Data Center Infrastructure in West Des Moines

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City Engineer
City of West Des Moines

WAKE UP!

ATTENDS CIVIL ENGINEERING LECTURE
DIES OF BOREDOM

Working from Home
Working for a City is my dream job!

Deer in Headlights

Grey Hair

Crows Feet

Fake Smile

Only 10 years, 5 months, 6 days and 18 hours until my rule of 88

City Engineering

WDM City Hall

S Grand Prairie Pkwy

1 Mile

Mountain

484,000 SF
154 FTEs
$81.4 Taxable Valuation
$2.1 Annual Taxes
Alluvion
1.7M SF
288 FTEs
$243M Taxable Valuation
~$10M Annual Taxes

Microsoft Osmium
Future Veterans Parkway
S. Adams Street
WDM City Hall
S Grand Prairie Pkwy
1 Mile

Ginger West
1.5M SF – 250,000 SF Under Construction
0 FTEs
$315M Taxable Valuation

Ginger East
1.25M SF – 250,000 SF Under Construction
0 FTEs
$242M Taxable Valuation

Alluvion

1 Mile

35

Mountain

5

Centura

Ginger West
$43.7M
115,000 SY

Canyon
$72.3M
174,000 SY

Ginger East
$6.3M
22,000 SY

Booneville Road
5 Grand Prairie Parkway
Grand Avenue

WDM City Hall

Grand Ave

Grand Pkwy

Welsh Rd

Alluvion

Ginger West

Ginger East

80
Microsoft Data Centers – Planning

- Ultimate Street Circulation – Traffic Modeling

Microsoft Data Centers – Planning

- Ultimate Street Circulation
- Comprehensive Plan
Microsoft Data Centers – Planning

• Ultimate Street Circulation
• Comprehensive Plan
• SW Connector Study

Microsoft Data Centers – Planning

• Ultimate Street Circulation
• Comprehensive Plan
• SW Connector Study
• Coordination With Other Government Entities
  • Warren, Polk, Madison and Dallas Counties
  • City of Norwalk, City of Cumming
  • Warren and Polk County Conservation
  • Badger Creek Watershed Subdistrict
  • Wastewater Reclamation Authority (WRA)
  • School Districts
  • US Postal Service
### Microsoft Data Centers – Public

- Right of Way Acquisition
  - Residences
  - Developers
  - Farmers
- Rural Road Maintenance
  - Work with County
  - Include Rock in Projects
- Great Western Trail
  - DON’T TOUCH MY TRAIL
  - DON’T CUT DOWN THE TREES
  - LEAVE US ALONE

### DISCLAIMER

- City Engineer
  - Seems Glamourous
  - Go To Meetings
  - Talk Residents Off the Ledge
- Ashworth Yard Signs
  - KCCI Interviews
  - Hearst
    - Huge Ratings Increase in Female Demographic
    - Females aged 70 to 85
- BOTTOM LINE: I Don’t get into details of Mix Designs

### Microsoft Data Centers – Mix Design

- Widespread Concrete Issues
  - Saturation – Freeze/Thaw
  - Chemical Attack – Salts
- Project Alluvion Test Case
  - Multiple Large Projects
  - Similar Traffic Volumes
- Multiple Mix Designs
  - C-4WR-C20
  - QMC
  - Modified QMC with 33% Fly Ash – Now known as C-SUD

### Microsoft Data Centers – Mix Design

- Contractors – First Time Using the QMC Mix Designs
- QMC – Introduction of Intermediate Aggregate
- Replaces Fine Aggregate and Cement Paste
- Lower Water/Cement Ratio
- C-SUD - 33% Fly Ash
Mod QMC 33% Fly Ash – C-SUD

Microsoft Data Centers – QMC Issues

- Finishing – Dry Mix
- Sawing – Issues with Raveling
- Qualified Contractors

Questions?