AGENDA
VILLAGE OF ROUND LAKE
COMMITTEE OF THE WHOLE MEETING
January 4, 2016
442 N. Cedar Lake Road
To Follow the Regular Board Meeting
The Regular Board Meeting is 7:00 P.M.

CALL TO ORDER

1. ROLL CALL

2. APPROVAL OF MINUTES

   2.1 Approve the Minutes of the Committee of the Whole Meeting of December 7, 2015

3. PUBLIC COMMENT

4. COMMITTEE OF THE WHOLE

   - Community Development
   - Clerk's Office
   - Human Resources and Finance
   - Public Works, Facilities and Capital Assets, and Engineering
     - Well #3 Feasibility Study
   - Special Events
   - Building and Zoning
   - Police
   - Administration
     - Cedar Lake Road Alignment Options

5. SUGGESTED NEW TOPICS

6. EXECUTIVE SESSION

7. ADJOURN

MINUTES draft
VILLAGE OF ROUND LAKE
COMMITTEE OF THE WHOLE MEETING
December 7, 2015
442 N. Cedar Lake Road
To Follow the Regular Board Meeting
The Regular Board Meeting is 7:00 P.M.

CALL TO ORDER
THE COMMITTEE OF THE WHOLE MEETING OF THE VILLAGE OF ROUND LAKE WAS CALLED TO ORDER BY DAN MACGILLIS, VILLAGE PRESIDENT AT 7:45 P.M.

1. ROLL CALL
   Present: Trustees Foy, Frye, Kraly, Rodriguez, Triphahn
   Absent: Trustee Newby

2. APPROVAL OF MINUTES

   2.1 Approve the Minutes of the Committee of the Whole Meeting of November 16, 2015
   Motion by Trustee Triphahn, Seconded by Trustee Frye to approve the Minutes of the Committee of the Whole Meeting of November 16, 2015. Upon a unanimous voice vote; the Mayor declared the motion carried

3. PUBLIC COMMENT
   NONE

4. COMMITTEE OF THE WHOLE

   - Community Development
   - Clerk's Office
   - Human Resources and Finance
   - Public Works, Facilities and Capital Assets, and Engineering
     - De-icing Liquids Purchase
       Public Works Director Adam Wedoff sought permission to purchase de-icing liquids for winter operations, stating that the product worked well to pre-treat roads and mix with salt during last years plowing operations. He requested purchasing 4500 gallons now and continue to purchase more liquid as needed, not to exceed the budgeted amount.

       The Mayor and Board agreed to move to the next Consent Agenda

     - Emergency Snow Removal Contract
       PW Director Wedoff recommended the Village enter into a contract with at least one contractor to supply heavy equipment and operators in the event of a large snowfall. He stated proposals were sent out to local contractors requesting hourly rates for different types of equipment that would be useful for emergency snow removal services. A contract could be signed with one or all of the respondents.

       The Mayor and Board agreed to move to the next Consent Agenda
   - Special Events

- Building and Zoning
- Police
  - Close Circuit Video System

    Chief Gillette stated that the current system had been installed when the building was built and has run its serviceable life. He stated the new system will be computer controlled and will use every part of the current system that is serviceable and with the addition of three additional cameras placed in the parking lot areas and the second interview room the system should meet the needs of the Village for the next ten years.

    The Mayor and Board agreed to move to the next Consent Agenda
- Administration
  - Draft Comprehensive Plan

    Village Administrator Steve Shields presented the updated draft comprehensive plan that was approved by the Plan Commission/Zoning Board of Appeals on November 24, 2015. He stated the process started over a year ago and gave an overview of the process. Since that time there have been community surveys, stakeholder interviews and numerous meetings held and based on all of that information, the draft comprehensive plan was completed. He said the plan consists of 13 Goals and 49 Objectives and that a Public Hearing had been held at a Planning and Zoning meeting. He asked the Board to read the document over the next few weeks and to focus on the goals and let him know if there are any changes to be made before the next board meeting as he would like to approve the document in January 2016.

  - Management's Overall Vision Evaluation (MOVE)

    VA Shields mentioned he had not heard from any of the board members regarding the document he presented at the last board meeting of November 16th, nor any questions prior to tonight's meeting regarding the MOVE presentation. He did state that it had been shown to the Planning and Zoning Board and they presented VA Shields with several pages of ideas and suggestions. He stated there are 6 main areas and would like to start the initiative now as our finances are going into the red. Trustee Kraly suggested moving forward on the things VA Shields needed to do, but to also have a round table discussion with the board. The Mayor suggested putting together dates and to get back to the board with what is feasible

5. SUGGESTED NEW TOPICS

6. EXECUTIVE SESSION
   NONE

7. ADJOURN

Motion by Trustee Foy, Seconded by Trustee Triphahn to adjourn the Committee of the Whole meeting at 8:17 P.M. Upon a unanimous voice vote, the Mayor declared the motion carried.

APPROVED:

_____ _____

Patricia C. Blauvelt
Village Clerk

Daniel MacGillis
Village President

VILLAGE OF ROUND LAKE

AGENDA ITEM SUMMARY

TITLE: WELL #3 FEASIBILITY STUDY ACCEPTANCE **Agenda Item No. COTW**

Executive Summary

Staff recommends accepting the Well #3 Feasibility Study compiled by Baxter & Woodman, Inc. The attached report includes Village water usage information and projections along with reasonable emergency supply suggestions. It also contains a current assessment of the capacity of Well #3, recommended steps to upgrade the well and estimated costs for each step.

Staff reviewed the study, believes the methods and conclusions are sound and would like to incorporate the recommended upgrade steps into future Village budgets.

Recommended Action

Accept the Well #3 Feasibility Study conducted by Baxter & Woodman, Inc.

Committee: PW/F&CA and Engineering **Meeting Date(s):**01/04/16

Lead Department: Public Works **Presenter:** Adam Wedoff, Director of Public Works

Item Budgeted: [ ] **Yes** [ ] **No** [X] **N/A**

If amount requested is over budget, a detailed explanation of what account(s) the overage will be charged to will be provided in the Executive Summary or attached detail.

Account(s)	Budget	Expenditure
Other Items	$0.00	
Item Requested	$0.00	$0.00
YTD Actual		$0.00
Amount Encumbered		$0.00
	$0.00	$0.00
Request is over/under budget:		
Under	-	
Over	-	

Village of Round Lake, Illinois
Well No. 3 Rehabilitation Feasibility Study

PURPOSE OF STUDY

The purpose of this study is to evaluate potential rehabilitation options to allow Well No. 3 to be a substantial back up water supply for the Village of Round Lake in the event of a major disruption to water supply from CLCJAWA. This study will also provide a review of other emergency supply alternatives, such as increasing storage, to provide for additional emergency supply reserves.

The project included the following tasks.

1. SITE VISIT – Inspect well site and analyze condition of existing well facility and any impacts on potential well rehabilitation.

2. REVIEW EXISTING WELL DATA – Review previously conducted studies, prior well rehabilitation, water quality and pumping records, hydrogeological reports, well logs, and operating reports and discuss with well drillers to form an opinion as to possible rehabilitation or new well options. Consider the following:
   - *Contamination* – Identify existing potential sources of contamination that may impact existing well location.
   - *Existing Wells Examination* – Review the operational records of any existing wells to determine the cause and extent of any current well problems.

3. ANALYSIS OF EXISTING SYSTEM – Review future water demands in comparison to possible or desirable emergency water supply quantities.

4. PRELIMINARY DESIGN REPORT – Prepare a Design Report setting forth the Engineer's findings and recommendations for the final design of the Project. The Report shall include the following:
   - A basis of design.
   - An evaluation of the cost-effectiveness and feasibility of alternatives.
   - An opinion of the probable total project cost including construction, engineering services, contingencies.

BACKGROUND INFORMATION

The Village of Round Lake receives Lake Michigan Water from CLCJAWA at the Cedar Lake Road water pumping station (CLPS). CLCJAWA maintains a metering and delivery structure adjacent to the pumping station. CLCJAWA supplies water to the Village of Round Lake at a constant rate to match the Village's demand at a normal pressure of around 60 psi.

Water is delivered into Round Lake's distribution system through the CLPS. A portion of the water received by Round Lake is also sent to the nearby Nippersink Road Pumping Station (NRPS) and ground level storage tanks through a dedicated 8-inch transmission main. This dedicated transmission main normally provides around 0.75 MGD of water supply to NRPS on a normal day, to adequately turnover the 3.0 MG of water in ground level storage tanks at the NRPS facility.

The CLPS has the capability to reduce or increase the pressure received from CLCJAWA to meet system demand requirements. Pressure is increased by utilizing one of two 3.0 MGD booster pumps which gives the station a rated firm capacity of 3.0 MGD (with one pump out of service).

The nearby NRPS consists of two ground level storage tanks, totaling 3.0 MG, and a booster pumping station with 4,000 gpm of firm pumping capacity. This facility is currently used to meet normal peak water demands during the day, fire suppression requirements of 3,500 gpm for three hours, and emergency storage needs.

The CLPS and NRPS operate in tandem to convey Lake Michigan Water to the residents of Round Lake at a desired flow rate and pressure. When the rate needed by the Village is less than the rate received, excess water is diverted to NRPS and stored in the ground storage tanks. Water is withdrawn from the NRPS storage tanks and/or two 0.75 MG elevated storage tanks, when the delivery rate needed by the Village exceeds the rate received. The total storage amount in the Village is 4.5 MG, with 3.0 MG at NRPS and two 0.75MG elevated tanks.

Prior to obtaining Lake Michigan Water from CLCJAWA, the Village's water supply was met with three wells. Well No. 1 and No. 2 are currently abandoned and only Well No. 3 is currently used as an emergency supply source.

Photo 1
Well No. 3 Discharge Piping Inside Nippersink Road Pumping Station

Well No. 3 is located inside the NRPS (See Photo 1) and consists of a submersible pump installed in the well. Photo 1 also shows the well discharge head located inside the NRPS facility with above grade discharge piping consisting of air release and check valve.

Well No. 3 does not have flow meter hence the current output of the well is unknown. In 2005 the pump was reported to pump at 250 gpm. This well delivers water to the existing ground level when needed. This well is operated and tested periodically to ensure that the water pumped from the well is safe.

SITE VISIT FINDINGS

Photo 2
Double Doors and Hatch Above Well to Facilitate Well Pump Removal

On August 26, 2015, we visited the site to confirm existing conditions and determine any impacts on potential well rehabilitation. If the well was to be rehabilitated a well rig would be utilized and well pump removed.

Photo 2, shows that a double door is located just north of the well (door located in center of building) and a hatch is available above the well to help facilitate pump removal (Note this picture was taken in December of 2013 and not reflective of conditions in August of 2015.)

Ample space exists outside the NRPS facility (See Photo 3) on both the south and west sides of the NRPS building for either expansion, or if desired, a new or additional well.

As noted in Photo 3, the NRPS facility is located in a fairly rural setting with no known likely sources of contamination nearby that could affect Well No. 3 or a future well.

Photo 3
View Looking South at Nippersink Road Pumping Station

REVIEW EXISTING WELL AND HYDROGEOLOGIC DATA

Round Lake provided three binders of data on Well No. 1, 2, and 3. The capacities of the wells (per 2005 Water Master Plan) were noted at approximately 150 gpm, 100 gpm and 250 gpm respectively. As noted, Well 1 and 2 are currently abandoned.

A well log for Well No. 3 was found which indicates that the well was drilled in August of 1974 to a depth of 1,241. The well is cased to 588' with a 10-inch casing and contains an 8-inch liner from 759 to 1,027 feet. The well draws water from dolomite and sandstone aquifers below the Maquoketa shale.

Test pump records from 1982 indicated a static water level of 550', a pumping water level of 578' and a pump setting of 660'. It is unknown what pump is currently in the hole, but the 1974 bid specifications indicate that the original design was for a 450 gpm pump with TDH of 690' and a 125 HP motor.

The 10-inch column pipe that exists in the well to 588 feet, allows for installation of up to an 8-inch pump. A 10-inch column would also permit a maximum pump capacity of 500 gpm, with a limit on velocities in the column pipe of 2 feet per second, per standard design practice.

Well No. 3 has been tested for inorganics and volatile organic contaminants. No exceedances of any primary water quality parameters are known, however we would expect that the wells will exceed levels of combined radium and possibly barium, based on other wells in the region. Radium and barium standards were set based on drinking two liters of water over 70 years, hence wells with these contaminants can be utilized as an emergency source of water without treatment for up to 30 days.

Water from Well No. 3 may contain elevated levels of iron and manganese. Iron has a secondary limit of 1.0 mg/L, while manganese has a limit of 0.05 mg/L. Iron and manganese are not hazardous to health, but are considered an aesthetic contaminant, that can result in staining of laundry and plumbing fixtures. Recent iron results were noted as high as 12 mg/L, with manganese at 0.12 mg/L. We expect that the very high iron results are not indicative of iron levels in the aquifer, as older test results showed levels of around 0.5 mg/L.

We contacted CLCJAWA regarding the ability of Round Lake to own and operate a well for emergency use. Darrell Blenniss, Jr., the Executive Director for CLCJAWA, indicated that the Agency's Water Sale and Purchase contract merely states that each member is required to get their full water demand from the Agency unless the Agency is unable to provide them water. So in the case of a long term disruption, the member is on their own to solve this problem. As a result, owning and operating a well is permissible, but only for emergencies when CLCJAWA cannot provide water.

Based on our site visit and review of existing data, it would appear that the existing well is safe and capable of providing up to 500 gpm of water supply with proper rehabilitation. High levels of iron, manganese (and possibly radium and barium) exist in the groundwater, which would not require treatment but would result in water of lesser quality being delivered to the system.

ANALYSIS OF EXISTING SYSTEM DEMANDS

Estimates of future demands are essential to help guide a community's long range water supply improvements. This study utilized past studies and existing water data to assist with forecasts for future water needs.

2005 Master Water Plan

In 2005, a Master Water Plan was prepared for Round Lake to guide water system improvements to year 2030. This study utilized the following water use data and population projections, as noted in Table 1, for year 2005 and 2030.

Table 1
Water Use Parameters from 2005 Study

YEAR	POPULATION	AVERAGE DAY (MGD)	MAXIMUM DAY (MGD)	MAX/AVG RATIO
2005	13,370	1.31	2.75	2.1
2030	30,261	3.00	5.34	1.8

A review of data in Table 1 shows an average per capita water use of around 100 gallons per day for both year 2005 and 2030. Per capita consumption of 100 gpd is normal for communities with a mix of industrial, commercial and public water customers. Good design practices require communities to minimally be able to meet the maximum day demands, with their largest pump out of service, hence projections made in 2005 indicated that the firm booster pumping capacity of 3.0 MGD at the CLPS would be exceeded soon.

2013 CLCJAWA Volo Supply Study

In late 2013, Baxter and Woodman, assisted in a study to evaluate the feasibility of supplying water to the Village of Volo, by routing water through the Village of Round Lake. This study did not identify population projections, but denoted the following demands and demand projections provided by CLCJAWA from year 2012 to year 2040, based on an analysis of past usage and a contractual flow limitation (CFL) for maximum day demands. The calculated maximum to average day demand ratios in Table 2 are contractually set at 1.65, and reflect a number of trends in the water industry to limit maximum day demands including water conservation and water conservation rates, which limit outdoor sprinkling restrictions or bans during summer months.

Table 2
Water Use Parameter Estimates from 2013 Study

YEAR	AVERAGE DAY (MGD)	CLCJAWA FLOW LIMIT/MAXIMUM DAY (MGD)
2013	1.37	2.26
2015	1.44	2.37
2020	1.62	2.67
2030	2.17	3.59
2040	2.73	4.50

Comparison of Table 1 and 2 indicates that projections of average day and maximum day demands are less in the 2013 study than those made in 2005. These reductions are likely the result of the general decline in new house construction (resulting in slower population growth) and water conservation efforts in existing homes and businesses.

The 2013 study also made the following conclusions of interest and significance to our current investigation:

1. The CLCJAWA maximum supply possible to Round Lake from the current CLPS is 6.1 MGD.
2. Improvements to the CLPS to increase the firm booster pumping capacity to 6.1 MGD are possible with the addition of another booster pump, along with added distribution improvements between CLPS and NRPS.
3. A second CLCJAWA interconnection was under investigation by CLCJAWA to provide additional water supply to Round Lake as part of the investigation to provide water to Volo.
4. Additional elevated storage was desired in the future to provide additional fire suppression needs at the southern limits of the Village. One 750,000 gallon elevated tank was recommended to help support pressure gradients and increase fire protection on the south side of the Village. (This storage recommendation was an extension of the 2005 Water Master Plan where two 750,000 gallon elevated tanks were recommended.)

Current 2015 Demand Analyses

Daily reports of water use data for years 2012, 2013 and 2014 were analyzed to verify existing water demands and demand projections. A summary of this data is shown below in Table 3. (Note that average day and maximum day use projections in Table 2 are not the same as actual metered water use in Table 3, for year 2013.)

Table 3
Actual Water Use Parameters from 2015 Study

YEAR	AVERAGE DAY (MGD)	MAXIMUM DAY (MGD)	MAX/AVG RATIO
2012	1.081	2.211	2.05
2013	1.033	1.741	1.69
2014	1.038	1.534	1.48

The data in Table 3 indicates that average day demands have been very constant over the past 3 years, while maximum day demands have declined. Maximum day demands are highly variable due to the impact of rainfall and heat. Year 2012 was very hot and dry, while 2014 was much cooler and wet. Since Round Lake needs to provide enough water to meet its maximum day, the year 2012 data appears to be reasonable and just under the CLCJAWA Flow Limit established in 2013.

Based on current population of 18,289 people the average per capita use is approximately 60 gallons per day. This is significantly less than the 100 gpcd average in 2005, but reflective of many mid-western communities that are largely residential in character.

Water System Demand Summary Conclusions

1. Current average day demands in Round Lake are slightly over 1 MGD.
2. CLCJAW Flow Limit values represent the most current and reasonable estimates of future maximum day demands for design purposes.
3. Current "design" maximum day is around 2.4 MGD, which results in a "design" average day of 1.44 MGD, using a maximum to average day ratio of 1.65.
4. Future year 2040 "design" maximum day demand is 4.5 MGD, which results in a "design" average day of 2.73 MGD, using a maximum to average day ratio of 1.65.

BASIS OF DESIGN

Water Supply Design Criteria

The Village of Round Lake obtains 100% of their domestic water supply from CLCJAWA. As previously noted, recent maximum day demands in the Village are less than the allowable CLCJAWA Flow Limit (CFL) availability. Additionally future CFL projections provide for a doubling of growth from year 2015 to 2040, hence the population of Round Lake could double over the next 25 years and still have an adequate supply of water. While CLCJAWA has ample water to provide Round Lake with water through year 2040, an additional booster pump at CLPS will be needed when maximum day demands exceed 3 MGD, which is estimated to occur around the year 2023.

Based on the above, there do not appear to be any issues in meeting current and future maximum day water demands for the Village of Round Lake, as long as there is no major disruption in service from CLCJAWA. During a major disruption of water service from CLCJAWA, Round Lake would need to supplement water from either emergency well supplies and/or storage.

Emergency Water Supply Design Criteria

While normal "water supply design criteria" would recommend that communities meet the maximum day demands (MDD) with the largest pump out of service, emergency water supply design criteria typically would require the community to meet only average day demands (ADD) for a given duration of time. Consequently for wells that will be utilized for emergency standby use it is common for surface water supplies to be sized to provide "one average day" of demand.

Using water demand data in Table 2, it could be recommended that the Village of Round Lake have between approximately 1.4 to 2.8 MGD of supply to meet current and future average day demands, respectively. These demands equate to one well of approximately 1,000 gpm now to meet current demands and a total well capacity of 2,000 gpm to meet future demands.

Well No. 3 Rehabilitation Options

Well No. 3 with a current capacity of 250 (or even 450) gpm is not adequate to supply the Village with one "average day" demand equivalent, now or in the future. The size of the well is too small to provide 1,000 gpm (1.44 MGD) of supply. Consequently the existing Well No. 3 cannot be considered alone as the Village's primary emergency source to meet one ADD of long term emergency water supply. The well could however be utilized as a partial emergency supply along with storage.

Typical Storage Design Criteria

Typical design criteria for storage, assuming a continuous supply of water, utilize certain factors to account for peak hour demand use variations, operational storage, fire demands and emergency reserves. Typical design criteria for storage are noted in Table 4 for years 2015 and 2040.

Table 4
Typical Storage Design Criteria

CRITERIA	AMOUNT	2015	2040
Peak Hour Needs	25% MDD	0.593 MG	1.125 MG
Operational Needs	10% MDD	0.237 MG	0.450 MG
Fire Demands	3,500 gpm for 3 hours	0.630 MG	0.630 MG
Emergency Reserve	25% of Available Storage	0.482 MG	0.727 MG
Total Storage Required	-	**1.942 MG**	**2.933 MG**

Round Lake currently has 4.5 MG of storage, hence it has an adequate amount of storage to meet typical storage needs with a continuous supply of water.

Emergency Storage Design Criteria

Many communities that utilize Lake Michigan water in the Chicago area, are required (by contract) to have combined storage amounts of 2 times the ADD in the event of a disruption to supply. By definition, this would be reserve storage, which would equate to an amount equal to approximately 100% of the ADD. CLCJAWA has no contractual requirements for its members, hence the amount of storage to be provided is up to the member to decide. Two days of emergency storage reserves have been adequate to date for the area to date. Table 5 indicates the amount of storage needed in Round Lake for years 2015 and 2040 if they were required to have two times the ADD in total storage.

Table 5
One and Two Days Total Storage Requirements

CRITERIA	2015	2040
One ADD	1.44 MG	2.37 MG
Two ADD	2.88 MG	5.46 MG

Table 5 indicates that Round Lake would have enough storage to meet "two days of ADD" until around the year 2036. Another 0.96 MG would be estimated to provide two days of ADD in storage for year 2040. Assuming no fires and full storage tanks before a long CLCJAWA outage, such as a planned transmission main repair, Round Lake would currently have 3.13 days of ADD in storage today assuming an ADD of 1.44 MGD. The Village would have nearly 4.5 days of ADD with average days of only 1.0 MGD. In year 2040, the Village would have approximately 1.65 days of ADD in storage.

The primary issues with use of storage alone is how long will the "outage" last before the Village runs out of water. Wells can overcome the issue of length of outage, as the wells can provide a nearly infinite supply of water day after day.

Combined Well and Storage Considerations

A combination of well and storage could also be used to provide emergency water supply. If two days of ADD are thought necessary for emergency storage reserves, Round Lake does not need an emergency well supply until the year 2036.

A 450 gpm emergency well could provide 0.65 MGD of supply. For 2 days this would be nearly 1.30 MGD of supply. This would provide Round Lake with a 2040 total emergency supply of 5.8 MG, which would exceed the 5.46 MG required per Table 5.

PROBABLE CONSTRUCTION/PROJECT COSTS FOR EMERGECNY SUPPLY OPTIONS

Probable construction/project costs can be helpful in determining a course of action. To provide for an emergency source of water, Round Lake has the following options:

Option 1: Do Nothing. Currently Round Lake has the equivalent of more than 3 days of ADD in storage. The Village does not need to do anything until year 2036 before their total storage falls below the two ADD amount.

Option 2: Rehabilitate Well No. 3 to provide for up to 450 gpm of emergency well supply. Estimated costs for Option 2 are noted below in Table 6 based on a recent new well project.

Table 6
Option 2; Rehabilitate Well No. 3

PROJECT COMPONENT	ESTIMATED COST
Pull Well Pump, Test Pump Well, and TV Well	$60,000
Rehabilitate Well (Allowance)	$100,000
Provide New Pump	$100,000
Subtotal	$260,000
Contingencies and Engineering (~25%)	$65,000
TOTAL	$325,000

Option 3: Provide Standby Well Supply to meet one ADD capacity today and two ADD capacity in future. This option would abandon Well No. 3 and provide a new 1,000 gpm emergency well at the NRPS now to provide an ADD of 1.44 MGD. A second well could be added at some point in the future to provide additional well supply to meet expected year 2040 demands.

Estimated costs for Option 3 are noted below in Table 7 based on a recent new well project.

Table 7
Option 3; New 1,000 gpm Well

PROJECT COMPONENT	ESTIMATED COST
Abandon Well No. 3	$50,000
Drill New Deep Well	$675,000
Pitless Adaptor and Well Pump	$175,000
Electrical Gear	$50,000
Subtotal	$950,000
Contingencies and Engineering (~25%)	$250,000
TOTAL	$1,200,000

Option 4: Provide a 750,000 gallon (or 1,000,000 gallon) elevated tank. This option would add a second elevated tank in the future to provide for additional storage reserves now and to help support pressures and improve fire protection on the Village's south side. The 750,000 gallons of storage would fall a little short of the two day ADD in year 2040. A 1 MG tank would be required to fully meet the year 2040 demands and would cost around 30% more than the 750,000 gallon tank.

Estimated costs for Option 4 are noted below in Table 8 based on a recent new elevated tank. Estimated contingencies and engineering for Option 2 are less (on a percentage basis then the other options) because there are fewer unknowns with elevated tank construction and the design is less complex.

Table 8
Option 4; 750,000 gallon Elevated Tank

PROJECT COMPONENT	ESTIMATED COST
750,000 gallon ET	$2,000,000
Contingencies and Engineering (~15%)	$300,000
TOTAL	$2,300,000

CONCLUSIONS

Options 1, 2, 3, and 4 are not equivalent options in their ability to provide emergency sources of supply, cost, or benefits to the system.

The best option to protect against a long term supply outage would be to install two 1,000 gpm wells (Option 3). This addition of a second well could be delayed to take advantage of the existing excess storage capacity. Assuming 4% cost of money and a delay in 10 years, the Present Worth Cost of adding two wells would be $2,000,000.

Adding a 750,000 (or 1,000,000) gallon elevated tank (Option 4) should occur regardless of whether it meets two day requirements for emergency storage reserves.

Well No. 3 currently exists. If the well could be economically rehabilitated the 450 gpm supply would provide for approximately 65% of the current ADD (water use from Table 3) and 50% of the 2015 estimated demands from Table 2.

Based on the above we recommend the following steps:

1. Prepare a "stepped" rehabilitation specification to rehabilitate Well No. 3. Costs for each rehabilitation step would be monitored and stopped if rehabilitation costs get too high or are determined to have little additional benefit. This would allow the Village to get as much benefit out of Well No. 3 as possible and provide for "some" long term emergency water well supply.
2. Proceed with a second connection point to CLCJAWA. While this does not provide an emergency source of supply, it will provide a second connection point on the south side of the Village to help support pressures and fire flow capabilities. This will eliminate the need to add another booster pump at CLPS and delay construction of a 750,000 gallon elevated tank.
3. Continue to plan for construction of a 750,000 gallon elevated tank on the Village's south side in the future. Future development on the south side of the Village will help provide additional large diameter main looping that is needed to reinforce this tank location with the rest of the distribution system. A plan for future distribution looping should be performed with design of the second CLCJAWA connection point.

VILLAGE OF ROUND LAKE

AGENDA ITEM SUMMARY

TITLE: CEDAR LAKE ROAD ALIGNMENT OPTIONS **Agenda Item No.** COTW

Executive Summary:

Village staff has met with Lake County Department of Transportation (LCDOT) representatives on a number of occasions over the past year regarding the Cedar Lake Road alignment through the downtown area. The meetings were originally established as the draft comprehensive plan had an alignment desired by the Village that was not the preferred alignment by LCDOT. Due to the much higher costs related to the desired Village alignment and other issues that could impact future downtown development, staff choose to place the LCDOT preferred alignment in the new comprehensive plan.

In addition, staff requested other alignment options from LCDOT representatives that may give the Village a larger footprint for future development versus the LCDOT preferred alignment. As such, attached is the LCDOT preferred alignment along with three additional options provided by the county. Village staff and LCDOT representatives will continue to discuss the alignment options with hopefully a resolve for a centerline that is agreeable by each side sometime by or in the summer of 2016.

Recommended Action:

For informational and discussion purposes only.

Committee: - **Meeting Date:** 01/04/16

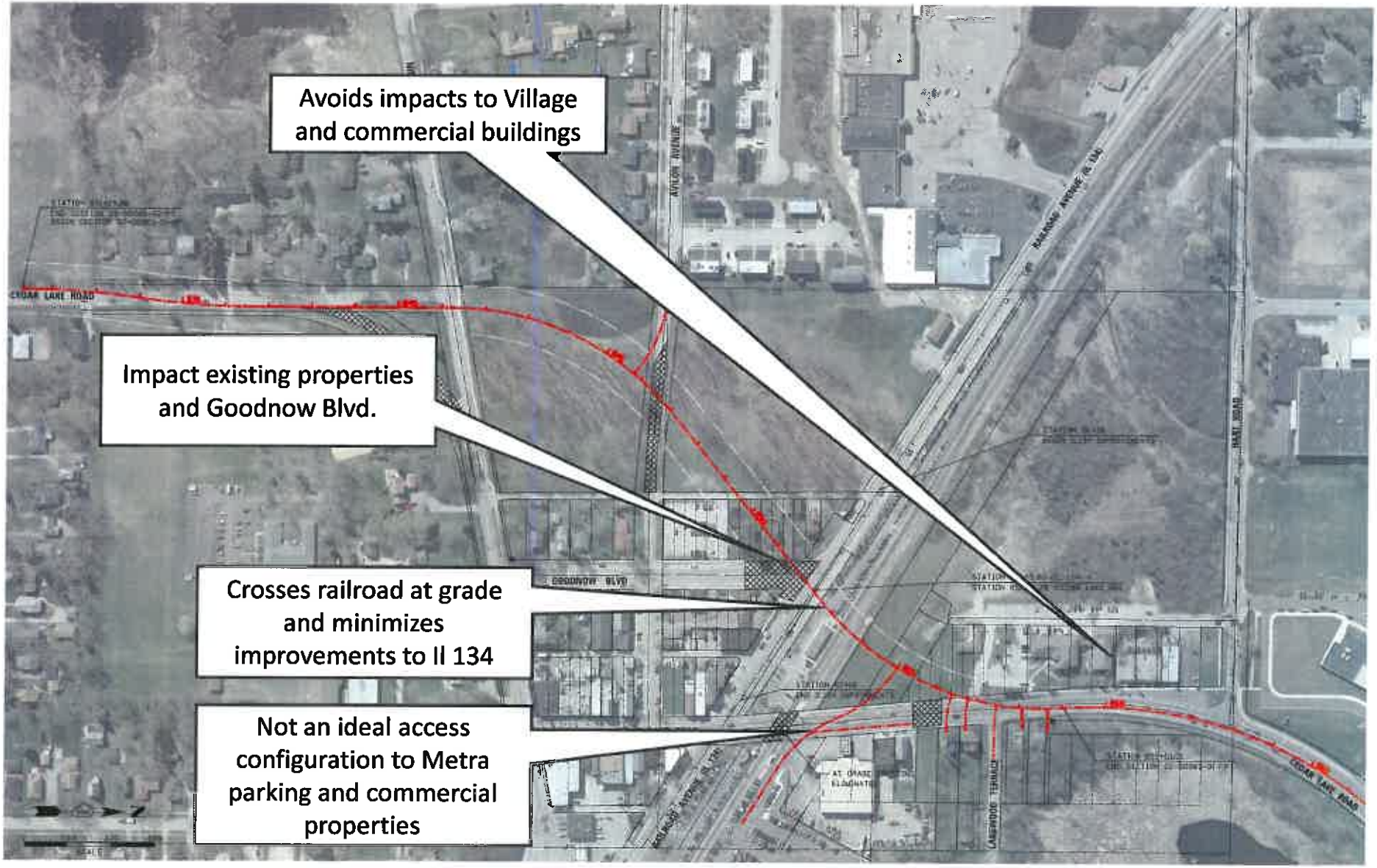
Lead Department: Administration **Presenter:** Steven J. Shields, Village Administrator

Item Budgeted: [-] **Yes** [-] **No** [x] **N/A**

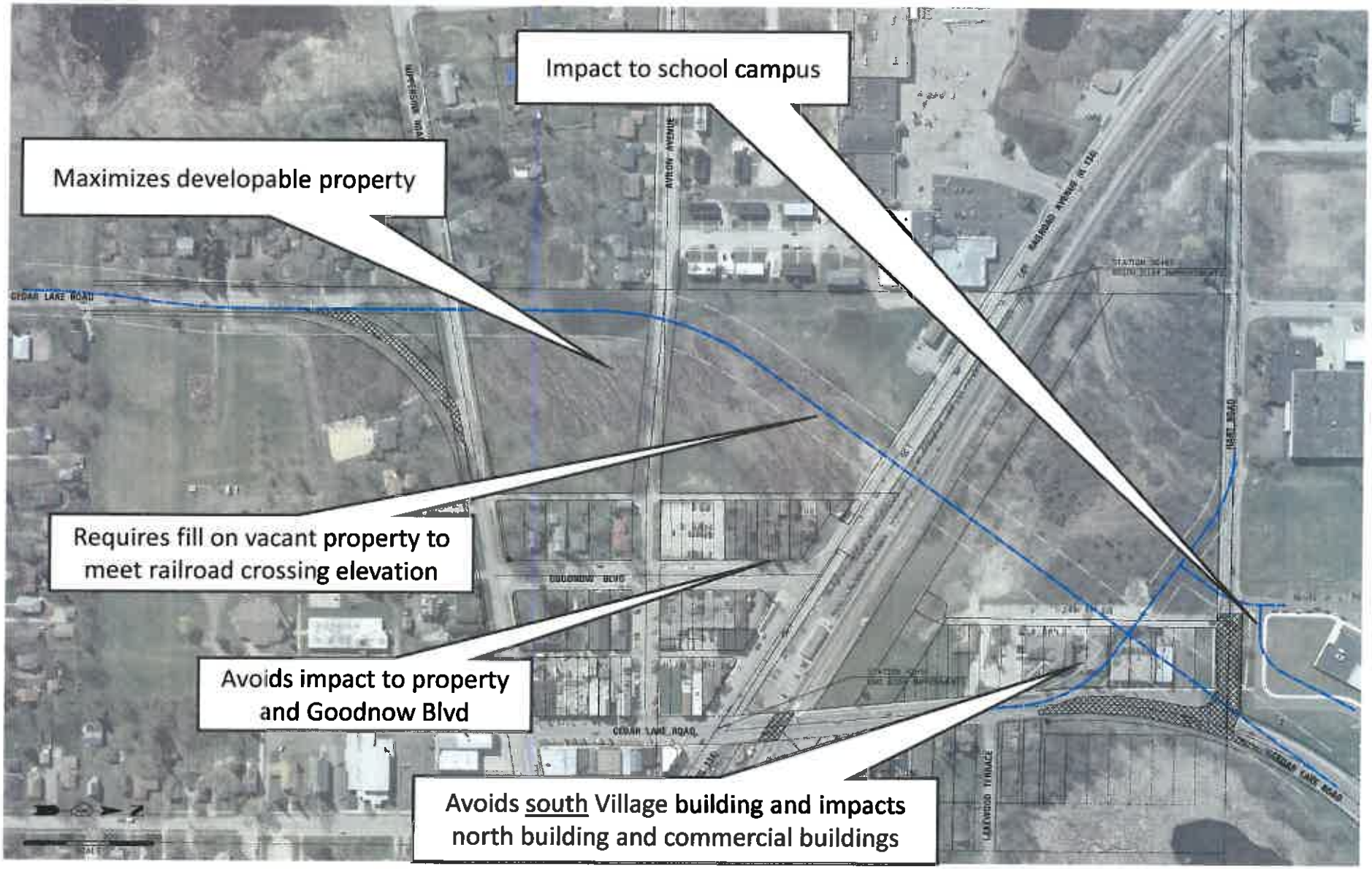
If amount requested is over budget, a detailed explanation of what account(s) the overage will be charged to will be provided in the Executive Summary or attached detail.

Account(s)	Budget	Expenditure
Item Requested		
Y-T-D Actual		
Amount Encumbered		
Total:	**$0.00**	**$0.00**
Request is over/under budget:		
Under	-	
Over	-	

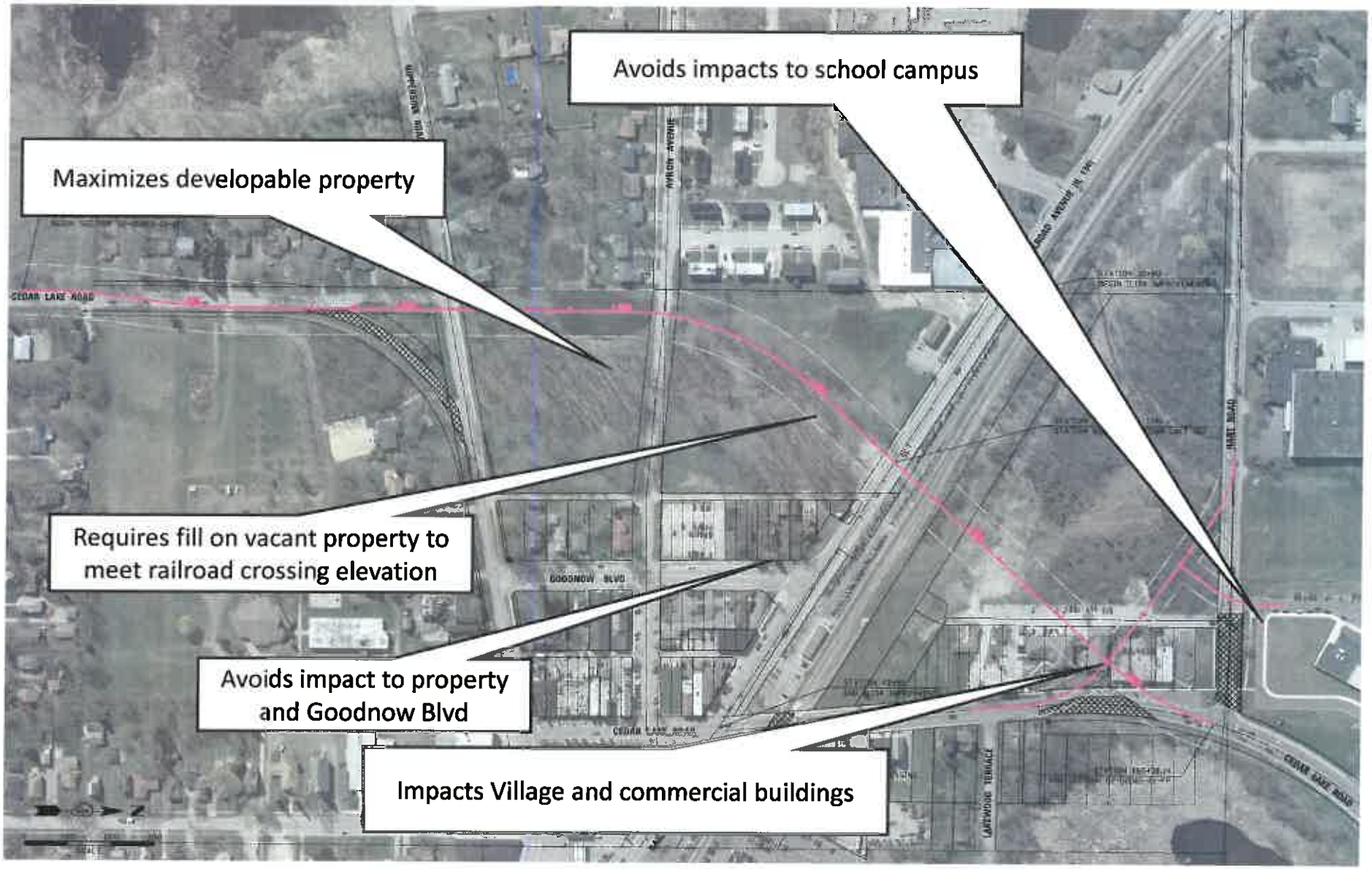
Red Alignment – Key Considerations



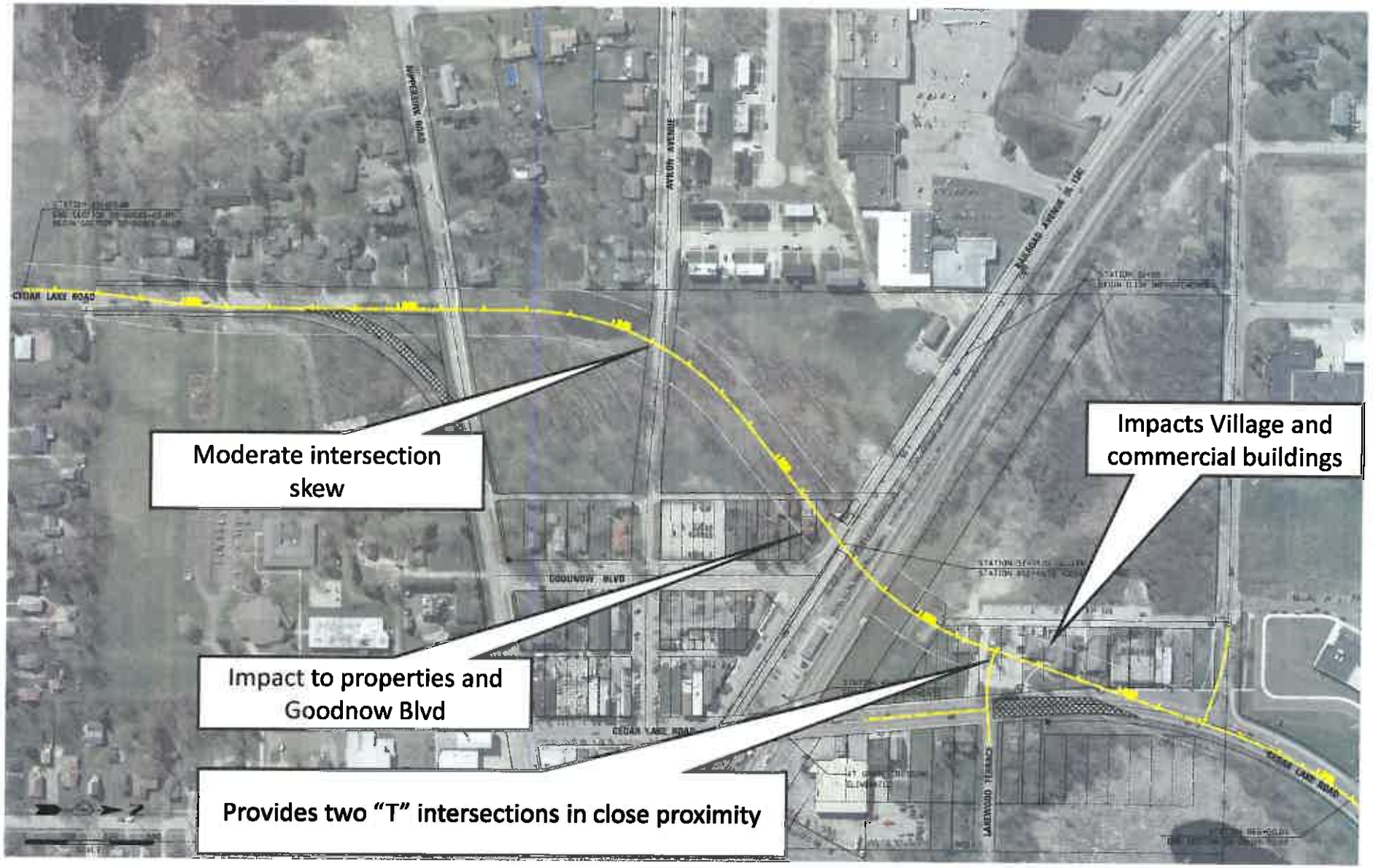
Blue Alignment – Key Considerations



Pink Alignment – Key Considerations



Yellow Alignment – Key Considerations



All Alignments