Osmose®

Make a more resilient grid possible today

Joint Use Management Services

SAFETY SETS THE PACE

- Osmose Spring Safety
  - Vehicle inspections focuses on tires, wipers, lights and visibility
  - Sun glare –
    - have sunglasses
    - clean windshield
      - Inside and out
    - ensure your windshield washer fluid is full
  - Preparation for the work day focuses on clean, layered, and insulated clothing, waterproof boots with good tread and covering up extremities

DISCUSSION TOPICS

- Objectives
  - Conduct a Joint Use Audit that:
    - Creates a full baseline of attachment information
    - Maximizes rental rates and audit cost recovery
    - Identify existence of Double Wood locations and current status
    - Capitalize the visit to the pole and investigate optional collection items
      - Collect height attachment
      - Pole Loading analysis
      - Lidar
      - Other initiatives
  - Develop a process for permit applications

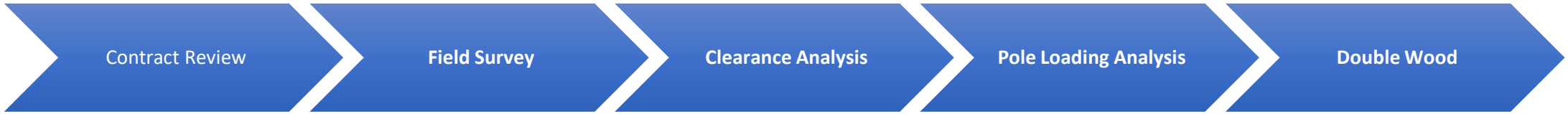
AUDIT VALUE PROPOSITION

- ✓ Osmose has polled pole owners about the results of recent JU programs. The answers support continued audits on a cycle:
  - ✓ When on a 5-7 year cycle new attachments find rate is between 5-6%
    - One customer Osmose found ~30,000+ new attachments on ~1 millions poles with only six years between audits
  - ✓ Cost recover for audit is between 65-75% for the pole owner (Contract Dependent)
    - Audits are a cash flow issue not a cost issue
    - Additional revenue from new found attachments in year 1 repay the cost of the audit and each additional year is new found revenue
    - Some owners have incorporated other collection items such as violations or Double Wood which make the project cost neutral when their add value are incorporated into the equitation
  - ✓ Audits are the first step in implementing a strict attachment request process
  - ✓ Audits reduce pole ownership costs

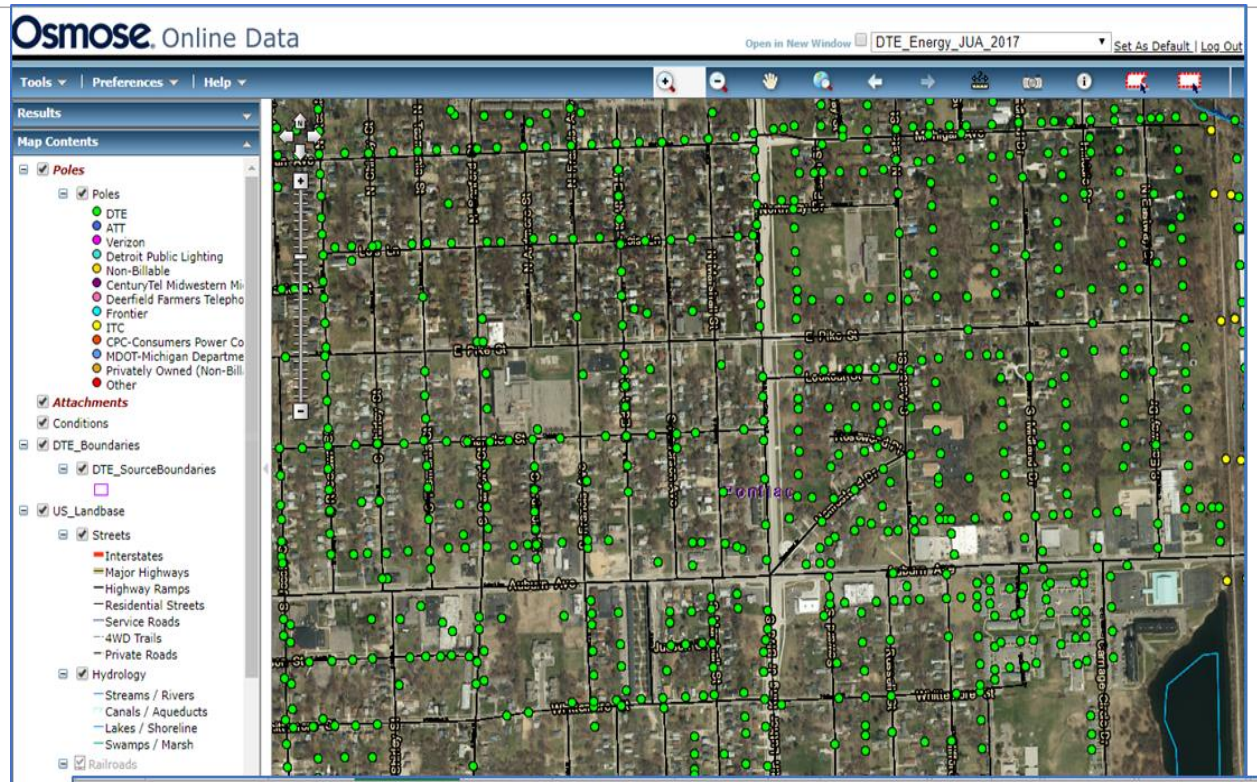
Average New Attachments	5-6%
Current attachment count	200,000.00
Expected New attachments	10,000.00
Yearly Rental Rate	$ 20.00
Fines for unauthorized attachments	$ 100.00
(assumes 5 years fine)	
Year 1 new rent	$ 200,000.00
Year 1 fines	$ 1,000,000.00
Year 1 return	$ 1,200,000.00
Years 2-5	$ 800,000.00
Total 5 year return	**$ 2,000,000.00**
Total Poles on System	300,000.00
Survey Cost per pole	$ 5.00
Total Survey Cost	$ 1,500,000.00
Audit recovery	$ 1,125,000.00
Your Cost	**$ 375,000.00**
Final 5 year Return	**$ 1,625,000.00**

OSMOSE APPROACH
(BUILDING BLOCKS OF JOINT USE MANAGEMENT)

- Osmose Joint Use Management is a series of building blocks that lead to comprehensive management
- Each project is a block
  - It starts with Contract Review – understand what you can, can't, and should do
  - The Field Survey will identify
    - Who is attached
    - Where are they are attached
    - How they are attached
    - Are they being billed for each attachment
    - Share results with all stakeholders (Collaboration)
    - Additional projects to extend the life of your structures
  - Increase safety with removal of violations identified during the survey
    - (Double wood, clearance violations)



COLLABORATION AND OSMOSE ONLINE



Accept / Dispute	Reason	Latitude_1	Longitude_1	Street Number_1	Street Name_1	County_1	State_1	Structure Type_1	Length_1	Class_1	Year Manufct_1	Structure State_1	Joint Use Attachment Type_1	Joint Use Attachment Quantity_	Joint Use Attachment Owner Nam
Accept	---	42.467385	-83.236708	24359	Northwestern Hwy	Oakland	MI	Wood Pole	45	5	1969	In Service	Fiber	1	123NET
Accept	---	42.467388	-83.23671	24359	Northwestern Hwy	Oakland	MI	Wood Pole	45	5	1969	In Service	Fiber	1	123NET
Accept	---	42.467388	-83.23671	24359	Northwestern Hwy	Oakland	MI	Wood Pole	45	5	1962	In Service	Fiber	1	123NET
Accept	---	43.318878	-83.078553	3424	Wilson St	Sanilac	MI	Wood Pole	45	3	1955	In Service	Telephone	1	CenturyTel Michigan Network LLC.
Dispute	Not our attachment	43.319622	-83.07856	3408	Wilson St	Sanilac	MI	Wood Pole	40	4	1993	In Service	Fiber	1	CenturyLink
Accept	---	43.318843	-83.078558	3434	Wilson St	Sanilac	MI	Wood Pole	35	5	1960	In Service	Telephone	1	CenturyTel Michigan Network LLC.
Accept	---	43.319623	-83.078555	6401	Euclid St	Sanilac	MI	Wood Pole	45	3	1998	In Service	Fiber	1	CenturyLink
Accept	---	43.319607	-83.078553	3416	Wilson St	Sanilac	MI	Wood Pole	40	4	1950	In Service	Telephone	1	CenturyTel Michigan Network LLC.
Accept	---	43.320337	-83.078548	6400	Euclid St	Sanilac	MI	Wood Pole	50	1	1999	In Service	Fiber	1	CenturyLink
Accept	---	43.318487	-83.078607	3444	Wilson St	Sanilac	MI	Wood Pole	50	1	2002	In Service	Fiber	1	CenturyLink
Accept	---	43.320337	-83.078547	6400	Euclid St	Sanilac	MI	Wood Pole	45	3	1998	In Service	Fiber	1	CenturyLink

1. The most important step in building an audit strategy is collaborating with the major stakeholders including attachers. Ensuring all the collection criteria and methodologies are agreed to at the onset is the linch pin of the survey

2. Validation and Data Acceptance, all billing and fees rely on the belief that the survey is accurate and acceptable to all parties. Osmose offers the best method for achieving acceptance, Osmose Online Joint Use Viewer.

- ✓ Secure, password protected environment
- ✓ Display pole-top images to provide proof of attachments, violations, etc.
- ✓ Incorporates customers' landbase or Osmose landbase & satellite imagery
- ✓ Create custom queries and print reports

LEVELS OF JOINT USE SURVEYS

Collection	Simple	Intermediate	Benefit
Pole Attributes (GPS, height, class, owner, etc.)	✓	✓	
Attachments (type, owner, count)	✓	✓	
Pole Top Image	✓	✓	*Reference image of pole top to support GIS, NESC issues, 3rd party back-billing*
Violations/Hazards/Double wood	✓	✓	*Identify NESC issues caused by pole owner or 3rd parties for follow-up correction*
Load Screening Estimate		✓	*Low-cost screening to identify potentially overloaded poles flagged for detailed analysis in O-CalcPro*
Attachment Heights on the Pole		✓	*Pole modeling/loading/design, evaluating clearances at the pole*
Calibrated (DMT) Image		✓	*Allows customer to extract their own heights, wire sizes, etc. or as a QA/reference file accompanying a completed O-CalcPro delivery.*
Budgetary $ Range	**Low**	**Med**	

BASIC ATTACHMENT AUDIT

The goals of a basic attachment audit are:

1. Determine who is attached to each structure
2. How many attachments on those structures
3. Matching the collection to the yearly billing and updating billing
4. Identifying “unauthorized” attachments
5. Cost recovery for audit
6. Take advantage of the pole visit – optional items

1. Maintenance items
2. Photos
3. Attachments on Foreign poles
4. Double Wood
5. Violations
6. Asset collection

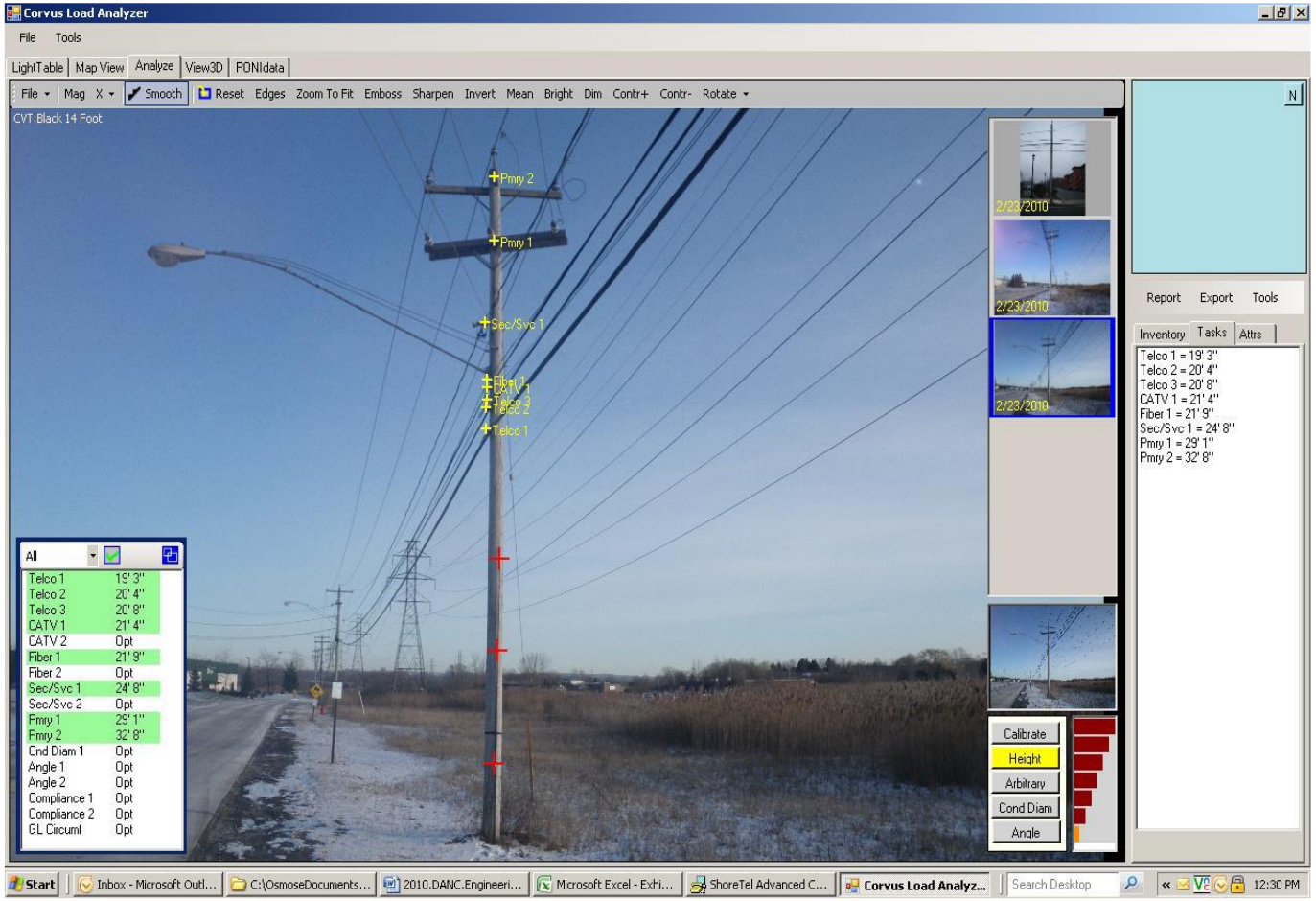
Poles	In Field	Y/N
	Not in Field	Y/N
	New	Collect GPS
Attachment	Ownership	Company Name
	Type	See “Attachment Type” list below
	Quantity	Numeric Number
	Overlash	Y/N
	Power Supply	Y/N
Maintenance Items (optional)	Maintenance Type	See Maintenance Items list below
Photo (optional)	Pole	Attachment zone
Foreign Pole	Customer on foreign Pole	Y/N

INTERMEDIATE ATTACHMENT AUDIT

Collection of all the items from basic audit plus collection of heights and load screening.

For attachment height Osmose will use DMT (Digital Measurement Technology)

DMT ("Digital Measurement Technology") provides the ability to accurately measure attachment heights, wire diameters, and other general dimensions using a digital camera and visual target that are calibrated for the DMT application. Provides safer, faster, and more accurately results than traditional hot stick methods.

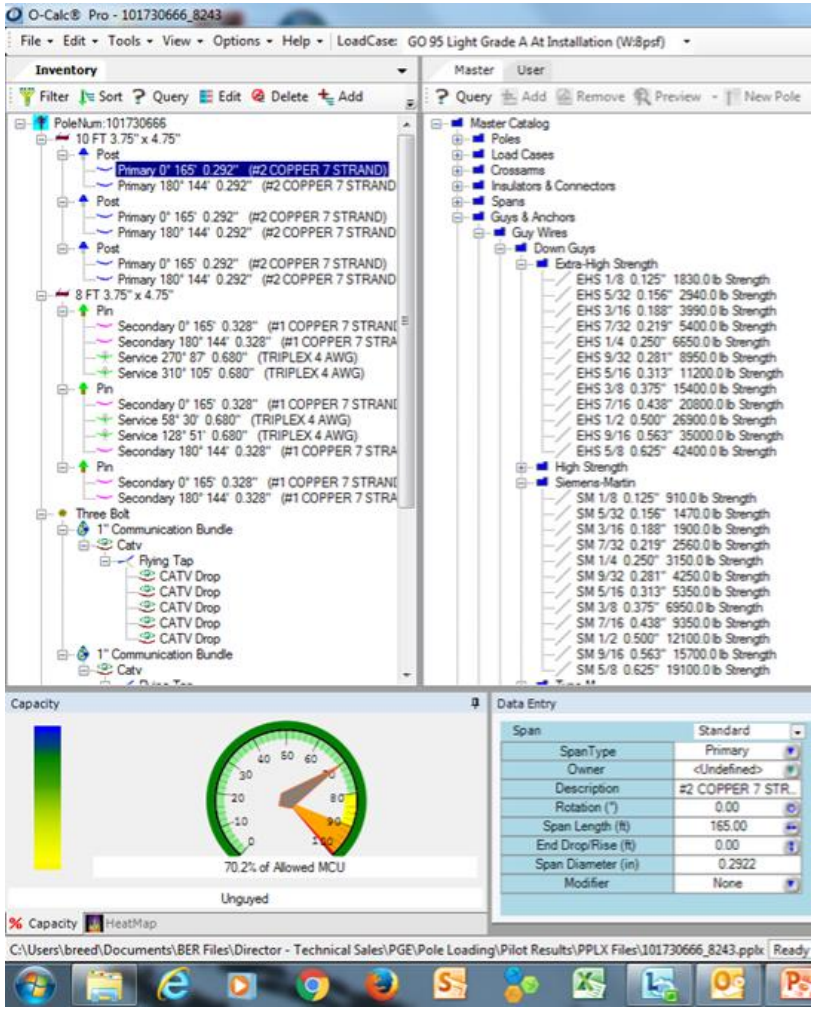


INTERMEDIATE ATTACHMENT AUDIT

Collection of all the items from basic audit plus collection of heights and load screening.

Osmose uses a process called load screening to identify pole locations were pole are “potentially” overloaded for further investigation.

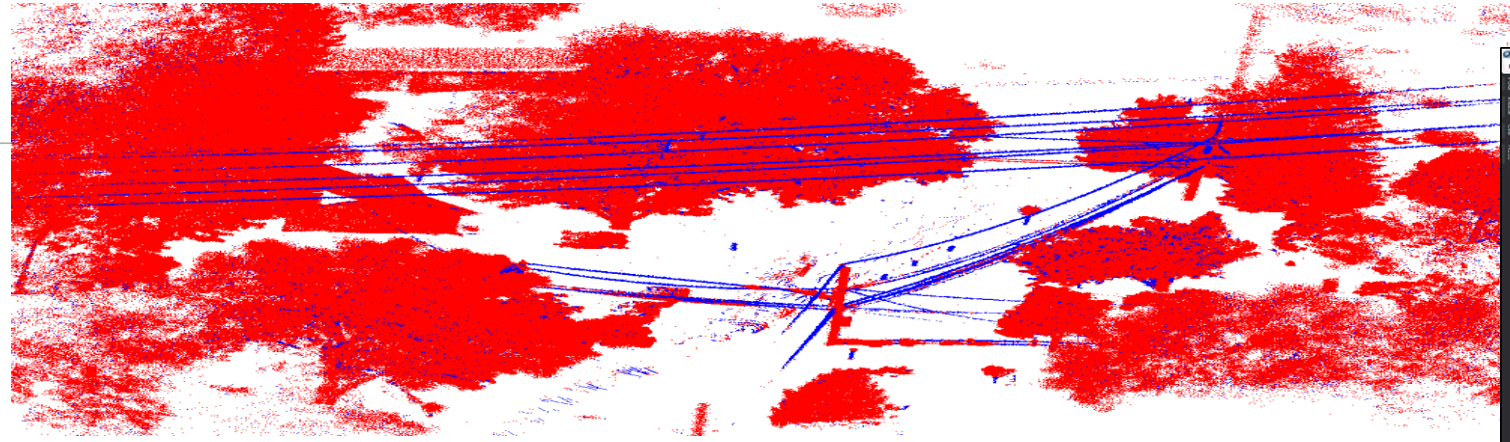
Load screening is the process by which capturing the configuration of the pole with attachment heights and other attributes determines the probability that a pole is overloaded and needs a full PLA through O’Calc. This limits the need to collect all the attributes required for a full PLA – span lengths, angles, down guys, etc.

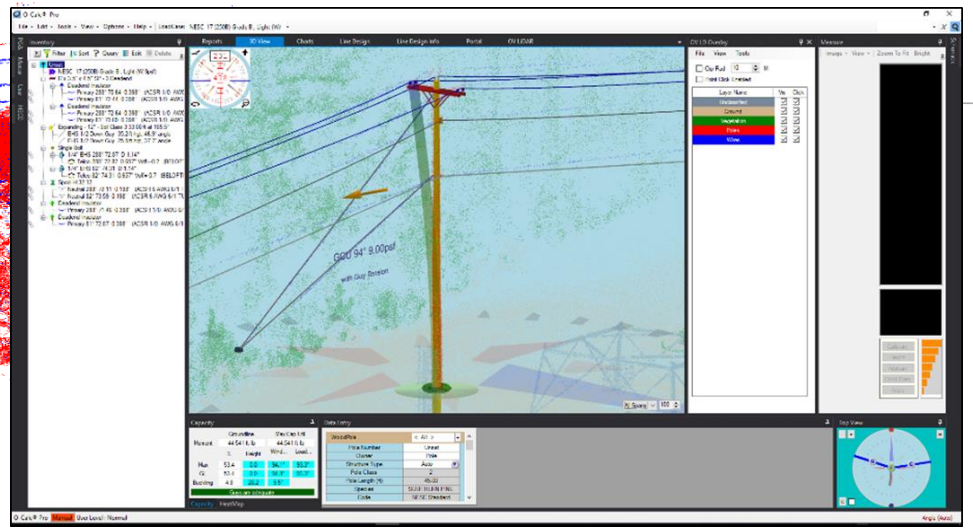


VALUE ADD OPTIONS

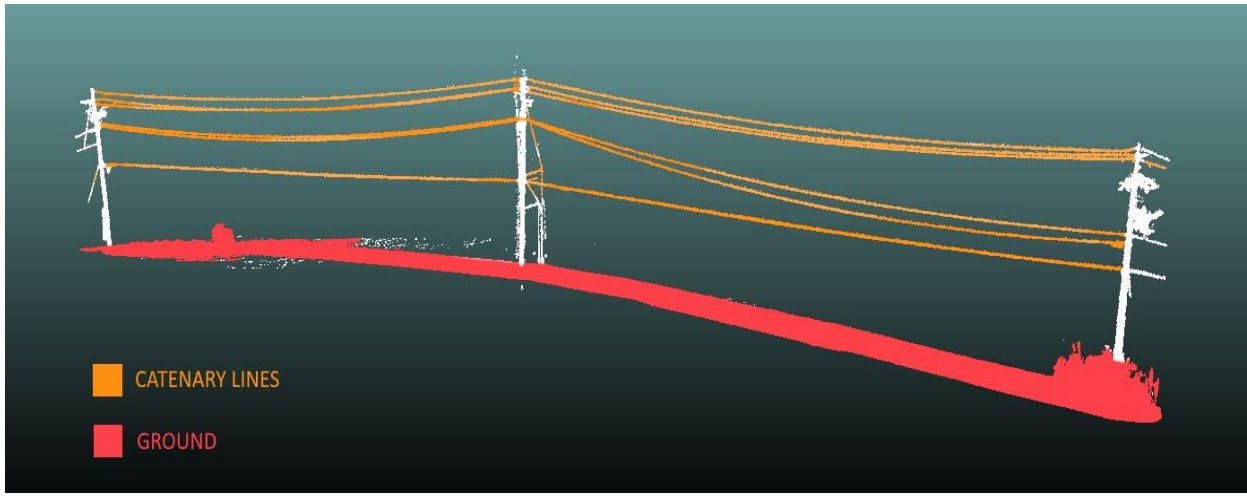
- OsmoVision a LiDAR/Imagery Solution by Osmose
- What is it – A combination of LiDAR and Imagery processing that improves accuracy, consistency and efficiency of pole locations, assets, loading and clearance analysis.
- Key features - 300,000 points per second, 1-3 cm relative accuracy, LiDAR classifications (Pole Classifier, Wire Segmentation and Classification, LiDAR Corridor Maker, and Geo Referencing

OsmoVision

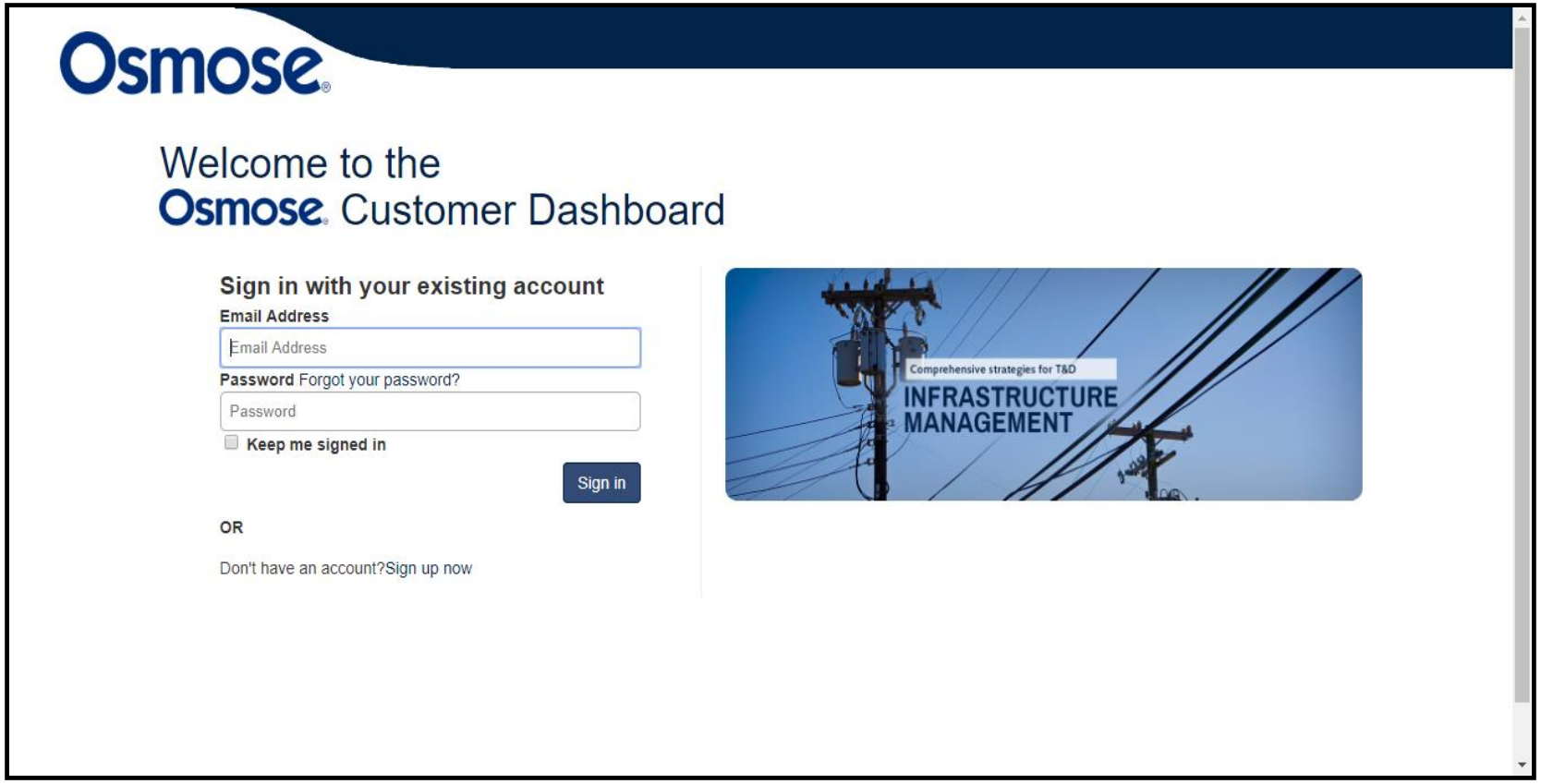




- Provides attachment heights, span lengths, line angles
- Minimized field collection variability
- Backpack/Handheld solves LiDAR deployment issues
- Accurately models wire sag
- Integrates with O-Calc® Pro Pole Loading software
- Pole Builder
- Well Classified point cloud
- Automated Clearance evaluation tools
- Embedded Imagery
- Provides information to perform Vegetation Management



CUSTOMER DASHBOARD/
JOINT USE APPLICATION PORTAL



JOINT USE APPLICATION PORTAL

- **Portal for Applicants to submit Applications for Attachment** providing an easy to use standardize process for application system and automated tracking of status;
- **Tracking of all milestones related to the project workflow** for each application processed from submission by applicant to completion and approval;
- **Detailed tracking and archiving** of supporting documentation associated with each application (data, images, designs, documents);
- **Providing an online environment for communication and collaboration** between Osmose and pole owners;
- **Communicating status changes, action items, incidence management & reporting, and prioritizing issues** through automated and user-triggered emails to project stakeholders;
- **Supporting an online executive dashboard** for illustrating project performance, summary reports and project details.

New Application

Applicant: Brian **Status:** New

Save & Submit

Applicant Information

Applicant Name: Brian

Company: Osmose Utilities

Address: 3053 Hillbrook Dr

City: Eden State Zip Code: 14057

Email: bread@osmose.com Phone: (716) 912-3058

Agreement Number: (Optional) License Number: (Optional)

Upload Files

Complete this template with the structures that are in your request. Upload the completed file and a strand map. Attach any additional information that will be useful in evaluating your application.

☐ Required sketches and maps included

No files uploaded

Application Information

Application Name:

Requested Completion Date: (Optional)

* Osmose does not guarantee work completion by the date requested

Location:

State Township

Attachment Type(s):

Wired - Overlash or New...

Number of Structures:

☐ Applicant has applied to the joint pole owner

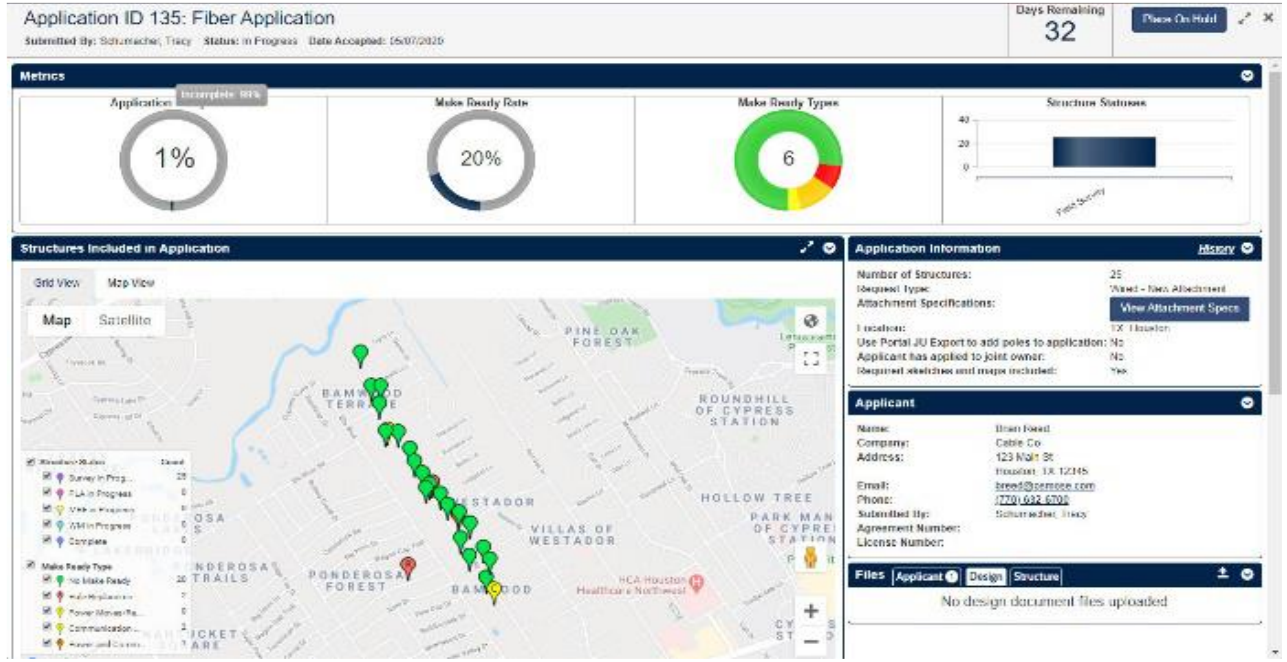
Attachment Information - Wires

Conductor/Cable				Suspension Strand		
Diameter(inches)	Weight(lbs/ft)	Stringing Tension(lbs)	Rated Breaking Strength(lbs)	Diameter(inches)	Weight(lbs/ft)	Proposed Location
						Select

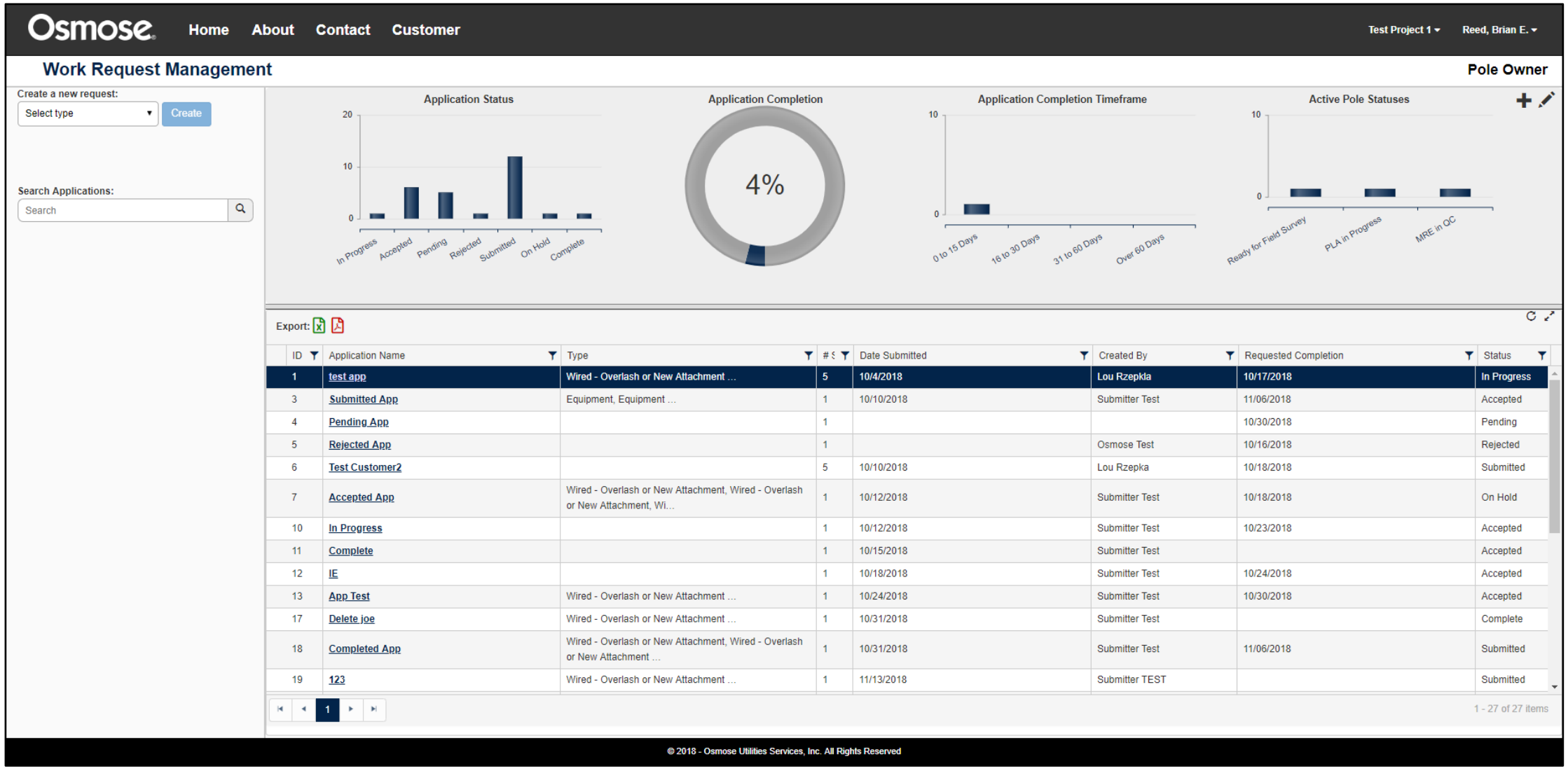
APPLICATION MAP VIEW

Application Detail Map View

Each pole on the application is displayed on the Application Detail Map. Poles are represented by status pins to provide the user a simple high level view the make ready work required to accommodate the attachment. The status pins can be turned on or off to enable the user to filter on either the status or the make ready work required. Additionally, the user can select street view in order to “virtually” review the pole location.



JOINT USE APPLICATION PORTAL



ID	Application Name	Type	# S	Date Submitted	Created By	Requested Completion	Status
1	test app	Wired - Overlash or New Attachment ...	5	10/4/2018	Lou Rzepkla	10/17/2018	In Progress
3	Submitted App	Equipment, Equipment ...	1	10/10/2018	Submitter Test	11/06/2018	Accepted
4	Pending App		1			10/30/2018	Pending
5	Rejected App		1		Osmose Test	10/16/2018	Rejected
6	Test Customer2		5	10/10/2018	Lou Rzepka	10/18/2018	Submitted
7	Accepted App	Wired - Overlash or New Attachment, Wired - Overlash or New Attachment, Wi...	1	10/12/2018	Submitter Test	10/18/2018	On Hold
10	In Progress		1	10/12/2018	Submitter Test	10/23/2018	Accepted
11	Complete		1	10/15/2018	Submitter Test		Accepted
12	IE		1	10/18/2018	Submitter Test	10/24/2018	Accepted
13	App Test	Wired - Overlash or New Attachment ...	1	10/24/2018	Submitter Test	10/30/2018	Accepted
17	Delete joe	Wired - Overlash or New Attachment ...	1	10/31/2018	Submitter Test		Complete
18	Completed App	Wired - Overlash or New Attachment, Wired - Overlash or New Attachment ...	1	10/31/2018	Submitter Test	11/06/2018	Submitted
19	123	Wired - Overlash or New Attachment ...	1	11/13/2018	Submitter TEST		Submitted

O360 APPLY

- From the Application Overview Grid, any user (with appropriate permissions) can open and review details of each application. The Application Detail page contains specific information about each pole and its status. The header provides the detailed information about the application including a status view with a countdown of days remaining. The Days Remaining KPI can be configured to pole owner requirements for required turnaround times

OSMOSE TEAM
(EXPERIENCE & CAPABILITIES)

- Osmose has been supporting our customers' joint use program needs for over 30 years, assisting with:
  - 3rd Party Contract Review
  - Revenue and cost-recovery related to joint use audits and rental billing
  - Managing risk through pole loading, clearance analysis, double wood remediation, pole replacement
  - Make-Ready: Timely processing of incoming applications to attach from 3rd Parties

- Design Experience Across Millions of Poles
  - Attachment application field surveys
  - Make ready designs and Cost Estimates
    - Digital Measurement Technology - Comprehensive pole loading analyses
    - StrengthCalc, LoadCalc, O-CalcPro®
  - Transfers & Construction Coordination
    - Double Wood Management and Violations

- GIS and Work Management System updates
  (NJUNS, NOTIFY, SPANS, Smallworld, ESRI, Logica, STORMS, Passport, Maximo)

BENEFIT SUMMARY

- ✓ Audit Survey:
  - ✓ Maximize your rental revenue
  - ✓ Costs will be shared
  - ✓ You will have the ability to back bill for “Unauthorized Attachments”
  - ✓ Attachers will be forced to follow attachment process and limit “Unauthorized” attachments
  - ✓ GIS and asset records will be updated
- ✓ Double Wood and Violations
  - ✓ Reduce liability and increase safety
  - ✓ Force 3rd party to complete transfers or charge them for it
  - ✓ Ensure you are in compliance
  - ✓ Full turnkey Project Management
- ✓ Pole Design:
  - ✓ Augment your resources
  - ✓ Manage ebbs and flows
  - ✓ Manage Pole Loading Analysis
  - ✓ Reduce pole replacement costs
  - ✓ Ensure proper design and construction
  - ✓ GIS and asset records will be updated
- ✓ Permitting Process & Management
  - ✓ Augment your resources
  - ✓ Manage ebbs and flows
  - ✓ Standardize application process and design
  - ✓ Force compliance for 3rd party attachments
  - ✓ Up to date reporting and invoicing

Osmose®

Thank you!

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