

Winnetka Village Council
STUDY SESSION
Village Hall
510 Green Bay Road
Tuesday, July 14, 2015
7:00 PM

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AGENDA

- 1) Call to Order
- 2) Transformer Yard Fire Protection Assessment.....2
- 3) Public Comment
- 4) Executive Session
- 5) Adjournment

NOTICE

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Agenda Item Executive Summary

Title: Transformer Yard Fire Protection Assessment

Presenter: Brian Keys, Director of Water & Electric

Agenda Date:

07/14/2015

Consent:

YES

NO

Ordinance

Resolution

Bid Authorization/Award

Policy Direction

Informational Only

Item History:

At the March 10, 2015 Village Council Study Session, representatives from Strand Associates presented the findings of their assessment along with recommendations and cost estimates. Policy direction was provided for the fire protection measures which included a fire pump and sprinklers for the generating equipment. No consensus was reached on the fire protection measures to be utilized for the transformer yard. The Council discussed the feasibility of replacing the transformers utilizing a high fire point fluid rather than simply adding fire protection to the existing transformer yard. At the request of the Council, staff was asked to further examine the replacement option.

Executive Summary:

Fire protection measures for the transformer yard focused on one of the following options: wet (deluge) fire protection system or replacement of the existing transformers with new transformers utilizing a high fire point insulating fluid. Both approaches required the installation of some blast walls and changes to the existing containment.

Alternatives discussed in the assessment report focused on addressing all four transformers in the same manner. Further discussions have identified that a combination of transformer replacement and retrofilling may be another viable option. Rather than replacing the transformer manufactured in 1995, the unit could be retrofilled with a high fire point insulating fluid. Due to their age, the three 1970 transformers would still be replaced with new transformers using a high fire point fluid.

The opinion of probable construction costs has been revised and/or developed for three options. Additional cost detail has been included in Exhibit A of the attached Agenda Report.

Option A: Wet (deluge) Fire Protection System of Existing Equipment / Estimated Cost: \$966,000

Option B: Equipment Replacement / Estimated Cost: \$2,350,000

Option C: Combination of Equipment Replacement & Retrofilling / Estimated Cost: \$1,683,000

Each of the options will provide fire protection of the transformer yard. Once the method of fire protection is determined, staff will propose phasing and implementation options as part of the capital budget process.

Recommendation:

Consider providing policy direction on an approach to providing fire protection at the Electric Plant's transformer yard.

Attachments:

- Agenda Report dated July 9, 2015
- Agenda Report dated March 7, 2015
- Minutes for March 10, 2015 Village Council Study Session
- Strand Associates PowerPoint dated March 10, 2015

*Please note that the complete Strand Associates 2015 Winnetka Fire Suppression Assessment (originally presented on March 10, 2015) is available online at:
www.villageofwinnetka.org/agendas-minutes/?CategoryId=14

AGENDA REPORT

SUBJECT: **Transformer Yard Fire Protection Assessment**

PREPARED BY: Brian Keys, Director Water & Electric

REF: June 24, 2014 Village Council Meeting, pp. 29-41
 March 10, 2015 Village Council Study Session

DATE: June 9, 2015

As part of the 2014 fiscal year, the Water & Electric Department budget contained funding to assess the fire protection of the transformer yard and the generating equipment located at the Electric Plant. The intent of the assessment was to provide an evaluation of the existing facilities, review industry standards, evaluate alternatives, and provide recommendations for each that included estimated construction costs. The project was awarded to the engineering firm of Strand Associates.

At the March 10, 2015 Village Council Study Session, representatives from Strand Associates presented the findings of their assessment along with recommendations and cost estimates. Policy direction was provided for the fire protection measures which included a fire pump and sprinklers for the generating equipment within the Electric Plant. No consensus was reached on the fire protection measures to be utilized for outside the transformer yard. The Council discussed the feasibility of replacing the transformers utilizing a high fire point fluid rather than simply adding fire protection to the existing transformer yard. At the request of the Council, staff was asked to further examine the replacement option.

Background:

The transformer yard has four mineral oil-filled power transformers, one mineral oil-filled voltage regulator and one metal enclosed capacitor bank located in an outdoor substation area of the Plant Load Center. These power transformers are generator step-up transformers that connect the 4,160 volt generators to the 12,470 volt power system. Power generated at the Electric Plant is generated at 4,160 volts. The majority of the electric distribution circuits utilize 12,470 volts. During the periods when the plant is not generating, the transformers step-down the voltage to provide 4,160 volt electric service to the station power transformers that serve the Water and Electric Plants and four electric circuits. The existing facility does not include, nor was there provisions made for, fire protection or fire suppression of the power transformers.

The existing configuration of the transformer yard contains the potential for a single catastrophic event to involve additional pieces of equipment. Depending on the location of the fire and the extent to which it might spread, this could result in a disruption of potable

water service (until activation of the emergency interconnects), extended outages of four 4kV distribution circuits and the loss of generating capability.

Discussion:

Fire protection measures for the transformer yard focused on one of the following options: wet (deluge) fire protection system or replacement of the existing transformers with new transformers utilizing a high fire point insulating fluid. Both approaches still require the installation of some blast walls and changes to the existing containment.

During staff's review of the equipment replacement option, it was determined that the replacement cost of the transformers was understated in the original report. As verbally noted by the consultant during their presentation, once it was determined to be more costly than the wet (deluge) system, additional replacement costs were not detailed. Staff also identified an error in the cost estimate provided to the consultant by the transformer manufacturer. The cost to replace all four transformers with new transformers using a high fire point fluid has been revised from \$1.45 million to \$1.86 million.

One factor noted in the assessment and discussed at the March 10th Study Session is the age of the existing transformers. Three of the transformers were manufactured in 1970 and one transformer was manufactured in 1995. The expected operating life for transformers of this type is 40-50 years. As such, three units are approaching an age when planned replacement will be required.

It is practically impossible to determine when a particular transformer will fail. Transformer "life" is dependent upon the transformer's insulation. Over time, the insulation deteriorates from the effects of temperature, moisture and oxygen. This slow deterioration of the insulation coupled with operating stresses (i.e. surges) ultimately result in an electrical failure. One monitoring technique used to assess a transformer's health is dissolved gas analysis. As the insulation breaks down, gases are formed and dissolve into the oil. By periodically analyzing the volume, type and proportions of the gases, diagnostic information can be gathered on the unit. Results to date have indicated some deterioration of the insulation, but no significant internal problems in the transformers.

Retrofilling and equipment replacement alternatives discussed in the assessment report proposed addressing all four transformers in the same manner. However, one of the transformers was installed in 1995 and does not warrant replacement due to its age. Further discussions have identified that a combination of transformer replacement and retrofilling may be another viable option. Rather than replacing the transformer manufactured in 1995, the unit could be retrofilled with a high fire point insulating fluid. Due to their age, the three 1970 transformers would still be replaced with new transformers using a high fire point fluid.

The opinion of probable construction costs has been revised and/or developed for three options, which all incorporate costs of containment and the required barriers. Additional cost detail has been included in Exhibit A.

Option A: Wet (deluge) Fire Protection System of Existing Equipment (Strand
Recommendation, without replacement or retrofitting)
Estimated Cost: \$966,000

Option B: Complete Equipment Replacement
Estimated Cost: \$2,350,000

Option C: Combination of Equipment Replacement & Retrofilling
Estimated Cost: \$1,683,000

Each of the options will provide fire protection of the transformer yard. Once the method of fire protection is determined, staff will propose phasing and implementation options as part of the capital budget process. Based on input from the March 10 meeting, staff is also proceeding with a Request for Proposals for the fire suppression project design at the Electric Plant. It is anticipated this will be ready for Council authorization in September, 2015.

Recommendation:

Consider providing policy direction on an approach to providing fire protection at the Electric Plant's transformer yard.

Exhibit A

Option A: Wet (deluge) Fire Protection System (Strand Recommendation)

Installation of deluge system	\$213,000
Fire barriers around transformers & voltage regulator	\$377,000
Secondary containment	\$240,000
Barrier wall	\$103,000
Electric manhole modifications	<u>\$33,000</u>
Estimated Cost:	\$966,000

Option B: Equipment Replacement

Replacement of existing transformers (4)	\$1,856,000
Installation of fire barriers (2)	\$248,000
Secondary containment	\$110,000
Barrier wall	\$103,000
Electric manhole modifications	<u>\$33,000</u>
Estimated Cost:	\$2,350,000

Option C: Combination of Equipment Replacement & Retrofilling

Replacement of 1970 transformers (3)	\$1,043,000
Installation of fire barriers (2)	\$248,000
Retrofill 1995 transformer (1)	\$146,000
Secondary containment	\$110,000
Barrier wall	\$103,000
Electric manhole modifications	<u>\$33,000</u>
Estimated Cost:	\$1,683,000

(NOTE: Option A assumes the fire pump is installed in Electric Plant as part of fire protection for generating equipment.)

AGENDA REPORT

SUBJECT: **Transformer Yard and Generation Plant Fire Protection Assessment**

PREPARED BY: Brian Keys, Director Water & Electric

REF: June 24, 2014 Village Council Meeting, pp. 29-41

DATE: March 7, 2015

History

The Water & Electric Department's fiscal year 2014 budget contained funding for professional services to assess the fire protection of the transformer yard and the generating equipment located at the Electric Plant. At the June 24, 2014, Village Council meeting, both projects were awarded to Strand Associates. The intent of the assessment was to provide an evaluation of the existing facilities, review industry standards, evaluate alternatives, and provide recommendations for each that included estimated construction costs.

Copies of the final report entitled, "Transformer Yard and Generation Plant Fire Protection Assessment" have been made available to the Village Council with this report. Representatives from Strand Associates will be in attendance at the March 10, 2015 Village Council Study Session to present an overview of the assessment and their recommendations. Following the presentation, staff and the consultant will address questions about the findings and next steps.

Background:

Electric Plant-Generation

The Electric Plant operates and maintains five generating units to support the Village's electric system. The generation fleet consists of three steam turbines and two reciprocating engines that use diesel fuel for the internal combustion process. With the exception of one small suppression system for a lube oil storage tank, the units do not currently contain systems for the detection and suppression of fire. Each of the generators contains combustible liquid and poses a fire risk to the Electric Plant and Water Plant. Beyond protection of the generating assets, located within the same basement area as the generating equipment is the high-lift water pumps used to supply potable water to the distribution system from the Water Plant clearwells.

Transformer Yard

The transformer yard has four mineral oil-filled power transformers, one mineral oil-filled voltage regulator and one metal enclosed capacitor bank located in an outdoor substation area of the Plant Load Center. These power transformers are generator step-up transformers that connect the 4,160 volt generators to 12,470 volt power system. Power generated at the Electric Plant is generated at 4,160 volts. The majority of the electric distribution circuits utilize 12,470 volts. During the periods when the plant is not generating, the transformers step-down the voltage to provide 4,160 volt electric service the station power transformers that serve the Water and Electric Plants. The existing facility does not include, nor was there provisions made for, fire protection or fire suppression of the power transformers.

Discussion:

The existing configuration of the transformer yard and generating units contain the potential for a single catastrophic event to involve additional pieces of equipment. Depending on the location of the fire and the extent to which it spread, this could result in a disruption of potable water service (until activation of the emergency interconnects), extended outages of four 4kV electric distribution circuits and the loss of generating capability.

After evaluating the existing facilities, recommendations from the Village's insurance carrier, and various fire protection measures, Strand is recommending that the Village install a wet fire protection system for the steam turbine bearings on the operating floor and the basement of the Electric Plant. Recommendations for the transformer yard include improved secondary containment, barrier walls, and a deluge fire protection system.

The estimated cost to provide fire protection measures to both the Electric Plant generating units and the transformer yard is \$1.8 million. During development of the FY 2015 budget, the consultant's recommendations and cost projections were still being finalized. In order to insure that some funding was allocated for improvements to fire protection, staff budgeted \$540K in 2015 and \$1.2M in 2017, and is reflected in the Electric Fund Capital Plan as Attachment A.

Recommendation:

Consider providing policy direction on a multi-year approach to improve fire protection at the Electric Plant's generating units and transformer yard.

Attachments:

- Attachment A: Electric Fund Capital Plan
- Attachment B: Transformer Yard and Generation Plant Fire Protection Assessment Report – Strand Associates

Village of Winnetka
Electric and Water Fund Capital Financing
(In Thousands of Dollars)

2014.10.03

Electric Fund	2014 Estimated	2015	2016	2017	2018	2019	Total <small>(Est. - 19)</small>
1/1 Unrestricted Net Assets @	5,932	5,370	3,847	2,481	3,050	536	n/a
Sources (Uses) of Cash							
* Contribution from Operation:	(415)	(671)	(671)	(671)	(671)	(671)	(3,770)
Depreciation	1,600	1,600	1,600	1,600	1,600	1,600	9,600
### Loan from General Fund				3,000			
Loan Repayment					(300)	(300)	(300)
Cash Generated	1,185	929	929	3,929	629	629	5,830
Less: Capital Projects	(1,747)	(2,452)	(2,295)	(3,361)	(3,143)	(2,600)	(15,598)
Net Annual Source (Use) of Cash	(562)	(1,523)	(1,366)	568	(2,514)	(1,971)	(9,768)
Water Fund							
1/1 Unrestricted Net Assets @	1,265	1,548	1,566	1,817	1,815	1,393	n/a
Sources (Uses) of Cash							
* Contribution from Operation:	383	445	445	445	445	445	2,608
## Revenue Increases							-
Depreciation	440	440	440	440	440	440	2,640
Cash Generated	823	885	885	885	885	885	5,248
Less: Capital Projects	(540)	(867)	(634)	(887)	(1,307)	(881)	(5,116)
Net Annual Source (Use) of Cash	283	18	251	(2)	(422)	4	132

@ Cash and investment balance from page 11 of 12/31/2013 CAFR usec

* Based on net income history, excludes interest income.

Principal and interest based on 3% simple interest on outstanding balance.

Water assumes a 2% increase 1/1/2015 for incorporated, 4% unincorporated.

Loan from General Fund to be repaid over a ten (10) year period at 0% interest.

Capital Plan (in thousands of dollars)

	#	Budget	Estm.	***-----Projected-----***					(Est. - 19)		
		2014	2014	2015	2016	2017	2018	2019			
Electric Fund											
E											
<u>Transportation</u>											
Yards		67% of #64 Service Truck (2000)	1	\$ 101	\$ 95					\$ 95	
Yards		50% of #60 Dump Truck (1995)	2			\$ 41				\$ 41	
Plant		50% of #84 Pick up / Snow Plow (2003)	3			\$ 20				\$ 20	
Yards		Replace Line Truck #55 (2000)	4				\$ 220			\$ 220	
Yards		67% of Line Truck #57 (1986)	5		\$ 157					\$ 157	
Sub-Total				\$ 101	\$ 95	\$ 157	\$ 20	\$ 41	\$ 220	\$ -	\$ 533
Electric Plant											
Plant		Fire Protection Generator/Turbine & Diesels	6				\$ 528			\$ 528	
Sub-Total				\$ -	\$ -	\$ -	\$ -	\$ 528	\$ -	\$ -	\$ 528
Substations											
Northfield Sub.		New Transformer	7				\$ 837	\$ 623		\$ 1,460	
Northfield Sub.		ComEd Interconnection	8				\$ 140			\$ 140	
Northfield Sub.		New Switchgear	9	\$ 456		\$ 456				\$ 456	
Plant Load Center		Fire Protection Transformer Yard	10		\$ 540		\$ 676			\$ 1,216	
Plant Load Center		Fire Protection - Building	11				\$ 250			\$ 250	
Sub-Total				\$ 456	\$ -	\$ 540	\$ 456	\$ 926	\$ 977	\$ 623	\$ 3,522
Distribution											
New Business		Cable Pulling & Directional Boring	12	\$ 450	\$ 420	\$ 420	\$ 433	\$ 446	\$ 459	\$ 472	\$ 2,650
System & New Bus.		Conductors & Cable Pulling	13	\$ 546	\$ 347	\$ 450	\$ 479	\$ 496	\$ 546	\$ 546	\$ 2,864
System & New Bus.		Cable Devices	14	\$ 69	\$ 59	\$ 59	\$ 61	\$ 63	\$ 64	\$ 66	\$ 372
System		System Upgrades - Conduit	15	\$ 120	\$ 120	\$ 120	\$ 124	\$ 124	\$ 124	\$ 124	\$ 736
System & New Bus.		Transformers & Devices	16	\$ 124	\$ 120	\$ 120	\$ 124	\$ 127	\$ 131	\$ 135	\$ 757
System & New Bus.		Allocated Employee Salaries	17	\$ 586	\$ 586	\$ 586	\$ 598	\$ 610	\$ 622	\$ 634	\$ 4,222
Sub-Total				\$ 1,895	\$ 1,652	\$ 1,755	\$ 1,819	\$ 1,866	\$ 1,946	\$ 1,977	\$ 11,601
Electric Capital				\$ 2,452	\$ 1,747	\$ 2,452	\$ 2,295	\$ 3,361	\$ 3,143	\$ 2,600	\$ 16,184

MINUTES
WINNETKA VILLAGE COUNCIL STUDY SESSION

March 10, 2015

(Approved: April 9, 2015)

A record of a legally convened meeting of the Council of the Village of Winnetka, which was held in the Village Hall Council Chambers on Tuesday, March 10, 2015 at 7:00 p.m.

- 1) Call to Order. President Greable called the meeting to order at 7:02 p.m. Present: Trustees Arthur Braun, Carol Fessler, Richard Kates, William Krucks, Stuart McCrary and Marilyn Prodromos. Absent: None. Also in attendance: Village Manager Robert Bahan, Assistant to the Village Manager Megan Pierce, Village Attorney Karl Camillucci, Water & Electric Director Brian Keys, Community Development Director Michael D'Onofrio, Fire Chief Alan Berkowsky and approximately 10 persons in the audience.
- 2) 2015 Winnetka Fire Suppression Assessment. Water & Electric Director Brian Keys said Winnetka hired Strand Associates in 2014 to assess fire protection at two Village locations: the Transformer Yard and the generating equipment at the Electric Plant. He introduced Nathan Brandt and Brian Molenaar of Strand to present the outcomes of the recently completed assessment.

Mr. Brandt explained that the assessment addresses risks, such as protecting critical infrastructure, recommendations of insurance carriers, improving life safety, protecting the environment and ensuring the Village continues to comply with industry standards. Following an overview of existing concerns, fire protection alternatives were discussed. Mr. Brandt ultimately recommended a Wet Fire Protection System that would include a fire pump in the Plant basement, sprinkler protection for the basement and steam turbines on the operating floor, as well as a new electrical feed. The opinion of probable construction cost (OPCC) for the protection recommendations is \$814,000.

Trustee Fessler inquired about the specific protection coverage within the building. Mr. Brandt said the standards require protection within certain distances from identified hazards, so the recommendations focus on the Plant basement. Mr. Keys noted that the protection would also cover a small area of the operating floor. The building as a whole does not have a fire protection rating.

President Greable asked about the rationale for conducting the assessment at this time and recommendations by the Village's insurance carrier. Mr. Keys indicated that the Village is primarily attempting to be more risk averse and evaluating issues for review as part of the budget process. He stated the insurance carrier periodically reviews the Village's policy and believe there should be fire protection in place. They are not considering dropping or altering the Village's insurance policy. In response, Trustee Fessler asked if the Village might receive a rate reduction if it took action on the recommendations. It was estimated the Village might save about \$7,000 to \$10,000 annually, much less than the recommended investment.

Trustee Kates inquired about other plants and comparable systems. Mr. Keys said there are no other facilities in Illinois that have steam and diesel generating equipment like Winnetka. He indicated that if a plant were built today, it would be designed with fire protection and more separation between the Plant and Transformer Yard.

Mr. Keys and the Council discussed how a loss of power would impact both the Water & Electric Plants in the event of a fire, given the lack of fire protection in the current building. To date, there have not been any large structural fires in the buildings.

The Council clarified that there is no fire suppression equipment in the Electric Plant, except basic fire extinguishers and one steam turbine that has several sprinkler heads. Mr. Molenaar said the Plant is held to code standards based on the year the building was constructed, which was in the 1890's. Though the building does not meet the current NFPA code, those are not legal requirements, only voluntary standards.

Trustee Krucks asked if the estimated cost of the recommended protection (\$1.8 million total) is less expensive than potentially replacing equipment damaged by fire. Mr. Keys affirmed that the recommendations would be less expensive, and added that if generating equipment were damaged, the Village might jeopardize its generation capacity credits from the IMEA, which are approximately \$1.7 million annually.

President Greable commended the study, since these issues have not previously been brought the Council's attention, and he asked if there are other areas requiring studying. Mr. Keys said there are other items that will be evaluated in the future.

Next, Mr. Molenaar described the Village's Transformer Yard, which is located on the same property as the Electric Plant. The Yard operates 24/7/365 and transfers power from Commonwealth Edison to Village distribution circuits. The severe impact of potential equipment failure was illustrated, including loss of power to critical buildings and infrastructure. Mr. Molenaar reviewed the different type of concerns about the Yard vs. the Plant. Strand Associates noted concern about the need for secondary containment and blast protection.

Trustee McCrary asked about the recovery of equipment after use of some of the suppression systems. Mr. Keys explained that if a transformer is involved in a fire, that item is compromised and will likely only be scrap. A major concern with the Yard is the proximity of the units to one another; any event might not just damage one of the four transformers, so sensors are desired to assist with detection and quick suppression.

The Council discussed the potential magnitude of a fire that could disrupt service and to what extent, and also the physical damage an explosion in the Transformer Yard could cause to the other facilities.

Trustee Kates asked about the status of Glencoe's water treatment plant project. Mr. Keys said installing the proposed recommendations would not significantly impact Plant operations, and he added that discussions with Glencoe are very preliminary.

The Council discussed replacement and retro-filling options for the transformers. Mr. Molenaar showed that replacement of the existing units was cost-prohibitive. After reviewing a number of protection and suppression alternatives, Mr. Molenaar recommended installing a deluge fire protection system to sprinkler the Transformer Yard, and blast walls to isolate each transformer. He also recommended expanding the secondary containment structure, sealing electric manholes, and constructing a barrier wall along the public access road. The OPCC for all options totals \$966,000.

Trustee Kates asked about the cost of the barrier wall and whether it served a purpose other than aesthetics. Mr. Keys said there is a fair amount of traffic on the access road to the Plants and the barrier would shield the transformers and segregate them. Trustee Kates requested additional information on less costly alternatives to the proposed wall.

Mr. Keys said he is seeking Council's direction about proceeding with a multi-year fire protection plan. In the current fiscal year, he recommends advancing a Request for Proposals (RFP) to design the desired protections. Both the RFP and the bid to award construction of improvements would require Council approval. He said the fiscal year 2015 budget includes \$540,000, which was intended for use on this project.

Trustee Kates asked whether the current electric utility rates would support the level of capital projects outlined. Mr. Keys described the intent of a loan to the electric fund in 2017 to allow for significant capital investment.

The Council again discussed the possibility of replacing the transformers rather than simply adding protection to the existing units. The transformers are not scheduled for replacement in the existing capital fund, and replacement of the transformers was not completely vetted as part of the Fire Suppression assessment.

Based on a Trustee inquiry, Manager Bahan confirmed the Village is self-insured up to \$2 million.

Based on Appendix C, page 4, Mr. Keys showed that equipment replacement for the transformers ranges from \$124,000 to \$248,000 depending on the particular unit. Trustees Braun, Kates, and Krucks expressed concern that the protection for the transformers would become obsolete when replacement transformers are required in the future.

The consensus of the Council was to move forward with the design and implementation of the sprinkler system for the Electric Generating Plant. Mr. Keys said he would perform some additional analysis on replacement options in regards to the Transformer Yard recommendations. Responding to Trustee Fessler, Mr. Keys confirmed the RFP for the Electric Plant improvements could be realistically pursued as a separate item.

- 3) Overlay District Uses. Community Development Director Mike D'Onofrio said the Council last reviewed the Special Use Permit (SUP) process and reclassification of a number of use groups in December, 2014. He indicated streamlining of the SUP process would be presented as part of a draft ordinance at the upcoming March 17 meeting.

Trustee Kates inquired about the origin of the modifications suggested to the SUP process, especially shortening the notification period. He said this was not the direction of the Council; they desired to avoid duplication of advisory board review. Attorney Camillucci indicated the intent was not to impose modifications but to provide a series of recommendations for consideration.

Trustee Krucks said he objected to the piecemeal presentation of the items related to the Commercial Overlay District. He also indicated that the SUP process recommendations overstepped the direction given in December.

Mr. D'Onofrio said there were five use groups previously identified, with the fullest consensus around just one, personal services. He reviewed the language Staff drafted that

would allow for personal uses to be amended from a special to permitted use, as outlined on page 238 of the agenda packet.

Trustee Braun indicated that the input from Trustees used to develop the proposed language is not representative of the entire Council.

Mr. D’Onofrio said the other four use groups previously considered included: 1) educational; 2) construction-related; 3) financial services; and 4) medical. Due to the number of individual uses under the use groups, action on these groups would take an additional 28 special uses and make them permitted uses—or approximately 38% of all uses in the commercial districts.

Trustee Fessler reviewed the Council’s prior discussion and how they arrived at consideration of the personal service use as separate from the other use groups. Trustee Krucks expressed concern that the Council was spending a great deal of time on uses that generate, on average, less than one permit application a year. He also said the list of uses needs to be fair and not subject to interpretation.

Trustee Kates noted that essentially no one has been turned away by the Plan Commission in applying for an SUP. He feels that modifications to the SUP process will make improvements responsive to the businesses that commented at the open house session held by the Plan Commission.

Trustees Kates and Krucks advocated eliminating weight loss clinics/diet centers as permitted uses under the personal service use group. Trustee McCrary indicated he did not think it was the Council’s role to determine whether or not a weight loss clinic was a negative service to include.

Trustee Fessler said she is cognizant of honoring the Downtown Master Planning process; therefore, her consideration was on the uses that would seem to be the least controversial. She believed the financial services and medical use groups would require the most detailed evaluation in the planning process. She advocated first focusing on the streamlining of the SUP process. She raised the possibility of moving the weight loss clinic from the personal service group to the medical use group.

Trustees Kates and Krucks concurred—saying they would prefer to vote on the changes to the SUP process before the use group changes.

Trustee Braun said service uses do not draw higher rents. It is a misconception that is not supported with data and he added that rents have dropped about 35% since 2008. Trustee Prodromos confirmed that she has heard local property taxes cost landlords \$12 per square foot.

Following Public Comment, Trustee Krucks expressed concern about relaxing too many requirements of the SUP process, as these are protections appreciated by residents.

Trustee Prodromos said at a Chamber meeting it was noted the Village will be losing 20 businesses. She said the Council needs to be responsive and try to bring some of the services that would certainly be in high demand. She said the Village is being too rigid in making changes to the business districts.

Trustee Fessler requested Staff to track the number of commercial applications received, to see if people are willing to engage in the special use process, to better understand the success of any revisions.

The Council agreed to defer consideration of the special use groups until after the SUP process amendments are discussed on March 17. Manager Bahan noted that Staff will clarify the options for Council discussion in terms of potential process amendments.

4) Public Comment.

Glenn Weaver, 574 Lincoln Avenue. Mr. Weaver indicated he was in favor of the fire protection improvements at the Electric Plant. He also recalled that when the Overlay District was implemented all but one business owner was against its adoption. He recommended following the report made by the Business Community Development Commission. In his opinion, the Overlay District has had a disastrous impact on the business community.

Steven Hirsch, 1380 Stockton Drive, Northfield. Mr. Hirsch, the Winnetka-Northfield Chamber of Commerce President, reviewed his experience in commercial real estate in the northern suburbs. He described the changes in the retail market that have impacted central business districts, and noted that traditional retailers are not seeking to fill existing retail spaces such as those in Winnetka.

Scott Myers, 127 Church. Mr. Myers agreed that value is not added by requiring two advisory boards to review a Special Use Permit application, and he was supportive of the suggested streamlining. He referenced the recent Village Citizen Survey results and said residents do not desire more of these use groups. Eliminating the requirement for special use permits would disregard the opinion of residents and short-change the Downtown Master Planning process.

Louise Holland, 545 Oak Street. Ms. Holland said the Ordinance has preserved retail in Winnetka since the 1980's. She noted that other local communities have overlay districts and have developed thriving downtown areas. As a member of the Plan Commission, she said that board's recommendation was to not make any change to the uses until a comprehensive planning effort is completed.

Gwen Trindl, 800 Oak. Ms. Trindl echoed the comments made by Mr. Myers and advocated honoring the input that has been received from residents. She noted that the special use permit is intended to protect the greater good and make decisions about specific applications. Ms. Trindl encouraged the Council to continue to support the planning process.

5) Executive Session. None.

6) Adjournment. Trustee Fessler, seconded by Trustee Prodromos, moved to adjourn the meeting. By voice vote, the motion carried. The meeting adjourned at 10:16 p.m.

Recording Secretary

Transformer Yard and Generation Plant Fire Protection Assessment

Village of Winnetka, IL

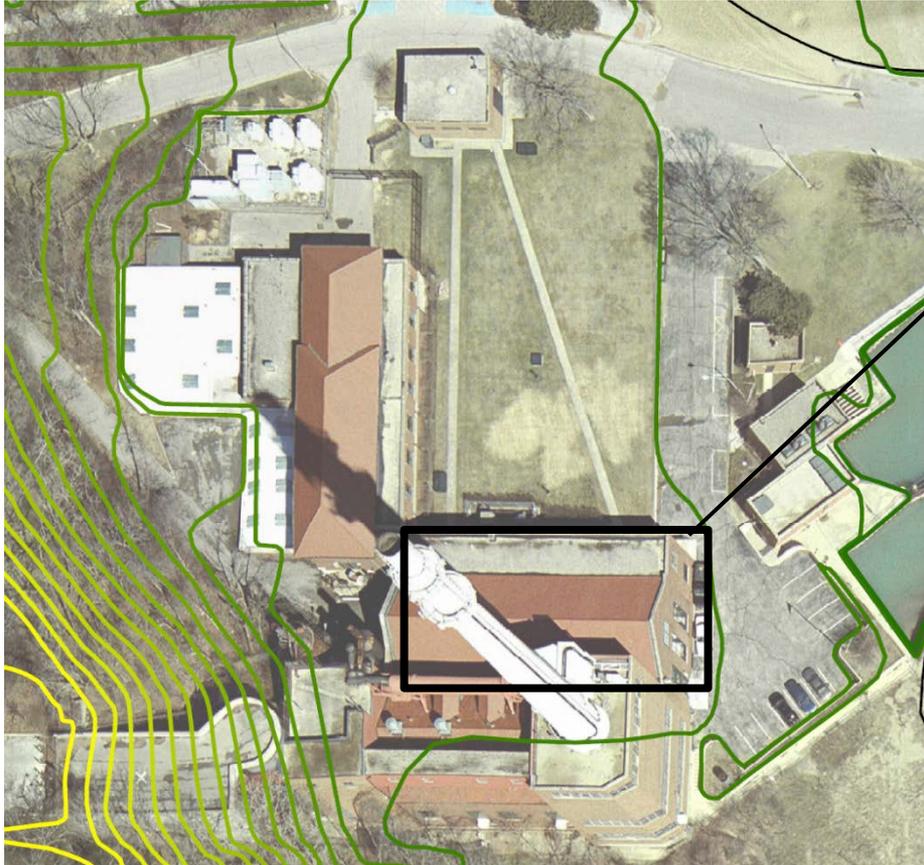
March 10, 2015



Fire Protection Assessment Addresses Risks and Concerns

- Critical Infrastructure Protection
- Address Insurance Carrier Recommendations
- Employee/Public Life Safety Considerations
- Environmental Protection
- Compliance with Industry Standards (IEEE, NFPA, IBC, etc.)

Generation Plant Assessment



Generation
Plant

Generation Plant – Background

- Steam Turbine Generators
 - No. 4 – 12 Megawatt (MW)
 - No. 6 – 9 MW
 - No. 7 – 6 MW
- Lube Oil Storage Tanks
 - Steam Turbine No. 4 – 400 Gallons
 - Steam Turbine No. 6 – 400 Gallons
 - Steam Turbine No. 7 – 300 Gallons
 - Total Lube Oil = 1,100 Gallons



Generation Plant – Background

- Diesel Engine Generators
 - No. 8 – 2.5 MW
 - No. 9 – 2.5 MW
- Diesel Fuel Storage Tanks
 - (2) 300 Gallon Tanks



Generation Plant – Background

- High Lift Pumps
- Located in Basement



Generation Plant – Operating Characteristics

- Generation Plant Operating Characteristics
 - Standby Power Generation (Dispatched by IMEA)
 - Weekly Equipment Exercising
 - Water Plant Power Source if Required
- High Lift Pumps Operating Characteristics
 - Supply Potable Water to Water Utility Customers

Generation Plant – Concerns

- Steam Turbine Generators
 - Combustible Lube Oil Piping and Storage Tanks Pose Fire Risk
 - Turbine Bearing Fires



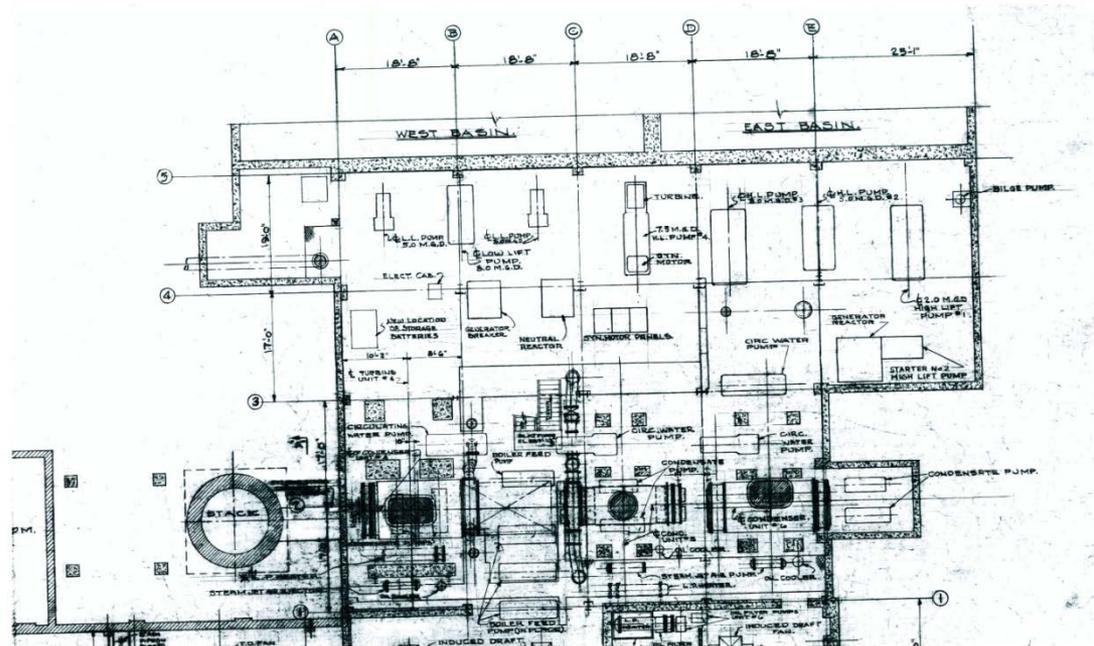
Generation Plant – Concerns

- Diesel Engine Generators
 - Combustible Diesel Fuel Piping and Storage Pose Fire Risk



Generation Plant – Concerns

- High Lift Pumps
 - Proximity of Generators
 - Fire Could Impact Potable Water and Fire Protection Water
 - Water Supply Must be Considered Reliable



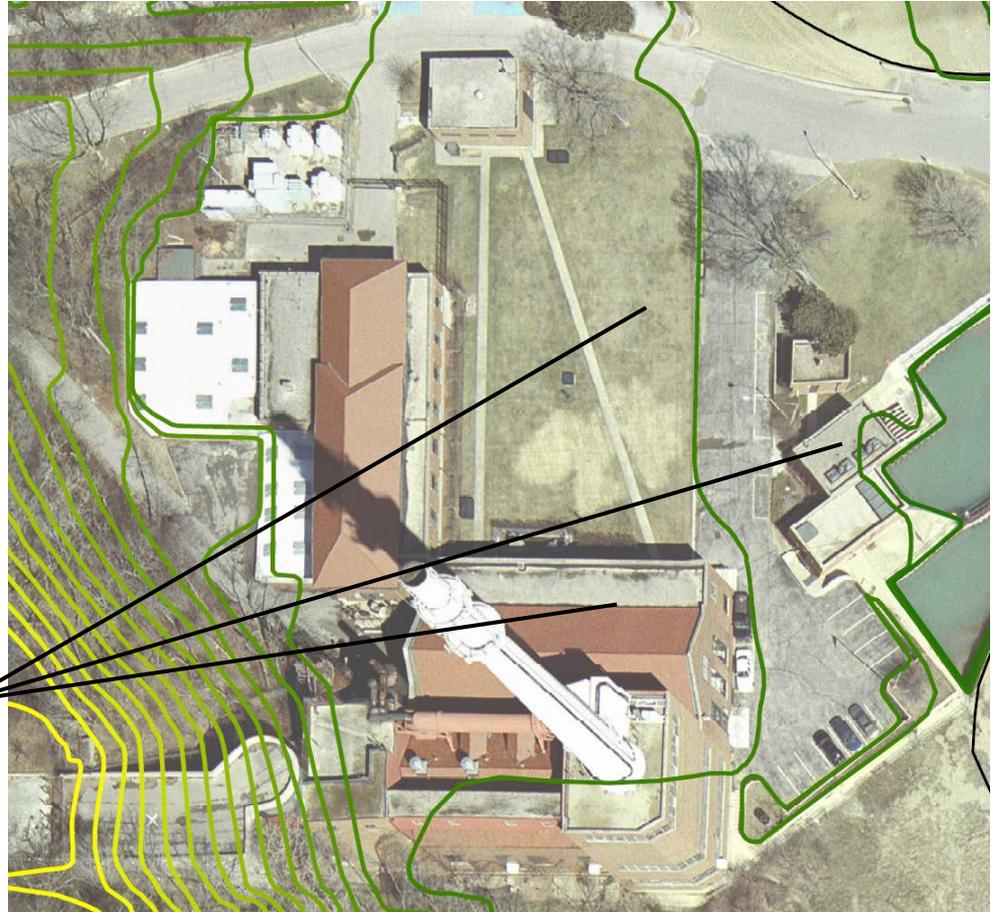
Generation Plant -
Basement Layout



Generation Plant – Fire Protection Alternatives

- Wet Fire Protection System
 - Commonly Installed System
 - Discharge Upon Heat Detection or Mechanical Damage Where Required
 - Fire Pump Required

Potential Fire Pump Locations



Generation Plant – Fire Protection Alternatives

- Compressed Air Foam System (CAFS)
 - Unique, Uncommon System
 - Discharge Entire Zone Not Local Sprinkler Head
 - Self-Contained System with No Connection to Water Supply
 - Future Building Coverage is Not Feasible



Picture Courtesy of Fireflex Systems 2014

Generation Plant – Fire Protection Recommendations

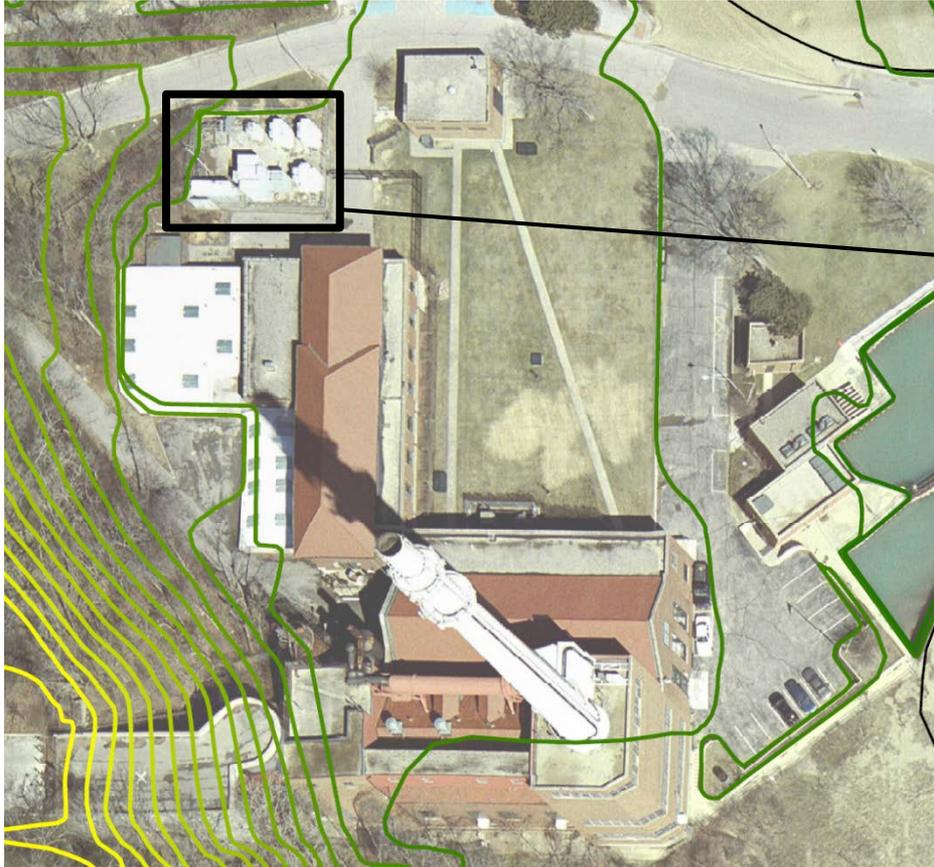
- Wet Fire Protection System
 - Fire Pump in Basement
 - Sprinkler Protection for Basement Below Operating Floor
 - Sprinkler Protection for Steam Turbine Bearings on Operating Floor
 - Electrical Feed from Control Building
 - No Backup Generator for Fire Pump

Generation Plant OPCC	
Wet System	\$176,000
Fire Pump and Room	\$638,000
Total	\$814,000

Generation Plant – Project Benefits

- Protection of Critical Infrastructure and Utility Assets
- Meets Insurance Carrier Recommendations
- Flexibility for Future Building Sprinkler Protection

Transformer Yard Assessment



Transformer
Yard

Transformer Yard – Background

- Oil Insulated Transformers
 - No. 1, 2, 3, and Spare
- Voltage Regulator
- Capacitor Bank
- Combustible Insulating Oil
 - Transformer No. 1 – 1,380 Gallons
 - Transformer No. 2 – 1,080 Gallons
 - Transformer No. 3 – 4,220 Gallons
 - Spare Transformer – 1,080 Gallons
 - Voltage Regulator – 506 Gallons
 - Total Insulating Oil = 8,266 Gallons



Transformer Yard – Background

- Secondary Containment
 - 4" Concrete Curb
 - Local Sump with Manually Operated Pump
- Bollard Protection



Transformer Yard – Operating Characteristics

- 24/7/365 Operation
- Power from Commonwealth Edison (ComEd) to Village Distribution Circuits
- Power from ComEd to Power Generation and Water Treatment Plants
- Power from Power Generation Plant to Village Distribution Circuits
- Failure of Equipment
 - Power to Electric Plant and Water Plant Severely Affected
 - Potential Loss of Power to Public Safety, Portion of New Trier, and Others
 - Short Term Loss of Ability to Provide Fire Protection Water from Hydrants at Plant

Transformer Yard – Concerns

- Combustible Liquids
- Secondary Containment
- Blast Protection
 - Equipment
 - Public Access
- Water Intrusion into Electric Manholes



Transformer Yard – Video



Transformer Yard – Fire Protection Alternatives

- Deluge Fire Protection System
 - Commonly Installed System
 - Discharge Upon Detection
 - Full Zone Discharge



Transformer Yard – Fire Protection Alternatives

- Compressed Air Foam System (CAFS)
 - Unique, Uncommon System
 - Discharge Upon Fire Detection or False Detection
 - Full Zone Discharge
 - Self-Contained System with No Connection to Water Supply

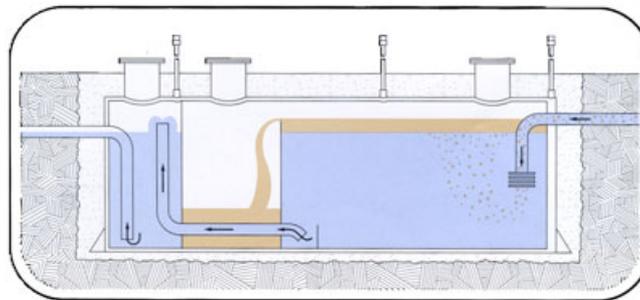


Transformer Yard – Fire Protection Alternatives

- Transformer Replacement and Transformer Retrofilling
 - FR3 High Fire Point Fluid
 - Voltage Regulator
 - Replacement – Cost Prohibitive
 - Retrofilling – Equipment Age

Transformer Yard – Secondary Containment Alternatives

- Expanded Concrete Containment
 - Local Sump Pump and Manual Discharge
- Solidification
 - Automatic System with Discharge to Stormwater System
- Oil Interceptor
 - Automatic System with Discharge to Stormwater System



Transformer Yard – Fire Protection Recommendations

- Deluge Fire Protection System
 - Fire Pump in Basement of Electric Plant
 - Sprinkler Protection for All Equipment and Secondary Containment Area
- Blast Walls
 - Between Transformers and Voltage Regulator
- Expanded Secondary Containment Structure
 - Manual Sump Pump Discharge
- Electric Manhole Sealing
- Barrier Wall along Public Access Road

Transformer Yard – Opinion of Probable Construction Cost

Transformer Yard OPCC	
Deluge System	\$213,000
Blast Walls	\$377,000
Secondary Containment	\$240,000
Barrier Wall	\$103,000
Electric Manhole Sealing	\$33,000
Total	\$966,000

Transformer Yard – Project Benefits

- Protection of Critical Infrastructure and Utility Assets
- Provides Reliability for Water Utility Operation
- Protects Environment from Transformer Oil
- Contains Fire Event to Involved Equipment
- Protects Public from Transformer Failure
- Meets Insurance Carrier Recommendations

Overall Project – Opinion of Probable Construction Cost

Overall Project OPCC	
Transformer Yard	
• Deluge System	\$213,000
• Blast Walls	\$377,000
• Secondary Containment	\$240,000
• Barrier Wall	\$103,000
• Electric Manhole Sealing	\$33,000
• Sub-Total A	\$966,000
Generation Plant	
• Wet System	\$176,000
• Fire Pump	\$638,000
• Sub-Total B	\$814,000
Total	\$1,780,000

Phasing and Implementation Plan

- Phase 1 – May 2015 – May 2016
 - Blast Walls
 - Secondary Containment
 - Electric Manhole Sealing

Phase 1 OPCC	
Blast Walls	\$377,000
Secondary Containment	\$240,000
Electric Manhole Sealing	\$33,000
Total	\$650,000

Phasing and Implementation Plan

- Phase 2 – October 2015 – December 2016
 - Fire Pump Room Construction
 - Electrical Relocation for Fire Pump Room
 - Electrical Installation for Fire Pump

Phase 2 OPCC	
Fire Pump Room and Electrical Construction	\$555,000
Total	\$555,000

Phasing and Implementation Plan

- Phase 3 – September 2016 – May 2017
 - Fire Pump
 - Generation Plant Wet Fire Protection System
 - Transformer Yard Deluge Fire Protection System

Phase 3 OPCC	
Fire Pump	\$83,000
Generation Plant Fire Protection	\$176,000
Transformer Yard Fire Protection	\$213,000
Total	\$472,000

Phasing and Implementation Plan

- Phase 4 – November 2016 – October 2017
 - Barrier Wall

Phase 4 OPCC	
Barrier Wall	\$103,000
Total	\$103,000

