



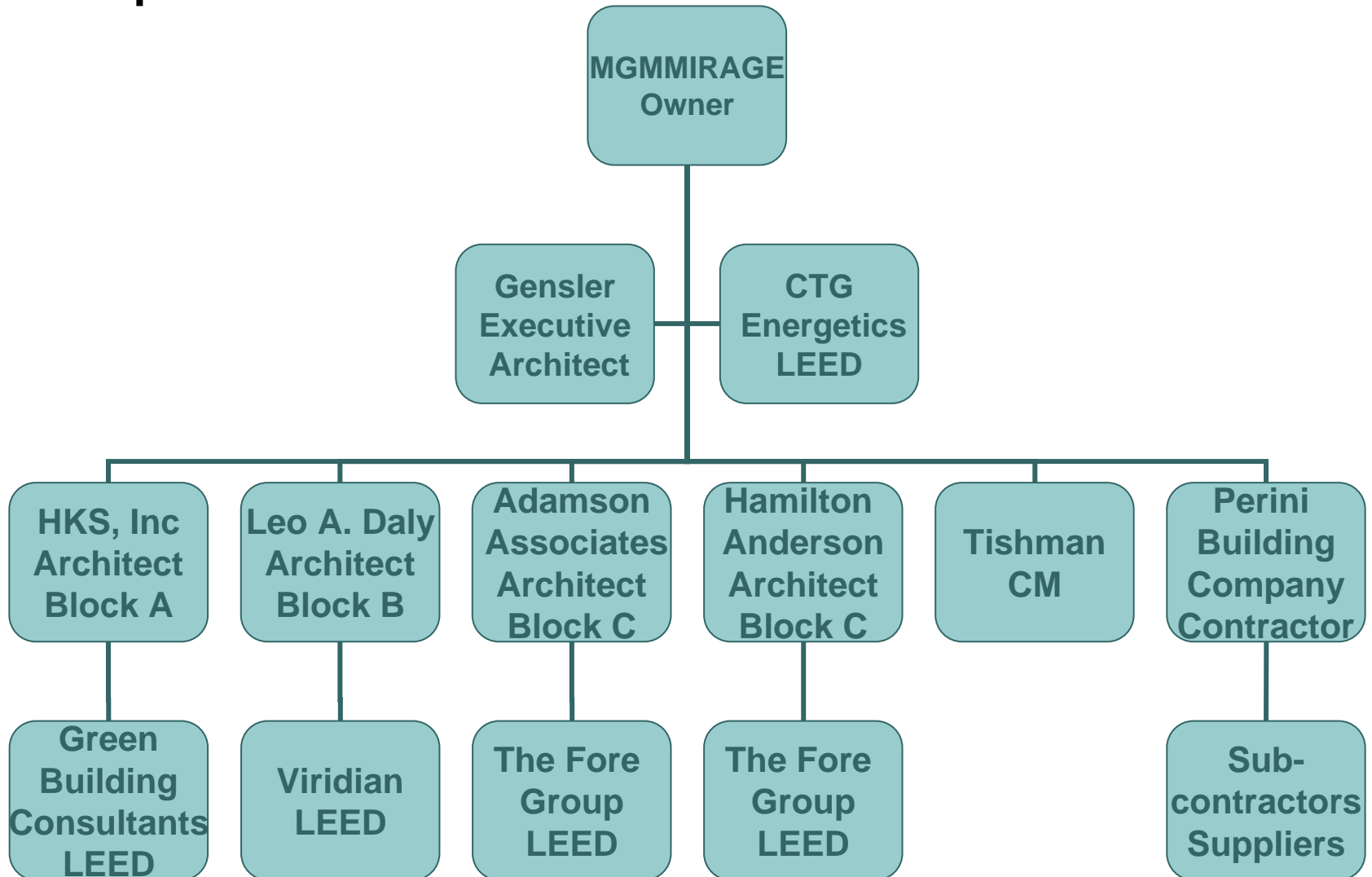
2010 Nevada Transportation Conference

Tony Cosentino, RA
Project Design Coordinator
Perini Building Company





Project Organization





The Numbers

- 66 acres
- 18 million+ square feet
- 1,300 days for demolition and construction
- 250 subcontractors

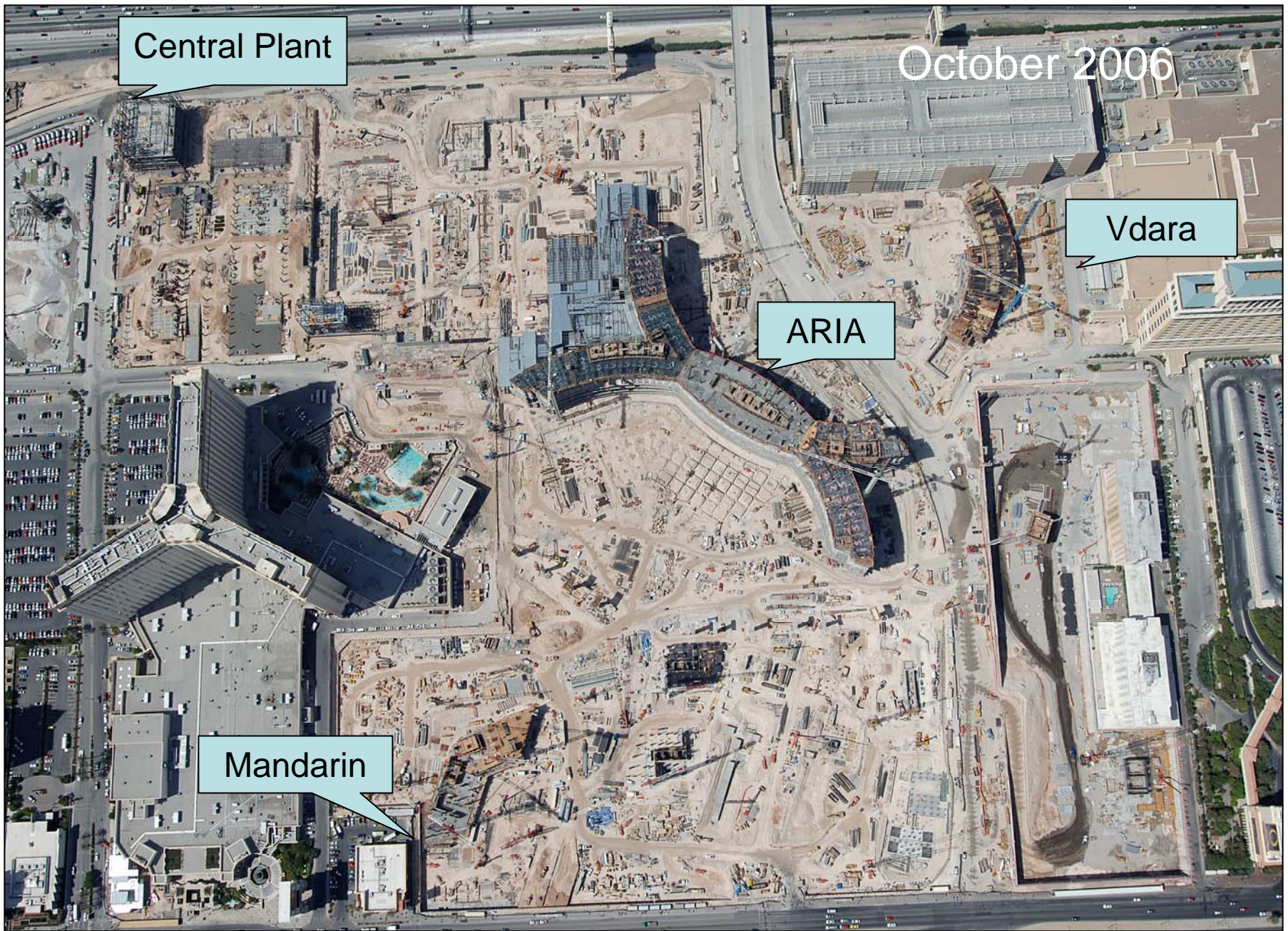
Central Plant

October 2006

Vdara

ARIA

Mandarin



October 2006



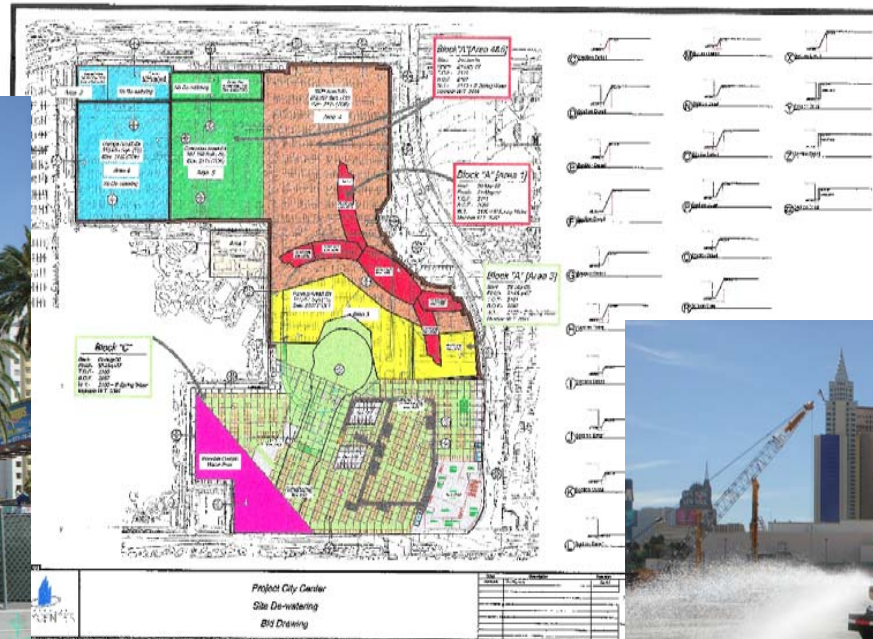
October 2006



Water Reuse



840,000 gallons from dewatering
used for dust control



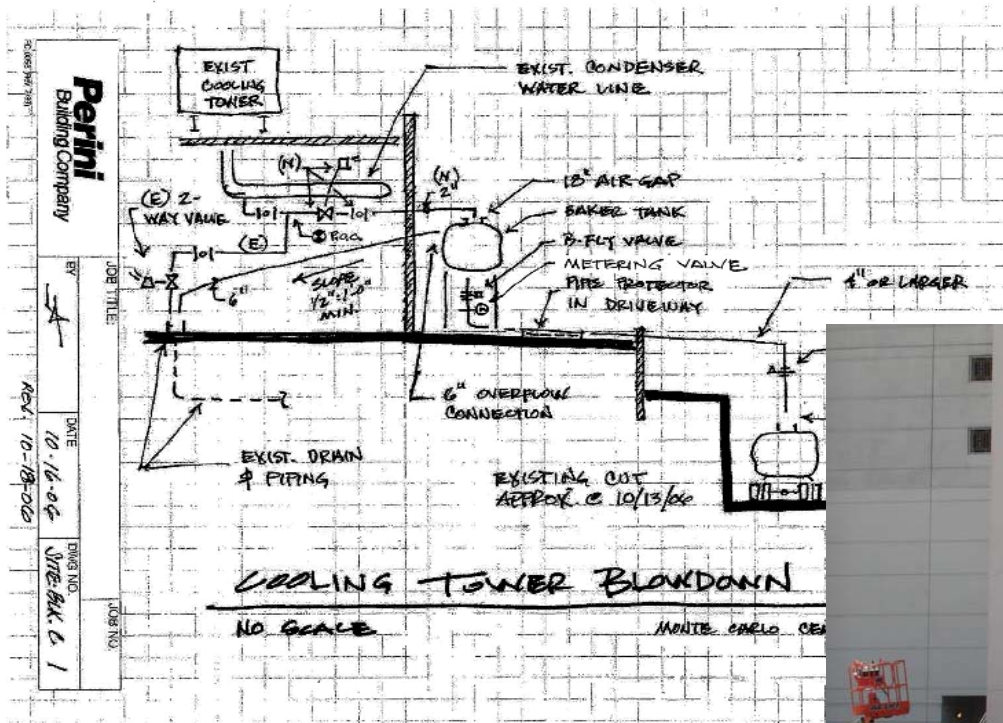
Dewatering Site Wells



The potable water saving is equal to filling 1,680 watering trucks

2,334,900 gallons of blow-down water used for SWPPP

Through October 2007



Cooling Tower Blowdown Design



Equal to a savings of roughly 17,500 gallons of potable water per day

696,000 gallons of soil surfactant
47,700 gallons of soil tackifier



Soil Stabilization



Dust Control



July 2007

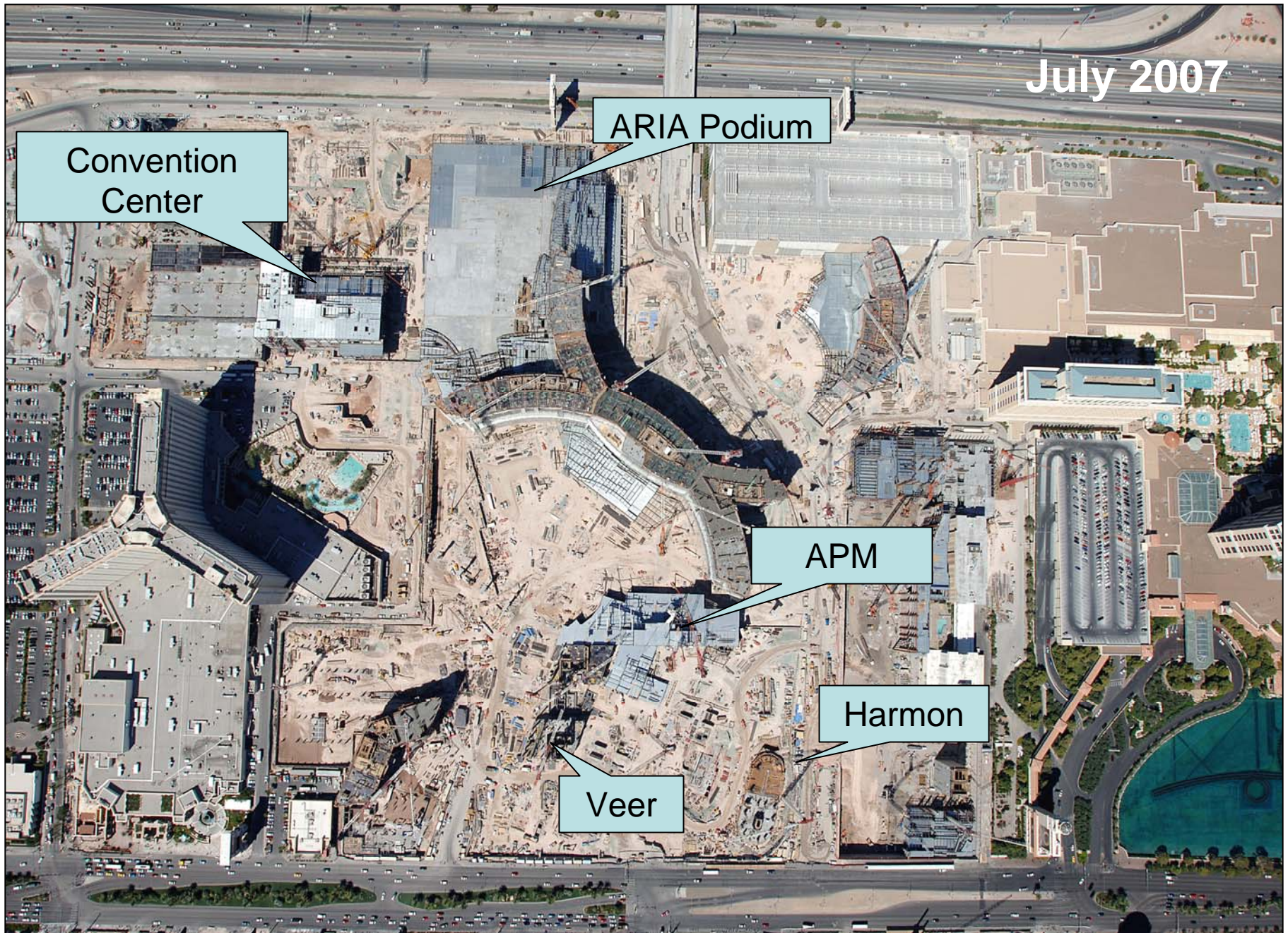
Convention
Center

ARIA Podium

APM

Harmon

Veer



July 2007



September 2007



September 2007



Demolition and Construction Waste

305,711 tons of waste
285,824 tons diverted

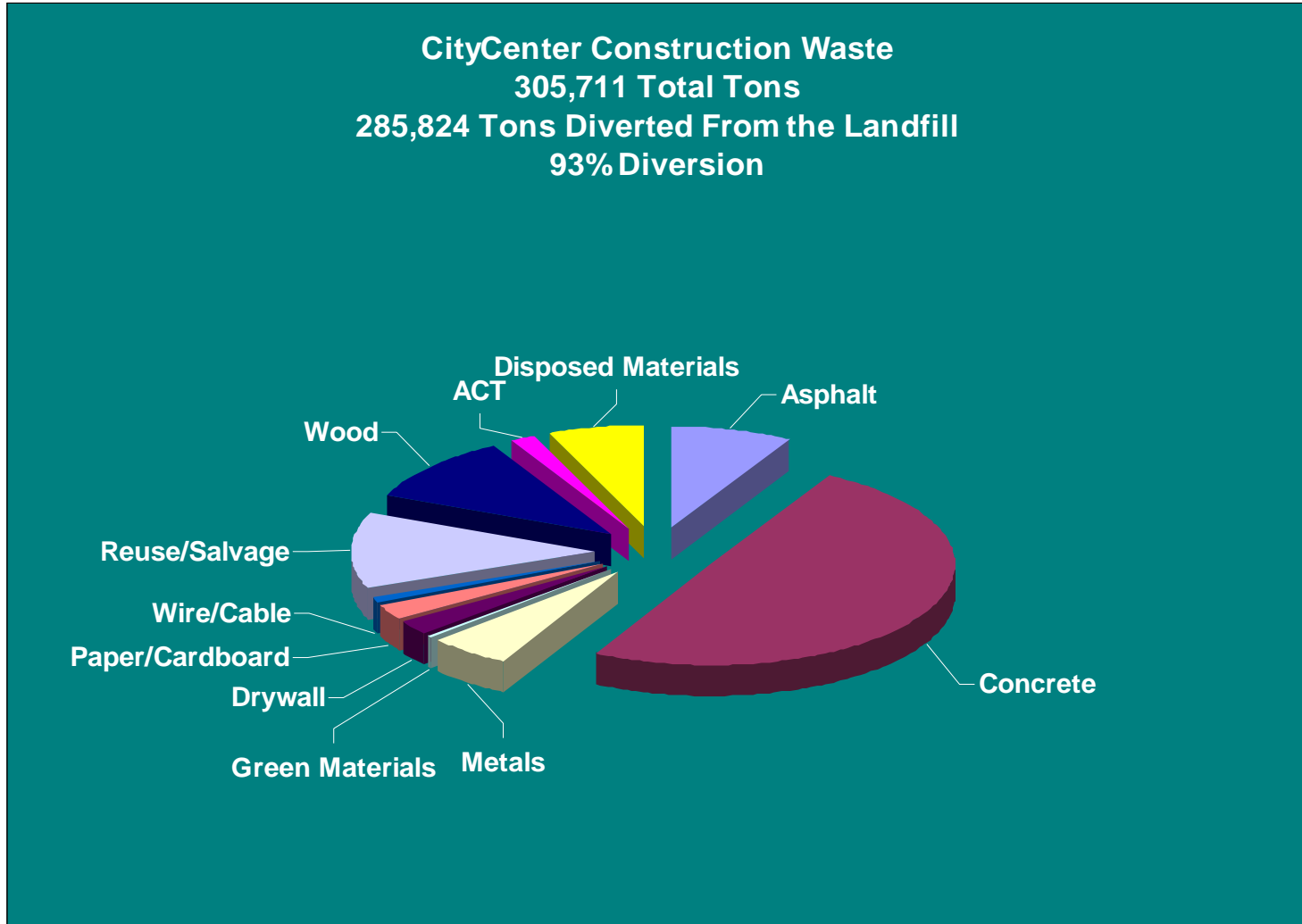
EQUAL TO

66,896 dump truck
loads

62,213 **did not** go to
the landfill



Waste Materials by Type





Material Comparisons

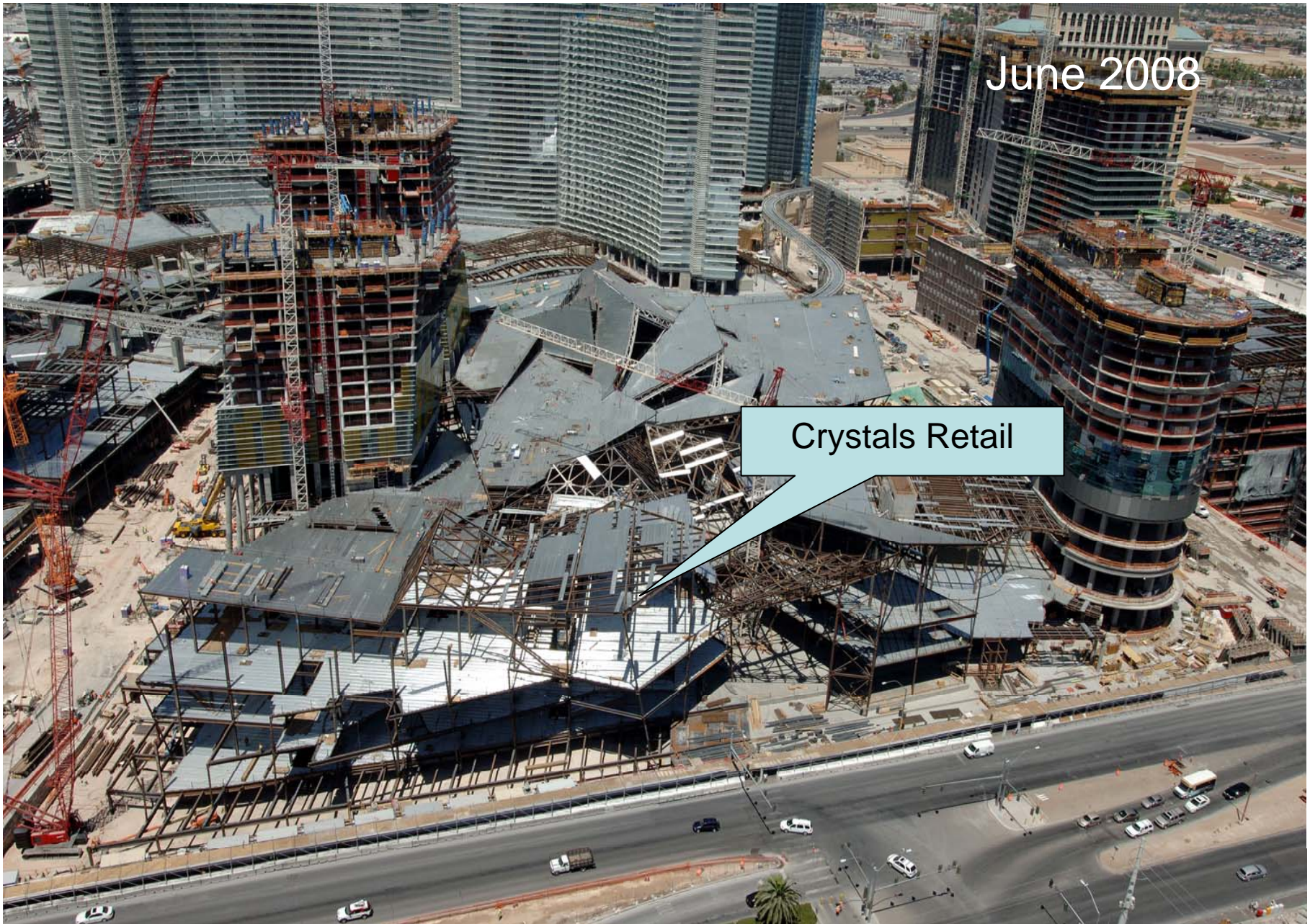
- Enough glass used on ARIA (Tower, Casino, Convention Center) to enclose approximately nine Luxor Hotels
- Over 1,002,000 cubic yards of concrete placed
 - A typical house foundation uses 24 cubic yards
 - Enough to build a 4 foot wide sidewalk from Las Vegas to New York and back
- Sprinkler pipe laid end to end would stretch from Las Vegas to San Diego
- 23 miles of elevator rails in ARIA Tower alone

March 2008



June 2008

Crystals Retail





Fly Ash Reused in Concrete

Fly Ash Diverted from the Waste Stream

Fly Ash (lbs) / yd ³	Total Concrete (yd ³)	Total Fly Ash Used (lbs)	Fly Ash Diverted From Landfill (lbs)
148	1,001,582	148,234,136	148,234,136

Equivalent to filling 197 rail road hopper cars that would stretch over 2.1 miles



CO₂ Savings with Fly Ash

Carbon Emission Comparison of Concrete Mixes With and Without Fly Ash Cement

Concrete Mix Type	Cement (lbs) / yd ³	Total Concrete Placed (yd ³)	Total Cement Used (lbs)	Total Carbon Emissions (lbs)
Without fly ash cement replacement	728	1,001,582	729,151,696	707,277,145
With fly ash cement replacement	605	1,001,582	605,957,110	587,778,397

Reduced carbon emissions by 119,498,748 pounds, equivalent to the amount of carbon sequestered by 19.3 square miles of pine forest in a year.



Material Reuse

- 82 tons of lumber donated to the Carpenter's Apprentice Program
- 56 tons of green material donated for playground bedding
- 176 tons of interior materials from the Boardwalk Hotel donated (toilets, escalators, doors)
- 1,276 K-rails produced from ARIA Tower concrete pipe-line blow back

March 2009





July 2009

November 2009





Energy Facts

- Electricity used at CityCenter could power 100,000 homes.
- Energy use saved is equal to the average annual power use of 8,800 homes.
- Central Plant has enough chiller capacity to cool 6,000 homes
- On-site co-generation can produce 8.8 mega watts of power
- ARIA Hotel is designed 45% more efficient than a comparative structure, Vdara and Veer 40%, Mandarin 35%

December 2009
Grand Opening



A World-Class Project

- 1,300 days
- 18 million+ square feet



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