Team Members

Scott Ebbott
- Three years Real Estate audit at PwC, Part-time intern with TJBC
- CFA Level II and CPA
- BA Emory, Finance & Accounting
- Full-time MBA, class of 2016

Jan De Kuyper
- Four years Commercial Real Estate Development
- Architect
- Full-time MBA, class of 2016

Kevin Griffin
- Seven years of experience in Corporate Finance at JLL
- Focus on retail strategic development
- Part-time MBA, class of 2015

Rob Joyce
- Six years Real Estate consulting at EY
- 2 years M&A advisory
- BS, Finance and Real Estate
- Part-time MBA, class of 2016

Matthew Olsen
- Four Years Construction Management & Cost Estimation
- Engineer
- Part-time MBA, class of 2016
Agenda

Company Concept

Project Proposal Block 37

Costs

Benefits

Terms

Risks and Mitigants
General Concept

Idea:

A real estate development company focused on data centers in unused and abandoned sites in metropolitan cities.
Macro Trends

- Explosive growth of internet traffic and company data
- Need for high security data centers
- Reduced latency and better interconnectedness
- Proximity preference

“90% of the world’s data created in the past 2 years”
IBM, 2012

“Data production will be 44 times greater in 2020 than in 2009”
Wikibon Blog

“The volume of business data is expected to double every 1.2 years”
KnowIT information systems
A large number of **unused underground spaces** in metropolitan cities provide the perfect redevelopment opportunity for a data center facility:

- Construction
- Flexibility
- Sustainability
- Location
Unused Subway Locations

TOKYO  CHICAGO  TORONTO  LONDON

HONG KONG  CINCINNATI  NEW YORK  PARIS
Other Redevelopment Ideas

- INDOOR SWIMMING POOL
- NIGHT CLUB
- BOWLING ALLEY
- BIKE TUNNEL
- HIGH-END RESTAURANT
- ART MUSEUM
- PAINTBALL VENUE
- INDOOR PARK
Re-Connect Global

- CONNECT Tokyo
- CONNECT Chicago
- CONNECT Toronto
- CONNECT London
- CONNECT Hong Kong
- CONNECT Cincinnati
- CONNECT New York
- CONNECT Paris
Why Chicago?

• Low risk for natural disasters and perfect climate

• Low energy prices

• Reliable power network

• Great connectivity

• Continued demand for data storage
Block 37
Block 37 Location
Block 37 Subway Station Location
Data Center Layout

- Data Hall
- Mechanical space/control room
- Entry level/offices
- Pedway
Cooling System Design

- **Exhaust Air**
- **Atrium Plenum Space**
- **Below Floor Cooling**
- **Outdoor Air**

Diagram showing the flow of air and cooling through an atrium plenum space and below floor cooling.
Enwave Chicago Network
Building Heat Transfer
Construction Access
September 2017
Hard Construction Costs ($37.5 M)

- HVAC ($7.4 M)
- Electrical ($18.3 M)
- Design Contingency ($1.6 M)
- Construction Contingency ($1.1 M)
- 4.75% Escalation ($1.6 M)

Soft Construction Costs ($5.3 M)

- Com-Ed Fees ($2 M)
- A/E/Consultants Fees (1.6 M)
- Owner Contingency ($0.9 M)
### Specific Cost Items

- **Foundation Wall Waterproofing** ($69,000)
- **EPDM Roofing Under Concrete Slab** ($588,000)
- **Sealants/Caulking** ($10,000)
- **Concrete Floor Moisture Mitigation** ($105,000)
- **Building Control System (DDC)** ($1,672,500)
- **Security** ($904,903)
Cost Per Kilowatt (KW)

$6,510
Potential Market

Cook County Building, 690k sqft
Three First National Plaza, 1.4m sqft
Chase Tower, 1.9m sqft
One South Dearborn, 800k sqft
One North Dearborn, 900k sqft
Pittsfield Building, 300k sqft

Daley Center, 1.5m sqft

Chicago Title Building, 1.1m sqft

Unitrin Building, 500k sqft

35 East Wacker Drive, 550k sqft

Crain Communications Building, 600k sqft
Downtown Supply

AlteredScale

Server Farm

Steadfast

Colocation Zone

CoreSite

Digital Realty

Digital Realty

QTS Realty

1

2

3

4

5

6

7

8
Chicago Fiber Network

Legend
- Block 37 Underground Station
- Current Archer Data Center
- Zayo LH
- Windstream LH
- Waypoint Telecom
- Level3
- Intellifiber Networks
- GapNet
- Fiberlink
- CSX FN
- Cogent Communications
- CenturyLink LH
- AT&T
- Allied Fiber Phase One
Max Facility Power Calculation

- Average Kw/sqft from public company data for comparable facilities:
  
  0.09Kw/sqft of total facility space: 84,000*0.09 = 7,560Kw
  0.19Kw/sqft of data hall space: 46,000*0.19 = 8,740Kw

- Data hall design with 5Kw Cabinets:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated system power</td>
<td>6,600Kw</td>
</tr>
<tr>
<td>max facility power</td>
<td>8,470Kw</td>
</tr>
<tr>
<td>Expected # IT cabinet requirement</td>
<td>1,320.00 cabinets/facility</td>
</tr>
<tr>
<td>Max # IT cabinet capability</td>
<td>1,694.00 cabinets/facility</td>
</tr>
<tr>
<td>Expected IT operating power</td>
<td>5,280.00 Kw/pod</td>
</tr>
<tr>
<td>Peak rated power per Unit</td>
<td>600.00 Kw/room</td>
</tr>
<tr>
<td>Nominal rated power per Unit</td>
<td>600.00 Kw/room</td>
</tr>
<tr>
<td>Average expected power per Unit</td>
<td>480.00 Kw/room</td>
</tr>
<tr>
<td>Facility size</td>
<td>84,112.00 sqft facility</td>
</tr>
</tbody>
</table>
Revenue Models

- Single Tenant
- Managed Service Provider (MSP)
- Colocation Wholesale

Pricing:
$130 Kw/ Month (Wholesale)
$275 Kw/ Month (Retail)
Operating Costs: PUE

Power utilization efficiency (PUE): Ratio of facility total power usage to critical (revenue generating) power draw

Re-Connect Chicago

PUE = 1.35*

*PUE ratios for Chicago data centers range from 1.4 – 1.5.
Operating Costs: Continued

- Re-Connect Chicago Stabilized OpEx % = 40%

### Average OpEx %

<table>
<thead>
<tr>
<th>Company</th>
<th>5 Yr Avg</th>
<th>3 Yr Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Realty Trust</td>
<td>37.50%</td>
<td>37.69%</td>
</tr>
<tr>
<td>DuPont Fabros Tech.</td>
<td>31.61%</td>
<td>32.21%</td>
</tr>
<tr>
<td>Cyrusone</td>
<td>35.54%</td>
<td>36.18%</td>
</tr>
<tr>
<td>QTS</td>
<td>41.67%</td>
<td>36.56%</td>
</tr>
</tbody>
</table>
NOI and Cash Flow

- Stabilized annual NOI is $10.3M
- Stabilized annual cash flow is $5.4M
Sources and Uses

**Uses**

- Capitalized interest: 1.2M
- Capital reserve: 1.9M
- Development: 44.4M

**Sources**

- GP equity: 1.0M
- LP equity: 9.0M
- Mezzanine loan: 10.2M
- Senior construction loan: 27.3M

Capitalized interest
Capital reserve
Development
GP equity
LP equity
Mezzanine loan
Senior construction loan
Financing

- Senior Construction Loan
  - $27.3M value
  - 40% pre-leasing
  - 4.5% interest rate (quoted at LIBOR + 300 - 400 BPS.)
  - 3 year term

- Mezzanine Loan
  - $10.2M value
  - 15% interest rate
  - 3 year term
Exit

• Data center cap rates averaged 7.5% during 2014 for fully leased facilities (Per CBRE)
• 10 year holding period reflects lengthy construction and lease-up

Other Considerations

• Rate compression likely with increased industry recognition
• Google recently purchased a highly interconnected data center in New York (111 Eighth Avenue) for a 5% cap rate

Upside Potential

Target Buyers
City Hall Goals

**Proposed City Hall Terms**

**Financial**
- Ground Lease
- 250 kW of Storage (Valued at $825k/yr)
- Reasonable decision rights
- Receive tax break
- Receive CIT Loan Guarantee

**Political**

**Policy**

**Other**

**Ground Lease**
- 25% of cash flow for 99 year term
- Transferable
- Estimate federal loan will be repaid through over $2M of stabilized cash flow/yr
### Proposed Investor Terms

| Capital Contributions | Limited Partner: 90%  
General Partner: 10% |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributions</td>
<td>Pro rata until capital returned. 100% to LP until 10% preferred return paid. 80% to LP and 20% to GP thereafter</td>
</tr>
<tr>
<td>Guarantees</td>
<td>Debt guarantee provided through Chicago Infrastructure Trust (CIT) involvement. Construction overruns paid by GP</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Minimum 3 year hold period for GP. Right of first refusal and reasonable veto rights by LP thereafter</td>
</tr>
<tr>
<td>Fees</td>
<td>Development Fee: 3% of construction costs. Property Management Fee: 3% of gross revenue</td>
</tr>
<tr>
<td>Rights</td>
<td>LP major decision rights, including right to revoke GP construction / management rights under set circumstances</td>
</tr>
</tbody>
</table>
Proposed Developer (Co-GP) Terms

<table>
<thead>
<tr>
<th>Capital Contributions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive GP: 10%</td>
<td></td>
</tr>
<tr>
<td>Active GP: 90%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distributions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All GP economics split pro rata</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Guarantees</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction guarantee provided by active GP</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fees</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Development and management fees earned by active GP</td>
<td></td>
</tr>
</tbody>
</table>

Potential Partners

- 42U
- Rackspace
- Imprint
- Digital Realty
- Latisys
## Base Case Returns

<table>
<thead>
<tr>
<th></th>
<th>Limited Partner</th>
<th>Development Partner</th>
<th>Re-Connect Team</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity Investment</strong></td>
<td>$9M</td>
<td>$0.9M</td>
<td>$0.1M</td>
</tr>
<tr>
<td><strong>Cash Returned</strong></td>
<td>$102.8M</td>
<td>$18.7M</td>
<td>$2.1M</td>
</tr>
<tr>
<td><strong>Equity Multiple</strong></td>
<td>12x</td>
<td>22x</td>
<td>22x</td>
</tr>
<tr>
<td><strong>IRR</strong></td>
<td>39%</td>
<td>45%</td>
<td>45%</td>
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</tbody>
</table>
## Risks and Mitigants

<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigating Strategy and Factors</th>
<th>Likelihood</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td><strong>Political</strong></td>
<td>• Sunk Costs of PAST administration</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>• Impracticality of original use &amp; current media attention</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td><strong>Mitigating Strategy and Factors</strong></td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Leasing</strong></td>
<td>• City partners as tenant</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>• Diverse surrounding tenant mix</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>• Differentiated product and low cost basis</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td>• Significant preleasing</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>• Alternative funding sources (TIF, TIFIA)</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>• Phased Construction</td>
<td>Low</td>
<td>Low</td>
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<tr>
<td><strong>Market</strong></td>
<td>• Differentiated product and low cost basis</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>• Secular growth industry</td>
<td>Medium</td>
<td>Medium</td>
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<tr>
<td><strong>Construction</strong></td>
<td>• Limited remaining work</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>• City as Stakeholder</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>• Limited remaining work</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
Why Here? Why Now?

Pricing Advantages

• Ideal Layout for Security & Operations
• Duplicate Energy & Cooling
• Low Latency & Direct Connectivity
• Low Disaster Risk
• Client Proximity Preference

Low Costs

• Attractive Cost Basis
• Subterranean Temperature
• Cheap Energy & Cooling
• Government Incentives

High Returns
Special Thanks To...

Politics
David Spielfogel - Office of the Mayor
Aaron Joseph – Office of the Mayor
Brad McConnell – City Operations
Claire Tramm – CIT
Greg Hins – Crain’s

Data center experts
Brent Jeffries - Cavern Technology
Edward Pendarvis – Digital Realty
Maria Lukens – Digital Realty
Craig McKesson - T5 Data Centers
Enrique Torres - Equinix

Advisors
John Walters, Matt Carolan,
Andy Cvengros, Beth Grogan – JLL
Jason Donovan – EMC

Utility experts
Jim Rylowicz – Enwave
Rachel Louviere-Davis - NRG
“If you have a good, old building and you buy it at the right (cost) basis, it’s a beautiful thing. The problem is there are so few buildings that have the bones, the right construction, the right load per foot on the floors, the right ceiling heights, and all the right infrastructure. To build these from the ground up is very expensive, but we’re going to get to the point where you can no longer find existing building that will work.”

-Avner Papouchado, Serverfarm Realty