



City of Galesburg  
City Hall

# City of Galesburg Facility Assessment

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November 4, 2024



# Your Veregy Team



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# Today's Agenda

Introduction

City of Galesburg – Assessment Goals

Veregy Assessment Review

Next Steps

Questions/Discussion

## City of Galesburg - Assessment Goals

- ✓ Identify Plan for Upgrading Aging Infrastructure at Twenty-Four (24) Facilities
- ✓ Provide sustainable long-term Reduction in Energy and Operational Costs
- ✓ Identify and secure funding where possible for system upgrades
- ✓ Improve facilities for staff and community



### Renewable Offering

- Solar- PPA/SSA
- Off Grid Solutions
- Battery Solutions
- Micro Grid
- Geothermal
- Structured/Financing

### Energy Master Plan

- Condition Assessment
- Energy Efficiency Projects
- Performance Contracting
- Capital Planning/Bond
- Design Build
- Financing



### Construction

- Engineering Design
- Design Build Contracting
- Construction Management
- Onsite 24/7 Dedicated Project Manager
- Seamless Partner Management

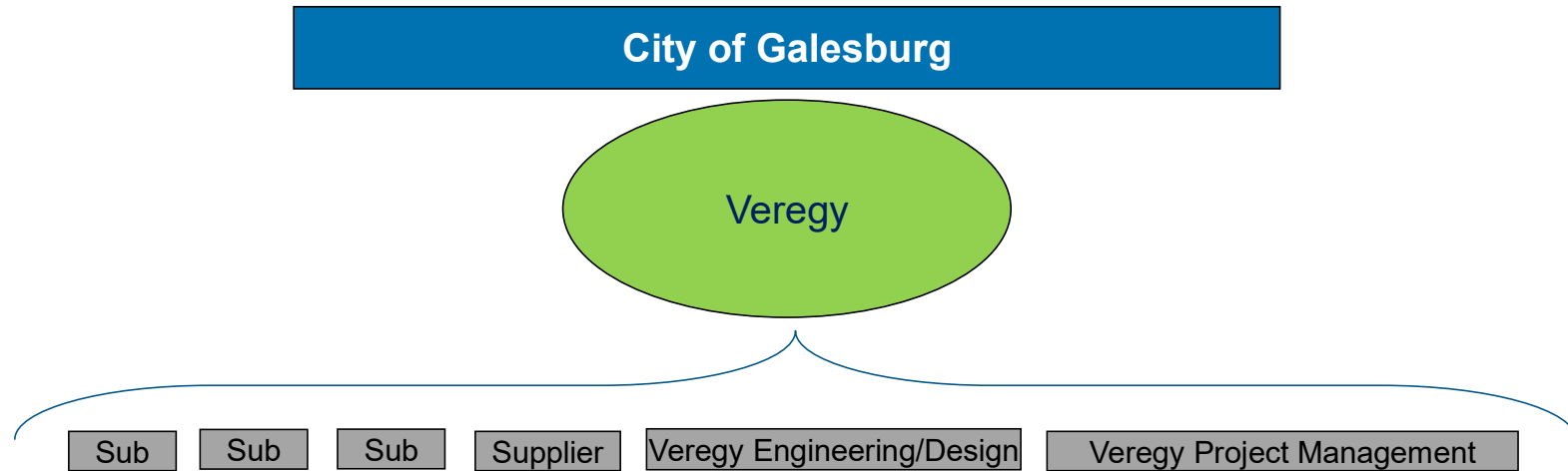
### Solutions/Building Services

- Energy Efficiency Projects: HVAC, Lighting, Controls, Commissioning, Monitoring Controls, Plumbing
- Utility Data & Electrical Demand Management
- Solar Services
- Facility Management

**Over 70% of Continued Business from repeat or referral Clients**

31 YRS Industry Experience	\$1.7 BIL Energy Saving Projects	1,000s Buildings Optimized	500+ Veregy Professionals	8 BIL kWhs of Energy Saved	20 BIL Gallons Water Saved	12.4 BIL Carbon Dioxide Pounds Reduced
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# Veregy Turnkey Approach



- **One Point of Contact for Entire Project = 100% Accountable**
- **One Contract for Energy Related Scope of Work = No Finger Pointing**
- **Guaranteed Total Price**
- **No Change Orders**
- **Guaranteed Energy Savings**

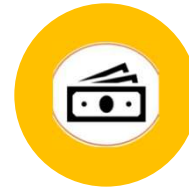
## Why Veregy?



VEREGY EXPERIENCE &  
COMPREHENSIVE  
APPROACH



COMPETITIVE &  
TRANSPARENT  
PROCUREMENT PROCESS



ABILITY TO MAXIMIZE  
SAVINGS & INCENTIVES



SEAMLESS PROJECT  
DELIVERY



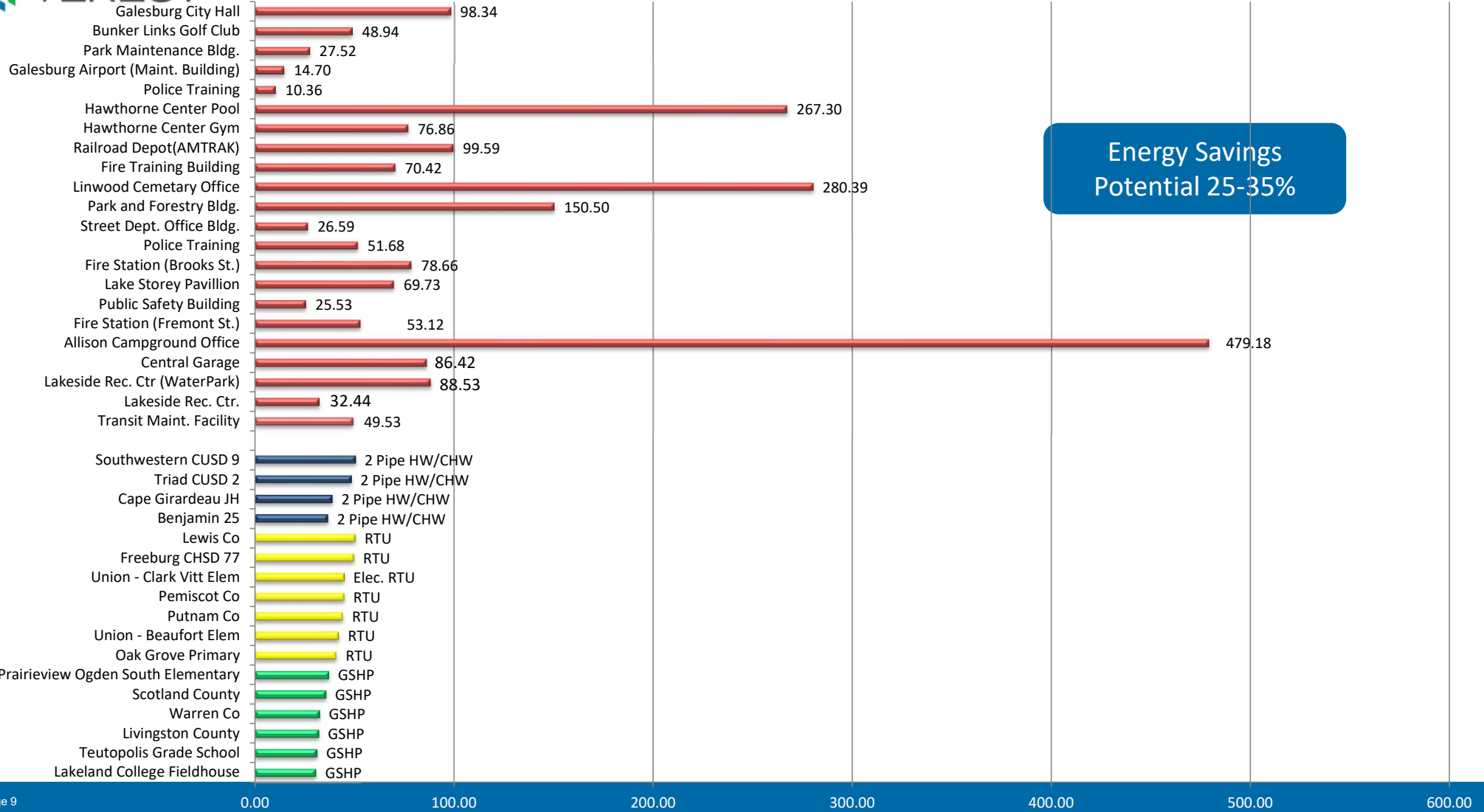
ASSURANCES FOR LONG  
TERM SAVINGS

Galesburg Facility Description	Address	Sq Feet	Construction	Year Built	Total Kbtu/sq ft	Total \$ spent
TRANSIT MAINTENANCE FACILITY	1025 MONMOUTH BLVD	21600	CONCRETE BLOCK	2015	49.53	\$ 19,867.39
LAKESIDE RECREATION CENTER	1033 S LAKE STOREY RD	21400	ALL STEEL	1970	32.44	\$ 8,246.20
LAKESIDE RECREATION CENTER-WATERPARK COMPLEX	1033 S LAKE STOREY RD	16000	CONCRETE BLOCK	1970	88.43	\$ 16,197.54
CENTRAL GARAGE	122 S HENDERSON ST	4,800	ALL STEEL	1972	86.42	\$ 5,357.40
ELECTRICAL DIVISION - formerly Street Dept Maintenance Bldg	122 S HENDERSON ST	2,993			160.03	\$ 2,775.33
ALLISON CAMPGROUND OFFICE	1351 S LAKE STOREY RD	600	ALL COMB (WOOD FRAME)	1988	479.18	\$ 11,642.60
FIRE FREMONT STATION	1455 W FREMONT ST	7,475	ALL STEEL	2002	53.12	\$ 6,754.90
PUBLIC SAFETY BUILDING (PD 49,900 / Fire 20,100)	150 S BROAD STREET	70,000	ALL REINFORCED CONCRETE	1975	25.53	\$ 54,806.45
LAKE STOREY PAVILLION	1572 MACHEN DR.	14374	MASONRY CONST/NON-COMB ROOF	1930	69.79	\$ 13,625.35
FIRE BROOKS ST STATION	1575 E BROOKS ST	3,536	MASONRY CONST/WOOD ROOF	1978	78.66	\$ 3,859.02
WESTERN ILLINOIS POLICE TRAINING BLDG.	1801 WINDISH DR	2400	MASONRY CONST/WOOD ROOF	1940	51.68	\$ 1,239.37
STREET DEPARTMENT OFFICE BUILDING	200 S HENDERSON ST	24108	ALL STEEL	2010	26.59	\$ 5,789.95
PARK AND FORESTRY DIVISION BUILDING (Hawthorne)	2110 VETERANS DR	5760	BRICK CONST/NON-ROCK&TAR	1940	150.51	\$ 1,240.25
LINWOOD CEMETERY OFFICE/GARAGE	2118 W MAIN ST	840	MASONRY CONST/NON-COMB ROOF	1940	280.39	\$ 1,808.38
FIRE TRAINING BUILDING	2233 VETERANS DR	2,472	MASONRY CONST/WOOD ROOF	1944	70.42	\$ 1,712.65
RAILROAD DEPOT (AMTRAK)	225 S SEMINARY ST	2,691	ALL COMB (WOOD FRAME)	1995	99.59	\$ 9,997.08
HAWTHORNE CENTRE GYM	2265 VETERANS DR	9500	MASONRY CONST/NON-COMB ROOF	1945	76.86	\$ 1,993.90
HAWTHORNE CENTRE POOL	2331 VETERANS DR	11,612	UNKNOWN	1945	267.31	\$ 8,849.85
N LAKE STOREY POLICE TRAINING	2340 N LAKE STOREY RD	936	ALL COMB (WOOD FRAME)	2012	10.36	\$ 688.34
GALESBURG MUNICIPAL AIRPORT-AIRPORT HANGER	307 STEARMAN DR	3500	ALL STEEL	1996		
GALESBURG MUNICIPAL AIRPORT MAINTENANCE (Jet Air)	307 STEARMAN DR	20,000	ALL STEEL	1974	14.74	\$ 9,700.84
GALESBURG MUNICIPAL AIRPORT OPERATOR BUILDING	307 STEARMAN DR	2300	ALL STEEL	1995	8.99	\$ 1,197.19
GALESBURG MUNICIPAL AIRPORT 10 UNIT T-HANGERS	307 STEARMAN DR	1650	ALL STEEL	1952		\$ 2,582.86
GALESBURG MUNICIPAL AIRPORT 10 UNIT T-HANGERS	307 STEARMAN DR	1345	ALL STEEL	1952		
GALESBURG MUNICIPAL AIRPORT 10 UNIT T-HANGERS	307 STEARMAN DR	1650	ALL STEEL	1952		
PARK MAINTENANCE BUILDING	3500 LINCOLN PARK DR	8640			27.52	\$ 2,548.60
BUNKER LINKS GOLF CLUB/CLUB HOUSE	3535 LINCOLN PARK DR	3600	BLOCK/BRICK/GLASS	1962	48.94	\$ 6,231.75
GALESBURG CITY HALL	55 W TOMPKINS STREET	19000	MASONRY CONST/NON-COMB ROOF	1991	98.34	\$ 40,621.01
WATER TREATMENT PLANT - OQUAWKA	600 S. HIGHWAY 164	18000	MIXED NON-COMB/COMB	2010	1,326.33	\$ 315,649.71
WATER PRODUCTION PLANT / Maintenance Building	920 W. MAIN ST	7000	MASONRY CONST/NON-COMB ROOF	1974	719.94	\$ 143,413.92





## Energy Use Intensities by System Type



Energy Savings  
Potential 25-35%

## City of Galesburg

- **Summary:**

- Veregy visited 24 Buildings focusing on the following areas:

- Heating, Ventilation, Air Conditioning Systems (HVAC)
- Temperature Controls
- Lighting
- Building Envelope System (BES: Roofing, Windows, Exterior Brick/Doors, etc.)
- Water Plant

- City utilizes Franchise Agreements with discounts on gas

- 25-35% Energy Savings Potential

- \$8.6M - \$9.3M Improvements

- Currently Excludes Roofing(Age/Warranty Unknown for some), Water Plant Opportunities, and Renovations at Old Jail (Public Safety Building). All could be further evaluated at later date and added to Master Plan Recommendations

- **Veregy Recommendations:**

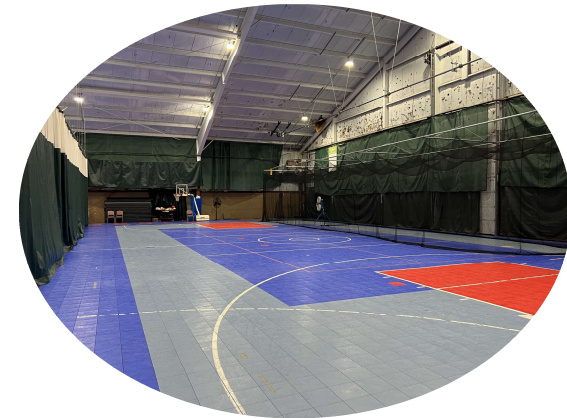
- Package #1: Lakeside Recreation Center Upgrades (HVAC, Temperature Controls, BES, Lighting, ADA upgrades)
- Package #2: City Wide Upgrades (HVAC, Temperature Controls, Lighting Upgrades, & Solar Arrays)
- Water Plant Upgrades/Water Meter Upgrades: TBD (Pending Long-term Plans for Pipeline/Plant)



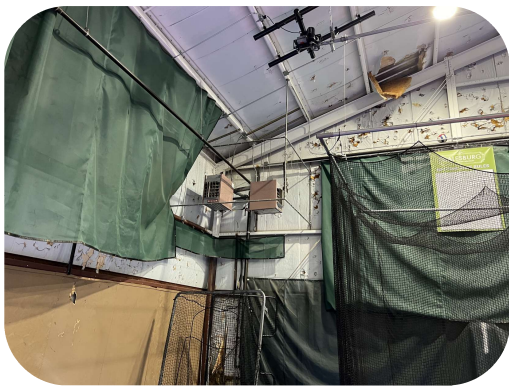
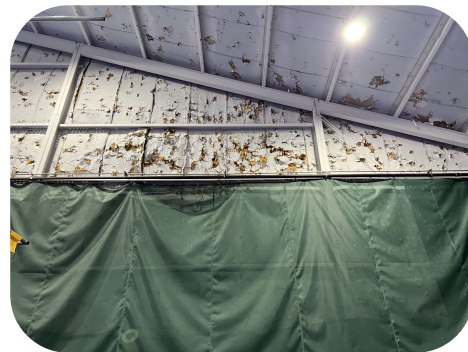
## Lakeside Recreation Center Upgrades

- **Existing Conditions:**

- 21,600 Sq.Ft., Built in 1970
- Exterior skin of facility in poor condition
- Roofing in poor condition and in need of membrane overlay
- Guttering deteriorating
- LED Lighting over courts with Fluorescent in office area
- HVAC at end of life:
  - Heat only tube heaters tennis area
  - Hanging gas heaters Basketball Court area
  - Rooftop units serving office area
  - No air conditioning/cooling for Court area
- Mod Bitumen roof office area
- Insulation need replaced and interior panel system to protect.
- Facility utilizes large Ceiling Fans over courts
- Water Park – Six(6) Mini Split Systems (2021)
- Pool Heater abandoned, Pump being replaced and Metal Roof



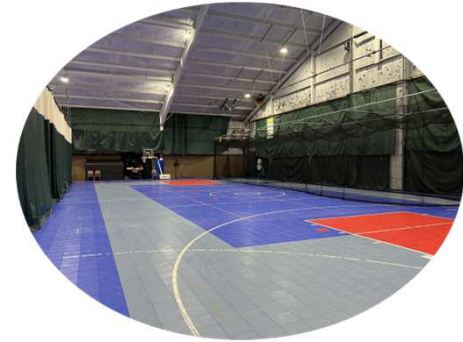
## Lakeside Recreation Center – Existing Conditions



# Lakeside Recreation Center Upgrades

## Veregy Recommendations:

- **ECM-1: Building Envelope System (BES):** Given condition of structure we are recommending “Gut/rehab” solution.
  - Exterior sheeting soffit and fascia
  - New Insulation
  - Interior Sheeting
  - Roof & Gutter Upgrades
- **ECM-2: LED Lighting including Lobby and Locker Room Ceiling Replacements**
- **ECM-3: HVAC Upgrades: Geothermal (25-30% Savings over Traditional)**
- **ECM-4: Temperature Controls Upgrades (Non-Proprietary DDC Control System)**
- **ECM-5: ADA Modifications/Upgrades:**
  - Two (2) reticulated platform chair lifts with two stops one for the Men’s Locker Room/Court access and one more lift for the Women’s and new concrete sidewalk/ADA access outside.
  - Shower modifications to accommodate the ADA and new plumbing code requirements.



Project Budget Cost	\$5.3M-\$5.8M
Incentives/ Rebates (IRA/Utility)	\$600K - \$800K

## Galesburg City Wide Energy Efficiency Upgrades

- **ECM-1: LED Lighting Upgrades**

- City Hall
- Gun Range
- Public Transportation
- Amtrak
- Brooks Fire Station
- Fremont Fire Station
- Lake Storey Pavilion (Lower Level)
- Lakeside Water Park

- **ECM-2: HVAC Upgrades**

- Public Transportation
- Police Training
- Fire Training
- Fremont Fire Station`

- **ECM-3: Temperature Controls Upgrades**

- City Hall
- Fremont Fire Station
- Public Transportation

- **ECM-4: Solar Arrays**

- City Hall
- Hawthorne Center Pool
- Transit Maintenance Building

- Park Maintenance Building
- Golf Club House
- Police Training
- Fire Training
- Linwood Cemetery
- East Linwood Cemetery Office
- Central Garage and Electric
- Hawthorne Center

- Linwood Cemetery Office
- Electric Division
- City Hall

- Lakeside Recreation Center
- Lake Storey Pavillion



Project Budget Cost	\$3.3M-\$3.5M
Annual Savings	\$93K
Utility Incentives	\$137K-\$142K
IRA Incentives	\$800K
SREC's	\$412K
30 year Positive Cash Flow	\$1.7M



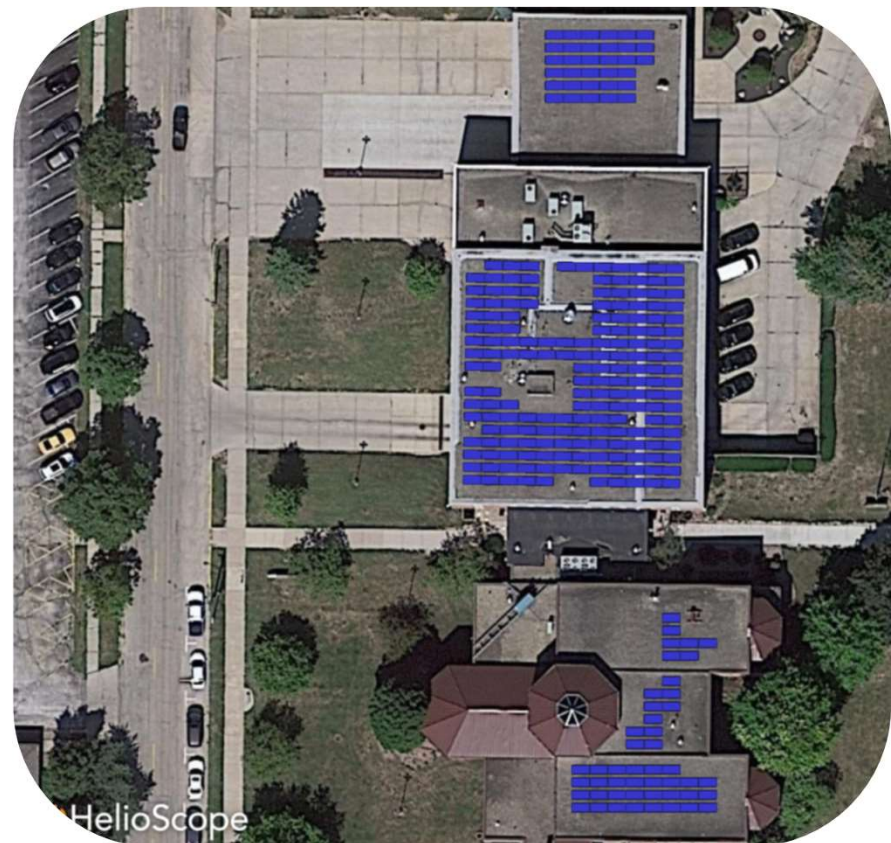
**Inflation Reduction Act (IRA), Cash Option - Galesburg Solar Arrays**

Year	Solar Revenue	Utility Savings	IRA	Utility Rebates	SREC	Total Savings	Cash Payment	Solar Service	SREC Collateral & Fees	Total Costs	Annual Cash Flow	Cumulative Cash Flow
<b>Construction Savings</b>	\$ 38,276	\$ 5,000		\$ 137,380	\$ -	\$ 180,656	\$ 3,497,266.00	\$ -	\$ 28,017	\$ 3,525,283	\$ (3,344,626)	\$ (3,344,626)
<b>1</b>	\$ 78,851	\$ 15,000			\$ 10,848	\$ 104,699	\$ -	\$ 13,260		\$ 13,260	\$ 91,440	\$ (3,253,186)
<b>2</b>	\$ 80,811	\$ 15,750	\$ 798,906		\$ 61,474	\$ 956,941	\$ -	\$ 13,591		\$ 13,591	\$ 943,350	\$ (2,309,837)
<b>3</b>	\$ 82,816	\$ 16,538			\$ 61,474	\$ 160,827	\$ -	\$ 13,931		\$ 13,931	\$ 146,897	\$ (2,162,940)
<b>4</b>	\$ 84,870	\$ 17,364			\$ 61,474	\$ 163,708	\$ -	\$ 14,279		\$ 14,279	\$ 149,429	\$ (2,013,511)
<b>5</b>	\$ 86,972	\$ 18,233			\$ 61,474	\$ 166,678	\$ -	\$ 14,636		\$ 14,636	\$ 152,042	\$ (1,861,469)
<b>6</b>	\$ 89,125	\$ 19,144			\$ 61,474	\$ 169,743	\$ -	\$ 15,002		\$ 15,002	\$ 154,741	\$ (1,706,728)
<b>7</b>	\$ 91,328	\$ 20,101			\$ 61,474	\$ 172,904	\$ -	\$ 15,377		\$ 15,377	\$ 157,527	\$ (1,549,202)
<b>8</b>	\$ 93,582	\$ 21,107			\$ -	\$ 114,689	\$ -	\$ 15,761		\$ 15,761	\$ 98,927	\$ (1,450,274)
<b>9</b>	\$ 95,891	\$ 22,162			\$ -	\$ 118,053	\$ -	\$ 16,156		\$ 16,156	\$ 101,897	\$ (1,348,377)
<b>10</b>	\$ 98,253	\$ 23,270			\$ -	\$ 121,523	\$ -	\$ 16,559		\$ 16,559	\$ 104,963	\$ (1,243,414)
<b>11</b>	\$ 100,671	\$ 24,433			\$ -	\$ 125,104	\$ -	\$ 16,973		\$ 16,973	\$ 108,131	\$ (1,135,282)
<b>12</b>	\$ 103,145	\$ 25,655			\$ -	\$ 128,800	\$ -	\$ 17,398		\$ 17,398	\$ 111,402	\$ (1,023,880)
<b>13</b>	\$ 105,677	\$ 26,938			\$ -	\$ 132,615	\$ -	\$ 17,833		\$ 17,833	\$ 114,783	\$ (909,098)
<b>14</b>	\$ 108,269	\$ 28,285			\$ -	\$ 136,553	\$ -	\$ 18,279		\$ 18,279	\$ 118,275	\$ (790,823)
<b>15</b>	\$ 110,921	\$ 29,699			\$ 32,544	\$ 173,164	\$ -	\$ 18,735		\$ 18,735	\$ 154,428	\$ (636,395)
<b>16</b>	\$ 113,632	\$ 31,184				\$ 144,816	\$ -	\$ 19,204		\$ 19,204	\$ 125,613	\$ (510,782)
<b>17</b>	\$ 116,410	\$ 32,743				\$ 149,153	\$ -	\$ 19,684		\$ 19,684	\$ 129,469	\$ (381,313)
<b>18</b>	\$ 119,250	\$ 34,380				\$ 153,630	\$ -	\$ 20,176		\$ 20,176	\$ 133,454	\$ (247,859)
<b>19</b>	\$ 122,157	\$ 36,099				\$ 158,257	\$ -	\$ 20,680		\$ 20,680	\$ 137,576	\$ (110,282)
<b>20</b>	\$ 125,131	\$ 37,904				\$ 163,035	\$ -	\$ 21,197		\$ 21,197	\$ 141,838	\$ 31,555
<b>21</b>	\$ 128,173	\$ 39,799				\$ 167,972	\$ -	\$ 21,727		\$ 21,727	\$ 146,245	\$ 177,800
<b>22</b>	\$ 131,285	\$ 41,789				\$ 173,074	\$ -	\$ 22,271		\$ 22,271	\$ 150,804	\$ 328,604
<b>23</b>	\$ 134,467	\$ 43,879				\$ 178,346	\$ -	\$ 22,827		\$ 22,827	\$ 155,519	\$ 484,122
<b>24</b>	\$ 137,723	\$ 46,073				\$ 183,796	\$ -	\$ 23,398		\$ 23,398	\$ 160,398	\$ 644,520
<b>25</b>	\$ 141,054	\$ 48,376				\$ 189,430	\$ -	\$ 23,983		\$ 23,983	\$ 165,447	\$ 809,968
<b>26</b>	\$ 144,460	\$ 50,795				\$ 195,255	\$ -	\$ 24,583		\$ 24,583	\$ 170,673	\$ 980,641
<b>27</b>	\$ 147,943	\$ 53,335				\$ 201,278	\$ -	\$ 25,197		\$ 25,197	\$ 176,081	\$ 1,156,721
<b>28</b>	\$ 151,506	\$ 56,002				\$ 207,507	\$ -	\$ 25,827		\$ 25,827	\$ 181,680	\$ 1,338,402
<b>29</b>	\$ 155,148	\$ 58,802				\$ 213,950	\$ -	\$ 26,473		\$ 26,473	\$ 187,477	\$ 1,525,879
<b>30</b>	\$ 158,874	\$ 61,742				\$ 220,616	\$ -	\$ 27,135		\$ 27,135	\$ 193,481	\$ 1,719,361
<b>Totals</b>	\$ 3,476,671		\$ 798,906	\$ 137,380	\$ 412,235	\$ 5,826,775	\$ 3,497,266	\$ 582,132	\$ 28,017	\$ 4,107,415	\$ 1,719,361	

## City Hall/Public Safety Solar PV Roofing Installation:

### Veregy Recommendations:

- Solar PV Installation (25 yr Panel Warranty)
  - **City Hall & Public Safety Building**– 140.8 kW-DC Rooftop Solar Array
- 40% IRA Tax Incentive  
(City may be eligible for additional incentives)
- Eligible for Solar Renewable Certificates (SREC's), & Smart Inverter Rebates
- Roofing may need to be upgraded prior to Solar Installation.
- Utility company may have issues with separate rates on City Hall and Public Safety Building.
- City may want to consider Solar Canopy in parking lot across street.





## Lake Storey Pavillion Solar PV Carport Installation:

### Veregy Recommendations:

- Solar PV Installation (25 yr Panel Warranty)
  - **Lake Storey Pavillion** – 79.2 kW-DC Solar Carport
- 40% IRA Tax Incentive  
(City may be eligible for additional incentives)
- Eligible for Solar Renewable Certificates (SREC's), & Smart Inverter Rebates



## Lakeside Recreation Solar PV Ground Mount Installation:

### Veregy Recommendations:

- Solar PV Installation (25 yr Panel Warranty)
  - **Lakeside Recreation Center** – 79.2 kW-DC
  - Solar Ground Mount Installation
- 40% IRA Tax Incentive  
(City may be eligible for additional incentives)
- Eligible for Solar Renewable Certificates (SREC's), & Smart Inverter Rebates



## Transit Maintenance Solar PV Roofing Installation:

### Veregy Recommendations:

- Solar PV Installation (25 yr Panel Warranty)
  - **Transit Maintenance Building**– 79.2 kW-DC
  - Rooftop Solar Array
- 40% IRA Tax Incentive  
(City may be eligible for additional incentives)
- Eligible for Solar Renewable Certificates (SREC's), & Smart Inverter Rebates
- Roofing may need to be upgraded prior to Solar Installation.



## Hawthorne Pool Solar PV Roofing Installation:

### Veregy Recommendations:

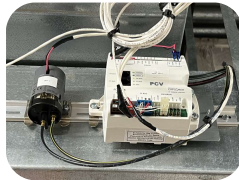
- Solar PV Installation (25 yr Panel Warranty)
  - **Hawthorne Pool Building**– 46.2 kW-DC
  - Rooftop Solar Array
- 40% IRA Tax Incentive  
(City may be eligible for additional incentives)
- Eligible for Solar Renewable Certificates (SREC's), & Smart Inverter Rebates



## Galesburg City Hall



- **Existing Conditions:**
  - 19,000 Sq.ft., Built in 1991
  - Mostly T-8/T-5 inefficient lighting with some LED
  - One (1) Large VAV AHU feeding the entire building.
  - One (1) Weil-McLain Boiler (2019)
  - One (1) 2-stage DX Condensing Unit (2017)
  - VAV Boxes with HW Reheat
  - Three (3) Mini split systems and one (1) appears to be at the end of its life.
  - JCI DDC control overlay to Pneumatic end devices
  - Roof is combination of Metal, EPDM, and Tar & Gravel
  - Exterior Brick in some areas in poor condition – recommend further evaluation
  
- **Veregy Recommendations:**
  - HVAC & Temperature Controls Upgrades
  - Lighting Upgrades
  - Roofing – TBD
  - Solar



## Galesburg Public Safety Building



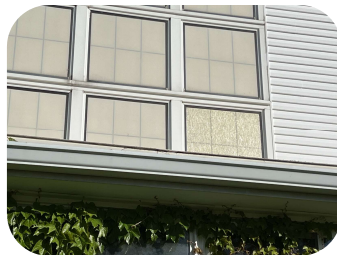
- **Existing Conditions:**
  - Police (49,900 sq.ft), Fire Station (20,100 sq.ft.),
  - Built in 1975
  - New VRF HVAC System being installed 2024
  - New DOAS HVAC Unit being installed in 2024
  - LED Lighting throughout
  - Proprietary DDC Temperature Controls System
  - Roofing appears in good condition
  
- **Veregy Recommendations:**
  - No work at this time.
  - Roofing – TBD
  - Solar



## Hawthorne Center Gym/Pool



- **Existing Conditions:**
  - Gym(9,500 sq.ft)
  - Pool (11,612 sq.ft)
  - Built in 1945
  - Roofing (2023)
  - HVAC Upgrade (2024)
  - Steam Boiler, RTU(Exercise Room)
  - Fluorescent Lighting in Hallways/Fitness Center
  - LED Lighting in Gym & Pool Area
  - Pool Area Windows & Structural Upgraded (2023/24)
  - Kalwall unit in Gym failing (Could be warranty)
  
- **Veregy Recommendations:**
  - Lighting Upgrades
  - Solar



## Transit Maintenance Facility



- **Existing Conditions:**
  - 21,600 sq.ft, Built in 2015
  - HVAC (High Efficiency Split System serving office (VVT System) comfort issues with zoning
  - Garage served by gas fired tube heaters
  - Two(2) Minisplit systems
  - LED Lighting in garage areas
  - Fluorescent Lighting in Office Area
  - Roof (Metal & EDPM) Good Condition (10 yrs old)
  
- **Veregy Recommendations:**
  - HVAC & Temperature Controls Upgrades
  - Lighting Upgrades
  - Solar



## Lake Storey Police Training



- **Existing Conditions:**
  - 936 sq.ft., Built in 2012
  - Issues with slab and exterior walls (gaps as though slab was poured smaller than supposed to be).
  - Floor gap causing humidity issues in the building.
  - High Efficiency Heating/Cooling split system original to building (13 years old)
  - Fluorescent Lighting
  - Shingle Roof original to building in good condition
- **Veregy Recommendations:**
  - Lighting Upgrades



## Western Illinois Police Training



- **Existing Conditions:**
  - 2,400 sq.ft.
  - Built in 1940
  - Split System installed in 2004 (20 years old)
  - Fluorescent Lighting
  - Shingle Roof in good condition
- **Veregy Recommendations:**
  - HVAC Upgrades
  - Lighting Upgrades



## Fremont Fire Station

- **Existing Conditions:**

- 7,474 sq.ft.
- Built in 2002
- Two (2) split systems (22 years old)
- Boilers original
- Metal roof in good condition
- Some paint peeling from gutters.
- Mostly LED Lighting, Fluorescent in Garage
- Garage in floor radiant heat



- **Veregy Recommendations:**

- HVAC & Temperature Controls Upgrades
- Lighting Upgrades



## Brooks Fire Station

- **Existing Conditions:**

- 3,536 sq.ft.
- Built in 1978
- One (1) High Efficiency split system feeding the living quarters (2018)
- Fluorescent Lighting
- Shingled Roof appears to be in good condition.



- **Veregy Recommendations:**

- Lighting Upgrades



## Parks & Forestry Building

- **Existing Conditions:**

- 5,760 sq.ft
- Built in 1940
- Single Pane Windows
- Roof failing
- Exterior Lean-to section is collapsing (masonry wall has partially collapsed)
- Gas Hanging Heaters
- Fluorescent Lighting
- Fascia in very poor condition
- This facility should have a plan to replace it in the near future

- **Veregy Recommendations:**

- Full Facility Upgrades/Replacement (Currently not budgeted)



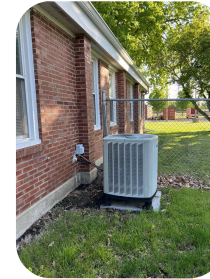
## Fire Training Building

- **Existing Conditions:**

- 2,472 sq.ft.
- Built in 1944
- Split System for Class and Office Area (2006)
- Gas Hanging Heaters Garage
- Fluorescent Lighting
- Shingle Roof

- **Veregy Recommendations:**

- HVAC Upgrades
- Lighting Upgrades



## Galesburg Airport



- **Existing Conditions:**

- Airport Hanger, 3,500 sq.ft., Built in 1996
- Maintenance, 20,000 sq.ft., Built in 1974
- Operations, 2,300 sq.ft., Built in 1995
- Hangers Built in 1952 (1,650 sq.ft., 1,345 sq.ft., & 1,650 sq.ft.)
- Old Terminal has been abandoned.
- Jet Air Split system (2021)
- All buildings have a metal roof
- Combination of LED and Fluorescent lighting in all buildings
- Stearman Hangar has 5 mini splits (2020)
- 2<sup>nd</sup> Hangar Gas Hanging Heaters
- 4<sup>th</sup> Hangar window A/C
- 5<sup>th</sup> and 6<sup>th</sup> Hangar no HVAC
- Maintenance Building 3 Electric Hanging Heaters

- **Veregy Recommendations:**

- No work at this time

## Park Maintenance Building

- **Existing Conditions:**

- 8,640 square footage
- Split system for Office area (2009).
- Metal Roof
- In floor radiant heat for garage area. Boiler Weil McLain (2009)
- Fluorescent Lighting

- **Veregy Recommendations:**

- Lighting Upgrades



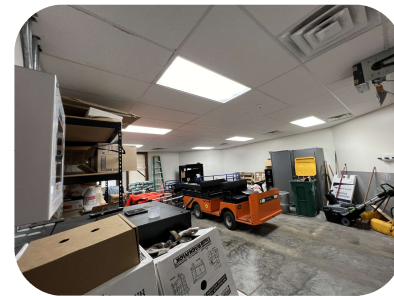
## Bunker Links Golf Club

- **Existing Conditions:**
  - 3,600 sq.ft.
  - Built in 1962
  - Single Pane Windows
  - Fluorescent Lighting
  - Roof may lack insulation
  - Split System newer
  - TPO roof appears to be newer
- **Veregy Recommendations:**
  - Lighting Upgrades
  - Windows/Remodel (TBD)



## Railroad Track (AMTRAK)

- **Existing Conditions:**
  - 2,691 sq.ft.
  - Built in 1995
  - Two (2) High Efficiency Split systems (2015) and one(1) at the Museum (2019)
  - Lighting Fluorescent and Incandescent
  - Shingle Roof appears to be in good condition.
- **Veregy Recommendations:**
  - Lighting Upgrades



## Linwood Cemetery Building/East Office/Garage      Central Garage/Electrical Division

- **Existing Conditions:**

- 840 sq.ft.
- Built in 1940
- Garage Gas Hanging Heater
- Fluorescent Lighting
- Metal & Shingle Roof good condition
- Split System Office area (2006)



- **Veregy Recommendations:**

- HVAC Upgrades
- Lighting Upgrades



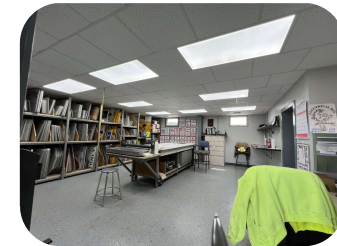
- **Existing Conditions:**

- 4,800 sq.ft – Central Garage
- 2,993 sq.ft. – Electrical Division
- Built in 1972
- Metal Roof
- Combination LED and Fluorescent Lighting
- Two(2) Split systems (2002 and 2014)
- Gas Hanging heater garage.



- **Veregy Recommendations:**

- HVAC Upgrades
- Lighting Upgrades



## Allison Campground

- **Existing Conditions:**

- 600 Sq. ft.
- Built in 1988
- Window AC unit
- Shingle Roof showing signs of age.



- **Veregy Recommendations:**

- Roofing Upgrades - TBD



## Lake Storey Pavillion

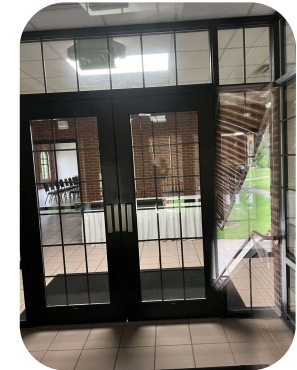
- **Existing Conditions:**

- 14,374 sq.ft.
- Built in 1930
- Three (3) Packaged Rooftop units (2023)
- Split systems (2006)
- LED Lighting on upper level
- Fluorescent Lighting on lower level



- **Veregy Recommendations:**

- Lighting Upgrades



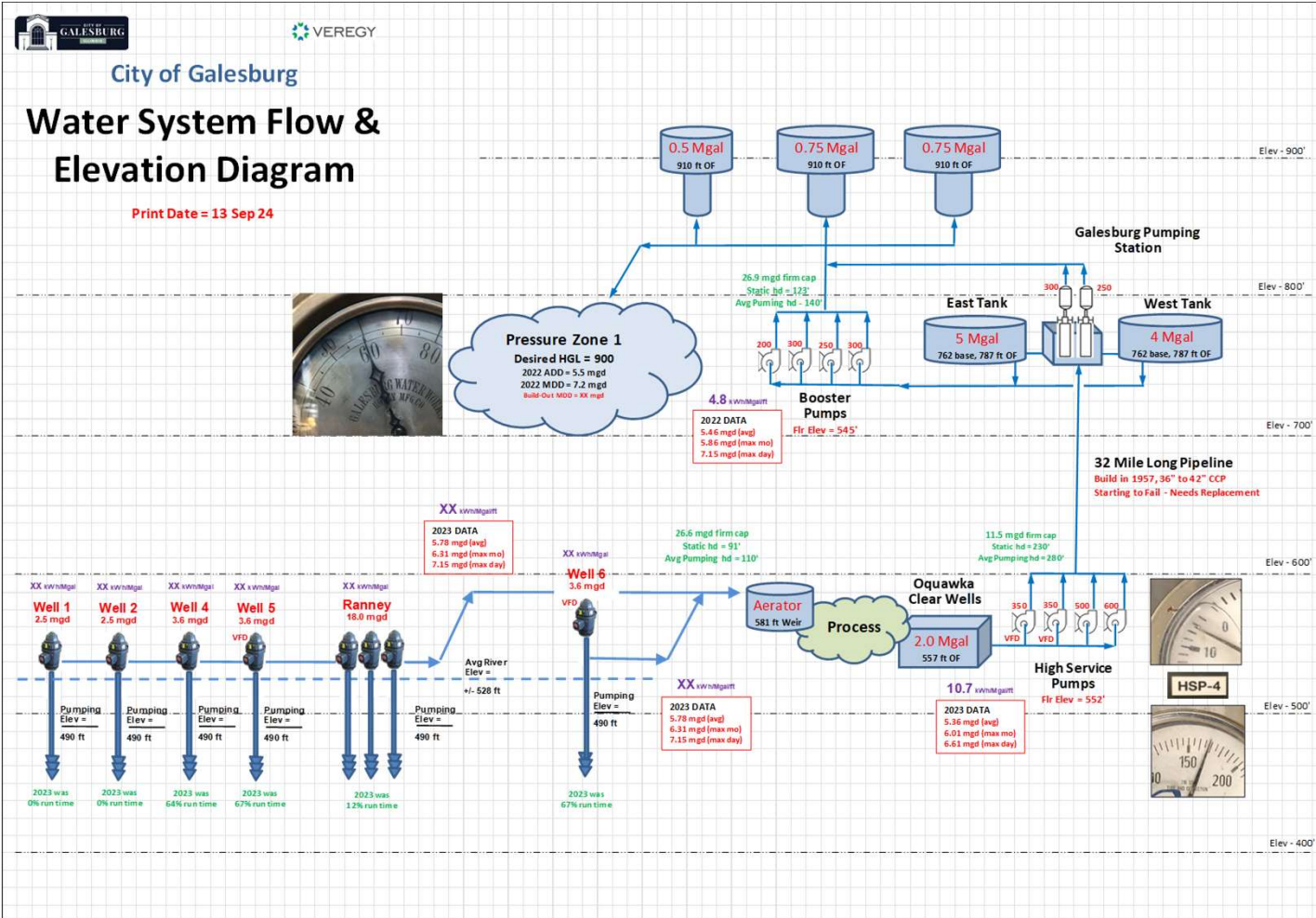
## Summary of Infrastructure Assessment for Galesburg Water System

- Majority of Systems/Equipment has additional remaining life of 11+years. See Chart.
- Veregy Recommendations:**
  - ECM-1:** Pump Improvements (Currently cavitating, corrosion, and high usage)
  - ECM-2:** Sand Filter Control Upgrades (CPI for next few yrs.)
  - ECM-3:** Add VFD's
  - FIM-4:** Oquawka Wells have PFAS, and that requires treatment in the next few years. (\$15 M to \$25 M range.)
  - ECM-5:** Water Meter Upgrades - TBD
- The pipeline from Oquawka to Galesburg was built in 1958, is starting to leak, and needs to be replaced. Assuming \$750 per foot, this is a \$127 M project.

Line	Component	Age (yrs)	Approx Service Life	Yrs Life Remaining
1	Wells	10 to 66	60	30
2	Well Pipeline	66	60	-6
3	Aerators	14	60	46
4	Aerator Fans & Equip	0	20	20
5	Contact Tank	14	60	46
6	Sand Filters	14	60	46
7	Sand Filters Controls	14	20	6
8	Sand Filter Valves	14	40	26
9	Sand Filter Piping	14	60	46
10	Blowers	0	15	15
11	Chemical Systems	14	30	16
12	Finished Water Tanks	14	60	46
13	High Service Pumps	14	40	26
14	Building Structure	14	60	46
15	Building Roof	14	60	46
16	Building HVAC	14	20	6
17	Process Electric	14	60	46
18	Process Controls	14	25	11
19	Process VFDs	14	20	6
20	Building Switchgear	14	40	26
21	Pipeline	66	60	-6

## Summary of Infrastructure Assessment for Galesburg Water System

- **Veregy recommends moving the Water Treatment Plant to Galesburg. Benefits include energy savings and capital cost avoidance.**
- **Budget Estimate of \$90M-\$120M in costs estimated for a new Water Treatment plant.**
- **Budget Estimate of \$140M-\$160M in costs estimated for a new Pipeline and PFAS Remediation.**
- **Energy Savings of \$100K+/year.**
- **Further analysis, testing, and design would be needed to further evaluate solution, pricing and best option for Galesburg Long-Term.**





## Water System Electric Use

- The Oquawka Wells electric use was not shown on the electric bills.
- The water system accounts for about 80% of the total City electric use.
- Avg electric rate for the WTP is \$0.049 / kWh, while most other facilities are about \$0.11 / kWh.

Line	Site Description	Address	kWh Use	Use %	Electric Cost	Blended
1	WATER TREATMENT PLANT - OQUAWKA	600 S. HIGHWAY 164	5,878,700	64%	\$289,232.79	\$0.049
2	WATER PRODUCTION PLANT / MAINT BLDG	920 W. MAIN ST	1,350,792	15%	\$141,104.84	\$0.104
3	PUBLIC SAFETY BUILDING	150 S BROAD STREET	523,595	6%	\$54,806.45	\$0.105
4	GALESBURG CITY HALL	55 W TOMPKINS STREET	340,448	4%	\$39,567.51	\$0.116
5	LAKESIDE REC CENTER & WATERPARK	1033 S LAKE STOREY RD	124,862	1%	\$16,197.54	\$0.130
6	TRANSIT MAINTENANCE FACILITY	1025 MONMOUTH BLVD	119,232	1%	\$13,887.62	\$0.116
7	LAKE STOREY PAVILLION	1572 MACHEN DR.	113,449	1%	\$13,530.48	\$0.119
8	ALLISON CAMPGROUND OFFICE	1351 S LAKE STOREY RD	84,239	1%	\$11,642.60	\$0.138
9	GALESBURG MUNICIPAL AIRPORT MAINT	307 STEARMAN DR	86,400	1%	\$9,700.84	\$0.112
10	HAWTHORNE CENTRE POOL	2331 VETERANS DR	73,422	1%	\$8,849.85	\$0.121
11	RAILROAD DEPOT (AMTRAK)	225 S SEMINARY ST	56,435	1%	\$8,804.62	\$0.156
12	LAKESIDE RECREATION CENTER	1033 S LAKE STOREY RD	56,072	1%	\$6,762.91	\$0.121
13	FREMONT FIRE STATION	1455 W FREMONT ST	50,453	1%	\$6,371.10	\$0.126
14	BUNKER LINKS GOLF CLUB/CLUB HOUSE	3535 LINCOLN PARK DR	51,620	1%	\$6,231.75	\$0.121
15	CENTRAL GARAGE	122 S HENDERSON ST	34,563	0%	\$4,864.59	\$0.141
Total for Top 15 Facilities -			8,944,281		\$631,555.49	\$0.071
Total for All Galesburg Facilities -			9,116,458		\$656,798.61	\$0.072

## Water Operations

- The water system average daily demand is 5.5 mgd, the max month demand is 5.9 mgd, and the max day demand is 7.2 mgd. Having high system storage capacity smooths out peak water use days.
- Previous year max day demand may have been 9.5 mgd? Less water use?

### Oquawka Wells

**2023 DATA****5.78 mgd (avg)****6.31 mgd (max mo)****7.15 mgd (max day)**

### High Service Pumps

**2023 DATA****5.36 mgd (avg)****6.01 mgd (max mo)****6.61 mgd (max day)**

### Galesburg Pumps

**2022 DATA****5.46 mgd (avg)****5.86 mgd (max mo)****7.15 mgd (max day)**

We have adequate information for pumps, including static & pumping elevations.

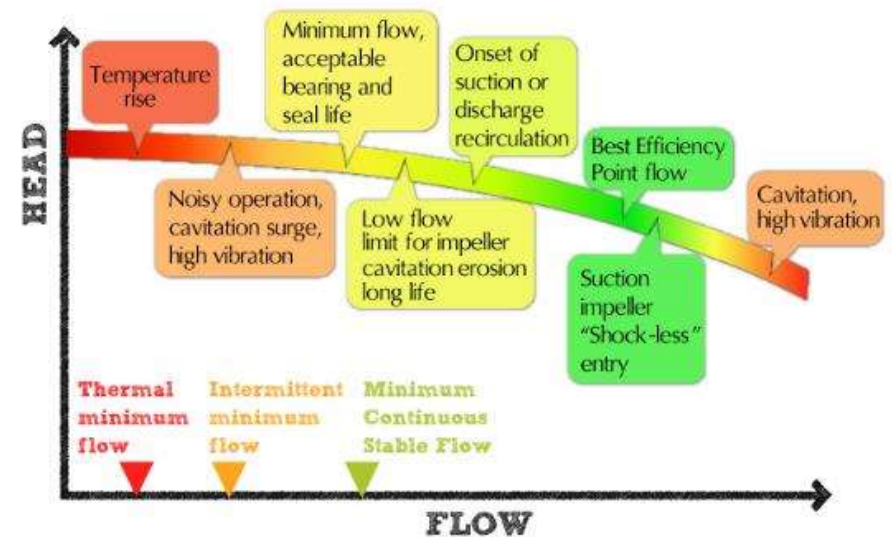
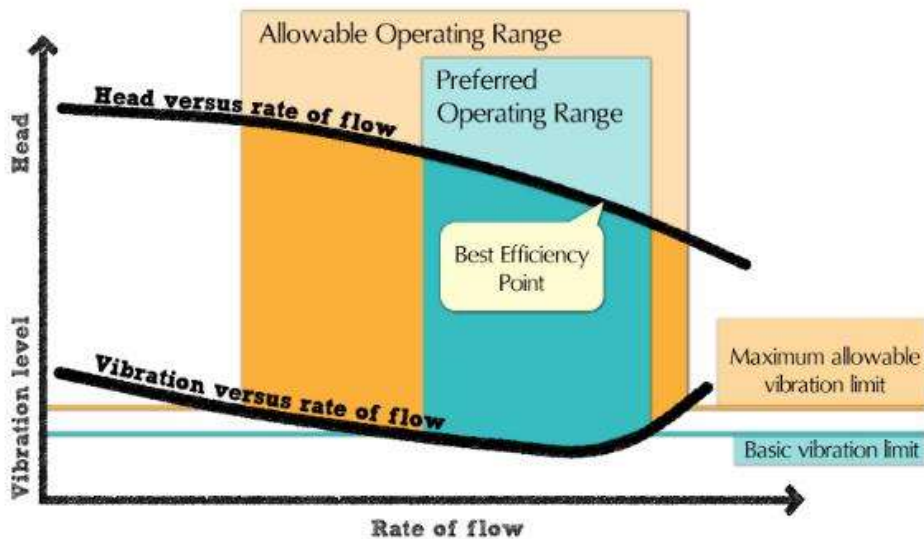
City of Galesburg - Pump Info																		
Pump Station Data							Pump Data							Motor Info				
Line	Pump Name	Draws From	Draw From Typ Static Elev	Pumps To	Pumps To Typ Static Elev	Estim Static Head (ft)	Pump Type	Pump Model	Impeller	Design Flow (gpm)	Design Head (ft)	Max Design Bowl Eff	Estim Avg Pumping Head (ft)	Max Pumping Head (ft)	Motor HP	Motor RPM	Motor Volts	VFD?
1	<b>Oquawka Well Pumps</b>																	
2	Well 1	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	No Info		1,750			110	125	100	No Info	460	no
3	Well 2	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	No Info		1,750			110	125	100	1790	460	no
4	Well 4	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	No Info		2,500			110	125	100	No Info	460	no
5	Well 5	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	No Info		2,500			110	125	125	No Info	460	YES
6	Ranney Well 5	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	Byron Jackson 24KXEV	No Info	5,000	400		110	125	250	1176	2400	no
7	Ranney Well 6	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	No Info		5,000			110	125	200	1176	2400	no
8	Ranney Well 7	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	No Info		2,500			110	125	150	1770	2400	no
9	Well 6	Mississippi GW	490	WTP Aerator	581	91	Vertical Turbine	No Info		2,500			110	125	125	1785	460	YES
10	<b>Oquawka WTP High Service Pumps</b>																	
11	HS Pump No. 1	Clear Well	551	Galesburg Plant	782	231	Double Suction	Patterson 10x8x23 SSC		2,000	375	78.0%	280	350	350	1785	460	YES
12	HS Pump No. 1	Clear Well	551	Galesburg Plant	782	231	Double Suction	Patterson 10x8x23 SSC		2,000	375	78.0%	280	350	350	1785	460	YES
13	HS Pump No. 1	Clear Well	551	Galesburg Plant	782	231	Double Suction	Patterson 12x8 MAA	20.75	4,000	375	84.6%	280	350	500	1770	2300	no
14	HS Pump No. 1	Clear Well	551	Galesburg Plant	782	231	Double Suction	Patterson 12x8 MAA	21.94	5,000	375	85.0%	280	350	600	1770	2300	no
15	<b>Galesburg Water Plant Booster Pumps</b>																	
16	Booster M1	Ground Storage Tank	780	Elevated Tanks	900	120	Double Suction	Aurora 411BF 10x12-15C	13.25"	3,500	150	86.5%	140	165	200	1770	2400	no
17	Booster M2	Ground Storage Tank	780	Elevated Tanks	900	120	Double Suction	Aurora 411BF 10x12-15C	13.25"	3,500	150	86.5%	140	165	Caterpillar Engine			
18	Booster M3	Ground Storage Tank	780	Elevated Tanks	900	120	Double Suction	Aurora 411BF 10x12-15B	14.0"	5,200	175	87.5%	140	165	300	1782	2400	no
19	Booster S1	Ground Storage Tank	780	Elevated Tanks	900	120	Vertical Turbine	No Info		No Info	No Info		140	165	250	1180	2400	no
20	Booster S2	Ground Storage Tank	780	Elevated Tanks	900	120	Vertical Turbine	Byr Jackson 24KXL (2 stgs)	16.5"	5,000	185	86.5%	140	165	300	1180	2400	no

## Benchmarking for Pumps – Pumping Concepts

Pumps use about 90% of a typical water systems system’s total energy use.

Pump curves are the basis for energy use and energy savings calculations.

The more time spent operating in the POR, the longer the pump life. Operating outside the AOR can damage a pump.

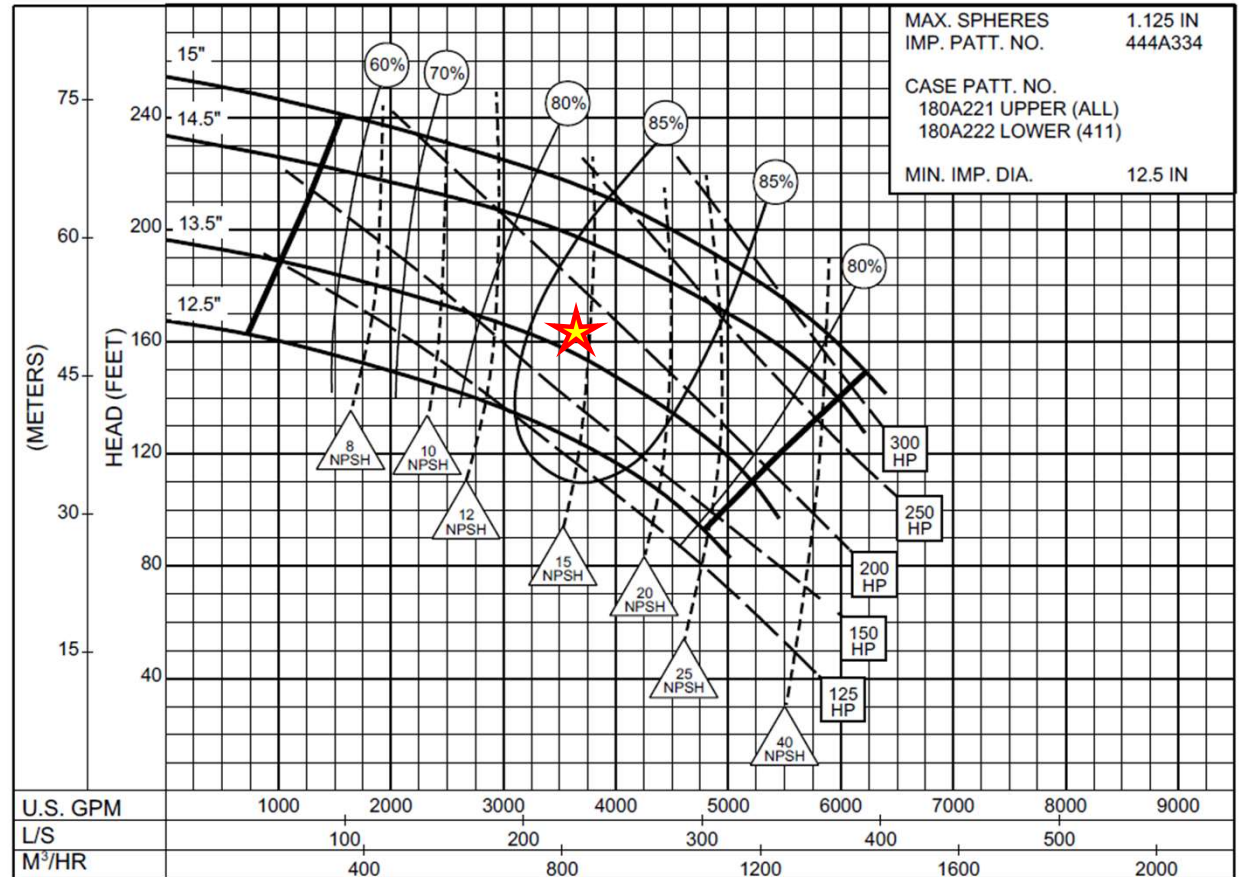


# Pumping Concepts Applied to Galesburg Pump Station – Pump M1

Note POR, AOR, and NPSH required for this existing pump at the Galesburg Pump Station.



SIZE : 10x12x15C      TYPE : 410      IMPELLER : Enclosed      R. P. M. : 1775

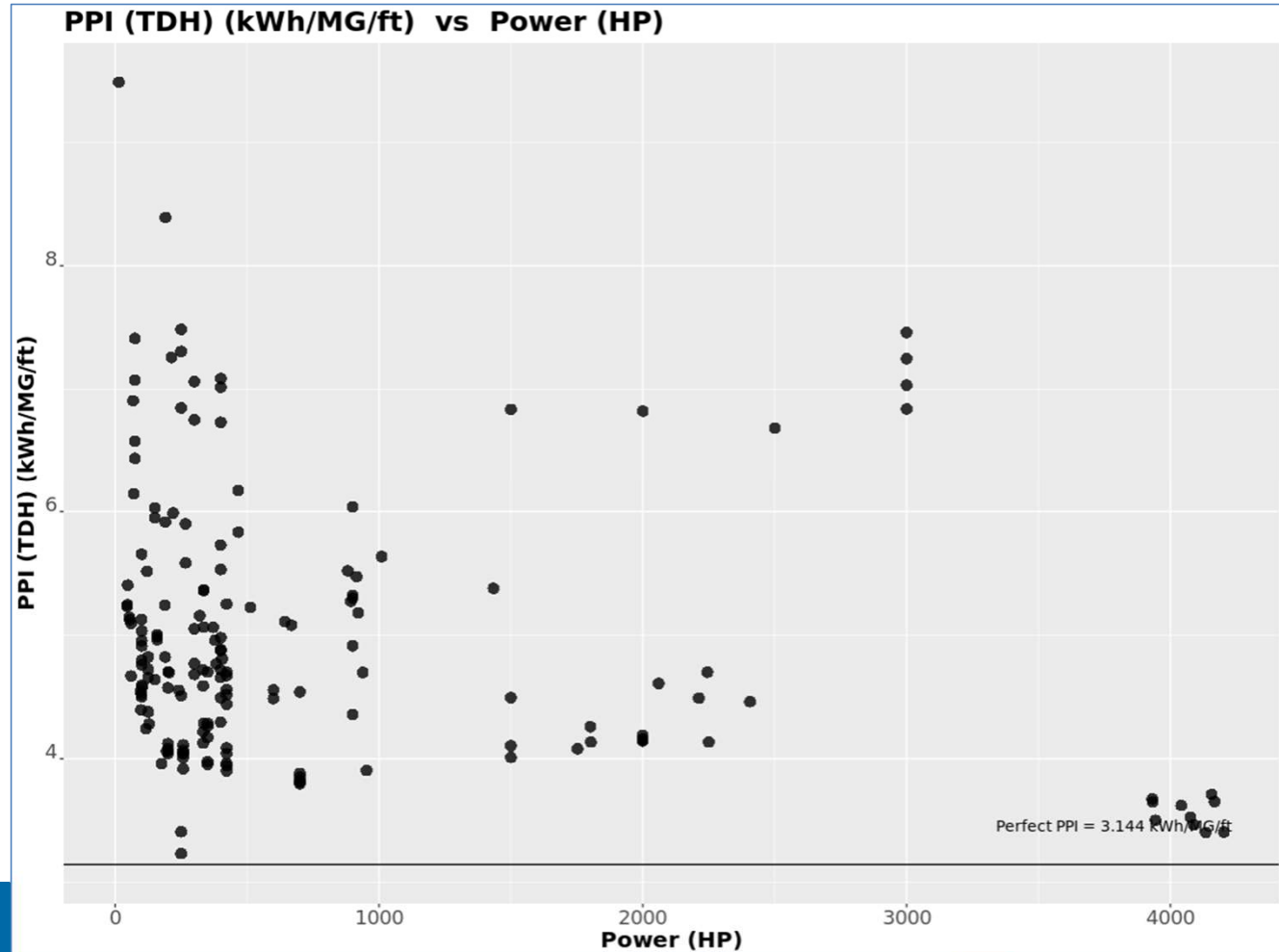


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## Benchmarking – W-to-W Efficiency is kWh/Mgal/ft

The Water Research Foundation has a benchmarking goal for pumping systems at 4.8 kWh / Mgal / ft ... and below 4.2 kWh / Mgal / ft is “best practice”.

100% W-W efficiency is 3.1  
 75% W-W efficiency is 4.2  
 60% W-W efficiency is 5.0  
 50% W-W efficiency is 6.3



## Water Benchmarking – Conceptual Results

The Oquawka Wells do not have any electric info.

Oquawka Wells  
**XX kWh / Mgal / ft**



When considering the throttled discharge valves, this is expected. (392 ft pumping head, 280 ft req'd)

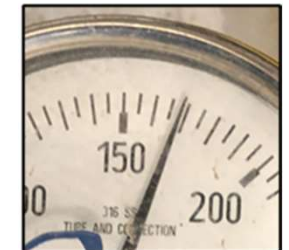
High Service Pumps  
**11.5 kWh / Mgal / ft**  
(25% W-to-W Efficiency)



HSP-4

This may be closer to 4.5 when considering other building loads.

Galesburg Pumps  
**4.8 kWh / Mgal / ft**  
(65% W-to-W Efficiency)



## Wastewater Benchmarking - Pump Tests

Don't be discouraged by low W-to-W efficiency tests, and this is common on 90% of the larger Veregy projects.

1000 hp  
At 46%  
W-W Eff



Town of Gilbert

3200 hp  
At 54%  
W-W Eff



CLCJAWA

100 hp  
At 27%  
W-W Eff

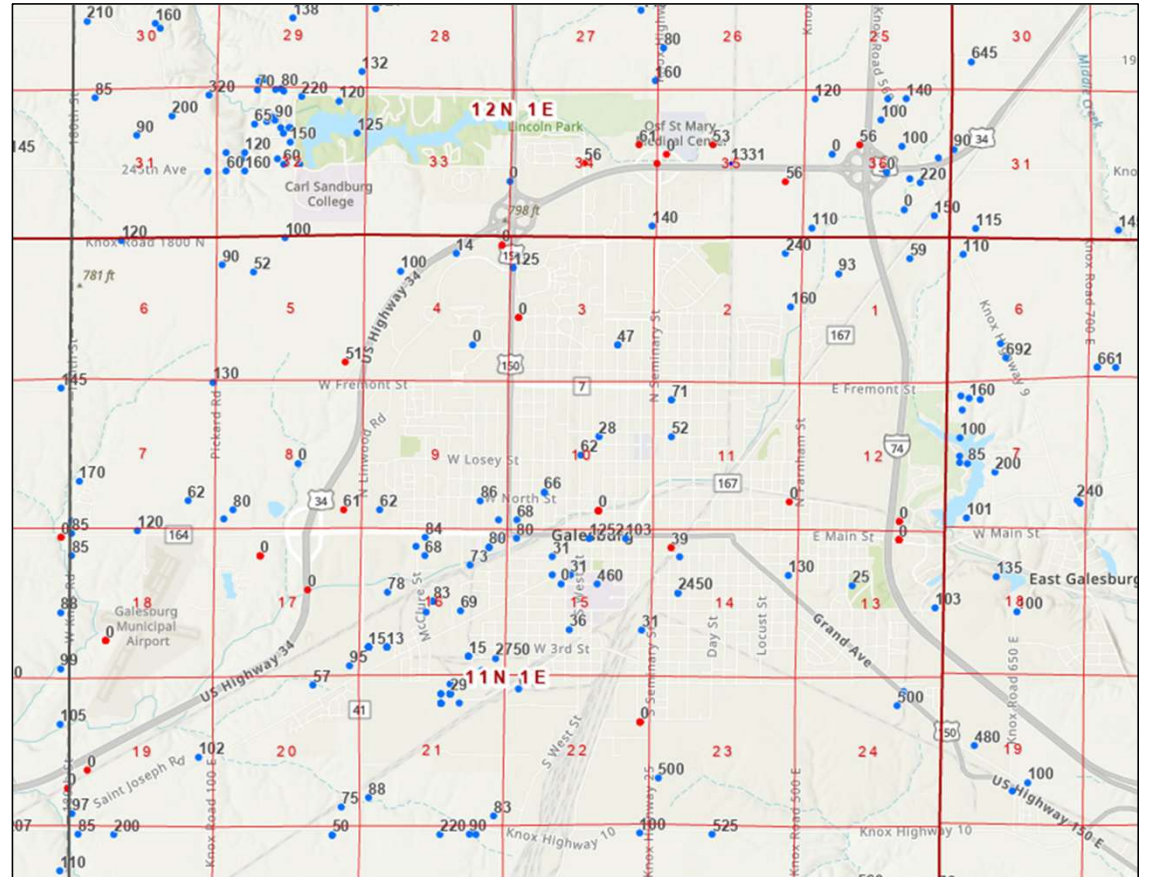


Town of Florence



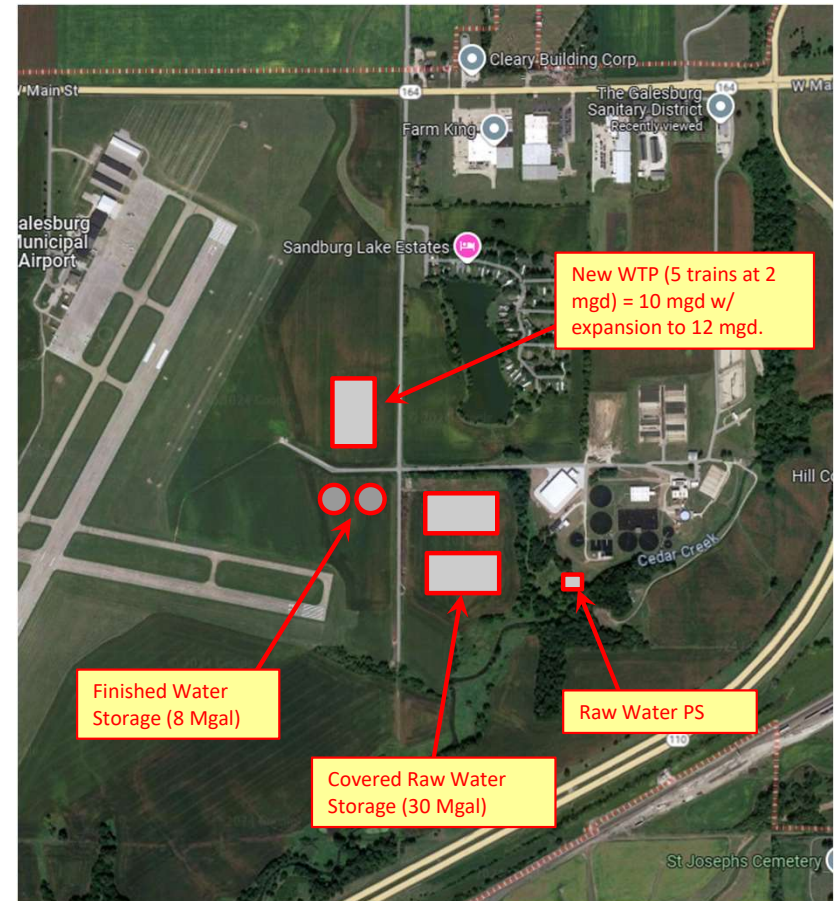
## “BIG PICTURE” Solution for Galesburg Water System

- The wells were placed in Oquawka in the 1950’s because local wells have both radium and very low production. (Larger wells in Knox County are about 30 gpm).
- Knox County has limited resources for a surface water treatment plant – maybe up to 4 mgd, while 8 mgd is required.



## Concepts for New WTP

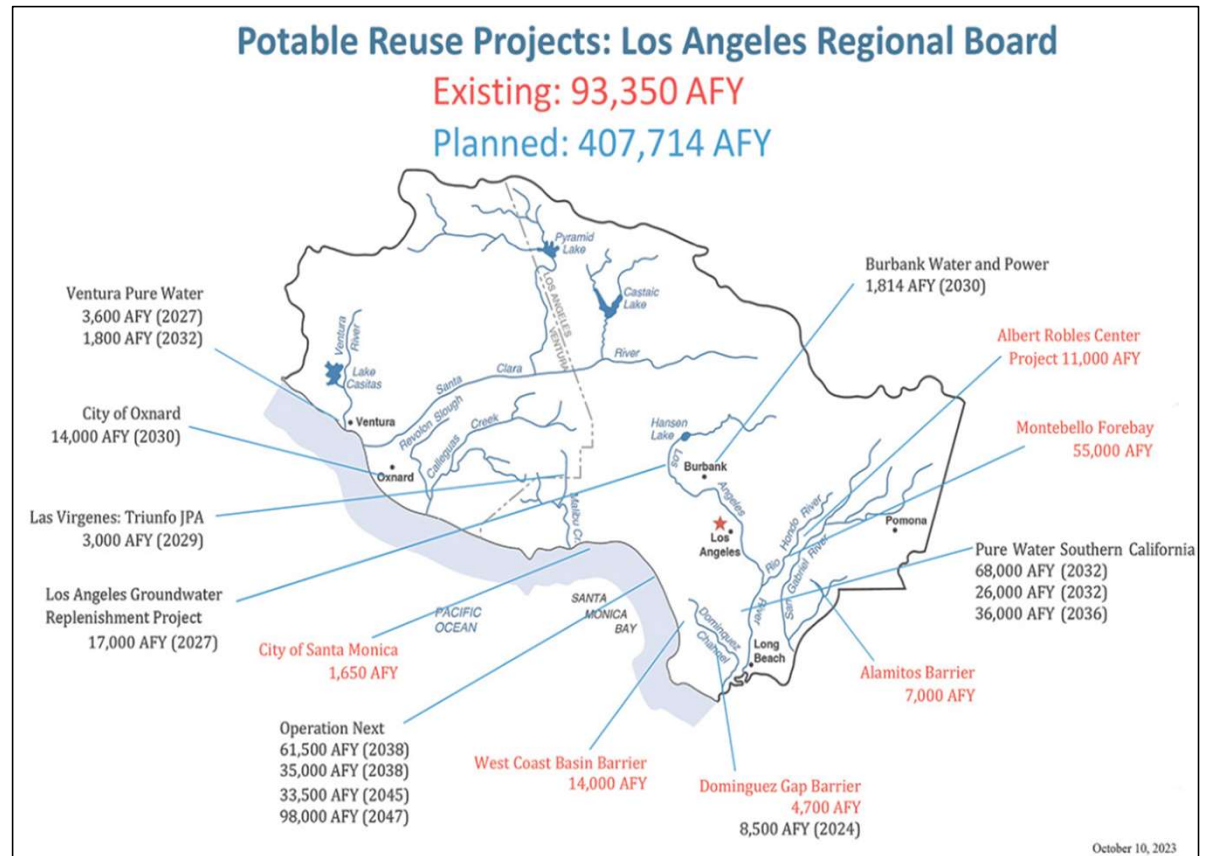
- Direct potable reuse (DPR) are now somewhat common – about two dozen WTPs in the USA.
- Galesburg airport parcel can receive both reclaimed and surface water.
- Galesburg Sanitation District (GSD) flows averages 6 to 8 mgd. Cedar Creek will supply maybe 25% to 50% of raw water.
- Initial studies will take about 8 to 12 months, then design for 6 months to get to firm fixed price.



## Direct Potable Reuse (DPR) Examples

The arid West has most of the DPR facilities – six are located in the Los Angeles area, with another seven planned.

West Texas has an additional dozen. DPR is “proven” and will provide rate payers superb quality water at more reasonable rates than alternatives.



## Next Steps – Master Planning/Phase 1 Next Steps

- Veregy Assessment Review Oct./Nov.
- Committee/Board Review TBD
- Veregy Selected through SIPC as ESCO Partner December 2024
- Veregy/City of Galesburg Master Plan Updates Dec. 24' – Jan. 25'
- Veregy Final Development of Preferred 2024/2025 Projects Jan.2025 – TBD



# Q & A