey Nelson Community Development Award. During

his tenure, Panagore structured three major public/private partnership transactions involving several major Hartford landmark properties.

Before Hartford, Panagore was chief development officer for the city of Springfield, Massachusetts, where he spearheaded a number of development projects and corridor initiatives for the city. He arrived in Springfield as the deputy executive director, serving as the state's overseer as part of Springfield's state receivership.

Panagore has also led major development projects in San Jose, California, and Boston, Massachusetts. In San Jose, he worked for the San Jose Redevelopment Agency where he managed the Story and King Retail Revitalization Project: a \$150 million, 275,000-square-foot project on 24 acres. He managed the 9.3-acre North San Pedro Project encompassing 14 development sites slated for about 750 market-rate and affordable homes; retail and grocery, and \$14 million in public improvements.

While working for the Boston Redevelopment Authority, Panagore served as the project director for the new Boston Convention and Exposition Center, a \$700 million, 1.9 million-square-foot project with 1,200-room hotel implementation.

Douette Pryce

Sewall's Point, Florida

A veteran of the U.S. armed forces, Pryce has faced the challenges of his rigorous 23-year career and is living what he considers the "American dream"—entrepreneurship. In 2008, he developed his firm, Pryce Resources LLC, a real estate development and investment advisory company that uses the many attributes learned through his career. His focus is on the research, development, and management of feasible and sustainable real estate projects. His career achievements have honed his skills for troubleshooting a multitude of situations with a strict attention to detail and sure-fire solutions.

Past employers include Stiles Development of Fort Lauderdale; Opus South, an operating company of Opus Corpora-

tion, a national design/build firm with 28 offices across the country; and Panattoni Development Company, a privately held, full-service development company that has developed and managed industrial, office, and retail facilities in more than 150 markets. In 2009–2010, Pryce was involved in the site planning, redesign, and city approval of the 100-acre Diplomat Golf Resort and hotel in Hallandale Beach, Florida. Recently, he has been involved in the design, redevelopment, and preservation of three historic apartment structures into a four-star historic boutique 99-room hotel in the city of Miami Beach (South Beach), which has been operational since August 2013 with a 90 percent occupancy minimum. Along with sourcing small-scale development opportunities for multifamily and mixed use, Pryce is now involved, as owner's representative, in the design and permitting of a 585-unit affordable apartment community in the city of Miami.

A dedicated and fast-track individual in all ventures he undertakes, Pryce has been recognized and is the recipient of the prestigious ULI 2007 Vision Award for Young Leader of the Year and is a finalist of the South Florida Business Journal/Nova Southeastern University 2007 Up and Comers award. Pryce's professional affiliations include the Urban Land Institute, where he is a current member of the ULI South Florida/Caribbean Executive Committee, executive membership chair, and former executive young leader chair. He is member of Martin County Historic Preservation Board and sits as a member of the Zoning and Variance Board of Sewall's Point.

Pryce graduated from the Warrington College of Business Administration, University of Florida, with a BA in business administration and earned a master's in real estate and urban analysis in 2002.

Kevin Rieger

Los Angeles, California

As senior vice president of real estate development, Rieger brings nearly 30 years of real estate development, planning, and construction experience to the Anschutz Entertainment Group (AEG) development team.

Rieger managed day-to-day development of L.A. LIVE, a 4 million-square-foot, \$2.5 billion mixed-use development program encompassing some 33 acres surrounding the Staples Center, including a 1,001-room headquarters convention hotel, 224 Ritz Carlton residences, and a 14-screen Regal Cinema. At L.A. LIVE, Rieger also has overseen the development of the 7,100-seat Nokia Theatre, Nokia Plaza, a flexible outdoor event space, and two mixed-use buildings on the campus, including television and broadcast studios and entertainment-oriented retail with restaurants, night clubs, and cafés as well as the Grammy Museum.

Rieger was part of the development team for the first AEG project, the \$400 million Staples Center in Los Angeles, which opened in 1999. Upon completion of this arena, Rieger managed the entitlements, lease negotiations, design, and construction of the \$150 million StubHub Center, a public/private partnership between AEG and California State University, Dominguez Hills, in the city of Carson. The project included a 27,000-seat soccer stadium, an 8,000-seat tennis stadium, an indoor velodrome, a new track and field complex, and several new practice facilities that serve as a training home for the U.S. Soccer Federation.

Rieger also coordinated development planning for a 250-hectare site in Recife, Brazil. Anchored by a new stadium for the World Cup, the development program creates a mixed-use entertainment and residential destination while embracing the site's natural beauty.

Currently, Rieger is involved in the planning and design for Farmers Field, a 72,000-seat event center adjacent to L.A. LIVE, along with a modernization of the L.A. Convention Center. Other current projects include a new 20,000-seat multipurpose indoor arena on the Las Vegas Strip being developed with MGM, multiple entertainment and arena projects in China, and various improvements to the Coachella Music Festival in California.

While at AEG, Rieger has also overseen several projects for its music division, AEG Live, including BestBuy Theatre in Times Square, New York, and Club Nokia in Los Angeles.

Before joining AEG, Rieger worked for Walt Disney Imagineering on the Disney California Adventure project. He has also worked for a general contractor, a private developer, and a construction lender.

Rieger graduated Phi Beta Kappa from the University of Southern California. He is an active member on the Entertainment Development Council of the Urban Land Institute and is vice chairman of the board of directors of L.A. Streetcar Inc.

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