Disadvantaged Business Enterprise and Workforce Advisory Committee

July 18, 2019
Today’s Topics

• Adopt the Committee Charter
• Kickoff Summary
• Great Minds Review
• SWLRT Project Update
• SWLRT Civil DBEs
• DBE Report and Activities
• Workforce Report and Activities
• DBE Pay Cycles
• Workforce Industry Overview
Kickoff Summary
Kickoff Summary

- Challenges and Opportunities:
  - Long pay cycles
  - Lack of working capital
  - Barriers to training and workers (daycare, transportation)
  - Workforce recruitment and retention
  - Partnering with CBOs as training base
  - Build capacity and grow; hire more people
Kickoff Summary

• What does success look like?
  ▪ Exceeding the DBE and Workforce Goals
  ▪ Long term career pathways beyond this project
  ▪ No DBEs go out of business
  ▪ Bring jobs and wealth into the communities
Great Minds Review
Great Minds Outcomes

• DBE:
  ▪ Long pay cycles
    o Met Council to expedite the pay app review process
    o Materials and supplies be paid to subs without the long review process
    o Materials/supplies payments not have retainage held
  ▪ Lack of working capital
    o DBE Assist Program like the Funders Collaborative from CCLRT
    o 3rd party payer/grant options
  ▪ Capacity Building
    o Primes to do more mentoring of the subs: pay app submittal, assist with credit for equipment, Sub-Guard Bonding
Great Minds Outcomes

• **Workforce**
  - **Education**
    - More options for people with GED within the industry
    - Promote trades as career options in high schools
    - Pre-apprenticeship programs through unions
  - **Transportation**
    - Financial support for CBOs for cost of DL reinstatement
  - **Impact on family**
    - Access to childcare, non traditional hours
    - Incentives to childcare along the corridor
SWLRT Project Update
METRO Green Line Extension

• Opening in 2023
• 14.5 miles
• 16 stations
• Will provide single seat trips to downtown Minneapolis, U of M and St. Paul
• Connections to the Airport and Mall of America via the Blue Line
Southwest Station: Installing Sheet Piles
SouthWest Station: Demo of Culvers
Near Eden Prairie Town Center: Clearing
Golden Triangle Station: Installing Piles
Hopkins Depot: Temporary Parking
Cedar Lake and Kenilworth Trail Detours
Vibration Monitoring at Calhoun Isles Condominium Association
Kenilworth Corridor: Tree Removal
394 & Cedar Lake Trail: Pier Protection Work
Temporary Concrete Batch Plant Linden Yards
Digital Metrics: GovDelivery Monthly Highlight

• April 26:
  ▪ Sent: 8,256
  ▪ Open: 2,931
• May Average:
  ▪ Sent: 15,240
  ▪ Open: 7,660 (50%)
• June Average:
  ▪ Sent: 15,511
  ▪ Open 7,707 (49%)
# Digital Metrics: Twitter

<table>
<thead>
<tr>
<th>Month</th>
<th># of Tweets</th>
<th>Followers</th>
<th>Retweets</th>
<th>Likes</th>
<th>Mentions</th>
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</thead>
<tbody>
<tr>
<td>January</td>
<td>1</td>
<td>842</td>
<td>0</td>
<td>0</td>
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<tr>
<td>February</td>
<td>0</td>
<td>846</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>March</td>
<td>2</td>
<td>859</td>
<td>3</td>
<td>20</td>
<td>5</td>
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<tr>
<td>April</td>
<td>18</td>
<td>925</td>
<td>22</td>
<td>98</td>
<td>19</td>
</tr>
<tr>
<td>May</td>
<td>26</td>
<td>1,100</td>
<td>88</td>
<td>196</td>
<td>29</td>
</tr>
<tr>
<td>June</td>
<td>9</td>
<td>1,200</td>
<td>32</td>
<td>66</td>
<td>28</td>
</tr>
</tbody>
</table>
Construction 24-Hour Hotline

- May 15: Established Construction hotline
- Signs placed at over 100 locations along the project corridor
- 80% of the calls are comments or questions; 20% are actionable
Business Outreach

• Meeting with business owners to discuss access during construction
• Developing content for customers, employees, suppliers
• Special signage
Upcoming Outreach Activities

• Construction open houses in July
• Pop-up events along corridor
  ▪ Trails
  ▪ SouthWest Transit Station
• Participate in summer community events
• Neighborhood meetings
SWLRT Civil DBEs
51 DBEs On SWLRT Civil Construction

Airfresh Industries  All Phase Contracting  AM-TEC Designs  B&L Supply Inc.  Biffs Inc.
Big G Tech Support LLC  Blackstone Contractors LLC  Boys Contracting
Carlo Lachmansingh Sales Inc.  Casillas Glass LLC  Chippewa Wood Products CI Utilities LLC
Courtland LLC  Crocus Hill Electric Co  Dionne Construction Inc.  Donovan Enterprises Inc.
E&J Steel Erectors (E&J Rebar Inc.)  Eastern Rail Corporation  E-Con-Placer Inc.
Hanson Custom Crushing Inc.  Hirschmugl, Heine & Associates, Inc.  IMO Consulting Group
Intelligent Unmanned Aircraft System and Integration JL Theis Inc.  Joe Mullin Trucking
Inc.  Lanier Steel Products Inc.  M&J Trucking Co LLC  Mac's Roll-off Service Inc.
MBE Inc.  Midwest Window Systems LLC Modern Electrical Solutions Inc.
On Call Pavement Sweeping Inc.  Pete's Water & Sewer Inc.
Pine Waterproofing and Sealant Inc.  Povolny Specialties Inc.  Princess Trucking Inc.
Procellis Technology Inc.  Public Solutions Group Inc.  Reiner Contracting Inc.
ROlson Trucking LLC  Safety Signs  Skyview Construction Co LLC  Standard Contracting Inc.
Stonebrook Fence Inc.  Sun Mechanical Inc.  Tegan Marketing Inc.  Trackworks LLC
Zaczkowski Trucking Service Inc.
DBE Participation by Ethnicity *

- **Asian Pacific** $37,780,743.00 (22%)
- **Asian Subcontinent** $838,001.00 (1%)
- **Black** $7,284,823.00 (4%)
- **Hispanic** $27,841,050.00 (16%)
- **Native American** $16,164,173.00 (9%)
- **Non-minority** $83,817,230.31 (48%)

*As of 7/12/19
DBE Participation by Gender *

*As of 7/12/19

- Female: $84,094,973.31 (48%)
- Male: $89,634,047.60 (52%)
DBE Participation by State *

*As of 7/12/19

**MN**
$148,214,273.35
85%

**Other**
$25,514,747.56
15%
DBE Report and Activities
## DBE Achievement as of May 31, 2019

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Contract Description</th>
<th>Contracts</th>
<th>$ DBE Goal</th>
<th>Billed to Date</th>
<th>% Billed to Date</th>
<th>DBE Billed to Date</th>
<th>% DBE Billed to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMJV</td>
<td>Civil</td>
<td>$799,954,416</td>
<td>$127,997,107</td>
<td>$36,205,670</td>
<td>4.53%</td>
<td>$1,426,620</td>
<td>3.94%</td>
</tr>
<tr>
<td>Veit</td>
<td>OMF Demo</td>
<td>$440,078</td>
<td>$74,813</td>
<td>$399,225</td>
<td>90.72%</td>
<td>$74,610</td>
<td>18.69%</td>
</tr>
</tbody>
</table>

### DBE Goals: Average to Date

<table>
<thead>
<tr>
<th></th>
<th>Contracts</th>
<th>$ DBE Goal</th>
<th>Billed to Date</th>
<th>% Billed to Date</th>
<th>DBE Billed to Date</th>
<th>% DBE Billed to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.5% Goal</td>
<td>$799,954,416</td>
<td>$127,997,107</td>
<td>$36,205,670</td>
<td>4.53%</td>
<td>$1,426,620</td>
<td>3.94%</td>
</tr>
</tbody>
</table>
Lunda/CS McCrossan Joint Venture: Update on DBE Activities
# Post-Bid DBE Additions

<table>
<thead>
<tr>
<th>DBE</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big G Tech Support</td>
<td>$2,697,466</td>
</tr>
<tr>
<td>Boys Water Products</td>
<td>$540,000</td>
</tr>
<tr>
<td>Courtland</td>
<td>$36,379</td>
</tr>
<tr>
<td>Gestra</td>
<td>$659,526</td>
</tr>
<tr>
<td>HHA</td>
<td>$187,000</td>
</tr>
<tr>
<td>IMO Consulting Group</td>
<td>$5,010,000</td>
</tr>
<tr>
<td>M&amp;J Trucking</td>
<td>$40,000</td>
</tr>
<tr>
<td>Pete's Sewer &amp; Water</td>
<td>$114,600</td>
</tr>
<tr>
<td>Pine Waterproofing</td>
<td>$465,051.00</td>
</tr>
<tr>
<td>Rock On Trucking</td>
<td>$40,000</td>
</tr>
<tr>
<td>AmTec Designs</td>
<td>$5,215,455</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$15,005,477</strong></td>
</tr>
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</table>
Workforce Report and Activities
Workforce Hours and Participation

• For May 2019, Lunda/C.S. McCrossan’s Monthly Reports to the Minnesota Department of Human Rights (MDHR) showed the Joint Venture and its subcontractors worked 4,415 total hours

• The total hours worked by Women during May was 139 hours, which represented 3.15%

• The total hours worked People of Color during May was 691 hours, which represented 15.65%

• There were also 61 hours worked by men that did not specify their race/ethnicity
Workforce Hours and Participation

Lunda/C.S. McCrossan, JV: May 2019 Hours & Percentages

- **FEMALE %**: 3.15%
- **FEMALE HOURS**: 139
- **PEOPLE OF COLOR %**: 15.65%
- **PEOPLE OF COLOR HOURS**: 691
- **TOTAL HOURS**: 4415
Workforce Hours and Participation

• Goals set for the SWLRT Project are 32% People of Color and 20% Women

• Goal participation levels achieved by Lunda/C.SW. McCrossan for May 2019 were:
  ▪ People of Color: 15.67%
  ▪ Women: 3.15%

• These thresholds are represented on the next chart
Workforce Hours and Participation

Lunda/C.S. McCrossan, JV -May 2019
Goal Participation Levels

- **FEMALE GOAL:** 20.00%
- **FEMALE %:** 3.15%
- **PEOPLE OF COLOR GOAL:** 32.00%
- **PEOPLE OF COLOR %:** 15.65%
Year-to-Date Workforce Hours & Participation

• Lunda/C.S. McCrossan’s year-to-date hours and goal participation since the inception of the work on this project in Dec 2018 through May 2019 are:
  ▪ Total Hours: 7128
  ▪ Total Female Hours: 365 (5.12%)
  ▪ Total People of Color Hours: 866 (12.15%)
  ▪ Total Hours by Women of Color: 9.25 (0.13%)
## Workforce Hours and Participation

### Lunda/C.S. McCrossan’s Year to Date Hours & Percentages

(12/2018 - 5/31/2019)

<table>
<thead>
<tr>
<th>Category</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Hours</td>
<td>7128</td>
<td></td>
</tr>
<tr>
<td>Male Hours</td>
<td>6763</td>
<td></td>
</tr>
<tr>
<td>Female Hours</td>
<td>365</td>
<td>5.12%</td>
</tr>
<tr>
<td>Women of Color</td>
<td>9.25</td>
<td>0.13%</td>
</tr>
<tr>
<td>Total People of Color</td>
<td>866</td>
<td>12.15%</td>
</tr>
<tr>
<td>Ethnicity/Race Not...</td>
<td>104</td>
<td>1.46%</td>
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</tbody>
</table>
Lunda/CS McCrossan Joint Venture: Update on Workforce Activities
Subcontractor Work Plans

• Coordinated with subcontractors to get their work plans submitted to MDHR

• Letters were sent via email
  ▪ 45 letters sent out requesting Work Plans
  ▪ 4 responses received so far
  ▪ Conference/Meeting calls were offered and made with subcontractors to answer questions

• 2 Work Plans have been submitted to MDHR
LMJV Career Fair

• First career fair happening on:

Thursday, August 22, 2019
8 am to 12 pm
Minneapolis Urban League
2100 Plymouth Avenue North
Minneapolis, MN 55411

Please feel free to share!
LMJV Workforce Activities May 2019

- May 7: DEED Career Fair
- May 16: Local 633 Cement Mason Graduation
- May 17: 35W@94 ALS Career Fair; distributed Lunda and SWLRT applications
- May 22: SAOIC Employer Panel
- May 30: Workforce Development MnDOT/Laborer’s Union; formal Interviews
- May 31: Merrick Community Services Construction Training Program Advisory Day; employer panel
LMJV Workforce Activities June/July, 2019

• June 7: SAOIC Mock Interviews
• June 21: 35W@94 ALS Career Fair; distributed Lunda and SWLRT applications
• July 2: The Power of the People Leadership Institute; guest speaker
• July 19: 35W@94 ALS Career Fair; will distribute Lunda and SWLRT applications
• July 23: 1st Annual Shakopee Job Fair; will distribute Lunda and SWLRT application to CDL program participants
• July 26: Tribal Cement Mason Graduation
DBE Pay Cycles
LMJV Ensuring Prompt Payment

- Payments will be made to DBE subcontractors no later than 10 days after LMJV receives payment
- Focus on processing DBE subcontractor payments first when an approved payment is received
- Willing to provide assistance if cash flow or payments are threatening the success of a DBE
Invoicing and Payment Cycle

- LMJV is billing the Council based on the Schedule of Values for this contract.
- The billing period is from the 15th of the previous month to the 15th of the current month.
- A pencil copy is submitted to the Council on the 15th of the month.
- Subcontractors receive 2 additional days to submit their invoices by the 17th.
- The payment application is finalized on the 25th of the month and submitted for review.
Prompt Payment

• Council has 30 days to review the payment application

• 30 day review factors:
  ▪ Payment applications are typically 1,000+ pages
  ▪ Estimated $1 million in expenses a day
  ▪ Application goes through 10+ steps for review & approval in Project office
  ▪ Additional approval process through Metro Transit Finance
Invoice Review Process

Contractor submits invoice

CAR reviews invoice for completeness (supporting docs)

Task and Contract Managers reviews to confirm status of work being billed

CAR requests missing information

OEO staff reviews for DBE compliance

OEO requests missing information, clarifies questions

Project Controls staff reviews to ensure compliance with contract specifications and FTA regulations

Finance staff reviews, assigns to appropriate budget line items and account codes

PC seeks more information, clarifies questions

Deputy Project Director authorizes payment

Submit to Metro Transit Account Payable to review and set up payment

Submit to Metropolitan Council to send to contractor via ACH
Prompt Payment

• After LMJV receives payment from the Council
  • LMJV will have 10 days to pay 1\textsuperscript{st} tier subcontractors for undisputed services
  • 1\textsuperscript{st} tier subcontractors have 10 days to pay 2\textsuperscript{nd} tier subcontractors for undisputed services
  • And so on…
Payment Cycle

6/15: LMJV submits Pencil Copy → 10 Days To Review Pencil Copy

6/17: Invoice Deadline → DBE Invoices for 5/15 - 6/15

6/25: Council finalizes Invoice → 30 Days For Review

7/25: Council Completes Pay App Review → Payment Issued

7/26: LMJV Receives Payment → 10 Days

Time Frame

1st Tier – 51 Days
2nd Tier – 61 Days
3rd Tier – 71 Days

8/5: 1st Tier Subs Paid → 10 Days

8/15: 2nd Tier Subs Paid → 10 Days

8/25: 3rd Tier Subs Paid
Contract Language

“Prompt Payment to Subcontractors. The CONTRACTOR agrees to pay Subcontractors within ten (10) calendar days of the CONTRACTOR’s receipt of payment from the COUNCIL for undisputed services provided by the Subcontractor. In addition, the CONTRACTOR agrees to pay Subcontractors all undisputed retainage payments within ten (10) calendar days of the CONTRACTOR’s receipt of the Subcontractor’s final undisputed invoice regardless of whether CONTRACTOR has received any retainage payment from the COUNCIL. The CONTRACTOR shall not postpone or delay any undisputed payments.”
Workforce Industry Overview
Information Sources and Background

- Presentation information is compiled from a variety or construction collaborative groups and other research initiatives; for example:
  - GMWC Construction Sector Academy
  - MCIWA Initiative
  - Ramsey County Workforce Inclusion & Contracting Goals
  - MNDEED
  - Environmental Scanning (i.e. focus groups)
More Work – Less Workers: How Much Does Technology Play a Factor?

Figure 2. 7-County Metro Area Construction Industry Employment, Q2 2000 - Q2 2018

Source: DEED Quarterly Census of Employment and Wages
CONSTRUCTION CAREER PATHWAYS

COMMON TO ALL TRADES

18 YEARS OLD

Drivers License (issued to age 18)

LEGAL TO WORK IN THE U.S.

High School Diploma or GED

PHYSICALLY FIT

MATH & READING PROFICIENCY

LICENSED TRADES

- Trade skills can be helpful but not always necessary
- Exams and assessments are given specific to each of the licensed trades
- Applications are taken on an as-needed basis (individual training requirements)

PLUMBER

SPRINGER/FITTER

HAC/INSTALLER-TECHNICIAN

PIPERITER / STEAMFITTER

CONSTRUCTION ELECTRICIAN

ELECTRICIAN LINE WORKER

UNLICENSED TRADES

- Applications are always being taken
- Hired by company at the discretion of the employer
- Apprenticeship can be 4-5 years (8,000-9,000 hours), many require formal training at JATC

CARPENTER

DRAIN & SEWER

PLUMBER

LAVENDER & TENDER

PAINTER

ROOFER/ WATERTROFFER

15W VOLTAGE / LIMIT POWER INTEGRATED ELECTRICIAN/TECHNICIAN

SPECIALTY TRADES

- Applications are taken as needed base (see individual trade website)
- All jobs are through the union hall (through an employer - may apply with apprenticeship)
- Apprenticeships are 2-3 years (4,000-6,000 hours), some require formal training at JATC

REBAR BOWER

ELEVATOR Constructors

IRONWORKER

OPERATING ENGINEER

FLEET DRIVER

SHEET METAL WORKERS
23 Union Apprenticeship Training Centers

Metro Area Only
Representing 29 Trades

*Heavy Equipment Operators is in Hinckley and not on the map
31 State Colleges & Non-Profits Offer Construction Training That Can Lead To Union Apprenticeships

9 Community Colleges
22 Non-Profits
= 31 Metro Programs
Over 50 Construction Training Programs in the TC Metro Area

23 JATC’s (Registered Apprenticeships)

9 Community Colleges

20+ Community Training Programs
Minnesota’s Union Construction Educational System
A Labor/Management Partnership Model

Apprenticeship Training Committees
(Run by a joint Labor/Management Committees – meet quarterly/monthly)

Training Apprentices
(minimum 144 hrs./yr., plus on-the-job training of about 2000 hrs)
Details may vary by construction trade
Construction Trades Apprenticeship Model

- Registered and accredited through MNDOLI
- 4,000 – 10,000 on-the-job hours (2-5 years) to master a trade
- 144 minimum hours of classroom & lab training per year
- State of the art training facilities
- All union members and signatory contractors can participate

- Curriculum developed by craft specific joint labor/management committees
- All craft apprentices participants have an option of obtaining an accredited 2 year degree with their apprenticeship training
- Students pay little or no cost
- Provides a pool of skilled craft workers for signatory union employers
Construction Apprenticeship Demographics

**Apprentices**
- 2012: 5,308
- 2017: 10,936

**Minority**
- 2012: 837
- 2017: 2,232

**Female**
- 2012: 265
- 2017: 683

**Veteran**
- 2012: 158
- 2017: 682

**CONSTRUCTION APPRENTICESHIPS:**
- Minnesota Apprentices: 94%
- Minority: 20%
- Women: 6.3%
- Veteran: 6.2%
- Average Age-Men: 29.9
- Average Age-Women: 33.9

Source: Apprenticeship Minnesota Database
Construction Statistics 12/15/2012 & 12/15/2017 data snapshot
### First Quarter Apprentices of 2019

<table>
<thead>
<tr>
<th>Apprentice information</th>
<th>2019 Q1</th>
<th>2019 Q2</th>
<th>2019 Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total apprentices</td>
<td>11,566</td>
<td>11,472</td>
<td>11,366</td>
</tr>
<tr>
<td>Females</td>
<td>871</td>
<td>861</td>
<td>858</td>
</tr>
<tr>
<td>Minorities</td>
<td>2,321</td>
<td>2,297</td>
<td>2,285</td>
</tr>
<tr>
<td>Veterans</td>
<td>812</td>
<td>807</td>
<td>803</td>
</tr>
<tr>
<td>New apprentices</td>
<td>202</td>
<td>155</td>
<td>167</td>
</tr>
<tr>
<td>Graduations</td>
<td>115</td>
<td>108</td>
<td>94</td>
</tr>
</tbody>
</table>

MNDOLI – Apprenticeship Works Newsletter Spring 2019 Issue 27
## MN Construction Business Patterns, 2010 – 2016

<table>
<thead>
<tr>
<th>Establishments by Employee Size</th>
<th>Construction Establishments</th>
<th>Total, All Establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>2016</td>
</tr>
<tr>
<td>Total, All Establishments</td>
<td>16,368</td>
<td>16,360 (100.0%)</td>
</tr>
<tr>
<td>1 to 9 employees</td>
<td>14,513</td>
<td>14,202 (86.8%)</td>
</tr>
<tr>
<td>10 to 19 employees</td>
<td>1,121</td>
<td>1,105 (6.8%)</td>
</tr>
<tr>
<td>20 to 49 employees</td>
<td>499</td>
<td>693 (4.2%)</td>
</tr>
<tr>
<td>50 to 99 employees</td>
<td>127</td>
<td>219 (1.3%)</td>
</tr>
<tr>
<td>100 to 249 employees</td>
<td>88</td>
<td>105 (0.6%)</td>
</tr>
<tr>
<td>250 employees or more</td>
<td>20</td>
<td>36 (0.2%)</td>
</tr>
</tbody>
</table>

Data comes from the U.S. Census Bureau’s County Business Patterns (CBP)
### DBE/SBE And Workforce Goals

Per MNDOLI, you need 9 journey level workers for 5 apprentices = 14 workers.

<table>
<thead>
<tr>
<th>Team 1</th>
<th>Team 2</th>
<th>Team 3</th>
<th>Team 4</th>
<th>Team 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1</td>
<td>1:1</td>
<td>1:1</td>
<td>3:1</td>
<td>3:1</td>
</tr>
<tr>
<td>2 workers</td>
<td>2 workers</td>
<td>2 workers</td>
<td>4 workers</td>
<td>4 workers</td>
</tr>
</tbody>
</table>

_The first three teams are 3 journey level to 3 apprentices and then 3 journey level to one apprentice meaning the first four “teams” need 6 journey level workers to 4 apprentices (6:4 ratio). Five teams would need 9 journey level to 5 apprentices._
From Apprenticeship to Graduation

- It takes 8,000 hours to graduate (Journey level) from many apprenticeship programs
- In this case, it took 6 years to complete the apprenticeship hours

<table>
<thead>
<tr>
<th>Apprenticeship</th>
<th>2019 hours</th>
<th>2020 hours</th>
<th>2021 hours</th>
<th>2022 hours</th>
<th>2023 hours</th>
<th>2024 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>900</td>
<td>1,100</td>
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<td></td>
<td></td>
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<tr>
<td>Year 2</td>
<td></td>
<td>1,000</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 3</td>
<td></td>
<td></td>
<td>500</td>
<td>1,500</td>
<td></td>
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<tr>
<td>Year 4</td>
<td></td>
<td></td>
<td></td>
<td>800</td>
<td>1,000</td>
<td>200</td>
</tr>
<tr>
<td>Year 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,700</td>
</tr>
<tr>
<td>Total Per Year</td>
<td>900</td>
<td>2,100</td>
<td>1,500</td>
<td>2300</td>
<td>2,300</td>
<td>1,900</td>
</tr>
</tbody>
</table>
Project Goals vs Career

Typical construction manpower loading curve
Equivalent manpower loading trapezoid

Number of Workers

Average number of site workers over total construction period

Functional Design

Working Drawings

Tender & Award

Construction

Commission

Operate

Percent of Total Construction M-Hrs

40%

40%

20%

Approximate Percentages of Construction+Commission Time

RMW 2/3/01
Common Construction Industry Messaging

• Example: New $50-million technology center construction project

“Will Create Over 150 Construction Jobs Over the Next Two Years…”
# The Real Number of Jobs Created

<table>
<thead>
<tr>
<th># Workers</th>
<th>Trades</th>
<th>Length of Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Heavy Equipment Operators</td>
<td>2 months</td>
</tr>
<tr>
<td>20</td>
<td>Laborers</td>
<td>Average 20 over project life – 50 at peak</td>
</tr>
<tr>
<td>30</td>
<td>Carpenters</td>
<td>Over 18 months</td>
</tr>
<tr>
<td>15</td>
<td>Cement Masons</td>
<td>Periodically over 14 months</td>
</tr>
<tr>
<td>15</td>
<td>Iron workers</td>
<td>3 months</td>
</tr>
<tr>
<td>15</td>
<td>Pipe trade workers</td>
<td>Over 3 month period</td>
</tr>
<tr>
<td>10</td>
<td>Electricians</td>
<td>4 months over 8 month period</td>
</tr>
<tr>
<td>8</td>
<td>Flooring Specialists</td>
<td>2 months</td>
</tr>
<tr>
<td>30</td>
<td>Misc. - 9 different Trades</td>
<td>As needed for specific tasks</td>
</tr>
</tbody>
</table>
Better Construction Industry Messaging

- Example: New $50-million technology center construction project

“Will SAVE Over 100 Construction Jobs and Bring 50 New Apprentices into the industry Over the Next Two Years…”
Closing

- Next Meeting Date: August 15, 2019
  - Agenda topics for the next agenda
  - Actions items for the next meeting
- Adjourn
Stay Updated!

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