



Item 6A.

STAFF REPORT

Report To: Utility Financial Oversight Committee

Meeting Date: 02/29/16

Staff Contact: Darren Schulz, Director of Public Works

Agenda Title: Review and discussion of domestic water supplementation for calendar year 2015.

Staff Summary: For calendar year 2015, 77 million gallons of domestic water was used to supplement the reclaimed water supply, which resulted in a transfer of \$52,822 from the sewer fund to the water fund for fiscal year 15/16.

Agenda Action: Other/Presentation

Time Requested: 15 minutes

Proposed Motion

No action required – Informational only.

Board's Strategic Goal

N/A

Previous Action

N/A

Background/Issues & Analysis

On April 17, 2014, the Board of Supervisors approved a Reclaimed Water Contingency Plan, which allows for domestic water to be used to augment the reclaimed water system in an effort to prevent reclaimed water shortages. For calendar year 2015, 77 million gallons of domestic water was added to the Stewart Pond reservoir. No reclaimed watering restriction was implemented for calendar year 2015. With continuing drought conditions and low levels of reclaimed water production, staff estimates a continued shortfall in available reclaimed water.

Applicable Statute, Code, Policy, Rule or Regulation

N/A

Financial Information

Is there a fiscal impact? Yes No

If yes, account name/number: Wastewater Fund, Water - Effluent Supplementation / 510-3201-434.04-39

Is it currently budgeted? Yes No

Explanation of Fiscal Impact: The wastewater fund will be decreased by \$52,822.

Board Action Taken:

Motion: _____

1) _____

2) _____

Aye/Nay

(Vote Recorded By)

Memo

October 9, 2015

To: Darren Schulz

From David Bruketta

Regarding: Augmenting reclaimed water with domestic water for calendar year 2015

Domestic water supplementation at Stewart Pond started in April and continued into October. The total amount of supplementation was 77 million gallons. Using \$0.686 / 1,000 gallons (Douglas Wholesale Rate to Carson City for FY 2014/15), the total cost of supplementation is \$52,822.

Please authorize the transfer of \$52,822 from the Sewer Utility Fund to the Water Utility Fund.

Table 1. Comparison of supplementation for Calendar Year (CY) 2014 and 2015.

Domestic Water Supplementation at Stewart Pond			
		CY 2014	CY 2015
Start	Month	May	April
End	Month	September	October
Supplementation	Million gallons	104.57	77
Cost	\$ per 1,000 gallons	\$0.68	\$0.686
Total Cost	\$	\$71,108	\$52,822

Item 6A.

BOCC

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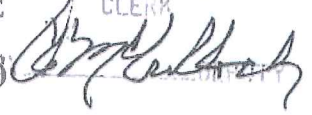
FIRST AMENDMENT

TO

INTERLOCAL AGREEMENT RELATING TO WATER SERVICE

(North Douglas County and Carson City Water Line Intertie Project)

TED THIRAN
CLERK



BETWEEN

DOUGLAS COUNTY

AND

CARSON CITY

WHEREAS, Douglas County ("COUNTY"), a political subdivision of the State of Nevada, and Carson City, a consolidated municipality and political subdivision of the State of Nevada ("CARSON CITY"), are public agencies pursuant to NRS 277.100; and

WHEREAS, COUNTY and CARSON CITY both own and administer water rights and are authorized by the laws of Nevada to construct, improve, maintain, provide capital improvements and related services for and to operate water supply and distribution systems capable of supplying public drinking water to federal and state standards; and

WHEREAS, on January 21, 2010, COUNTY and CARSON CITY entered into an Interlocal Agreement Relating to Water Service, recorded with the Douglas County Recorder's Office as Instrument 0757630, Book 0110, Page 4458 (the "Interlocal Agreement"); and

WHEREAS, COUNTY and CARSON CITY desire to amend the Interlocal Agreement to establish an interim wholesale water rate until the North Douglas County and Carson City Water Line Intertie Project is completed (the "Project"); and

WHEREAS, COUNTY and CARSON CITY desire to jointly calculate a wholesale water rate once the Project is completed and sufficient operating data is collected.

NOW, THEREFORE, in consideration of the promises and provisions contained in this First Amendment to Interlocal Agreement to Provide Wholesale Water Service ("First Amendment"), and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties mutually agree as follows:

- 1. Paragraph 2 of the Agreement shall be amended to read as follows:

TERM. This Agreement is to provide a means for delivering and sharing water resources between the Parties. The nature of the Agreement requires that the Parties use their best efforts to maintain the Agreement as long as the Parties' customers require water from the interconnection of the water systems maintained by the Parties. Therefore, the Parties intend the Agreement to be in effect in perpetuity unless the Agreement is otherwise terminated as provided herein.

- 2. Paragraph 3(c) of the Agreement shall be amended to read as follows:

CARSON CITY'S RESPONSIBILITIES. The costs in subsections 7(a) and 7(b) below will be evaluated for appropriateness on an annual basis by the Public Works Directors of each Party. CARSON CITY agrees to purchase and take delivery of water from DOUGLAS at the delivery rates provided for in Exhibit "B" and promptly pay to DOUGLAS any and all expenses incurred by COUNTY to deliver water from COUNTY to CARSON CITY. In addition to the cost of any wholesale water purchased by COUNTY from the Town of Minden for delivery to CARSON CITY, CARSON CITY will pay the operations, maintenance and other costs incurred by COUNTY to provide water to CARSON CITY.

- 3. Paragraph 7 shall be amended to include, in addition to its current language, the addition of Paragraph 7(e) that shall read as follows:

The wholesale water rates shown in Exhibit "B" are based on the assumption that CARSON CITY will begin accepting delivery of water from COUNTY by April 1, 2014. If CARSON CITY fails to accept water from COUNTY by July 1, 2014, then COUNTY and CARSON CITY agree to meet and confer to reach a solution to address any issues caused by CARSON CITY'S failure to take delivery of water from COUNTY. If an agreement cannot be reached between COUNTY and CARSON CITY by November 1, 2014, the Parties agree to comply with the provisions of Paragraph 15 of this Agreement.

- 4. Paragraph 7 shall be amended to include, in addition to its current language, the addition of Paragraph 7(f) that shall read as follows:

On January 1st of each year, in the event that CARSON CITY utilizes, on average, more water from COUNTY during the prior calendar year than the water rights transferred to and held by the Town of Minden for the benefit of CARSON CITY, COUNTY may charge CARSON CITY a fee equal to 0.25% of the price of a water right then in effect as set by the Town of Minden Board for each excess acre-foot, or portion thereof, utilized by CARSON CITY. CARSON CITY may not utilize more water than the water rights it has transferred to the Town of Minden for more than two consecutive years.

- 5. Effective July 1, 2013, Exhibit "B," incorporated by reference in Paragraph 7 of the Interlocal Agreement, is amended and replaced with the Attached Exhibit "B," Douglas County Wholesale Water Rates to Carson City.

- 6. Article 22 is amended and revised as follows:

GOVERNING LAW; VENUE. The laws of the State of Nevada apply in interpreting and construing this Agreement. The Parties agree that venue in any judicial action concerning this Agreement will be in the Ninth Judicial District Court in and for the County of Douglas, State of Nevada.

IN WITNESS WHEREOF, the Parties have caused this First Amendment to Interlocal Agreement Relating to Water Service to be executed as of the _____ day of June, 2013.

Douglas County


Carson City

By: 
Greg Lynn, Chairman
Douglas County Board of Commissioners


By: 
Robert L. Crowell, Mayor
Carson City Board of Supervisors

Attest:

Attest:

By: 
Ted Thran
Douglas County Clerk/Treasurer

By: 
Alan Glover
Clerk/Recorder

By: 
Clerk to the Board

Approved as to form:

Approved as to form:

By: 
Douglas County District Attorney

By:  C.D.A.
Carson City District Attorney

Exhibit "B," Douglas County Wholesale Water Rates to Carson City

Fiscal Year	Depreciation	O&M and Power	Douglas Total Rate per 1,000 gal.	Minden Total Rate per 1,000 gal.	Douglas Wholesale Rate to Carson City per 1,000 gal.
FY 2013-14	\$ 0.050	\$ 0.081	\$ 0.131	\$ 0.540	\$ 0.671
FY 2014-15	\$ 0.050	\$ 0.081	\$ 0.131	\$ 0.555	\$ 0.686
FY 2015-16	\$ 0.050	\$ 0.081	\$ 0.131	\$ 0.563	\$ 0.694
FY 2016-17	\$ 0.101	\$ 0.081	\$ 0.182	\$ 0.595	\$ 0.777
FY 2017-18	\$ 0.101	\$ 0.081	\$ 0.182	\$ 0.625	\$ 0.807
FY 2018-19	\$ 0.151	\$ 0.081	\$ 0.232	\$ 0.720	\$ 0.952
FY 2019-20	\$ 0.151	\$ 0.081	\$ 0.232	\$ 0.750	\$ 0.982
FY 2020-21	\$ 0.202	\$ 0.081	\$ 0.283	\$ 0.780	\$ 1.063
FY 2021-22	\$ 0.202	\$ 0.081	\$ 0.283	\$ 0.800	\$ 1.083
FY 2022-23	\$ 0.252	\$ 0.081	\$ 0.333	\$ 0.810	\$ 1.143

CERTIFIED COPY

The document to which this certificate is attached is a full, true and correct copy of the original on file and on record in my office.

DATE: July 29 2013
 Clerk of the 9th Judicial District Court
 of the State of Nevada, in and for the County of Douglas.
 By: [Signature] Deputy

Alternatives

N/A

Board Action Taken:

Motion: _____

- 1) _____
- 2) _____

Aye/Nay

(Vote Recorded By)



Item 6B

STAFF REPORT

Report To: Utility Financial Oversight Committee

Meeting Date: 02/29/16

Staff Contact: Darren Schulz, Director of Public Works

Agenda Title: Manhard Consulting Presentation

Staff Summary: Review and discussion of a presentation that was made to the Board of Supervisors on February 4, 2016, by Manhard Consulting Inc., regarding reclaimed water storage and utilization consideration. Manhard Consulting was tasked with reviewing pertinent information and providing an overview of considerations associated with the storage and utilization of reclaimed water.

Agenda Action: Other/Presentation

Time Requested: 15 minutes

Proposed Motion

No action required - informational only.

Board's Strategic Goal

N/A

Previous Action

N/A

Background/Issues & Analysis

N/A

Applicable Statute, Code, Policy, Rule or Regulation

Financial Information

Is there a fiscal impact? Yes No

If yes, account name/number:

Is it currently budgeted? Yes No

Explanation of Fiscal Impact:

Alternatives

N/A

Board Action Taken:

Motion: _____

- 1) _____
- 2) _____

Aye/Nay

(Vote Recorded By)

Item 6B

CARSON CITY
RECLAIMED WATER
STORAGE AND UTILIZATION CONSIDERATIONS

Prepared for:

Carson City Public Works
Carson City, Nevada

Prepared by:



Manhard[™]
CONSULTING LTD

3476 Executive Pointe Way #12

Carson City, Nevada, 89706

January, 2016



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CARSON CITY
RECLAIMED WATER
STORAGE AND UTILIZATION CONSIDERATIONS

INTRODUCTION

Carson City, Nevada's Water Resource Recovery Facility (WRRF) has experienced a reduction in average daily flow from 5.5 mgd in the year 2000 to a current average of 4.2 mgd. The reduction appears to have leveled off at the 4.1 to 4.2 mgd range in the last four year period. The design for an upgrade to the WRRF is nearing completion and construction will start soon. Master Planning for the sewage collection system and the reclaimed water system are now a priority.

The WRRF produces reclaimed water and stores it in Brunswick Canyon reservoir during the winter months. The reclaimed water is then delivered and utilized for irrigation to a number of sites during the spring, summer, and fall. Based on the current flows and re-use, there is a minor shortage of reclaimed water that is currently being supplemented with potable water. It has been recognized that Brunswick Canyon reservoir was constructed without a lining that would prevent seepage. There is recognition that losses do occur and previous re-use master plans have identified lining the reservoir as one of the options for future utilization of the reclaimed resource. The discussion of this consideration as well as other components is appropriate based on recognition that master planning is important for the appropriate utilization of the reclaimed resource in the future.

With the economic projections indicating a growth both in job base and in population, the growth of the flows to the WRRF and, therefore, the increase in reclaimed water is anticipated. It will be important in the reclaimed master planning process to incorporate options for utilization of the resource and determine associated costs and potential revenue sources.

Manhard Consulting has been tasked with reviewing all pertinent information provided by Carson City and its' consultants related to reclaimed water and provide an overview of considerations associated with the reclaimed resource. Bringing the discussion of various considerations forward will give direction to the update of Carson City's reclaimed master plan.

BACKGROUND

During 2003, Carson City's WRRF was treating over 5 mgd in wastewater and storing it for re-use in Brunswick Canyon reservoir. There was recognition that there was seepage in the reservoir and the potential requirement of lining by NDEP prompted the development of a series of Re-Use plans to explore the options for storage and utilization of the reclaimed water. It was recognized that Carson City was producing approximately 5,800 acre feet of reclaimed water and sending approximately 3800 acre feet of reclaimed to re-use sites. This indicated that there was



approximately 2000 acre feet of loss in the reservoir system. Alternatives that anticipated lining the reservoir resulted in the need to look at additional options for re-use as the reclaimed water production would be in excess of what the re-use sites could utilize.

A series of reports developed in 2004, 2005, and 2006 looked at numerous alternatives to storing and delivering the reclaimed water. Based on the WRRF flows at that time, it was anticipated that continued growth in the flows would result in flows of 9.3 mgd by 2025. This resulted in numerous alternatives and related costs for reclaimed disposal. Since that time, flows have decreased to approximately 4.1 to 4.2 mgd resulting in a small shortage of reclaimed based on the usages at the various re-use site.

The re-use sites include the Prison Farm, Empire Ranch Golf Course, Eagle Valley Golf Course, Silver Oak Golf Course, and miscellaneous city parks and dust control fill stations. Table 1 shows the reclaimed usage from 2010 to 2015. This table also shows the average for that time period and the maximum usage that might be anticipated based on the various sites maximum usage for that time period. Note that the usage for parks and dust control has gradually been removed from the reclaimed system in recognition of the reduced flows and would only be reconnected as increased reclaimed flows occur in the future.

Table 1- RECLAIMED USAGE 2010-2015 (ACRE FEET)

	2010	2011	2012	2013	2014	2015	AVE	MAX
Prison Farm	1397	1510	968	1083*	1102 #	761 #	1137	1510
Empire Ranch	536	531	680	765	937	831	713	937
Eagle Valley	792	778	920	828	778	800	816	920
Silver Oak	428	420	486	465	425	450	446	486
Parks, Dust	205	182	197	162	14	2	127	205
TOTALS	3358	3421	3251	3303	3256	2844	3239	3421

*Prison Farm meter

#Actual irrigation at the Prison Farm was 1426 in 2014 and 997 in 2015 due to potable water augmentation.

The approximate losses in the Brunswick Canyon reservoir system from 2010 to 2015 can then be calculated by subtracting the reclaimed re-use flows from the WRRF flow and adjusting for the annual change in storage volume as well as adjusting for approximate evaporation losses.

Table 2 shows the approximate reservoir losses for the 2010-2015 time period.



Table 2- APPROXIMATE LOSS ESTIMATES 2010-2015

	2010	2011	2012	2013	2014	2015	
Annual Plant Flow (Ac Ft)	5041	5153	4704	4593	4524	4756	
Annual Recl Usage (Ac Ft)	3358	3421	3251	3303	3256	2844	Ave
Gross Recl Water loss	1683	1732	1453	1290	1268	1912	1556

Plant Flow – Recl Usage = Gross Loss

Reservoir Annual Change (Ac Ft)	-224	224	0	274	-151	-255	
Approximate Evaporation (Ac Ft)	-250	-250	-250	-250	-250	-250	Ave
Adjusted Recl Water Loss	1209	1706	1203	1314	867	1407	1284

Gross Loss [+/- Annual Change] – Evaporation = Adjusted Loss

Reservoir Annual change:

- This is a calculation of how much additional reclaimed water is added or removed from Brunswick Canyon annually. It is calculated by the difference in volume between January 1 and December 31. A negative number represents that there was more volume in the reservoir at the end of the year.

Approximate Evaporation:

- Estimate of how much reclaimed water is lost to evaporation.

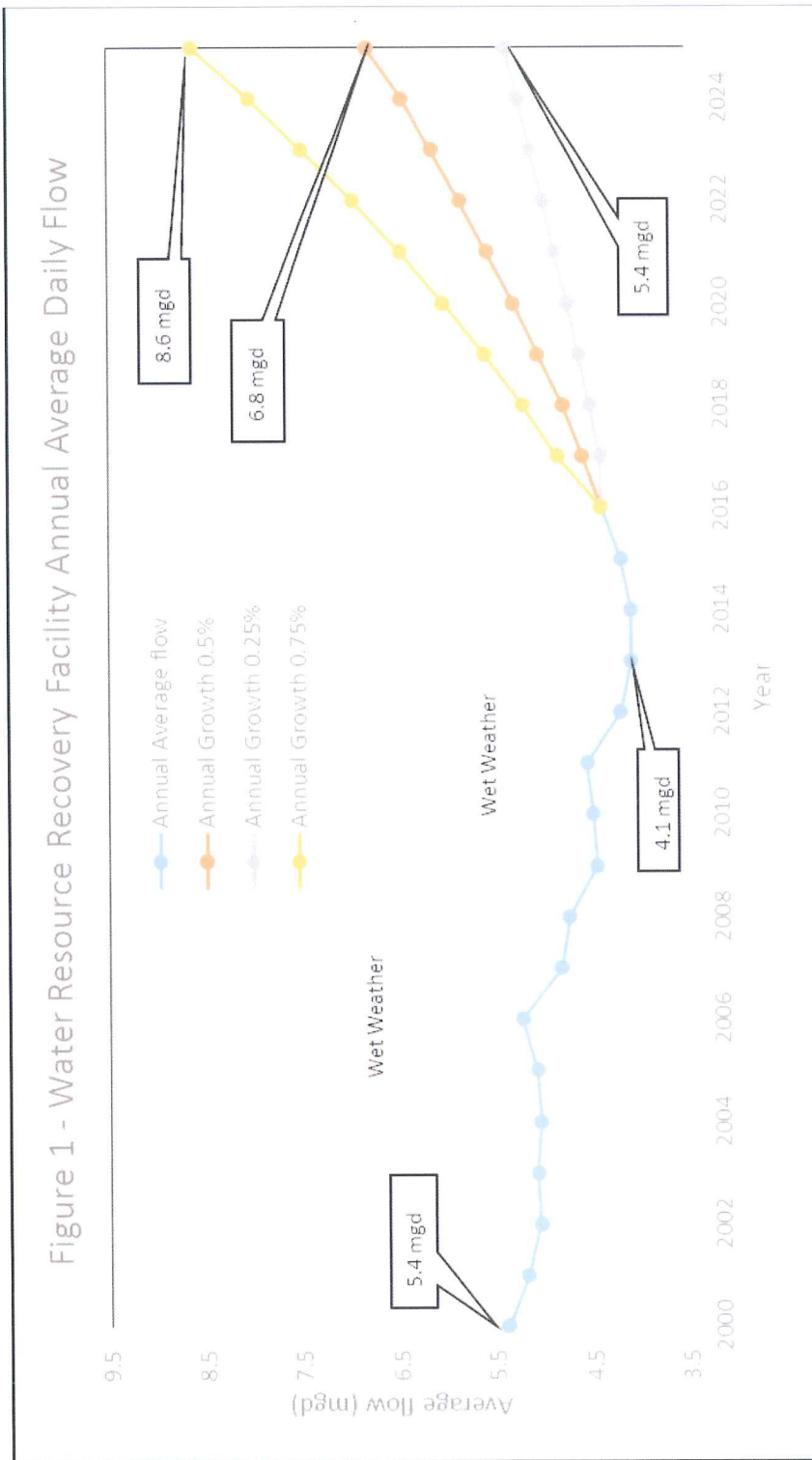
In 2004, the estimated loss was reported at an average of 2000 acre feet per year. Looking at the past 6 years, this loss has decreased to an average slightly under 1600 acre feet per year (gross reclaimed water loss). This lower number can likely be explained by the decrease in flow coming into the treatment plant. Less flow coming into the treatment plant means less storage in Brunswick Canyon reservoir. The lower storage levels in Brunswick Canyon, the lower the reclaimed water loss.

Now, to fine tune how much reclaimed water could possibly be available for future capture, we adjusted for other factors such as evaporation and changes in the reservoir level. Looking at the past 6 years, the adjusted gross is slightly under 1300 acre feet per year.

To try to anticipate what kind of flows might be realized at the WRRF, Figure 1 shows the flows from 2000 to 2015 and what the flows might look like with a 0.25%, 0.5%, and 0.75% growth. As shown, the anticipated flow at the plant could range from 5.4 to 8.6 mgd in 2025 versus the 9.3 mgd number that was projected in the 2006 Re-use Master Plan. This further reinforces the need to update the 2006 plan as the actual flows have been significantly different than anticipated at that time.



Figure 1





Included in the 2006 Re-Use Master Plan was an alternative to leave Brunswick Canyon reservoir unlined and capture the discharge flows of springs to the Carson River that result from the reservoir seepage. This is an important alternative to explore because in 2006 Carson City received approval from NDEP to permit the spring seepage at the Carson River. Questions regarding this alternative will need to be expanded and addressed in an updated re-use master plan.

In May of 2014, Manhard Consulting presented a Reclaimed Water Analysis to Carson City to look at the shortage in reclaimed water relative to the needs of the re-use sites and tried to project the anticipated water augmentation requirements. The actual water augmentation has been in the range of 200 to 300 acre feet in 2014 and 2015 and the WRRF flows have hovered at 4.1 to 4.2 mgd. This augmentation is at the lower end of the range estimated at that time and has been handled through a transfer of funds from the sewer fund to the water fund of under \$100,000 per year.

Recognizing the possibility of growth occurring due to the change in the economic situation in Carson City and the surrounding area, it will be important to bring the planning for the reclaimed uses to the forefront. Value of the reclaimed resource particularly in light of the drought may play a role in the decision making needed in a reclaimed master plan. In addition, the State's Drought Forum has identified the need for NDEP to explore the ability to provide indirect potable recharge of reclaimed water through groundwater injection. A committee has been working on the possible regulations including treatment levels that might be required to provide this as a possible alternative. The timing of this alternative coming to fruition is likely in the 3 to 5 year range but would be in the planning horizon of a re-use master plan update.

Lining Brunswick Canyon reservoir would bring an immediate result in eliminating the need to augment with potable water but will also bring the need to re-use approximately 1300 acre feet of reclaimed water. These flows will also increase with growth. Clearly, additional options for re-use need to be explored and master planned.

INFRASTRUCTURE OPTIONS AND COSTS

Carson City's 2006 Re-use Master Plan provided numerous options to re-use reclaimed water. Most of the options included lining Brunswick Canyon reservoir but each option anticipated building an additional storage reservoir at the Carson City rifle range site to allow Brunswick Canyon to be lined after draining. Carson City had the same consultant look at an option in June of this year of building an earth "coffer dam" in the reservoir, thereby allowing the lining to occur in two sections while still utilizing the reservoir for storage. The reduced flows and configuration of the bottom of the reservoir will allow that construction. This takes the cost of building an additional reservoir at the rifle range out of the equation that was previously presented in 2006.

By utilizing this construction process, the conceptual level cost to line Brunswick Canyon reservoir is approximately \$7 to \$8 million dollars based on a previous estimate and review by Manhard Consulting. Under the current reclaimed flow scenario the recovery of the 1300 acre feet would



be at a price of \$5,400 to \$6,200 per acre foot with the value improving by utilizing the higher capture rates anticipated with growth.

Previous estimates also included not lining the reservoir but instead providing a capture system for the springs near the Carson River that have developed due to the seepage from Brunswick Canyon reservoir. The spring capture alternative was estimated at \$6.7 million dollars but it is estimated that a flow of only about 500 acre feet would be realized resulting in a cost of recovery of approximately \$13,400 per acre foot.

It is also recognized that an additional storage facility will ultimately be needed for the long term buildout of the system and, therefore, the scenario of building the additional facility at the rifle range and lining Brunswick Canyon after draining was another storage alternative to consider. This alternative was estimated at \$12 million dollars in previous studies.

The biggest consideration that will need to be addressed is the utilization of the additional reclaimed water that will occur with lining Brunswick Canyon and with additional flows due to growth in the future. The previous plans recognize that the amount of land that is available for irrigation re-use is limited in Carson City and, therefore, another form of utilization is required.

Previous plans focused on the use of rapid infiltration basins (RIB's). These basins would allow the reclaimed water to be spread in a basin and allowed to percolate into the ground. To accomplish this, locations with soil conditions that have good permeability need to be identified. The cost of distributing the reclaimed water through pumping and pipelines needs to be considered in the overall reclaimed cost equation. Costs identified in the 2006 system for RIB's ranged from \$4 to \$13 million depending on location. The re-use master plan update should review potential sites and appropriate sizing to refine these costs.

Recent developments in the industrial market in Northern Nevada have been utilizing reclaimed for not only irrigation of landscaping but for items such as cooling systems. With current and potential development of industrial areas within Carson City, one alternative for re-use would include providing reclaimed to these areas. Figure 2 identifies some possible industrial areas that might be served within Carson City as well as a pipeline to the Lyon County border that might provide reclaimed to the Mound House industrial areas within Lyon County. Lineal footages were derived for each area and at a conceptual cost of \$100 to \$125 per foot, the 79,000 lineal feet of lines could be run throughout the area for \$7.9 to \$9.9 million dollars. There will also be pumping costs for the Mound House extension.

Current water use was looked at for the Carson City industrial areas identified in Figure 2. The domestic use is approximately 178 acre feet and the irrigation use was approximately 91 acre feet in 2014. Estimating that 25% of the domestic use might be able to be converted to reclaimed, coupled with the irrigation use, the current use would only amount to approximately 136 acre feet. This wouldn't warrant the construction of lines within all of the areas identified. However, there might be vacant lands that would attract a reclaimed user that would warrant the extensions. Also, there may be existing users that may be within a distance of the current effluent lines where extension might be feasible. Extension to Mound House again would be based on the potential flow utilization versus the cost of the extension. Regardless, industrial alternatives should be considered with the re-use master plan update.



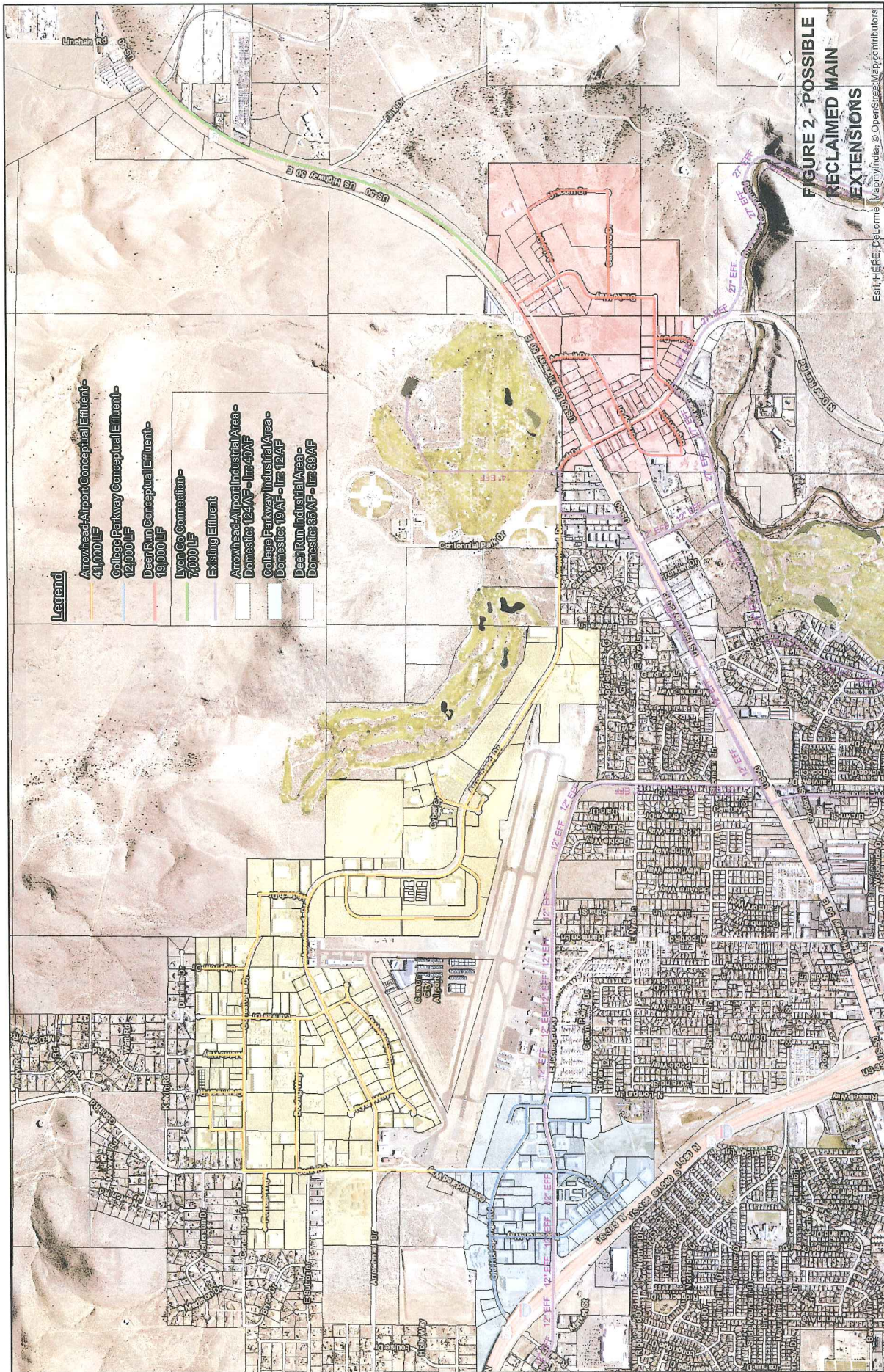
The potential for future groundwater injection appears to be another alternative to analyze if the potential state regulations are tracked and timing is within the horizon of the master plan update. Determining locations for possible injection and the associated costs of piping and wells to deliver will require another alternative analysis but the additional treatment costs that will come with injection will also have to be analyzed. California, Arizona, and Texas all have successful indirect injection systems and regulations. Nevada will likely be modeled after the existing regulations from these states. Again, timing will have to be tracked to determine how this alternative might be utilized in the overall Carson City reclaimed picture.

The Carson City Water Facility Plan has also included a conceptual proposal of constructing a surface water induction well near the Carson River in the area or immediately downstream of the Brunswick Springs. As shown in Figure 3, the induction well alternative would provide a surface water recapture of the Brunswick Canyon reservoir losses and would pump water back to the potable system near Deer Run Road. Questions regarding water rights, water treatment, and system design need to be answered in the Master Planning process. The exploration of this concept to recover the reclaimed losses is an important alternative to explore as the related costs would likely provide the cheapest solution and potentially the best opportunity for immediate re-use.

The update of the Carson re-use master plan will be able to look at these additional re-use options, but most important, are the related costs for the overall picture of the reclaimed system. As indicated, not only storage, but implementing other forms of re-use will be the key in determining the most efficient reclaimed solution.



1" = 1,500'



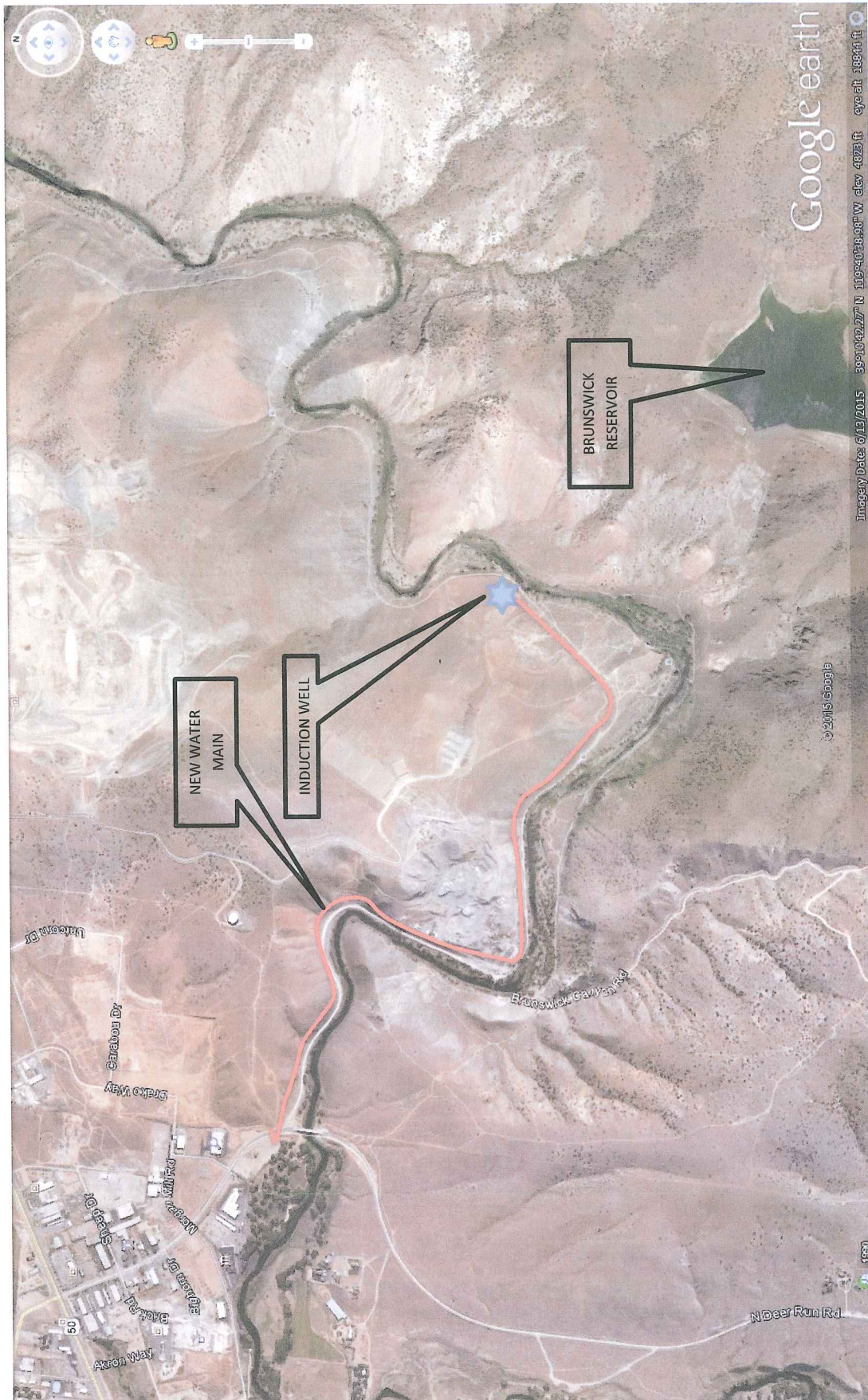


FIGURE 3 – INDUCTION WELL, SURFACE WATER RECAPTURE



REVENUE CONSIDERATIONS

As the overall reclaimed system solutions are developed and costs identified, the consideration of where the revenues are generated to pay for the system will become part of the solution. Under the current scenario, the reclaimed system is part of the overall sewer system and, as such, the costs are paid through sewer rates. As shown by the high level costs outline above, the cost of the storage and re-use of reclaimed water will be significant in the future and the analysis of the relationship to sewer rates will be important.

Another approach to the reclaimed system is that it is a resource and could be paid for through a reclaimed rate. Washoe County currently charges a water rights fee of \$3,500 per acre foot plus a privilege fee of \$2,500 per acre foot in one zone and \$4,135 per acre foot in a second zone. In addition, a monthly rate of \$1.16 per 1000 gallons is charged in one zone and \$1.74 per 1000 gallons in the second zone.

Sparks has a connection fee of \$10,000 per acre foot in one zone and \$12,000 per acre foot in a second zone. Their monthly charge is \$0.96 per 1000 gallons.

These rates are only provided to show other options as to how other entities are generating revenue for their reclaimed systems. The key is that there is enough demand for the resource to warrant enough users to pay for the system. In many cases where this format is used, there is still a shortfall that is picked up in the sewer rates.

Another option would be to provide the reclaimed resource on a case by case basis. For example, in the case of Arrowhead area, it is clear that providing reclaimed to the whole area based on the existing water demands is not feasible. However, extensions to specific existing users or parcels where a new demand that would warrant extension might exist. Calculating the infrastructure costs for the individual users based on demands could then be provided for in an individual contract. Clearly the higher demand users would likely be the candidates for this approach. The extension to Mound House may also fall under this category based on demands that might justify the extensions.

In the case of users paying for reclaimed water, it is important to assure there is adequate consumption to fund the alternatives. It is clear that assuring there are enough sites and alternatives to adequately re-use the reclaimed water is key in whatever solutions are developed in the master planning process.

The conceptual induction well solution identified in the Carson City Water Facility Plan would provide re-capture and supply to the potable water system by providing a re-use solution as well as supply to the potable system, cost sharing of this alternative could be accomplished between the water and sewer funds.



SUMMARY

As Carson City moves forward with the update of the Re-use Master Plan, reclaimed water storage and utilization are important considerations. Historically, alternatives that include lining of Brunswick Canyon reservoir and building a second reservoir at the Carson City rifle range site have been considered for storage and the need for RIB's have been recognized as the capacities of the current re-use sites are exceeded.

Previous analyses indicated costs of \$12 million dollars to build a new reservoir at the rifle range and to drain and line Brunswick Canyon reservoir. Reduction in flows and, therefore, storage volumes in Brunswick Canyon reservoir allow for a "coffer dam" approach to lining the reservoir which would allow the lining to occur while leaving the reservoir in service. This alternative is estimated at \$7 to \$8 million dollars.

Lining of Brunswick Canyon reservoir will eliminate seepage of approximately 1300 acre feet of reclaimed water based on the current flow conditions resulting in recapture value of \$5,400 to \$6,200 per acre foot. During previous periods of higher flow and storage conditions, the seepage losses were in the neighborhood of 1750 acre feet, thereby providing additional feasibility to the lining alternative and bringing recapture costs to \$4,000 to \$4,600 per acre foot.

With the lining of Brunswick Canyon reservoir, the additional 1300 to 1400 acre feet of reclaimed will have to be utilized. Even if the current re-use sites were encouraged to utilize their maximum historical use, there is still a surplus that needs to be utilized. Previous alternatives included the use of RIB's at a cost of \$4 to \$13 million depending on volume and locations. Additional alternatives to consider might include industrial re-use and indirect re-injection depending on the timing of the development of state regulations allowing re-injection. Costs associated with additional wastewater treatment will have to be included in some of the options.

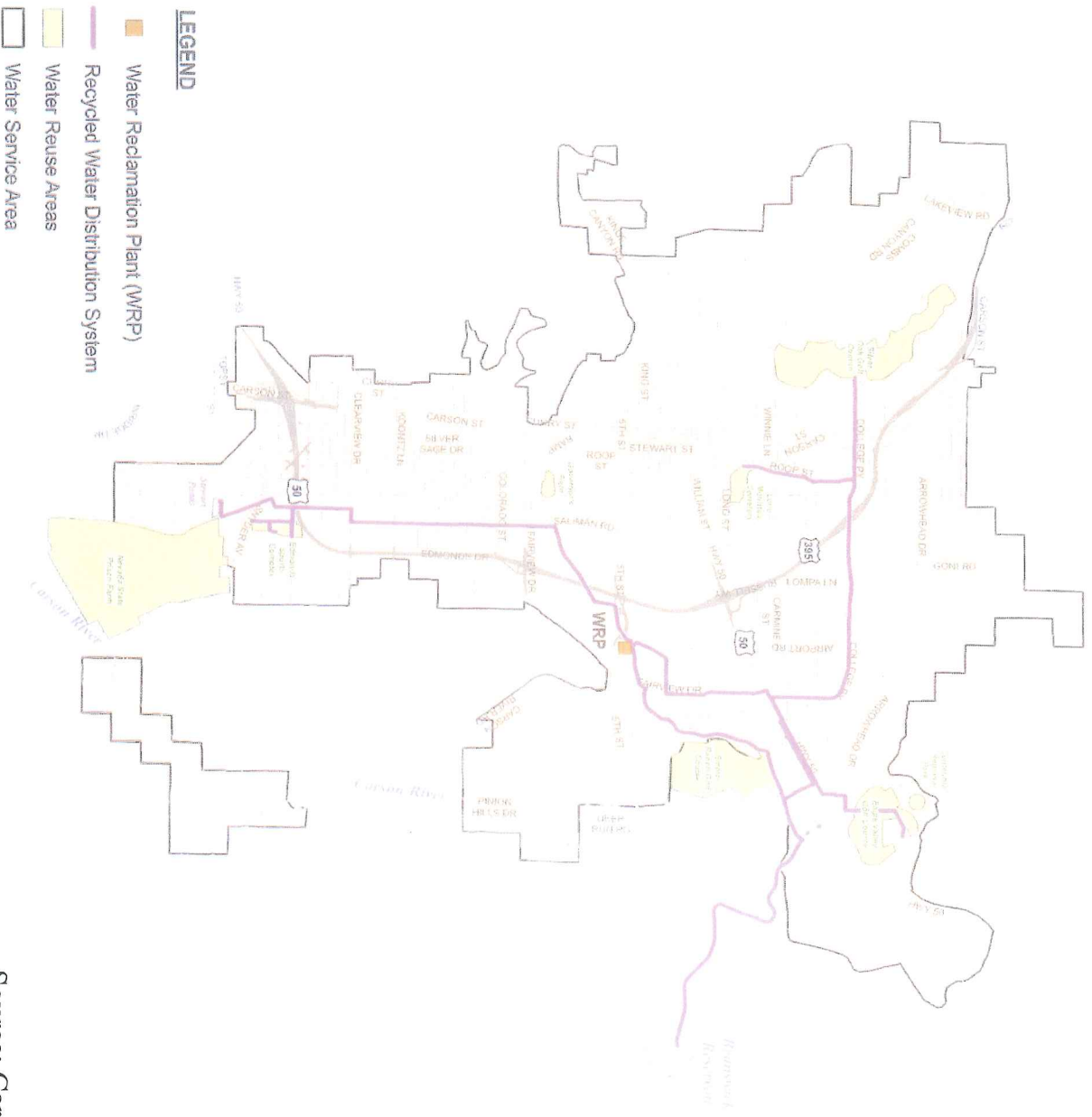
The Carson Water Facility Plan has included a surface water induction well solution that may provide a favorable re-use alternative assuming answers to questions regarding water rights, water treatment, and design considerations can be developed. In this scenario, the Brunswick Canyon reservoir would not be lined and the recapture of the current losses would occur via a Carson River induction well and piping back to the Carson potable system.

Costs for reclaimed water are currently provided for in Carson City's sewer rates. Other alternatives include the possibility of charging for reclaimed water as a separate segment of the sewer system. Example rates have been included from Sparks and Washoe County. Another option would be to charge a potential user based on a case by case analysis and associated agreement. Regardless of the options, the alternatives for funding are considerations in determining solutions to the reclaimed storage and re-use moving forward.

This analysis provides a high level overview of the considerations for reclaimed water moving forward. It is clear that decisions regarding the storage and utilization of reclaimed water need to be made with a clear picture of the overall costs associated with alternatives and the related funding. Updating of the 2006 Re-use Master Plan will be key in providing a picture of the new costs and options based on the current and projected flows of the Carson City Wastewater system.

ITeM
6B

Carson City Reclaimed Water Storage and Utilization Considerations



Source: Carson City Public Works

Background

- Water Resource Recovery Facility flows have reduced from an average of 5.5 MGD in 2000 to a current average of 4.2 MGD.
- Reclaimed water is stored in an un-lined Brunswick Canyon reservoir that has seepage losses.
- There has been a shortage of water to serve reclaimed sites in the last three years.
- Past Reclaimed Master Plans identified infrastructure alternatives including lining of Brunswick Canyon Reservoir.
- Current and Projected flow considerations need to be considered in updating the Reclaimed Master Plans.

Table 1 – Reclaimed Usage 2010-2015 (Acre Feet)

	2010	2011	2012	2013	2014	2015	AVE	MAX
Prison Farm	1397	1510	968	1083*	1102#	761#	1137	1510
Empire Ranch	536	531	680	765	937	831	713	937
Eagle Valley	792	778	920	828	778	800	816	920
Silver Oak	428	420	486	465	425	450	446	486
Parks, Dust	205	182	197	162	14	2	127	205
TOTALS	3358	3421	3251	3303	3256	2844	3239	3421

NOTES:

* - Prison Farm meter

- Actual irrigation at the Prison Farm was 1426 in 2014 and 997 in 2015 due to potable water augmentation.

Table 2 – Approximate Loss Estimates 2010 -2015

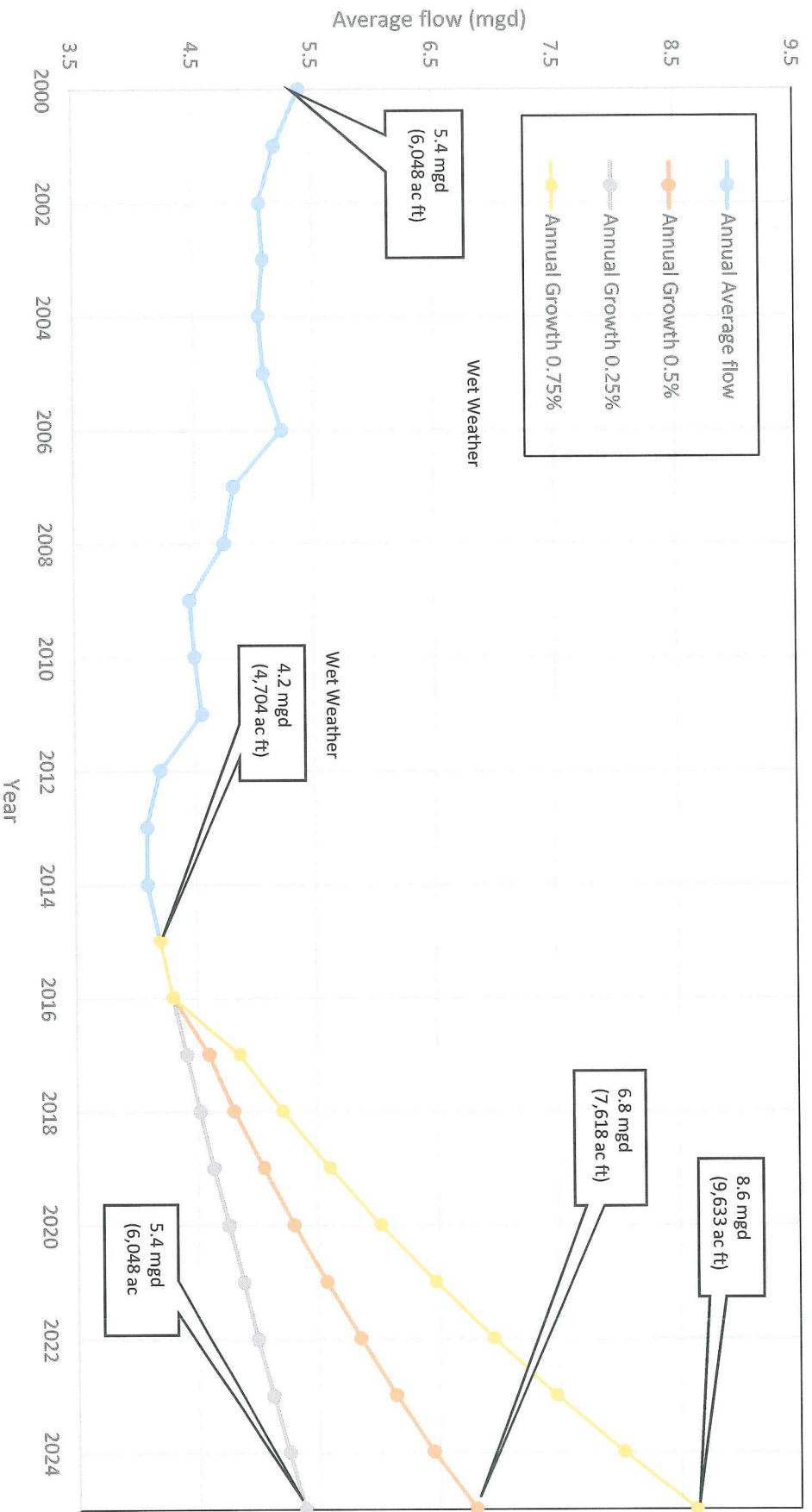
	2010	2011	2012	2013	2014	2015	
Annual Plant Flow (Ac Ft)	5041	5153	4704	4593	4524	4756	
Annual Recl Usage (Ac Ft)	3358	3421	3251	3303	3256	2844	AVE
Gross Recl Water Loss (Ac Ft)	1683	1732	1453	1290	1268	1912	1556

Plant Flow – Recl Usage = Gross Loss

Reservoir Annual Change (Ac Ft)	-224	224	0	274	-151	-255	
Approximate Evaporation (Ac Ft)	-250	-250	-250	-250	-250	-250	AVE
Adjusted Recl Water Loss (Ac Ft)	1209	1706	1203	1314	867	1407	1284

Gross Loss [+/- Annual Change] – Evaporation = Adjusted Loss

Figure 1 – Water Resource Recovery Facility Annual Average Daily Flow



Infrastructure Options and Costs

- Lining of Brunswick Canyon Reservoir costs \$7 - \$8 million.
- Lining results in a recovery of the current estimate of seepage of 1,300 acre feet.
- Previous studies identify reclaimed water going to Rapid Infiltration Basins (RIB's) at a cost of \$4 to \$13 million.
- Additional options for reclaimed utilization include delivery for additional irrigation uses, possible industrial uses, and possible indirect potable recharge.
- Induction well would provide surface water recapture of reservoir seepage and pump the water back into the system at Deer Run Road.

Figure 2 – Possible Reclaimed Extentions

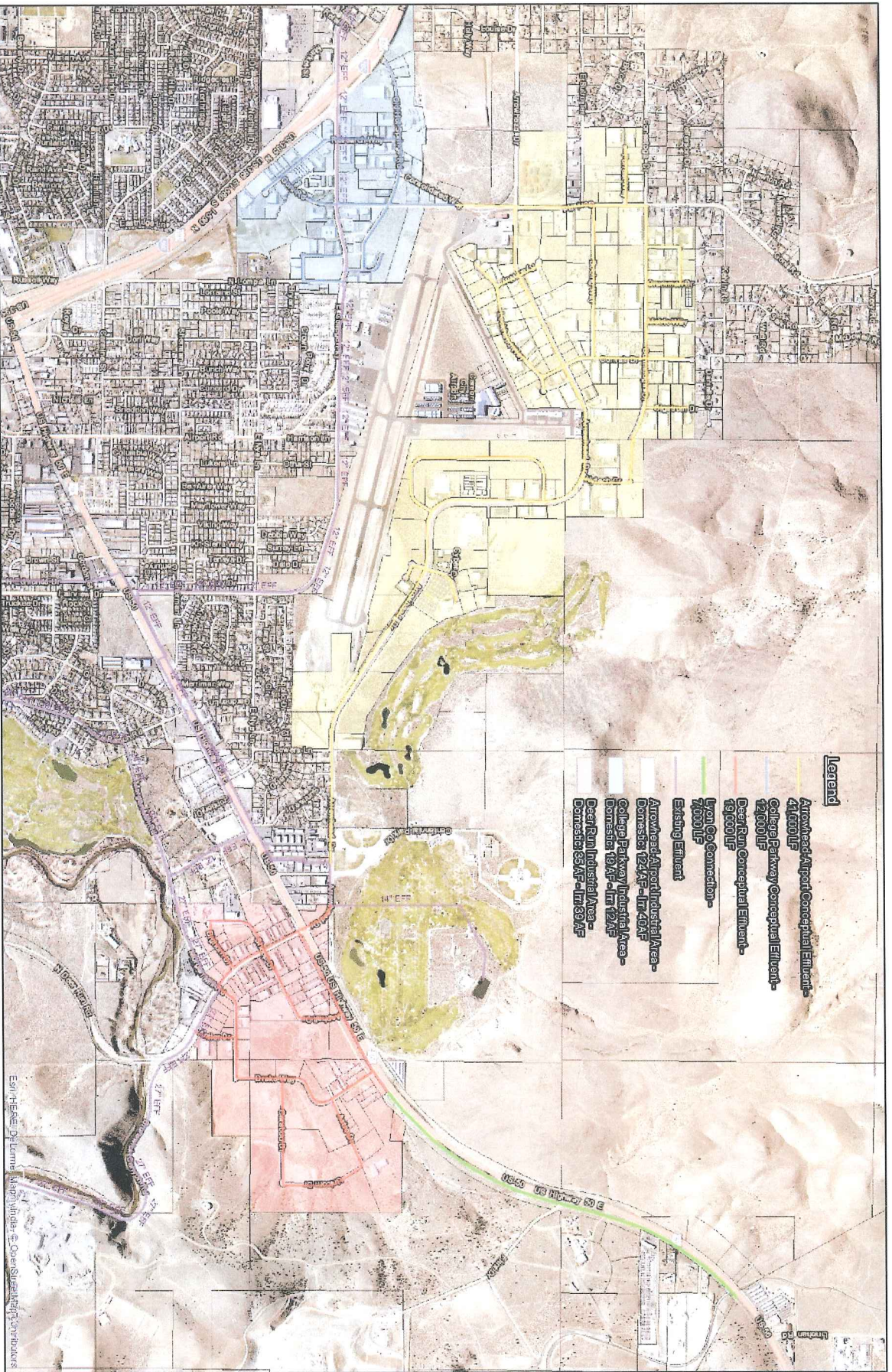
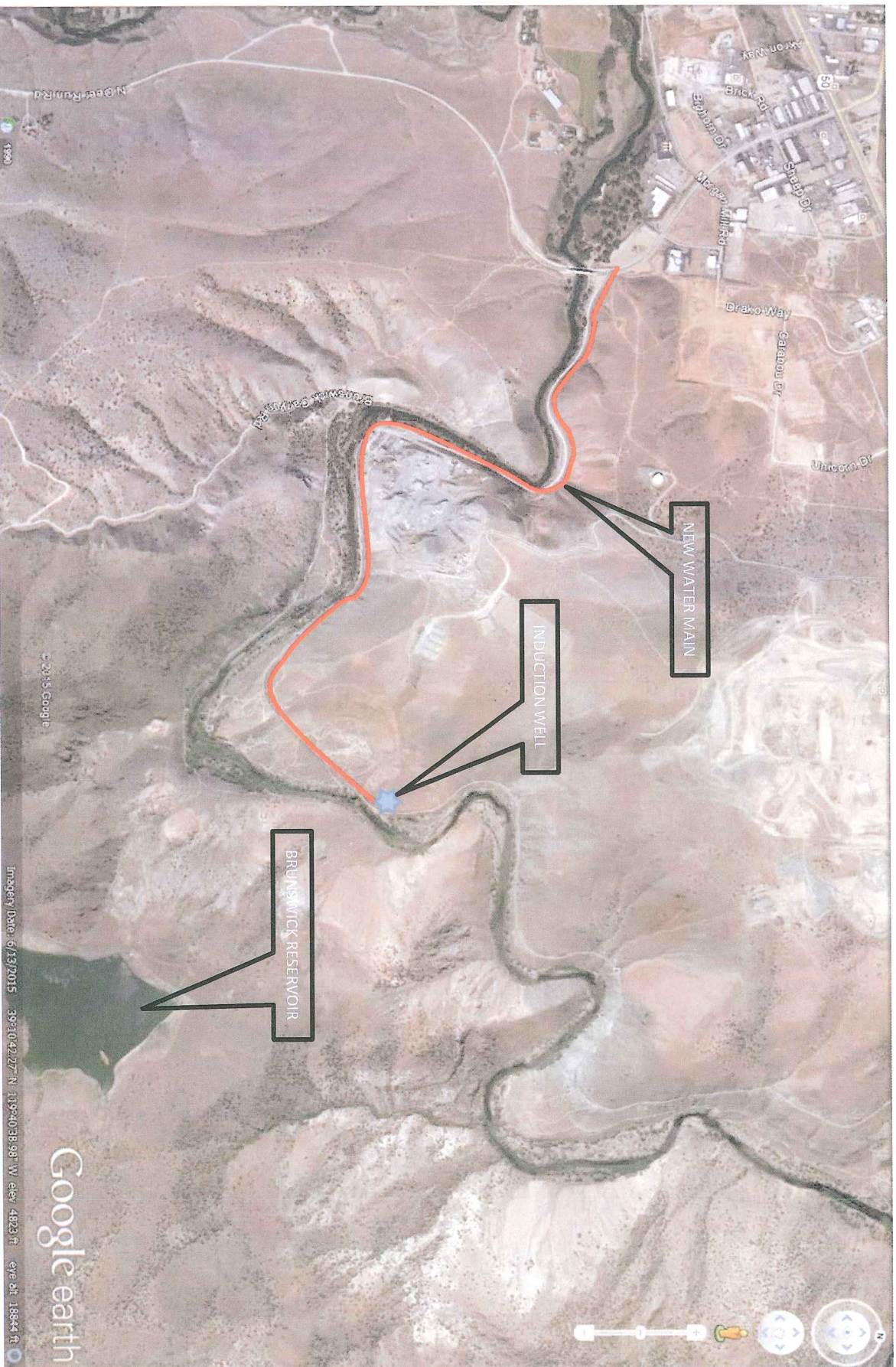


Figure 3 – Induction Well, Surface Water Recapture



Summary

- Need to update the Reclaimed Master Plan.
- Consider lining Brunswick Canyon Reservoir at a cost of \$7 to \$8 million resulting in a current. estimated recovery of 1,300 acre feet and likely additional recapture as WRRRF flows increase.
- Costs to deliver additional reclaimed to RIB's range from \$4 to \$13 million based on previous studies.
- Consider reclaimed utilization uses to include additional irrigation, possible industrial uses, and possible indirect potable re-injection as regulations allow.
- Induction well for surface water recapture.
- Provide full picture of options and costs based on the current and projected flows.
- Review possible revenue considerations for development of the reclaimed uses.

Questions ?





STAFF REPORT

Report To: Utility Financial Oversight Committee

Meeting Date: 02/29/16

Staff Contact: Darren Schulz, Director of Public Works

Agenda Title: Status of Proposed Water and Sewer Connection Charges

Staff Summary: The water and sewer connection charge recommendations from the June 2015 Utility Financial Oversight Committee were brought to the Board of Supervisors on August 20, 2015. The Board recommended initiating the process of changing the connection fees. The next step in the process will be to complete the Business Impact Statements pursuant to NRS 237.090, seek approval of the ordinance changes through two readings at the Board and implement the phase-in strategy on July 1, 2016.

Agenda Action: Other/Presentation

Time Requested: 15 minutes

Proposed Motion

No action required - informational only.

Board's Strategic Goal

N/A

Previous Action

N/A

Background/Issues & Analysis

N/A

Applicable Statute, Code, Policy, Rule or Regulation

N/A

Financial Information

Is there a fiscal impact? Yes No

If yes, account name/number:

Is it currently budgeted? Yes No

Explanation of Fiscal Impact:

Alternatives

N/A

Board Action Taken:

Motion: _____

1) _____

2) _____

Aye/Nay

(Vote Recorded By)



Project Memorandum

To: David Bruketta, Utility Manager
Carson City, Nevada

Date: December 7, 2015

From: Karyn Johnson, Principal
Krista Shirley, Project Consultant

RE: Water and Sewer Connection Charges

A. INTRODUCTION & BACKGROUND

Carson City contracted with FCS GROUP to update the City's water and sewer connection charges. The City imposes capital connection charges on new development (or redevelopment) as a condition of connection to the water and sewer systems, or when increasing the capacity of an existing connection.

Connection charges are imposed on newly connecting customers, but they should not be confused with water meter installation charges or other fees that reimburse the City for the cost of making the physical connection for a new customer. Instead, a connection charge is a method of recovering from new customers a proportionate share of the utility's investment in capital capacity—both the historical cost of existing capital assets and the planned cost of future capital improvements. Connection charges serve two main purposes: to provide equity between existing and new customers, and to provide a source of utility capital funding. In addition, connection charges can be seen as a way to ensure that "growth pays for growth." The charge is imposed on both new development and redevelopment that increases demand for system capacity.

Municipal utilities operate as self-sufficient enterprises, with utility system costs borne by existing ratepayers. This means that existing customers have invested in the current system capacity, including any excess system capacity available to serve growth. In part, the connection charge functions as a "buy-in charge." To avoid dilution of the investment of existing customers, new customers are required to "buy in to the system" commensurate with the cost of the assets needed to serve them.

The current water connection charge is \$454 per water equivalent residential customer (WERC), where one WERC is equal to 550 gallons per day. The current sewer connection charge is \$577 per sewer equivalent residential customer (SERC), where one SERC is equal to 250 gallons per day of flow. In October 2009, the City reduced the charges from \$4,543 per WERC and \$5,770 per SERC in order to promote economic development. Thus, the current charges are artificially low. These schedules are shown in **Exhibit 1** and **Exhibit 2**.

Exhibit 1: Schedule of Existing Water Connection Charges

Water Equivalent Residential Customer (WERC)	WERC [a]	Previous Charge	Existing Charge [b]
Single Family Residence	1.00	\$ 4,543	\$ 454
Duplex (each living unit)	1.00	4,543	454
Apartment (each living unit)	0.50	2,272	227
Mobile Home Individual lot	1.00	4,543	454
Mobile Home Park (each pad)	0.50	2,272	227
All others, per WERC	1.00	4,543	454

[a] Each WERC is equal to 550 gallons, per 12.02.030

[b] Policy direction as of 10/1/09 to reduce charge to promote economic development

Exhibit 2: Schedule of Existing Sewer Connection Charges

Sewer Equivalent Residential Customer (SERC)	SERC [a]	Previous Charge	Existing Charge [b]
Single Family Residence	1.00	\$ 5,770	\$ 577
Duplex (each living unit)	1.00	5,770	577
Apartment (each living unit)	0.50	2,885	289
Mobile Home Individual lot	1.00	5,770	577
Mobile Home Park (each pad)	0.50	2,885	289
All others, per WERC	1.00	5,770	577

[a] Each SERC is equal to 250 gallons per day, per 12.03.030

[b] Policy direction as of 10/1/09 to reduce charge to promote economic development

B. METHODOLOGY

There are several documented approaches used in the industry to establish connection charges. Within the range of legally defensible approaches, the choice of costs the City targets is a matter of policy. It is important, however, that the City follow a methodical and rational approach to consistently determine and implement cost-based charges. There are no specific statutory guidelines in Nevada for the calculation of connection charges; thus, the proposed approach draws on industry practice employing “conservative” approaches.

B1. GENERAL METHODOLOGY

The basic approach to a connection charge calculation can be shown in general terms as follows:

General Calculation Methodology

$$\text{Connection Charge} = \frac{\text{Allocable Capital Cost}}{\text{Applicable Customer Base}}$$

The capital costs used in the calculation can be separated into two major categories:

- **Existing system:** These costs represent the net investment in assets that currently provide service to customers (and that presumably have some amount of capacity available to serve growth).
- **Future capital projects:** These costs refer to capital improvement projects that the utility plans to undertake within a period of time specified in the system planning documents. These projects typically fall into one of three categories, depending on the reason for the capital expenditure:
 - ◆ **Repair & Replacement (R&R) Projects:** These projects are to replace existing infrastructure due to wear and tear over time. These projects do not increase system capacity and are not upgrades to functionality or regulatory compliance. These costs are most often excluded from the connection charge calculation as they are assumed to be repairing or replacing fixed assets that are already accounted for within the existing system cost basis.
 - ◆ **Upgrade Projects:** These projects broadly benefit both existing and future customers without increasing system capacity. Examples might include construction of an operations facility, improving system security, or projects driven by new regulations.
 - ◆ **Expansion Projects.** These projects primarily increase system capacity to serve additional customers. They may include main extensions, investments in conservation programs, treatment plant expansions, or pipe upsizing projects.

A single capital project may have components in more than one of these groups, in which case the City or its engineers provide an estimate of the percentage of project cost applicable to each group. For example, a pipe being replaced by a larger pipe may be considered to be 50% R&R, 50% expansion.

The applicable customer base can be measured in meter equivalents, usage-based equivalent residential units (WERC and SERC), demand-based equivalent residential units, or other measures.

B2. SELECTED METHODOLOGY

There are several valid analytical approaches that can be taken in the calculation of connection charges. Alternative methods were evaluated and presented to City staff for consideration. The Average Integrated approach was selected as most appropriate for the City's current and future customer base.

Average Integrated Methodology

The average integrated approach is as follows:

Average Cost – Integrated Approach			
Connection Charge =	Existing System Cost	+	Future Project Costs
	Existing Customer Base	+	Future Growth Served

Under this method, future costs that improve or expand the system are allocated in proportion to the share of the total future customer base represented by future growth. As a result, all relevant capital costs (existing assets, upgrades and expansion projects) are divided by the entire projected customer base (existing plus projected growth). The main policy emphasis here is on intergenerational equity—there is no cost advantage for either existing or new customers. This calculation is like a simple buy-in charge (which consists of existing costs divided by existing customers), except that it is projected into a future year, after the planned capital projects are completed. The resulting connection charge is stable over time and not highly sensitive to population forecasting assumptions.

B3. DEFINING EXISTING SYSTEM COSTS

The existing cost basis component of the connection charge is intended to recover an equitable share of the current system(s). While no specific guidelines have been established in Nevada for the calculation of connection charges, numerous west coast legal interpretations of connection charge statutes have provided guidelines for connection charges, which suggest that such charges should reflect the actual original cost of the utility system and can include interest on that cost at the rate of interest applicable at the time of construction (up to a 10-year period, not to exceed 100 percent of the construction costs). This cost is net of donated facilities and non-utility cash payments from grants or developer donations. This method most accurately reflects what utility customers paid for the system. Until future customers connect to the system, existing customers will have to cover the costs of “excess capacity” available to serve growth. This obligation essentially represents a loan from existing customers to future customers. Given this, it is reasonable to expect that future customers will pay for their share of costs when they connect to the system, plus interest. Other jurisdictions we have worked with in northern Nevada have followed this general approach with most jurisdictions setting a limit of up to 10 years from the date of construction for inclusion of interest. This is a conservative approach and practice, as no limitations exist on interest in Nevada.

Another adjustment to the existing system cost basis is to deduct the net liability of outstanding utility debt. The amount of outstanding debt represents assets that existing customers have acquired but not yet paid for. Instead, those assets will be paid for in future years as debt service payments are made. Since newly connecting customers will be paying monthly rates in the future, including a share of debt service payments, they should not also be charged for outstanding debt in their connection charge. However, there is an offset to the deduction for outstanding debt, and that is the cash that has been accumulated by the system. Cash represents something that today’s ratepayers have already paid for, even though it has not yet been used to acquire assets or retire outstanding debt. So the “net outstanding debt” deduction consists of outstanding debt minus cash balances, but not less than zero. If the cash balances are equal to or greater than outstanding debt, then the “net outstanding debt” deduction is zero.

The existing system costs for water are \$95.5 million, shown in **Exhibit C-1**. The existing system costs for sewer are \$152.2 million, shown in **Exhibit D-1**.

B4. DEFINING FUTURE SYSTEM COSTS

The utility capital improvement program (CIP) includes projects that address capital needs, such as system expansion, system extensions, upgrades and improvements, and replacement of aging infrastructure. In many cases, a CIP project can serve more than one of these purposes.

City staff assigned each project in the CIP to one of the three basic categories: repair and replacement (R&R), upgrade, and expansion. Those projects or portions of projects attributed to R&R are excluded from the connection charge calculation, so that new customers are not charged for both an existing asset and its replacement.

The future system costs for water are \$8.2 million, shown in **Exhibit C-1**. The future system costs for sewer are \$2.8 million, shown in **Exhibit D-1**.

B5. DEFINING THE CUSTOMER BASE

The customer base for the connection charge is defined by the number of equivalent capacity units. The costs recovered through a connection charge are related to system capacity, so the metrics used to scale up the charge should be related to the capacity requirement of a given development.

For water, the City has selected a “hybrid” method, using a combination of meter size, equivalent residential units (ERUs), and demand units (expressed as maximum day GPM). This combination reflects the demand to be placed on the system for different connection types better than a full schedule of any one of the methods individually. For sewer, the City will use usage-based sewer equivalent residential customers (SERC) with an updated definition to better reflect current customer use.

The total customer base for a connection charge consists of the number of existing connected equivalent customers plus the projected number of future equivalent customers to be connected through the end of the study period.

Water

a) Existing Customer Base

For water, connections up through a one-inch meter are charged based on meter equivalents. Connections with 1 ½ inch or larger meters are charged based on estimated maximum day gallons per minute (GPM). The exception to this is multifamily connections. Regardless of meter size, multifamily is charged on a per unit basis, calculated based on a percentage of single family water use, and applied to the lowest meter equivalent charge.

The meter equivalent approach assigns a fixed number of ERUs per meter size. This is based on industry standard “meter capacity equivalents” (MCEs), which estimates maximum safe flow capacity in gallons per minute, relative to the smallest base meter size. This standard schedule of MCEs, which is published by the American Water Works Association, can be seen in **Exhibit B-1**.

Exhibit B-1: Standard Meter Capacity Equivalents

Meter Size	MCEs
5/8"	1
1"	2.5
1 1/2"	5
2"	8
3"	15
4"	25
6"	50
10"	115

The existing number of meter equivalents was calculated from 2014 fiscal year ending (FYE) customer data by meter size.

The maximum day GPM approach uses an estimate of maximum day demand, based on information submitted at permitting. The existing maximum day GPM was calculated by converting 2014 FYE total system average day demand to maximum day demand using the 2.05 maximum day to average day demand ratio from the master plan. The result was then converted into gallons per minute.

b) Future Customer Base

For the future water customer base calculation, City staff estimated the maximum day system demand after completion of the capital projects in the CIP. This was used for the future customer base for maximum day GPM. The ratio between current and future demand was used to escalate the meter equivalents customer base.

Exhibit B-2 summarizes the water information used to derive the customer base.

Exhibit B-2: Existing and Future Water Customer Base

Customer Base Calculations			
System Parameter	Existing	Future	Growth Factor
Average Day Demand (mgd)	9.80	11.71	119.46%
Max Day Demand (mgd) [a]	20.09	24.00	119.46%
Meter Capacity Equivalents [b]	25,222	30,131	119.46%
Maximum Day GPM	13,951	16,667	119.46%

[a] Max day to average day demand ratio = 2.05 per Master Plan

[b] Based on AWWA Meter Capacity Ratios

Sewer

a) Existing Customer Base

For sewer, we examined FYE 2014 customer data and found residential average winter water use, as a proxy for sewer flow, to be equal to 200 gallons per day (gpd). This is a decrease from the current residential equivalent of 250 gpd. We also looked at duplex and apartment use and found that duplex use was 75% of single family use per unit, and multifamily use was 65% of single family use per unit. The revised SERC definitions are shown in **Exhibit B-3**.

Exhibit B-3: Existing and Proposed SERC Values

Customer Class	Existing SERC [a]	Proposed SERC [b]
Single Family Residence	1.00	1.00
Duplex (each living unit)	1.00	0.75
Apartment (each living unit)	0.50	0.65
Mobile Home Individual lot	1.00	1.00
Mobile Home Park (each pad)	0.50	0.65
All others, per SERC	1.00	1.00

[a] One existing SERC is equal to 250 gallons per day

[b] One proposed SERC is equal to 200 gallons per day

To calculate the existing customer base, each residential customer counted is equal to its calculated SERC value, while all other estimated flow was divided by 200 gpd.

b) Future Customer Base

For the future sewer customer base calculation, City staff estimated the average day system demand after completion of the capital projects in the sewer CIP. Based on the revised SERC definition of 200 gpd, future SERC equivalents were calculated.

Existing SERC was calculated at 29,563. **Exhibit B-4** summarizes the future SERC calculation.

Exhibit B-4: Future Sewer Customer Base

Total Customer Base Calculations	
System Parameter	Capacity
Average Day Demand (mgd)	6.90
Proposed: Usage Based ERUs (200 gpd)	34,500

C. WATER CONNECTION CHARGE

Exhibit C-1 shows the detailed calculation of the water connection charge, as described above. The resulting charge is compared with the current water connection charge of \$454 per WERC.

Exhibit C-1: Water Connection Charge Calculation

Water Connection Charge Calculation		
Connection Charge Components	Meter Capacity Equivalents	Maximum Day GPM
Existing Cost Basis		
Utility Capital Assets	\$ 134,554,918	\$ 134,554,918
plus: Construction Work in Progress	2,827,601	2,827,601
less: Contributed Capital	(25,802,750)	(25,802,750)
plus: Interest on Non-Contributed Plant	40,385,456	40,385,456
Net Assets	\$ 151,965,225	\$ 151,965,225
less: Net Debt Principal Outstanding		
Existing Cash Balances	\$ 4,364,927	\$ 4,364,927
less: Debt Principal Outstanding	(60,851,971)	(60,851,971)
Net Debt Principal Outstanding	(56,487,044)	(56,487,044)
Total Existing Cost Basis	\$ 95,478,181	\$ 95,478,181
Future Cost Basis		
Total Future Projects	\$ 16,740,000	\$ 16,740,000
less: Identified Repair & Replacement Projects	(8,567,000)	(8,567,000)
less: Contributed Future Upgrade & Expansion Assets	-	-
Total Future Cost Basis	\$ 8,173,000	\$ 8,173,000
Total Cost Basis	\$ 103,651,181	\$ 103,651,181
Customer Base		
Existing	25,222	13,951
Future (Incremental)	4,909	2,715
Total Customer Base	30,131	16,667
Calculated Connection Charge per Equivalent	\$ 3,440	\$ 6,219

Since there is a large increase due to the artificially lowered existing charge, a five-year phase-in strategy, beginning July 1, 2016, was developed and approved by City Council on August 20, 2015.

The full hybrid phase-in schedule is shown in **Exhibit C-2**. Year 1 shows the current charges and the phase-in is Year 2 through Year 6.

Exhibit C-2: Water Connection Charge Schedule

Meter Size	Year 1 7/1/2015	Year 2 7/1/2016	Year 3 7/1/2017	Year 4 7/1/2018	Year 5 7/1/2019	Year 6 7/1/2020
Customers up through 1" meters:						
5/8-inch	\$ 454	\$ 1,051	\$ 1,648	\$ 2,246	\$ 2,843	\$ 3,440
1-inch	\$ 454	\$ 2,083	\$ 3,712	\$ 5,342	\$ 6,971	\$ 8,600
Multifamily per unit [b]:	\$ 227	\$ 388	\$ 549	\$ 710	\$ 871	\$ 1,032
Customers 1 1/2" meters or larger:						
Charge per maximum day GPM [c]	Existing Rate	\$ 1,244	\$ 2,488	\$ 3,731	\$ 4,975.26	\$ 6,219

[b] Alternative multifamily option: 30% of 5/8" meter charge per unit

[c] Estimated water use in maximum day gallons per minute

After the costs are fully phased-in, City Council voted to allow annual increases based on the *Engineering News Record's* Construction Cost Index, not to exceed 3% per year.

D. SEWER CONNECTION CHARGE

Exhibit D-1 shows the detailed calculation of the sewer connection charge, as described in section B. The resulting charge is compared with the current sewer connection charge of \$577.

Exhibit D-1: Sewer Connection Charge Calculation

Sewer Connection Charge Calculation	
Connection Charge Components	Results
Existing Cost Basis	
Utility Capital Assets	\$ 122,670,868
plus: Construction Work in Progress	1,238,412
less: Contributed Capital	(19,951,899)
plus: Interest on Non-Contributed Plant	<u>60,288,050</u>
Net Assets	\$ 164,245,431
less: Net Debt Principal Outstanding	
Existing Cash Balances	\$ 1,163,270
less: Debt Principal Outstanding	<u>(13,196,234)</u>
Net Debt Principal Outstanding	<u>(12,032,964)</u>
Total Existing Cost Basis	\$ 152,212,467
Future Cost Basis	
Total Future Projects	\$ 48,152,680
less: Identified Repair & Replacement Projects	(45,367,000)
less: Contributed Future Upgrade & Expansion Assets	<u>-</u>
Total Future Cost Basis	\$ 2,785,680
Total Cost Basis	\$ 154,998,147
Customer Base	
Existing	29,563
Future (Incremental)	<u>4,937</u>
Total Customer Base	34,500
Calculated Connection Charge per Equivalent	\$ 4,493

Similar to water, a five-year phase-in strategy was adopted by City Council. This is shown in Exhibit D-2 below.

Exhibit D-2: Sewer Connection Charge Schedule

Customer Class	Year 1 7/1/2015	Year 2 7/1/2016	Year 3 7/1/2017	Year 4 7/1/2018	Year 5 7/1/2019	Year 6 7/1/2020
Single Family Residence	\$ 577	\$ 1,360	\$ 2,143	\$ 2,926	\$ 3,710	\$ 4,493
Duplex (each living unit)	577	1,136	1,694	2,253	2,811	3,370
Apartment (each living unit)	289	815	1,341	1,868	2,394	2,920
Mobile Home Individual lot	577	1,360	2,143	2,926	3,710	4,493
Mobile Home Park (each pad)	289	815	1,341	1,868	2,394	2,920
All others, per SERC	577	1,360	2,143	2,926	3,710	4,493

E. JURISDICTION COMPARISON

Exhibits E-1 and E-2 show the results of a comparative survey of other jurisdictions for residential water and sewer connection charges, respectively. Carson City's proposed water connection charge at the fully phased in level would still be lower than the other surveyed agencies. Also note that Carson City does not charge water rights fees along with connection charges, while the other agencies on the survey have additional charges for properties not sold with water rights.

Exhibit E-1: Water SDC Comparison Survey



Carson City’s proposed residential sewer connection charge at full phase in is at the low end of the surveyed jurisdictions.

Exhibit E-2: Sewer Connection Charge Comparison



F. IMPLEMENTATION

At the August 20, 2015 City Council meeting, the Council adopted the phased in connection charges for water and sewer, shown in **Exhibit C-2** and **Exhibit D-2**. Additionally, they adopted annual increases once charges were fully phased in. These annual increases will be based on the Engineering News Record’s Construction Cost Index, not to exceed 3% per year. The new connection charges will be in place beginning July 1, 2016.



Item 6D

STAFF REPORT

Report To: Utility Financial Oversight Committee

Meeting Date: 02/29/16

Staff Contact: Darren Schulz, Director of Public Works

Agenda Title: WRRF Phase 1A project update

Staff Summary: A presentation and discussion on the status of the Water Resource Recovery Facility Phase 1A project.

Agenda Action: Other/Presentation

Time Requested: 15 minutes

Proposed Motion

No action required - informational only.

Board's Strategic Goal

N/A

Previous Action

N/A

Background/Issues & Analysis

N/A

Applicable Statute, Code, Policy, Rule or Regulation

N/A

Financial Information

Is there a fiscal impact? Yes No

If yes, account name/number:

Is it currently budgeted? Yes No

Explanation of Fiscal Impact:

Alternatives

N/A

Board Action Taken:

Motion: _____

1) _____

2) _____

Aye/Nay

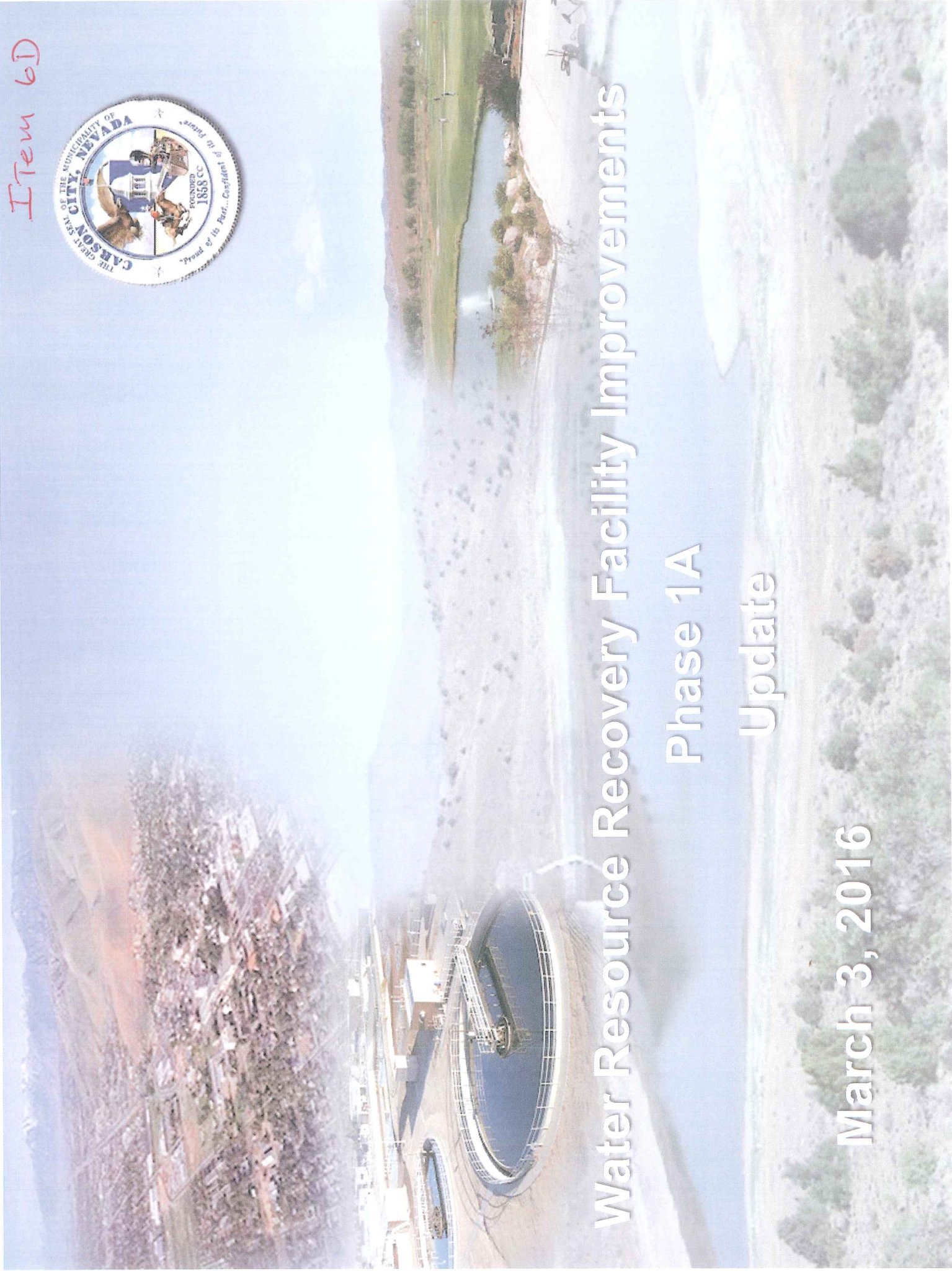
(Vote Recorded By)

Item 6D



Water Resource Recovery Facility Improvements Phase 1A Update

March 3, 2016



Water Resource Recovery Facility

Phase 1A

Improvements

BA-6
Off Site Lift
Station

Chlorine
Modification

#3W Pump
Station
Modification

BA-3
EQ / AB
upgrades

DAF
Pump
Modif

Electrical
Upgrades

B
oreactors /
Clarifier

Civil / Site
Improvements

R/
SWAS
Modifications

BA-5
Emergency
Storage

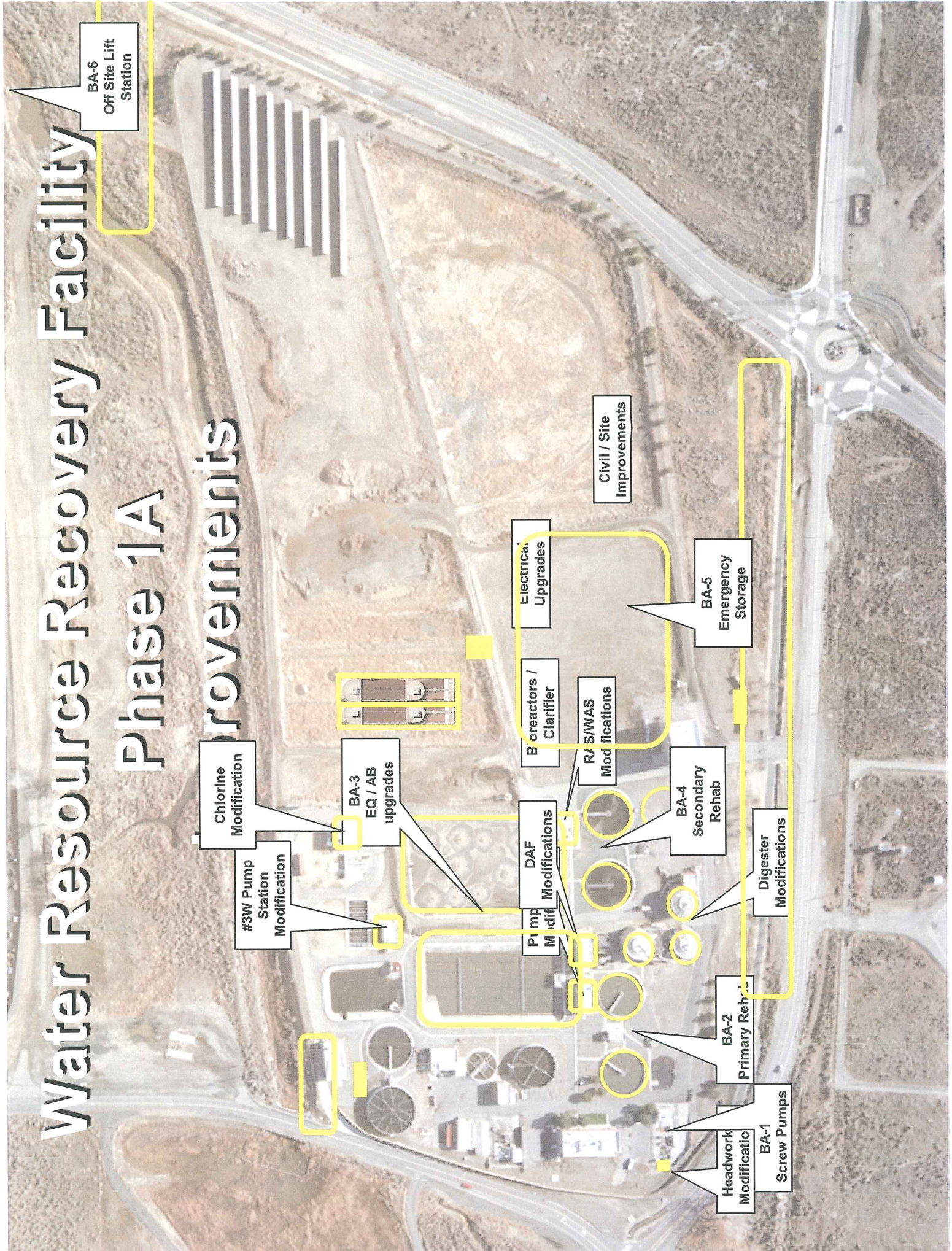
BA-4
Secondary
Rehab

Digester
Modifications

BA-2
Primary Rehab

Headwork
Modificatio

BA-1
Screw Pumps



WRRF Project Timeline

