

LINCOLN COUNTY WATER DISTRICT WATER RESOURCE PLAN

November 2022

PREPARED BY:



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I. INTRODUCTION

The Lincoln County Water District (the District), in an effort to implement its mission to "provide, protect and develop the water resources within Lincoln County for the benefit of the citizens and for the economic development of Lincoln County", commissioned this Water Resource Plan to summarize its potential and current water resources, identify existing water resource demands, identify future water resource demands, and otherwise provide a basis for planning for the future beneficial use of available water resources.

The 2015 Water Plan for Lincoln County provided a review of water uses existing at the time, existing water systems and their capacities, and projected future water needs. That plan generally outlined the County's vision for water use and described the resources available within the County. The 2015 Lincoln County Water Plan was programmed to address the years until buildout for each municipal area inside Lincoln County. This new Water Resource Plan seeks to update the program used in the previous plan to address the years until buildout for each municipal area inside Lincoln County. This plan assumes a buildout horizon date which ranges from the year 2052 well into the 22nd century, depending on the community or development.

Future water needs highlighted in this plan are given for population centers existing and anticipated to exist in the County based on current community boundaries, planned federal land disposals, anticipated community annexations, and development plans currently in process. Population projections and land absorption densities are based on the best currently available data and assumptions. Water right data was obtained from Nevada's Division of Water Rights website, water.nv.gov, and constitutes publicly available data. Where water resources are not currently planned or obligated to support residential, commercial, or industrial purposes, it was assumed that agriculture would be the preferred beneficial use.

In addition to updating the 2015 Lincoln County Water plan, this plan includes a brief analysis of the overall state of water resources within each basin of Lincoln County. The data used in this report are approximate numbers from the state engineer's database. The State Water Engineer's office combined the information for Kane Springs basin, Coyote Spring basin, and Muddy River Springs Area basin and considers them the lower white river super basin. LCWD prefers the use of a basin-by-basin analysis, therefore this report does not include the white river super basin.

The District is committed to providing water resources for the benefit of the citizens of Lincoln County in a sustainable and environmentally sound manner. As the District continues to develop water resources, policies and procedures will be implemented to ensure that this important commitment is maintained and that the District's sustainability objectives are achieved.





SECTION I – INTRODUCTION

The District supports a true science-driven approach for water resource development and management. The District supports the methods of water management as stated in the Nevada Revised Statutes and employed by the State Engineer for the past 70 or more years including priority of rights based on first in time first in right and the historic and statute-based basin by basin management approach to protect priority water rights within each water basin. The District supports the inter basin transfer of water from basin to basin with adequate protection for the basin of origin, as water development may be required outside of the basin which the water will be used.

With that background, details on the District's current water portfolio, expected future water demands, and potential opportunities for beneficial use of available water are presented in the following sections.





SECTION II – PORTFOLIO & WATER PLANNING

II. PORTFOLIO & WATER PLANNING

A. WATER RESOURCES PORTFOLIO

The Lincoln County Water District has approximately 74 total applications and permits for water rights. Table 1 in Appendix A summarizes the District's currently active applications and permitted water rights, sorted by hydrographic basin, with additional information on the basin, status, point of diversion, and total duty. Table 1 also includes an accounting of water rights and applications with shared ownership with the District. The intent of Table 1 in Appendix A is to quantify and locate water resources which are reasonably expected to be available for use by the District in meeting the County's existing and future demands. Exhibit 1 in Appendix B provides graphical representation of the data summarized in Table 1.

It should be noted that the data presented in Table 1 is front-page data currently available through Nevada Division of Water Resources' website <u>water.nv.gov</u>. The State's website disclaimer reads, "The information reflected on these pages is derived by interpretations of paper records and is being provided for convenience only. Please refer to the actual water rights records for the details on any water right as such records may differ from the information provided herein." This disclaimer applies to the information given in Table 1. While a cursory check of the data presented on the website was completed, a detailed review of the paper records behind the data was not included in the scope of services contemplated for this plan.

B. CURRENT WATER PLANNING

By mission, prior planning, or agreement, the District has identified the entities listed below for use of future water resources:

- Coyote Springs The Coyote Springs development, located on the southern edge of Lincoln County, would require upwards of 21,965 acre-feet annually at buildout.
- Toquop Township Based on demographic data derived from Title 14 Toquop Township PUD of the Lincoln County Code, the District expects a demand of 18,036 acre-feet annually at the Toquop development in southeastern Lincoln County.

Exhibit 2 in Appendix B is an illustration of land holdings in Lincoln County. It highlights the demand points related to the entities listed above as well as existing communities, which represent water demand locations in the County.





SECTION III – PROJECTED WATER DEMANDS

III. PROJECTED WATER DEMANDS

A. STUDY AREA

The study area for this plan is Lincoln County, its boundaries are shown in Exhibit 1 in Appendix B. The plan also considers the water resource portfolios and demands of the individual communities and water purveyors within the County, as described in the following paragraphs. These entities include Alamo, Caliente, Coyote Springs, Panaca, Pioche, and Toquop Township.

B. DEMOGRAPHICS

Demographic data, including existing populations and expected growth rates, for all communities except Coyote Springs and Toquop Township came from the United States Census Bureau at <u>census.gov</u>. Demographic information for Coyote Springs was taken from the 2010 Culinary Water Capital Improvement Plan completed for Coyote Springs-Lincoln County Consolidated General Improvement District. Data for Toquop Township was derived from Title 14 Toquop Township PUD of the Lincoln County Code.

Demographic information was used to calculate standard baseline assumptions including population per residential unit, maximum absorption densities in terms of units per acre, and total populations at buildout. These calculations were necessary to project water demands at buildout, and the differing rates at which water demands grow within each community.

For the communities of Pioche, Panaca, Caliente, and Alamo, the buildout community boundaries were assumed to be the existing boundaries plus lands designated for disposal by the Bureau of Land Management; those boundaries were provided through Lincoln County G.I.S resources.

C. ASSUMED WATER DEMAND

For projecting water demand in the various communities, the standard assumption of 1.0 acrefoot annually (AFA) per equivalent residential unit (ERU) was used as the baseline demand. It was also assumed that each community would ultimately implement conservations measures, in which case 0.45 AFA/ERU was used to project demand. This value is common in southwest desert communities currently practicing conservation including tiered rate structures, xeriscape landscaping requirements, regimented watering schedules, etc.

Projected water demands based on demographic data, growth assumptions, normal water use, and conservation water use are compared with existing resources for each community in the





following sub-sections. In addition, projected demands in each Lincoln County community are illustrated graphically in Exhibit 3 in Appendix B.

D. TOWN OF ALAMO

i. Growth Assumptions

Buildout development conditions for Alamo were projected using a 2% annual population growth rate, an average of 2.21 people per residence, an average absorption rate of 2.5 acres per residence, and residential ERUs constituting 67% of the total ERUs in the buildout community. Table III-A summarizes the assumptions and background data used to calculate the buildout condition and Table III-B shows the water demand for the latest population estimate year and the buildout year.

Table III-A: Alamo Growth Assumptions

Current Municipal Area	718	[ac]
Future Municipal Area	4,833	[ac]
Average Acreage per Residence	2.5	[ac/ERU]
Total ERUs at Buildout	1,933	[ERU]
Residential Population Density	2.213	[ppl/ERU]
Growth Rate	2%	-
Residential % of Total ERU	67%	-
Buildout Population	2,852	[ppl]

Table III-B: Alamo Current and Future Water Use

		Residential	Commercial	Total	Water Demand			
Year	Population	[ERU]	& Other [ERU]	[ERU]	Non-Conservative Use [AFA]	Conservative Use [AFA]		
2020	1151	520	260	780	780	351		
2070	2852	1289	644	1933	1933	870		

ii. Current Water Resources

The Alamo Sewer and Water General Improvement District (GID) currently has 1,089 AFA of culinary water rights available. Table III-C summarizes the available water rights first by basin, then by application number. All data pertaining to the water rights were collected from the state water rights website at <u>water.nv.gov</u>. Of note, Permit No. 81758 is a total combined duty right which limits all the water rights together to 1,089 AFA.





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APP#	STATUS	CERI#	BASIN	SOURCE*	USE**	Qtr-Qtr	Qtr	Sec	Twp	Rng	[AFA]
12898	CERT	4150	209	UG	DOM	SE	SW	5	07S	61E	96.3
30162	PER		209	UG	QM	SE	SW	5	07S	61E	560.1
45908	PER		209	UG	MUN	NE	NW	8	07S	61E	184.8
45909	PER		209	UG	MUN	SW	SW	5	07S	61E	291.2
54514	PER		209	UG	QM	SE	SW	5	07S	61E	560.1
55533	PER		209	UG	MUN	NE	SW	5	07S	61E	217.2
80337	PER		209	UG	QM	NW	NW	8	07S	61E	560.1
81758	PER		209	UG	QM	NW	SW	9	07S	61E	215.5
*Source \rightarrow UG = Underground									1,089.1		

Table III-C: Alamo Sewer and Water GID Water Rights Summary

iii. Future Demand

Figure III-A shows that, with conservation, Alamo Sewer and Water GID's demand for water will not exceed its supply of water, and the GID will have a surplus of 219 AFA at buildout. Without conservation, Alamo Sewer and Water GID's demand for water will exceed its supply of water, and the GID will have a deficit of 844 AFA at buildout.



Figure III-A: Alamo Sewer and Water GID Summary of Demand





^{**} Use \rightarrow DOM = Domestic, MUN = Municipal, QM = Quasi-Municipal

E. CITY OF CALIENTE

i. Growth Assumptions

Buildout development conditions for Caliente were generated with a 2% annual population growth rate, an average of 1.89 people per residence, an average of 2.5 acres per residence, and residential ERUs comprising 50% of the total ERUs in the community. Table III-D summarizes the assumptions and data used to calculate the buildout condition and Table III-E shows the water demand for the latest population estimate year and the buildout year.

Table III-D: Caliente Growth Assumptions

Current Municipal Area	34,070	[ac]
Future Municipal Area	64,292	[ac]
Average Acreage per Residence	2.5	[ac/ERU]
Total ERUs at Buildout	25,717	[ERU]
Residential Population Density	1.892	[ppl/ERU]
Growth Rate	2.0%	-
Residential % of Total ERU	50%	-
Buildout Population	24,328	[ppl]

Table III-E: Caliente Current and Future Water Use

		Residential	Commercial	Total	Water Demand		
Year	Population	[ERU]	& Other [ERU]	[ERU]	Non-Conservative Use [AFA]	Conservative Use [AFA]	
2020	906	479	479	957	957	431	
2070	2,438	1,289	1,289	2,577	2,577	1,160	

ii. Current Water Resources

Caliente currently possesses 5,718 AFA of culinary water rights in permitted and certificated status. Table III-F summarizes the available water rights first by basin then by application number. All data pertaining to the water rights were collected from the state water rights website at water.nv.gov. Of note, three water rights (applications 19377, 23933, 25970) share a total combined duty of 2,895 AFA. More information is available online from the state water rights website or in the paper documents behind the website's front-page information.





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APP #	STATUS	CERT#	BASIN	SOURCE**	USE***	Qtr-Qtr	Qtr	Sec	Twp	Rng	[AFA]
11582	CERT	3719	204	UG	DOM	NW	NW	8	04S	67E	56.0
48455	PER		204	UG	DOM	NW	NW	8	04S	67E	11.2
54597	PER		204	UG	QM	SE	NE	8	04S	67E	500.0
10662	CERT	3052	205	UG	MUN	NW	SW	8	04S	67E	10.0
19377	PER		205	UG	MUN	NE	SE	7	04S	67E	
23933	PER		205	UG	MUN	SW	NW	8	04S	67E	2,895.0*
25970	PER		205	UG	MUN	SW	NW	8	04S	67E	
49893	CERT	14323	205	UG	MUN	SW	NE	8	04S	67E	661.0
83307	PER		205	UG	MUN	SW	NE	8	04S	67E	395.0
83308	PER		205	UG	MUN	SW	NE	8	04S	67E	104.0
83312	PER		205	UG	MUN	SE	NE	12	04S	66E	1,085.9
*Total Combined Duty									5,718.1		

Table III-F: Caliente Water Rights Summary

iii. Future Demand

Figure III-B illustrates that, with or without conservation, Caliente's demand for water will not exceed its supply of water rights in the next 50 years. Similarly, without conservation, Caliente's demand for water will not exceed its supply of water rights in the next 50 years. However, Caliente's demand for water will exceed its supply of water rights for both conservative and non-conservative use before it reaches buildout.

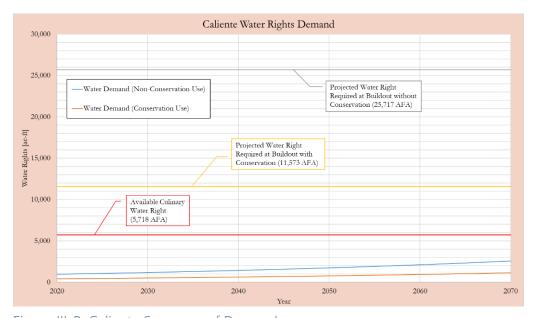


Figure III-B: Caliente Summary of Demand





^{**}Source → UG = Underground

^{***} Use -> DOM = Domestic, MUN = Municipal, QM = Quasi-Municipal

F. COYOTE SPRINGS

i. Growth Assumptions

Buildout conditions for Coyote Springs were generated with an annual population growth rate of 5%, an average of 2.69 people per residence, an average of 0.24 acres per residence, and residential ERUs comprising 67% of the total ERUs. Table III-G and Table III-H summarize the assumptions and data used to calculate the buildout condition. Table III-I shows the water demand for the year when the Capital Improvements Plan was written and the buildout year. Notably, future economic conditions may change the rate and density of development at Coyote Springs and may ultimately affect when water resources are required to support growth. It is anticipated that the District will consider appropriate adjustments to growth and absorption rates in future updates to this water resource plan.

Table III-G: Coyote Springs Water Use Assumptions

Normal Use Water Need	1	[AFA/ERU]
Conservation Water Need	0	[AFA/ERU]

Table III-H: Coyote Springs Growth Assumptions

Current Municipal Area	22,160	[ac]
Future Municipal Area	22,160	[ac]
Average Acreage per Residence	0.24	[ac/ERU]
Total ERUs at Buildout	91,521	[ERU]
Residential Population Density	2.69	[ppl/ERU]
Growth Rate	5.0%	1
Residential % of Total ERU	67%	-
Buildout Population	164,044	[ppl]

Table III-I: Coyote Springs Current and Future Water Use

		Residential	Commercial	Total	Water Demand			
Year	Population	[ERU]	& Other	[ERU]	Non-Conservative	Conservative Use		
		[ERO]	[ERU]	[EKO]	Use [AFA]	[AFA]		
2020	0	0	0	0	0	0		
2070	9633	3583	1791	5374	5374	1290		

ii. Current Water Resources

Under current planning scenarios, the proposed Coyote Springs development will need help from the District to obtain water rights. The District has water rights and applications from various sources in the Coal, Garden, Cave, Dry Lake, Delamar, Hamlin, Kane Springs, and Pahroc Valleys. The District has chosen not to include any water from Lake Valley due to the distance from





SECTION III – PROJECTED WATER DEMANDS

Coyote Springs making it the costliest option. However, CSI has water rights and applications in Lake Valley that can be used for the development of Coyote Springs in the future when needed.

The water from these resources will be transported to the Coyote Springs development through the future proposed pipeline. The District has a total of 158,405 AFA in water applications from those surrounding valleys that can be used in this pipeline. The expected capacity of the pipeline will be 39,600 AFA or 25,360 GPM to allow for aquifer management. Exhibit 1 in Appendix B illustrates the location of the future proposed pipeline.

iii. Future Demand

The reduced conservation water demand of 0.24 AFA/ERU shown in Table III-G for Coyote Springs assumes the implementation of separate culinary water and secondary water systems, with water resource recovery facilities implemented according to the community's culinary water, secondary water, and wastewater Capital Improvements Plans, completed in February 2010. This assumption requires that original water delivered by the District to Coyote Springs will be used for indoor, domestic purposes and that outdoor water will be provided by a secondary water system which recycles indoor, domestic water and re-distributes it for outdoor use.

Figure III-C shows that, with or without conservation, Coyote Springs demand for water will not exceed its supply of water rights in the next 50 years. However, Coyote Springs demand for water will exceed its supply of water rights for both conservative and non-conservative use before it reaches buildout. The District's ability to supply water (in terms of water rights) should be reviewed and considered in future updates to this water resource plan.

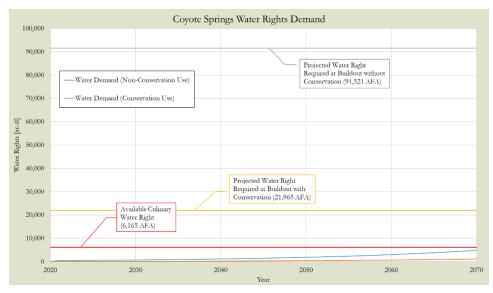


Figure III-C: Coyote Springs GID Summary of Demand





G. TOWN OF PANACA

i. Growth Assumptions

Based on data provided by Lincoln County Planning and Zoning Department, buildout conditions for Panaca were generated with a 1% annual population growth rate, an average of 2.30 people per residence, an average of 2.5 acres per residence, and residential ERUs comprising 80% of the total ERUs. Table III-J summarizes the assumptions and data used to calculate the buildout condition and Table III-K shows the water demand for the latest population estimate year and the buildout year.

Table III-J: Panaca Growth Assumptions

Current Municipal Area	1,052	[ac]
Future Municipal Area	6,096	[ac]
Average Acreage per Residence	2.50	[ac/ERU]
Total ERUs at Buildout	2,439	[ERU]
Residential Population Density	2.299	[ppl/ERU]
Growth Rate	1.0%	-
Residential % of Total ERU	80%	-
Buildout Population	4,485	[ppl]

Table III-K: Panaca Current and Future Water Use

		Residential	Commercial	Total	Water I	Demand
Year	Population	[ERU]	& Other	[ERU]	Non-Conservative	Conservative Use
		[EKO]	[ERU]	[EKO]	Use [AFA]	[AFA]
2020	1,169	508	127	635	635	286
2070	1922	836	209	1045	1045	470

ii. Current Water Resources

Panaca Farmstead Association is the utility entity which provides domestic water to the citizens of Panaca. The Farmstead currently possesses 2,234 AFA of culinary water rights. Table III-L summarizes the available water rights first by basin, then by application number. All data pertaining to the water rights were collected from the state water rights website at <u>water.nv.gov</u>.





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APP#	CTATIC	CEPT #	DACINI	COLIDCE*	USE**	POIN'	OINT OF DIVERSION				ANNUAL DUTY
	51A1U5	CERI#	DASIN	SOURCE	USE	Qtr-Qtr	Qtr	Sec	Twp	Rng	[AFA]
16431	CERT	5580	203	UG	MUN	SE	SW	5	02S	68E	361.984
56334	PER		203	UG	MUN	NW	NE	9	02S	68E	723.95351
80695	PER		203	UG	MUN	NW	SW	3	02S	68E	392.82
80771	PER		203	UG	MUN	NW	SW	3	02S	68E	361.98
82958	PER		203	UG	MUN	NW	SW	3	02S	68E	392.82
*Source → U	*Source \rightarrow UG = Underground									2,233.6	

Table III-L: Panaca Farmstead Association Water Rights Summary

iii. Future Demand

Figure III-D shows that, with conservation, Panaca Farmstead Association's demand for water will not exceed its supply of water rights and there will be a surplus of 1,137 AFA at buildout. Without conservation, Panaca Farmstead Association's demand for water will exceed its supply of water rights at buildout and there will be a deficiency of 205 AFA at buildout. However, in the next 50 years it is projected that Panaca Farmstead will not exceed its supply of water rights. Surplus water rights could be used to develop agricultural or other interests within the Farmstead's greater service area. A conceptual land use plan and detailed water resource plan completed by the Farmstead could guide planners in developing water resources to the maximum beneficial use within the Farmstead's service area.



Figure III-D: Panaca Farmstead Association Summary of Demand





^{**} Use \rightarrow DOM = Domestic, MUN = Municipal, QM = Quasi-Municipal

H. TOWN OF PIOCHE

i. Growth Assumptions

Based on data provided by the United States Census Bureau, buildout conditions for Pioche were generated with a 5% annual population growth rate, an average of 1.96 people per residence, an average of 2.5 acres per residence, and residential ERUs amounting to 67% of the total ERUs. Table III-M summarizes the assumptions and data used to calculate the buildout condition and Table III-N shows the water demand for the latest population estimate year and the buildout year.

Table III-M: Pioche Growth Assumptions

Current Municipal Area	3,603	[ac]
Future Municipal Area	13,751	[ac]
Average Acreage per Residence	2.50	[ac/ERU]
Total ERUs at Buildout	5,500	[ERU]
Residential Population Density	1.96	[ppl/ERU]
Growth Rate	5.0%	-
Residential % of Total ERU	67%	-
Buildout Population	7,187	[ppl]

Table III-N: Pioche Current and Future Water Use

I			Residential	Commercial	Total	Water I	Demand
	Year	Population	[ERU]	& Other	[ERU]	Non-Conservative	Conservative Use
			[EKU]	[ERU]	[EKU]	Use [AFA]	[AFA]
	2020	1,422	725	363	1,088	1,088	490
	2070	7187	3326	1663	4989	4989	2245

ii. Current Water Resources

Pioche Public Utilities (PPU) is the Town's utility arm. PPU currently has 1,540 AFA of culinary water rights available. Table III-O summarizes the available water rights first by basin, then by application number. All data pertaining to the water rights were collected from the state water rights website at <u>water.nv.gov</u>.





APP#	STATUS	CEDT #	DACINI	SOURCE*	USE**	POINT OF DIVERSION			ON	ANNUAL DUTY	
APP#	51A1U5	CERI#	DASIN	SOURCE*	USE	Qtr-Qtr	Qtr	Sec	Twp	Rng	[afa]
11032	CERT	3179	202	UG	MUN	SE	NW	23	01N	67E	112.0
23149	CERT	8026	202	UG	MUN	NE	SE	12	01N	67E	564.7
23150	CERT	8027	202	UG	MUN	SE	SW	12	01N	67E	282.3
43265	CERT	12068	202	UG	MUN	SE	NE	14	01N	67E	1.5
50046	CERT	13865	202	UG	MUN	NE	SE	12	01N	67E	192.8
50114	CERT	14553	202	UG	MUN	SE	NE	14	01N	67E	3.0
53930	PER		202	UG	MUN	SE	NE	14	01N	67E	304.1
56962	CERT	14540	202	UG	MUN	SE	NE	14	01N	67E	80.0
*Source → U	*Source \rightarrow UG = Underground								1,540.4		

Table III-O: Pioche Public Utilities Water Rights Summary

iii. Future Demand

Figure III-E shows that, with conservation, Pioche Public Utilities' demand for water will exceed its supply of water rights in the year 2043 and be deficient 705 AFA at buildout. conservation Pioche Public Utilities' demand for water will exceed its supply of water rights in the year 2028 and be deficient 3,449 AFA at buildout.

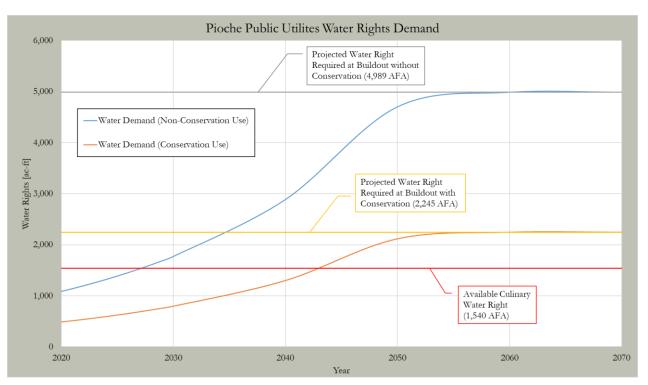


Figure III-E: Pioche Public Utilities Summary of Demand





^{**} Use → DOM = Domestic, MUN = Municipal, QM = Quasi-Municipal

I. TOQUOP TOWNSHIP

i. Growth Assumptions

Based on data provided by Lincoln County Planning and Zoning Department and information from Title 14 Toquop Township PUD in the Lincoln County Code, buildout conditions for the Toquop development were generated with a 6% annual population growth rate, an average of 2.69 people per residence, an average of 0.30 acres per residence, and residential ERUs assumed to comprise 67% of the total ERUs in the community. Table III-P summarizes the assumptions and data used to calculate the buildout condition and Table III-Q shows the water demand for the latest population estimate year and the buildout year. It was also assumed that homes in the area would be livable starting in the year 2020.

Table III-P: Toquop Growth Assumptions

Current Municipal Area	13,560	[ac]
Future Municipal Area	13,560	[ac]
Average Acreage per Residence	0.30	[ac/ERU]
Total ERUs at Buildout	44,747	[ERU]
Residential Population Density	2.69	[ppl/ERU]
Growth Rate	6.0%	-
Residential % of Total ERU	67%	-
Buildout Population	80,205	[ppl]

Table III-Q: Toquop Current and Future Water Use

		Residential [ERU]	Commercial		Water Demand		
Year	Population		& Other	Total [ERU]	Non-Conservative	Conservative Use	
			[ERU]		Use [AFA]	[AFA]	
2027	800	298	149	446	446	201	
2070	9,800	3,645	1,823	5,468	5,468	2,460	

ii. Current Water Resources

Bighorn Ranch Land Investors, LLC and Pouqot Water and Power Company currently hold a permitted water right, Permit No. 66932 with a duty balance of 2,100 AFA, designated for use in Big Horn and Toquop. The District also holds a permitted water right, Permit No. 83001 with an initial duty balance of 2,900 AFA, designated for use in Toquop. Current planning scenarios assume that this cumulative 5,000 AFA will be delivered by the District to development in the Toquop area. Current planning scenarios require the District to provide additional water rights which will be necessary to support growth in the community to buildout. The District will also own and operate the source and transmission infrastructure necessary to produce and deliver water to the community. After 8 years of pumping in Tule Desert the District has the right to ask





the State Engineer for an additional 4,340 AFA of water. The total amount of water that can be pumped is 9,340 AFA.

iii. Future Demand

Figure III-F shows that, with conservation, Toquop's demand for water will exceed its supply of water rights in the year 2075 and be deficient 15,136 AFA at buildout. Without conservation, Toquop's demand for water will exceed its supply of water rights in the year 2062 and be deficient 39,747 AFA at buildout. This demand for water is expected to be satisfied by the District's development of water resources in the Clover Valley and Tule Desert.

The water from these resources will be transported to the township through the proposed Tule Desert Pipeline, that is expected to be developed in the next five years. The District has a total of 27,436 AFA in water applications from those surrounding valleys that can be used in this pipeline. Expected capacity of the pipeline being 7,000 AFA or 4,250 GPM. Exhibit 1 in Appendix B illustrates the location of the Tule Desert Pipeline.

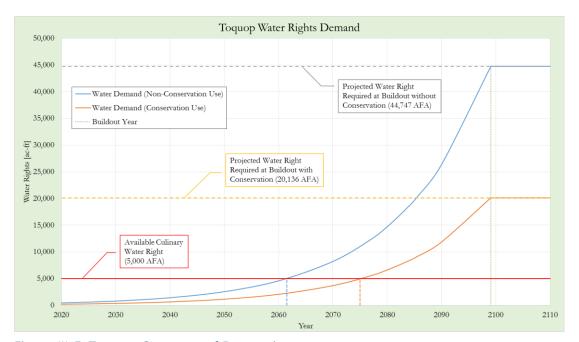


Figure III-F: Toquop Summary of Demand

J. MISCELLANEOUS POPULATION CLUSTERS

Other areas in the County which have measurable population densities are Hiko, Rachel, Ursine, and Mt. Wilson. All these areas are on private land, but none have pending or planned BLM disposals, and all rely on private wells for water. There is no anticipated growth and no expected





SECTION III – PROJECTED WATER DEMANDS

demand for future water resources. Currently, the District does not view these population clusters as representing areas of significant future water demand.

K. AGRICULTURE

Analyses undertaken as part of this planning effort have revealed that municipal water demands at buildout within the County will not reach the total amount of water resources (in terms of water rights) possessed by the District; in short, available water rights exceed the municipal demand in the County. This result is consistent with pre-plan expectations.

Early conversations in the planning process determined that excess water which was not "assigned" to serve a future municipal demand should be designated for specific agricultural or industrial use, thereby promoting the District's mission which includes benefitting the economic development of Lincoln County. it was determined that, for planning purposes, all excess water rights would be characterized as agricultural water rights, under the assumption that future updates to this plan could include industrial uses when specific opportunities become available.

Quantifying the future municipal demand for water provided the subsequent ability to calculate and forecast the level of agricultural development that could be supported by excess water rights, or water rights not "assigned" to serve municipal demands. For planning purposes, the crop of alfalfa, commonly grown in the County, was used as the base line crop, with an annual demand of 4.0 acre-feet of water per acre annually. It was assumed that agriculture would be developed within the basins where the water rights existed, i.e., that water would not be transported across basin boundaries for agricultural development.

Table 2 through Table 5 in Appendix A summarize four possible scenarios for agricultural development, depending on how many of the Districts water rights applications are eventually permitted by the State Engineer; Table 2 assumes that 100% of the applications will be permitted, Table 3 assumes that 75% of the applications will be permitted, Table 4 assumes that 50% of the applications will be permitted, and Table 5 assumes that 25% of the applications will be permitted. It is noted that the District expects and assumes that all applications will be permitted by the State Engineer, and the District will work with the State Engineer to that effect; the range of percentages is provided only to aid in understanding the effect of partial permitting.

Exhibits 4A, 4B, 4C, and 4D in Appendix B illustrate the location and magnitude of potential agricultural development in the various basins under the effects of full and partial permitting of the District's water rights in applications.





IV. BASIN BY BASIN ANALYSIS

A. OVERVIEW

This report includes a brief analysis of the overall state of water resources within each basin of Lincoln County. This report is intended to be supplementary to the water resource plan. The data used in this report are approximate numbers from the state engineer's database. For clarification, each POD (Point of Diversion) can have multiple wells, and each well can be assigned to multiple PODs. Alternatively, PODs can exist only on paper and not be connected to a well. The State Water Engineer's office combined the information for Kane Springs basin, Coyote Spring basin, and Muddy River Springs Area basin and considers them the lower white river super basin. LCWD prefers the use of a basin-by-basin analysis, therefore this report does not include the white river super basin.

Each basin analysis contains two tables outlining the data for the respective basin. The first table shows the number and type of wells and PODs in the basin. The second table shows the water rights and demands against the perennial yield. The source and demands reflect the total duty of all other groundwater in the basin. The demand for each private well was calculated as 2AFA per private well. The Perennial yield reflects the number determined by the Nevada State Engineer.





158A EMIGRANT VALLEY BASIN:

The Emigrant Valley Basin consists of two wells, neither of which are classified as a Private well. The total breakdown of wells is shown below in Table 1.A with their locations in Lincoln County mapped out in Exhibit 1 Appendix B. Emigrant Valley Basin is in federally controlled land and no Lincoln County development is anticipated. Lincoln County does not hold water rights or applications in this basin as shown below in Table 1.B. Because this basin is on federally controlled land, there is no recharge rate data to compare to.

Table 1.A 158A Emigrant Valley Wells and PODs

Wells				
Welle	Public	Private	Other	Total
Wells	0	0	2	2

Table 1.B 158A Emigrant Valley Water Rights (AFA)

Water Righ	ıts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Docin Total*	Application	Permitted	Certificated
Basin Total*	50.70	50.70	50.70

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





158B EMIGRANT VALLEY BASIN:

The Emigrant Valley Basin consists of zero wells as seen in Table 2.A. Emigrant Valley Basin is in federally controlled land and no Lincoln County development is anticipated. Lincoln County does not hold water rights or applications in this basin as shown below in Table 2.B. Because this basin is on federally controlled land, there is no recharge rate data to compare to.

Table 2.A 158B Emigrant Valley Wells

Wells					
Walla	Public	Private	Other	Total	
Wells	0	0	0	0	

Table 2.B 158B Emigrant Valley Water Rights (AFA)

Water Righ	Water Rights			
Owned by	Application	Permitted	Certificated	
Lincoln County	Lincoln County 0			
Dooin Total*	Application	Permitted	Certificated	
Basin Total*	0	0	0	

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





160 FRENCHMAN FLAT BASIN:

The Frenchman Flat Basin consists of 23 wells. One of those wells are classified as a Private well. The total breakdown of wells is shown below in Table 3.A with their locations in Lincoln County mapped out in Exhibit 3 Appendix B. Frenchman Flat Basin is in federally controlled land and no Lincoln County development is anticipated. Lincoln County does not hold water rights or applications in this basin as shown below in Table 3.B. Because this basin is on federally controlled land, there is no recharge rate data to compare to.

Table 3.A Frenchman Flat Wells and PODs

Wells				
Wells	Public	Private	Other	Total
vveiis	0	1	22	23

Table 3.B Frenchman Flat Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Dosin Total*	Application	Permitted	Certificated
Basin Total*	4.36	4.36	4.36

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





161 INDIAN SPRINGS VALLEY BASIN:

The Indian Springs Valley Basin consists of twelve wells one of which is a private well. The total breakdown of wells is shown below in 4.A with their locations in Lincoln County mapped out in Exhibit 4 Appendix B. Indian Springs Valley Basin is in federally controlled land and no Lincoln County developments anticipated. Lincoln County does not hold water rights or applications in this basin as shown below in Table 4.B. Because this basin is on federally controlled land, there is no recharge rate data to compare to.

Table 4.A Indian Springs Valley Wells

Wells				
Wells	Public	Private	Other	Total
vveiis	2	1	9	12

Table 4.B Indian Springs Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	Lincoln County 0		0
Pasin Tatal*	Application	Permitted	Certificated
Basin Total*	7,625.58	7,265.58	5,139.80

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





168 THREE LAKES VALLEY BASIN:

The Three Lakes Valley Basin consists of one well. The total breakdown of wells is shown below in 5.A with their locations in Lincoln County mapped out in Exhibit 5 Appendix B. Three Lakes Valley Basin is in federally controlled land and no Lincoln County development is anticipated. Lincoln County does not hold water rights or applications in this basin as shown below in Table 5.B. Because this basin is on federally controlled land, there is no recharge rate data to compare to.

Table 5.A Three Lakes Valley Wells

Wells	5			
Walle	Public	Private	Other	Total
Wells	0	0	1	1

Table 5.B Three Lakes Valley Water Rights (AFA)

Water Rights			
Owned by	Owned by Application Lincoln County 0		Certificated
Lincoln County			0
Pacin Total*	Application	Permitted	Certificated
Basin Total*	5,712.46	5,712.46	12.46

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





169A Tikaboo Valley North Basin:

The Tikaboo Lakes Valley North Basin consists of fifteen wells. The total breakdown of wells is shown below in Table 6.A with their locations in Lincoln County mapped out in Exhibit 6 Appendix B. Tikaboo Lakes Valley North Basin is partially in federally controlled land which may limit future growth in Lincoln County. Lincoln County does not hold water rights or applications in this basin as shown below in Table 6.B. Because this basin is on federally controlled land, there is no recharge rate data to compare to.

Table 6.A Tikaboo Valley North Wells

Wells				
Walle	Public	Private	Other	Total
Wells	0	0	15	15

Table 6.B Tikaboo Valley North Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Application		Permitted	Certificated
Basin Total*	2,650.35	2,637.44	29.52

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





169B TIKABOO VALLEY SOUTH BASIN:

The Tikaboo Valley South Basin consists of four wells, one of those wells is classified as a Private well. The total breakdown of wells is shown below in Table 7.A with their locations in Lincoln County mapped out in Exhibit 7 Appendix B. Tikaboo Lakes Valley South Basin is mostly in federally controlled land and future growth will be limited in this basin in Lincoln County. Lincoln County does not hold water rights or applications in this basin as shown below in Table 7.B. Because this basin is on federally controlled land, there is no recharge rate data to compare to.

Table 7.A Tikaboo Valley South Wells

Wells				
Walle	Public	Private	Other	Total
Wells	1	1	2	4

Table 7.B Tikaboo Valley South Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Docin Total*	Application	Permitted	Certificated
Basin Total*	3,410.35	3,410.35	10.35

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





170 PENOYER VALLEY BASIN:

The Penoyer Valley Basin consists of 81 wells, the total breakdown of wells is shown below in Table 8.A with their locations in Lincoln County mapped out in Exhibit 8A and 8B in Appendix B. Penoyer Valley Basin has a small area of federally controlled land which may have an impact on future growth in Lincoln County. Lincoln County does not hold water rights or applications in this basin as shown below in Table 8.B. Because of the lack of information pertaining to the recharge rate in this basin currently, the recharge rate was not evaluated.

Table 8.A Penoyer Valley Wells and PODs

Wells				
Wells	Public	Private	Other	Total
Wells	3	25	53	81

Table 8.B Penoyer Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Dasin Tatal*	Application	Permitted	Certificated
Basin Total*	25,232.50	16,437.34	12,624.08

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





171 COAL VALLEY BASIN:

The Coal Valley Basin consists of three wells, one of those two wells is classified as a Private well. The total breakdown of wells is shown below in Table 9.A with their locations in Lincoln County mapped out in Exhibit 9 Appendix B. Coal Valley Basin is in federally controlled land and no Lincoln County developments anticipated. The basin recharge rate is set at 4,020 AFA as determined by the Nevada State Engineer. Lincoln County holds 33,071 AFA of water right application in this basin as shown below in Table 9.B.

Table 9.A Coal Valley Wells and PODs

Wells				
Wells in Lincoln	Public	Private	Other	Total
County	0	1	2	3

Table 9.B Coal Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	33,071.16	0	0
Basin Total*	Application	Permitted	Certificated
Dasin Total	33,233.44	138.08	85.11
Dasin Dashawa Data	Total		
Basin Recharge Rate	4,020		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values rights





172 GARDEN VALLEY BASIN:

The Garden Valley Basin consists of 17 wells. The total breakdown of wells is shown below in Table 10.A with their locations in Lincoln County mapped out in Exhibit 10 in Appendix B. Garden Valley Basin is mostly in federally controlled land and future growth will be limited in this basin in Lincoln County. The basin recharge rate is set at 25,292 AFA as seen in Table 10.B. Lincoln County holds 26,064 AFA of water rights application in this basin as shown below in Table 10.B.

Table 10.A Garden Valley Wells

Wells				
Malle	Public	Private	Other	Total
Wells	2	5	10	17

Table 10.B Garden Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	26,063.75	0	0
Basin Total*	Application	Permitted	Certificated
Dasin Tolai"	26,063.75	2,498.48	1,835.47
Pasin Pasharga Pata	Total		
Basin Recharge Rate	25,292		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





180 CAVE VALLEY BASIN:

The Cave Valley Basin consists of 13 wells, and none are classified as a Private well. The total breakdown of wells is shown below in Table 12.A with their locations in Lincoln County mapped out in Exhibit 12 in Appendix B. The basin recharge rate is set at 15,044 AFA as seen in Table 12.B. Lincoln County holds 5,210 AFA of water rights application in this basin as shown below in Table 12.B.

Table 12.A Cave Valley Wells

Wells				
VAZ 11	Public	Private	Other	Total
Wells	0	0	13	13

Table 12.B Cave Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	5,210	0	0
Basin Total*	Application	Permitted	Certificated
Dasin Total"	14,003.21	890.08	878.88
Dasin Dashawa Bata	Total		
Basin Recharge Rate 15,044			

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





181 DRY LAKE VALLEY BASIN:

The Dry Lake Valley Basin consists of 15 wells, none are classified as a Private well. The total breakdown of wells is shown below in Table 13.A with their locations in Lincoln County mapped out in Exhibit 13 in Appendix B. The basin recharge rate is set at 16,208 AFA as seen in Table 13.B determined by the Nevada State Engineer. Lincoln County holds 14,489 AFA of water rights application and 1,009 AFA of certificated water rights in this basin as shown below in Table 13.B.

Table 13.A Dry Lake Valley Wells and PODs

Wells				
Wells	Public	Private	Other	Total
Wells	0	0	15	15

Table 13.B Dry Lake Valley Water Rights (AFA)

Water Rights			
Owned by Application		Permitted	Certificated
Lincoln County	14,488.96	0	1,009
Docin Total*	Application	Permitted	Certificated
Basin Total*	14,488.96	2,069.04	2,023.99
Docin Dochowno Doto	Total		
Basin Recharge Rate	16,208		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





182 DELAMAR VALLEY BASIN:

The Delamar Valley Basin consists of 9 wells, and one is classified as a Private well. The total breakdown of wells is shown below in Table 14.A with their locations in Lincoln County mapped out in Exhibit 14 Appendix B. The basin recharge rate is set at 6,627 AFA as seen in Table 14.B. Lincoln County holds 7,244 AFA of water rights application in this basin as shown below in Table 14.B.

Table 14.A Delamar Valley Wells and PODs

Wells				
Wells in Lincoln	Public	Private	Other	Total
County	0	1	8	9

Table 14.B Delamar Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	7,244.48	0	0
D T. (. 14	Application	Permitted	Certificated
Basin Total*	7,244.48	273.70	273.70
Pasin Dashawaa Data	Total		
Basin Recharge Rate	6,627		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





183 LAKE VALLEY BASIN:

The Lake Valley Basin consists of 73 wells, 13 are classified as a Private well. The total breakdown of wells is shown below in Table 15.A with their locations in Lincoln County mapped out in Exhibit 15A and 15B in Appendix B. The basin recharge rate is set at 9,861 AFA as seen in Table 15.B. Lincoln County holds no water rights or applications in this basin as shown below in Table 15.B.

Table 15.A Lake Valley Wells and PODs

Wells				
Wells in Lincoln	Public	Private	Other	Total
County	1	13	59	73

Table 15.B Lake Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Davis Tarak	Application	Permitted	Certificated
Basin Total*	42,490.09	38,138.67	15,059.05
Pasin Dashawa Data	Total		
Basin Recharge Rate	9,861		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





184 SPRING VALLEY - CENTRAL REGION BASIN:

The Spring Valley-Central region Basin consists of 105 wells. The total breakdown of wells is shown below in Table 16.A with their locations in Lincoln County mapped out in Exhibit 16 in Appendix B. The basin recharge rate is set at 81,339 AFA as seen in Table 16.B determined by the Nevada State Engineer. Lincoln County holds no water rights or applications in this basin as shown below in Table 16.B.

Table 16.A Spring Valley-Central region Wells and PODs

Wells				
Wolle	Public	Private	Other	Total
Wells	1	15	89	105

Table 16.B Spring Valley-Central region Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
	273,603.63	90,174.18	56,663.83
Basin Recharge Rate	Total		
	81,339		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





195 SNAKE VALLEY BASIN:

The Snake Valley Basin consists of 82 wells. The total breakdown of wells is shown below in Table 17.A with their locations in Lincoln County mapped out in Exhibit 17 in Appendix B. The basin recharge rate is set at 104,210 AFA as seen in Table 17.B. Lincoln County holds no water rights or applications in this basin as shown below in Table 17.B.

Table 17.A Snake Valley Wells

Wells				
Walle	Public	Private	Other	Total
Wells	5	40	37	82

Table 17.B Snake Valley Water Rights (AFA)

Water Rig	hts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
Dasin Total"	103,301.77	58,385.48	33,066.84
Pasin Dashawa Data	Total		
Basin Recharge Rate	104,210		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





196 HAMLIN VALLEY BASIN:

The Hamlin Valley Basin consists of 9 wells, none are classified as a Private well. The total breakdown of wells is shown below in Table 18.A with their locations in Lincoln County mapped out in Exhibit 18 in Appendix B. The basin recharge rate is set at 41,358 AFA as seen in Table 18.B. Lincoln County holds 31,855 AFA of water rights application in this basin as shown below in Table 18.B.

Table 18.A Hamlin Valley Wells

Wells				
Wolle	Public	Private	Other	Total
Wells	0	0	9	9

Table 18.B Hamlin Valley Water Rights (AFA)

Water Righ	its		
Owned by	Application	Permitted	Certificated
Lincoln County	31,855.28	0	976.86
Docin Total*	Application	Permitted	Certificated
Basin Total*	31,855.28	978.23	976.86
Danim Danhawan Data	Total		
Basin Recharge Rate	41,358		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





197 ESCALANTE DESERT BASIN:

The Escalante Desert Basin consists of 4 wells, none are classified as a Private well. The total breakdown of wells is shown below in Table 19.A with their locations in Lincoln County mapped out in Exhibit 19 in Appendix B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 19.B. Since only a small portion of the basin lies within Lincoln County, there is no applicable data in this area.

Table 19.A Escalante desert Wells and PODs

Wells				
Wells	Public	Private	Other	Total
Wells	0	0	4	4

Table 19.B Escalante desert Water Rights (AFA)

Water Righ	its		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	35.32
Pasin Tatal*	Application	Permitted	Certificated
Basin Total*	1,001.33	1,001.33	35.32

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





198 DRY VALLEY BASIN:

The Dry Valley Basin consists of 25 wells, two are classified as a Private well. The total breakdown of wells is shown below in Table 20.A with their locations in Lincoln County mapped out in Exhibit 20 in Appendix B. The basin recharge rate is set at 1,953 AFA as seen in Table 20.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 20.B.

Table 20.A Dry Valley Wells and PODs

Wells				
Molle	Public	Private	Other	Total
Wells	0	2	23	25

Table 20.B Dry Valley Water Rights (AFA)

Water Rigl	nts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Pacin Tatal*	Application	Permitted	Certificated
Basin Total*	13,840.05	13,840.05	13,657.99
Dasin Dashawa Data	Total		
Basin Recharge Rate	1,953		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





199 ROSE VALLEY BASIN:

The Rose Valley Basin consists of 11 wells, 5 are classified as a Private well. The total breakdown of wells is shown below in Table 21.A with their locations in Lincoln County mapped out in Exhibit 21 Appendix B. The basin recharge rate is set at 79 AFA as seen in Table 21.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 21.B.

Table 21.A Rose Valley Wells

Wells				
Molle	Public	Private	Other	Total
Wells	0	5	6	11

Table 21.B Rose Valley Water Rights (AFA)

Water Righ	nts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
Dasin Total"	2,940.50	2,740.50	894.60
Daein Daebarna Data	Total		
Basin Recharge Rate	79		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





200 EAGLE VALLEY BASIN:

The Eagle Valley Basin consists of 29 wells, 23 are classified as a Private well. The total breakdown of wells is shown below in Table 22.A with their locations in Lincoln County mapped out in Exhibit 22 Appendix B. The basin recharge rate is set at 1,465 AFA as seen in Table 22.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 22.B.

Table 22.A Eagle Valley Wells

Wells				
VA/alla	Public	Private	Other	Total
Wells	2	23	4	29

Table 22.B Eagle Valley Water Rights (AFA)

Water Rig	ıhts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
Dasiii Tolai"	3,098.15	3,098.15	384.55
Pasin Dashawa Data	Total		
Basin Recharge Rate	1,465		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





201 SPRING VALLEY BASIN:

The Spring Valley Basin consists of 13 wells, 6 are classified as a Private well. The total breakdown of wells is shown below in Table 23.A with their locations in Lincoln County mapped out in Exhibit 23 Appendix B. The basin recharge rate is set at 9,644 AFA as seen in Table 23.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 23.B.

Table 23.A Spring Valley Wells

Wells				
Malle	Public	Private	Other	Total
Wells	1	6	6	13

Table 23.B Spring Valley Water Rights (AFA)

Water Rig	hts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
Dasiii TOlai"	7,790.08	7,705.65	2,011.70
Daein Daehaum Data	Total		
Basin Recharge Rate	9,644		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





202 PATTERSON VALLEY BASIN:

The Patterson Valley Basin consists of 29 wells, 10 are classified as a Private well. The total breakdown of wells is shown below in Table 24.A with their locations in Lincoln County mapped out in Exhibit 24 Appendix B. The basin recharge rate is set at 5,656 AFA as seen in Table 24.B. Lincoln County holds 37,647.31 AFA of water rights application in this basin as shown below in Table 24.B. The city of Pioche is located within this basin.

Table 24.A Patterson Valley Wells and PODs

Wells				
Wolle	Public	Private	Other	Total
Wells	3	10	16	29

Table 24.B Patterson Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	37,647.31	0	0
Daniu Tatal*	Application	Permitted	Certificated
Basin Total*	37,647.31	6,428.47	6,124.40
Pasin Pasharga Pata	Total		
Basin Recharge Rate	5,656		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





203 PANACA VALLEY BASIN:

The Panaca Valley Basin consists of 183 wells, 49 are classified as a Private well. The total breakdown of wells is shown below in Table 25.A with their locations in Lincoln County mapped out in Exhibit 25A and 25B Appendix B. The basin recharge rate is set at 2,381 AFA as seen in Table 25.B. Lincoln County holds no water rights or applications in this basin as shown below in Table 25.B. The city of Panaca is located within this basin.

Table 25.A Panaca Valley Wells

Wells				
Wolle	Public	Private	Other	Total
Wells	11	49	123	183

Table 25.B Panaca Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Dosin Total*	Application	Permitted	Certificated
Basin Total*	51,188.92	47,593.19	22,701.03
Pasin Pasharga Pata	Total		
Basin Recharge Rate	2,381		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





204 CLOVER VALLEY BASIN:

The Clover Valley Basin consists of 50 wells, 17 are classified as a Private well. The total breakdown of wells is shown below in Table 26.A with their locations in Lincoln County mapped out in Exhibit 26A and 26B Appendix B. The basin recharge rate is set at 15,110 AFA as seen in Table 26.B. Lincoln County holds 28,960 AFA of water rights application in this basin as shown below in Table 26.B. The city of Caliente is partially located within this basin.

Table 26.A Clover Valley Wells and PODs

Wells				
Wells	Public	Private	Other	Total
vveiis	3	17	30	50

Table 26.B Clover Valley Water Rights (AFA)

Water Righ	nts		
Owned by	Application	Permitted	Certificated
Lincoln County	28,960	0	0
Basin Total*	Application	Permitted	Certificated
Dasiii Totai	28,960	8,531.28	3,793.00
Pasin Pasharga Pata	Total		
Basin Recharge Rate	15,110		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





205 LOWER MEADOW VALLEY WASH:

The Lower Meadow Valley Wash consists of 117 wells, 8 are classified as a Private well. The total breakdown of wells is shown below in Table 27.A with their locations in Lincoln County mapped out in Exhibit 27A and 27B Appendix B. The basin recharge rate is set at 8,078 AFA as seen in Table 27.B. Lincoln County holds 620 AFA of permitted water rights in this basin as shown below in Table 27.B. The city of Caliente is partially located within this basin.

Table 27.A Lower Meadow Valley Wash Wells and PODs

Wells				
Wells	Public	Private	Other	Total
Wells	3	8	106	117

Table 27.B Lower Meadow Valley Wash Water Rights (AFA)

Water Righ	ts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	620.06	0
Docin Total*	Application	Permitted	Certificated
Basin Total*	45,239.24	31,583.19	16,630.04
Pasin Dashawaa Data	Total		
Basin Recharge Rate	8,078		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





206 KANE SPRINGS VALLEY BASIN:

The Kane Springs Valley Basin consists of 2 wells. The total breakdown of wells is shown below in Table 28.A with their locations in Lincoln County mapped out in Exhibit 28 Appendix B. The basin recharge rate is set at 4,329 AFA as seen in Table 28.B. Lincoln County holds 18,376 AFA of water rights application in this basin as shown below in Table 28.B.

Table 28.A Kane Springs Valley Wells and PODs

Wells				
Wells	Public	Private	Other	Total
vveiis	0	0	2	2

Table 28.B Kane Springs Valley Water Rights (AFA)

Water Righ	ts		
Owned by	Application	Permitted	Certificated
Lincoln County	18,376	0	0
Daniu Tatali	Application	Permitted	Certificated
Basin Total*	18,376	2,035.58	35.58
Dagin Daghayna Data	Total		
Basin Recharge Rate	4,329		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





207 WHITE RIVER VALLEY BASIN:

The White River Valley Basin consists of 321 wells. The total breakdown of wells is shown below in Table 29.A with their locations in Lincoln County mapped out in Exhibit 29 Appendix B. The basin recharge rate is set at 42,037 AFA as seen in Table 29.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 29.B.

Table 29.A White River Valley Wells

Wells				
Welle	Public	Private	Other	Total
Wells	11	119	191	321

Table 29.B White River Valley Water Rights (AFA)

Water Rig	hts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
Dasiii TOlai"	112,338.31	87,088.15	70,024.91
Pasin Dashawa Data	Total		
Basin Recharge Rate	42,037		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





208 PAHROC VALLEY BASIN:

The Pahroc Valley Basin consists of 16 wells, and one is classified as a Private well. The total breakdown of wells is shown below in Table 30.A with their locations in Lincoln County mapped out in Exhibit 30 Appendix B. Pahroc Valley Basin is partially in federally controlled land and future growth will be limited in this basin in Lincoln County. The basin recharge rate is set at 4,705 AFA as seen in Table 30.B. Lincoln County holds 68,056 AFA of Application water rights in this basin as shown below in Table 30.B.

Table 30.A Pahroc Valley Wells and PODs

Wells				
Walle	Public	Private	Other	Total
Wells	0	1	15	16

Table 30.B Pahroc Valley Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	68,056	0	0
Design Total*	Application	Permitted	Certificated
Basin Total*	68,056	66.51	64.11
Dasin Dashawa Data	Total		
Basin Recharge Rate	4,705		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





209 PAHRANAGAT VALLEY BASIN:

The Pahranagat Valley Basin consists of 155 wells, 69 are classified as a Private well. The total breakdown of wells is shown below in Table 31.A with their locations in Lincoln County mapped out in Exhibit 31A and 31B Appendix B. Pahranagat Valley Basin has a small area of federally controlled land which may have an impact on future growth in Lincoln County. The basin recharge rate is set at 5,726 AFA as seen in Table 31.B. Lincoln County holds no water rights or applications in this basin as shown below in Table 31.B. The city of Alamo is located within this basin.

Table 31.A Pahranagat Valley Wells and PODs

Wells				
Wells in Lincoln	Public	Private	Other	Total
County	13	69	73	155

Table 31.B Pahranagat Valley Water Rights (AFA)

Water Righ	its		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Design Testel*	Application	Permitted	Certificated
Basin Total*	39,855.12	39,528.26	12,543.63
Dasin Dashawa Bata	Total		
Basin Recharge Rate	5,726		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





210 COYOTE SPRING VALLEY BASIN:

The Coyote Spring Valley Basin consists of 35 wells, one is classified as a Private well. The total breakdown of wells is shown below in Table 32.A with their locations in Lincoln County mapped out in Exhibit 32 Appendix B. Coyote Spring Valley Basin is partially in federally controlled land which may limit future growth in Lincoln County. However, there are plans in place for a future Coyote Springs development. The basin recharge rate is set at 2,215 AFA as seen in Table 32.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 32.B.

Table 32.A Coyote Spring Valley Wells

Wells				
Wells in Lincoln	Public	Private	Other	Total
County	7	1	27	35

Table 32.B Coyote Spring Valley Water Rights (AFA)

Water Righ	ts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Docin Total*	Application	Permitted	Certificated
Basin Total*	48,356.70	45,746.32	1,297.02
Dasim Dashawaa Data	Total		
Basin Recharge Rate	2,215		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





219 MUDDY RIVER SPRINGS AREA BASIN:

The Muddy River Spring Area Basin consists of 98 wells. The total breakdown of wells is shown below in Table 33.A with their locations in Lincoln County mapped out in Exhibit 33 Appendix B. The basin recharge rate is set at 41 AFA as seen in Table 33.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 33.B.

Table 33.A Muddy River Spring Area Wells

Wells				
Wells	Public	Private	Other	Total
vveiis	3	38	57	98

Table 33.B Muddy River Spring Area Water Rights (AFA)

Water Rights			
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
Dasiii TOlai"	32,332.35	32,274.37	18,799.09
Dasin Dashawa Data	Total		
Basin Recharge Rate	41		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





220 LOWER MOAPA VALLEY BASIN:

The Lower Moapa Valley Basin consists of 747 wells. The total breakdown of wells is shown below in Table 34.A with their locations in Lincoln County mapped out in Exhibit 34 in Appendix B. Since The basin recharge rate is set at 35 AFA as seen in Table 34.B. Lincoln County does not hold water rights or applications in this basin as shown below in Table 34.B.

Table 34.A Lower Moapa Valley Wells

Wells				
Wells	Public	Private	Other	Total
vveiis	6	26	715	747

Table 34.B Lower Moapa Valley Water Rights (AFA)

Water Righ	ts		
Owned by	Application	Permitted	Certificated
Lincoln County	0	0	0
Basin Total*	Application	Permitted	Certificated
Dasin Total"	29,290.00	29,079.13	27,749.30
Dagin Daghayna Data	Total		
Basin Recharge Rate	35		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





221 TULE DESERT BASIN:

The Tule Desert Basin consists of 20 wells, none are classified as a Private well. The total breakdown of wells is shown below in Table 35.A with their locations in Lincoln County mapped out in Exhibit 35 Appendix B. Lincoln County holds 21,725 AFA of Application water rights and 9,340 AFA of permitted water rights in this basin as shown below in Table 35.B. Because of the lack of information pertaining to the recharge rate in this basin currently, the recharge rate was not evaluated.

Table 35.A Tule Desert Wells and PODs

Wells				
Walle	Public	Private	Other	Total
Wells	0	0	20	20

Table 35.B Tule Desert Water Rights (AFA)

Water Righ	nts				
Owned by	Application	Permitted	Certificated		
Lincoln County	21,725	9,340	0		
Dasin Tatal*	Application	Permitted	Certificated		
Basin Total*	21,725	9,407.92	67.92		

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





222 VIRGIN RIVER VALLEY BASIN:

The Virgin River Valley Basin consists of 321 wells. The total breakdown of wells is shown below in Table 36.A with their locations in Lincoln County mapped out in Exhibit 36 Appendix B. Lincoln County holds 28,960 AFA of application water rights in this basin as shown below in Table 36.B. Because of the lack of information pertaining to the recharge rate in this basin currently, the recharge rate was not evaluated.

Table 36.A Virgin River Valley Wells and PODs

Wells				
Welle	Public	Private	Other	Total
Wells	62	20	249	331

Table 36.B Virgin River Valley Water Rights (AFA)

Water Rig				
Owned by	Application	Permitted	Certificated 0	
Lincoln County	28,960	0		
D' . T. (. #	Application	Permitted	Certificated	
Basin Total*	412,704.78	231,389.89	19,725.16	

^{*} Basin total numbers were taken from the Nevada State Engineer's website database and may not accurately represent actual values





V. SUSTAINABILITY

The District is committed to providing water resources for the benefit of the citizens of Lincoln County in a sustainable and environmentally sound manner. As the District continues to develop, policies and procedures will be implemented to ensure that this important commitment is maintained and that the District's sustainability objectives are achieved. The District recognizes that its citizens view environmental conditions as fundamental to the heritage, livelihood, and future of the County. With that point of view, it is the District's intent to manage water resources in a sustainable manner.

A. CONSERVATION PLANNING

In the future, as the District seeks to maximize economic opportunity for the citizens of Lincoln County through its administration of water resources, certain conservation efforts may be considered which may include:

- Public outreach and education programs
- Providing credit opportunities for water conservation by users
- Helping users in implementing conservation measures
- Developing water conservation demonstration projects
- Implementing secondary water re-use programs and systems

Future conservation efforts implemented by the District should be goal-oriented, cost-effective, and practical in design and implementation. Under this approach, the District should provide leadership in the County in the implementation and dissemination of water conservation practices. Under future conservation plans, the District will be able to delay the onset rate of water demands, delay the need and associated cost of new water supply and infrastructure, and expand economic potential to additional opportunities.

B. ENVIRONMENTAL CONSIDERATIONS

As noted, the District recognizes that its citizens view environmental conditions as fundamental to the heritage, livelihood, and future of the County. Native flora and fauna species, geography, climate, history, and other environmental factors all contribute to the overall quality of life in the County.

Proper management of water resources, including ensuring that water development projects are justified, adequately mitigated, environmentally sound, and consistent with local plans and





objectives, provides the best setting for ensuring that existing environmental conditions are maintained or, where necessary, improved.

It is the District's intent, as it advances the development of water resources in manners consistent with its mission, to coordinate in partnership relationships with local, State, and Federal agencies for the preservation and enhancement of the Lincoln County environment.

VI. RECOMMENDATIONS

Based on the thought processes and analyses conducted during development of this plan, and in consideration of the District's mission to "provide, protect and develop the water resources within Lincoln County for the benefit of the citizens and for the economic development of Lincoln County", the following recommendations are presented:

- In general, the District should actively invest in and work with partners, local entities, and the State Engineer's office to maximize the permitting of applied-for rights.
- The District should implement and maintain a management procedure that ensures the timely completion of administrative requirements appurtenant to water rights applications and permits.
- The communities of Pioche and Caliente will have water rights shortages at buildout; the
 District should seek partnering relationships with those communities to provide water
 rights to those communities when the need develops.
- The communities of Panaca and Alamo will have water rights excesses at buildout; the
 District should work with and help those communities seek ways to put all water resources
 to beneficial use.
- The Coyote Springs development constitutes a significant future demand for water resources; the District should devote considerable attention to preparing to provide water to that community.
- The Toquop Township development constitutes a significant future demand for water resources; the District should devote considerable attention to preparing to provide water to that community. In particular, the demand for municipal water will exceed permitted water rights if the State Engineer limits permitted rights to approximately 27% of the applied-for rights; the District should work with local entities and the State Engineer to ensure that adequate rights are available to support the development.





SECTION VI – RECOMMENDATIONS

- Consistent with the data illustrated in Exhibits 2 through 4D in Appendix B, the District should seek implementation of agricultural development in the various hydrographic basins where water is available. This effort will include obtaining land for development through federal disposals, desert land entries, or leases. It will also include developing power resources.
- Hiko, Rachel, Ursine (Eagle Valley) and Mt. Wilson all have measurable private land acreages where water needs are met via private wells. While this condition is not expected to change in the near term, there may be a long term need that could be satisfied by the District.
- The District should work with the communities of Pioche, Panaca and Alamo for the development of detailed land use plans which capture development objectives, balance residential vs. commercial and industrial zoning for economic sustainability and refine population projections. The District should then update water demand projections against available water rights in those communities based on the more detailed land use plans.
- The District should, as needed, update this Water Resource Plan to reflect changes in the status of water rights and potential demands. A typical update frequency is five years, but the frequency may be shortened or extended based on current development conditions.





SECTION VI - BIBLIOGRAPHY

VII. BIBLIOGRAPHY

Community Data

A Water Plan for Lincoln County, March 2001, Resource Concepts, Inc.
Envision Caliente, December 2011, Winston Associates, Inc.
Caliente Culinary Water Capital Improvements Plan, March 2012, Sunrise Engineering, Inc.
Coyote Springs-Lincoln County Consolidated GID Culinary Water Capital Improvements Plan,
February 2010, Sunrise Engineering, Inc.

Water Rights Data http://water.nv.gov/waterrights/

NV Land Ownership

http://www.blm.gov/nv/st/en/prog/more_programs/geographic_sciences/gis/geospatial_data.htm

Demographic Data

http://nvdemography.org/wp-content/uploads/2013/03/2012-NV-Pop-Estimates.pdf

http://nvdemography.org/wp-content/uploads/2011/05/Lincoln.pdf

http://nvdemography.org/wp-content/uploads/2012/02/Caliente-city-Lincoln-County.pdf

Toquop Township Codes

http://www.sterlingcodifiers.com/codebook/index.php?book id=612

Energy Corridor Alignments

http://www.geocommunicator.gov/ARCGIS/REST/services/ROW/MapServer

http://www.blm.gov/pgdata/content/wy/en/info/NEPA/documents/hdd/transwest.html





APPENDIX A

APPENDIX A

MISCELLANEOUS TABLES





Table 1: LCWD Active Water Rights

	ACTIVE W			CT A TU I Commit	1105444	OTD OTS	0.75	CECTION	TOTA WISH IS	DANOE	DUDAtes	NOTES
	OWNER*	BASIN	BASIN_NAME	STATUS**		QTR_QTR	QTR	SECTION				
72945	LCWD*	171	Coal Valley	APP	MUN	NE	NW	11	02S	59E	4343.82	Permitted duties on this water right will be routed to Coyote Springs
72944	LCWD*	171	Coal Valley	APP	MUN	SW	SW	15	02N	60E	4343.82	Permitted duties on this water right will be routed to Coyote Springs
64673	LCWD*	171	Coal Valley	APP	IRR	NE	NW	11	02S	59E	6400	This water right will be used locally for irrigation purposes
64672	LCWD*	171	Coal Valley	APP	IRR	SW	SW	15	02N	60E	6400	This water right will be used locally for irrigation purposes
53959	LCWD	171	Coal Valley	APP	MUN	SE	SW	6	03S	60E	7239.7	Permitted duties on this water right will be routed to Coyote Springs
53957	LCWD	171	Coal Valley	APP	MUN	SW	SE	23	02S	59E	4343.82	Permitted duties on this water right will be routed to Coyote Springs
64677	LCWD*	172	Garden Valley	APP	IRR	NE	NW	18	018	58E	7240	The application says this will be used locally for irrigation
64676	LCWD*	172	Garden Valley	APP	IRR	SW	SE	7	02N	58E	7240	The application says this will be used locally for irrigation
53963	LCWD	172	Garden Valley	APP	MUN	SE	NW	24	02S	57E	7239.84	Permitted duties on this water right will be routed to Coyote Springs
53960	LCWD	172	Garden Valley	APP	MUN	NW	NW	30	01S	58E	4343.91	Permitted duties on this water right will be routed to Coyote Springs
64671	LCWD*	180	Cave Valley	APP	IRR	NE	SE	9	08N	64E	5210	LCWD expects no water from this application; if any is received, it'll be routed to Coyote Springs
64670	LCWD*	180	Cave Valley	APP	IRR	SE	NE	8	05N	63E	5210	LCWD expects no water from this application; if any is received, it'll be routed to Coyote Springs
81232	LCWD*	181	Dry Lake Valley	APP	MUN	NE	SE	6	01S	65E	3622.24	This water right is intended to serve Coyote Springs
81231	LCWD*	181	Dry Lake Valley	APP	MUN	SE	SE	6	02S	65E	3622.24	This water right is intended to serve Coyote Springs
80649	LCWD*	181	Dry Lake Valley	PER	IRR	NE	SE	5	01S	65E	504.5	This water right is intended to serve Coyote Springs
80648	LCWD*	181	Dry Lake Valley	PER	IRR	NE	SE	5	018	65E	504.5	This water right is intended to serve Coyote Springs
79363	LCWD*	181	Dry Lake Valley	APP	IRR	SW	SE	5	01S	65E	3622.24	This water right is intended to serve Coyote Springs
79362	LCWD*	181	Dry Lake Valley	APP	IRR	SW	SE	5	01S	65E	3622.24	This water right is intended to serve Coyote Springs
79371	LCWD*	182	Delamar Valley	APP	IND	SE	NE	10	07S	63E	3622.24	This water right is intended to serve Coyote Springs
79370	LCWD*	182	Delamar Valley	APP	IND	NW	NE	26	06S	63E	3622.24	This water right is intended to serve Coyote Springs
73324	LCWD*	196	Hamlin Valley	APP	MUN	NW	SW	7	09N	70E	4343.82	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)
73323	LCWD*	196	Hamlin Valley	APP	MUN	SE	SE	10	08N	70E	4343.82	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)
72908	LCWD*	196	Hamlin Valley	APP	MUN	NW	SW	7	09N	70E	4343.82	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)
72907	LCWD*	196	Hamlin Valley	APP	MUN	SE	SE	10	08N	70E	4343.82	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)
64685	LCWD*	196	Hamlin Valley	APP	IRR	NW	SW	7	09N	70E	7240	The application states this is for use in Hamlin Valley
64684	LCWD*	196	Hamlin Valley	APP	IRR	SE	SE	10	08N	70E	7240	The application states this is for use in Hamlin Valley
77327	LCWD*	202	Patterson Valley	APP	IRR	NW	SE	24	02N	66E	7240	This application changes 64686; The application says "APPLIED FOR DIVERSION RATE ONLY, DUTY BASE ON 1280 ACRES @ 4 AF/ACRE"
77326	LCWD*	202	Patterson Valley	APP	IRR	NE	SW	32	02N	67E	7240	This application changes 64686; The application says "APPLIED FOR DIVERSION RATE ONLY, DUTY BASE ON 1280 ACRES @ 4 AF/ACRE"
54034	LCWD	202	Patterson Valley	APP	MUN	SE	NW	6	01N	69E	7239.72	The application states that water may be served and beneficially used by lawful users within Lincoln, Nye, and White Pine Counties, or service area of LVVWD
54033	LCWD	202	Patterson Valley	APP	MUN	SE	NW	20	03N	68E	7239.84	The application states that water may be served and beneficially used by lawful users within Lincoln, Nye, and White Pine Counties, or service area of LVVWD
54032	LCWD	202	Patterson Valley	APP	MUN	NW	NE	13	01N	67E	4343.91	The application states that water may be served and beneficially used by lawful users within Lincoln, Nye, and White Pine Counties, or service area of LVVWD
54031	LCWD	202	Patterson Valley	APP	MUN	SE	SE	17	02N	67E	4343.84	The application states that water may be served and beneficially used by lawful users within Lincoln, Nye, and White Pine Counties, or service area of LVVWD
79361	LCWD*	204	Clover Valley	APP	MUN	SW	SE	2	06S	68E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
79360	LCWD*	204	Clover Valley	APP	MUN	NE	SW	6	06S	69E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
79359	LCWD*	204	Clover Valley	APP	MUN	NE	SW	11	06S	69E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
79358	LCWD*	204	Clover Valley	APP	MUN	NE	NE	3	06S	70E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
67967	LCWD*	204	Clover Valley	APP	MUN	NE	NE	3	06S	70E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
67966	LCWD*	204	Clover Valley	APP	MUN	NE	SW	11	06S	69E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
67965	LCWD*	204	Clover Valley	APP	MUN	NE	SW	6	06S	69E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
67964	LCWD*	204	Clover Valley	APP	MUN	SW	SE	2	06S	68E	3620	The application states that this water is to be used in south eastern Lincoln County, generally
89830	LCWD	205	Lower Meadow Valley Wash		IRR	NW	NW	3	10S	67E	50	
70407	LCWD	205	Lower Meadow Valley Wash		MUN	NW	NW	3	10S	67E	170.99	
70406	LCWD	205	Lower Meadow Valley Wash		MUN	SW	NW	24	12S	65E	399.07	
72220	LCWD*	206	Kane Springs Valley	APP	MUN	SE	SW	6	11\$	64E	500	Designated for Coyote Springs development
72221	LCWD*	206	Kane Springs Valley	APP	MUN	SE	SW	11	098	65E	500	Designated for Coyote Springs development
74150	LCWD*	206	Kane Springs Valley	APP	MUN	SE	SW	11	098	65E	4344	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)
74149	LCWD*	206	Kane Springs Valley	APP	MUN	SE	SW	6	11\$	64E	4344	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)
74148	LCWD*	206	Kane Springs Valley	APP	MUN	SE	SW	31	098	65E	4344	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)
74147	LCWD*	206	Kane Springs Valley	APP	MUN	SW	SE	25	08S	65E	4344	The application states that the place of use is the Coyote Springs Valley Hydrographic Basin (210)

APP_NUM	OWNER*	BASIN	BASIN_NAME	STATUS**	USE***	QTR_QTR	QTR	SECTION	TOWNSHIP	RANGE	DUTY***	NOTES
73332	LCWD*	208	Pahroc Valley	APP	MUN	SE	SE	31	01S	62E	4344	This application changes 72949; this application is designated for use in Lincoln County
73331	LCWD*	208	Pahroc Valley	APP	MUN	NE	SE	2	02N	62E	4344	This application changes 72948; this application is designated for use in Lincoln County
71725	LCWD*	208	Pahroc Valley	APP	MUN	SE	SE	31	01S	62E	7240	This application changes 64691; this application is designated for use in the Coyote Springs Valley
71724	LCWD	208	Pahroc Valley	APP	MUN	NE	SE	2	02N	62E	7240	This application changes 64690; this application is designated for use in the Coyote Springs Valley
54049	LCWD	208	Pahroc Valley	APP	MUN	NE	NE	8	02S	62E	7240	This water right is intended to serve Coyote Springs
54048	LCWD	208	Pahroc Valley	APP	MUN	SE	NE	22	02N	62E	7240	This water right is intended to serve Coyote Springs
54047	LCWD	208	Pahroc Valley	APP	MUN	NW	SW	33	02S	61E	7240	This water right is intended to serve Coyote Springs
54046	LCWD	208	Pahroc Valley	APP	MUN	NW	SE	29	01S	62E	7240	This water right is intended to serve Coyote Springs
54045	LCWD	208	Pahroc Valley	APP	MUN	SE	NW	14	01N	62E	7240	This water right is intended to serve Coyote Springs
54044	LCWD	208	Pahroc Valley	APP	MUN	SW	NE	19	02N	63E	4344	This water right is intended to serve Coyote Springs
54043	LCWD	208	Pahroc Valley	APP	MUN	NE	SE	35	03N	62E	4344	This water right is intended to serve Coyote Springs
83001	LCWD*	221	Tule Desert	PER	MUN	SE	SW	6	10S	69E	7235.52	This application is for use in the Toquop area
76290	LCWD*	221	Tule Desert	APP	MUN	NW	NE	29	09\$	69E	3620	The application states "THIS PERMIT IS INITIALLY LIMITED TO 2,900 ACRE-FEET ANNUALLY" ,but may be increased to 7240 if monitoring shows available water
76289	LCWD*	221	Tule Desert	APP	MUN	NE	NW	31	10S	69E	3620	This application is for use in the Toquop area
76288	LCWD*	221	Tule Desert	APP	MUN	SW	SW	1	08S	69E	3620	This application is for use in the Toquop area
76287	LCWD*	221	Tule Desert	APP	MUN	NW	SE	27	09\$	68E	3620	This application is for use in the Toquop area
76286	LCWD*	221	Tule Desert	APP	MUN	SW	NW	2	09\$	69E	3620	This application is for use in the Toquop area
76285	LCWD*	221	Tule Desert	APP	MUN	SE	SW	6	10S	69E	3620	This application is for use in the Toquop area
66932	LCWD†	221	Tule Desert	PER	MUN	SW	NW	4	10S	69E	2100	This application is for use in the Toquop area
90777	LCWD‡	222	Tule Desert	APP	Stocking	SE	SW	7	09\$	70E	5	
86464	LCWD*	222	Tule Desert	PER	Stocking	SW	NW	2	09\$	69E	4.48	
79357	LCWD*	222	Virgin River Valley	APP	MUN	NE	SE	32	12S	71E	7240	The application states that the water is to be used for the future growth and development of the LCCRDA property in the south east area of Lincoln County
79356	LCWD*	222	Virgin River Valley	APP	MUN	SE	NE	17	11S	69E	7240	The application states that the water is to be used for the future growth and development of the LCCRDA property in the south east area of Lincoln County
64695	LCWD*	222	Virgin River Valley	APP	MUN	NE	SE	32	12S	71E	7240	The application states that this water is to be used for development within the south east area of Lincoln County
64694	LCWD*	222	Virgin River Valley	APP	MUN	SE	NE	17	11\$	69E	7240	The application states that this water is to be used for development within the south east area of Lincoln County

^{*}Owner \rightarrow LCWD* = Shared ownership with Vidler, LCWD† = Shared ownership with Bighorn Ranch and Pouqot, LCWD‡ = Shared ownership with B&B Cattle LLC

^{**}Status → APP = Application, PER = Permitted

***Use → MUN = Municipal, IRR = Irrigation

***Duty → The annual duty shown is the permitted duty or the application duty, in that order of priority.

Table 2 - Water to Agriculture Under 100% Permitted Applications

Basin Name	Basin Number	Application Duty [AFA]	Assumed Permit Duty [AFA]	Primary Place of Use [POU]*	Water to Muncipal Use [AFA]	Water To Agricultural Use [AFA]	Irrigated Acres of Alfalfa**	No. of 125-Acre Alfalfa Pivots	No. of 640-Acre Surveyed Sections
Coal Valley	171	33,071.16	33,071.16	Coyote Springs	1,000.00	32,071.16	8,018	64.1	16.0
Garden Valley	172	26,063.75	26,063.75	Coyote Springs	1,000.00	25,063.75	6,266	50.1	12.5
Cave Valley	180	10,420.00	10,420.00	Coyote Springs	0.00	10,420.00	2,605	20.8	5.2
Dry Lake Valley	181	15,497.96	15,497.96	Coyote Springs	2,509.00	12,988.96	3,247	26.0	6.5
Delamar Valley	182	7,244.48	7,244.48	Coyote Springs	1,500.00	5,744.48	1,436	11.5	2.9
Hamlin Valley	196	31,856.00	31,856.00	Local Agriculture	0.00	31,856.00	7,964	63.7	15.9
Patterson Valley	202	37,647.31	37,647.31	Pioche	821.00	36,826.31	9,207	73.7	18.4
Clover Valley	204	28,960.00	28,960.00	Toquop/Caliente	7,864.00	21,096.00	5,274	42.2	10.5
Kane Springs Valley	206	18,376.00	18,376.00	Coyote Springs	1,000.00	17,376.00	4,344	34.8	8.7
Pahroc Valley	208	68,056.00	68,056.00	Coyote Springs	5,000.00	63,056.00	15,764	126.1	31.5
Tule Desert	221	31,065.00	31,065.00	Toquop	7,864.00	23,201.00	5,800	46.4	11.6
Virgin River Valley	222	28,960.00	28,960.00	Toquop	7,864.00	21096.00	5274	42.192	10.5
TOTALS	~	337,217.66	337,217.66	~	36,422.00	300,795.66	75,199	601.6	150.4

^{*}The primary place of use is assumed to be the municipal or industrial location so designated; permitted rights in excess of the baseline municipal or industrial use are assumed to be used for local agriculture, the initial crop assumed to be alfalfa.

Table 3 - Water to Agriculture Under 75% Permitted Applications

Basin Name	Basin Number	Application Duty [AFA]	Assumed Permit Duty [AFA]	Primary Place of Use [POU]*	Water to Muncipal Use [AFA]	Water To Agricultural Use [AFA]	Irrigated Acres of Alfalfa**	No. of 125-Acre Alfalfa Pivots	No. of 640-Acre Surveyed Sections
Coal Valley	171	33,071.16	24,803.37	Coyote Springs	1,000.00	23,803.37	5,951	47.6	11.9
Garden Valley	172	26,063.75	19,547.81	Coyote Springs	1,000.00	18,547.81	4,637	37.1	9.3
Cave Valley	180	10,420.00	7,815.00	Coyote Springs	0.00	7,815.00	1,954	15.6	3.9
Dry Lake Valley	181	15,497.96	11,623.47	Coyote Springs	2,509.00	9,114.47	2,279	18.2	4.6
Delamar Valley	182	7,244.48	5,433.36	Coyote Springs	1,500.00	3,933.36	983	7.9	2.0
Hamlin Valley	196	31,856.00	23,892.00	Local Agriculture	0.00	23,892.00	5,973	47.8	11.9
Patterson Valley	202	37,647.31	28,235.48	Pioche	821.00	27,414.48	6,854	54.8	13.7
Clover Valley	204	28,960.00	21,720.00	Toquop/Caliente	7,864.00	13,856.00	3,464	27.7	6.9
Kane Springs Valley	206	18,376.00	13,782.00	Coyote Springs	1,000.00	12,782.00	3,196	25.6	6.4
Pahroc Valley	208	68,056.00	51,042.00	Coyote Springs	5,000.00	46,042.00	11,511	92.1	23.0
Tule Desert	221	31,065.00	23,298.75	Toquop	7,864.00	15,434.75	3,859	30.9	7.7
Virgin River Valley	222	28,960.00	21,720.00	Toquop	7,864.00	13856.00	3464	27.712	6.9
TOTALS	~	337,217.66	252,913.24	~	36,422.00	216,491.24	54,123	433.0	108.2

^{*}The primary place of use is assumed to be the municipal or industrial location so designated; permitted rights in excess of the baseline municipal or industrial use are assumed to be used for local agriculture, the initial crop assumed to be alfalfa.

^{**}This calculation assumes a demand of 4.0 acre-feet of water per acre of alfalfa grown annually.

^{**}This calculation assumes a demand of 4.0 acre-feet of water per acre of alfalfa grown annually.

Table 4 - Water to Agriculture Under 50% Permitted Applications

Basin Name	Basin Number	Application Duty [AFA]	Assumed Permit Duty [AFA]	Primary Place of Use [POU]*	Water to Muncipal Use [AFA]	Water To Agricultural Use [AFA]	Irrigated Acres of Alfalfa**	No. of 125-Acre Alfalfa Pivots	No. of 640-Acre Surveyed Sections
Coal Valley	171	33,071.16	16,535.58	Coyote Springs	1,000.00	15,535.58	3,884	31.1	7.8
Garden Valley	172	26,063.75	13,031.87	Coyote Springs	1,000.00	12,031.87	3,008	24.1	6.0
Cave Valley	180	10,420.00	5,210.00	Coyote Springs	0.00	5,210.00	1,303	10.4	2.6
Dry Lake Valley	181	15,497.96	7,748.98	Coyote Springs	2,509.00	5,239.98	1,310	10.5	2.6
Delamar Valley	182	7,244.48	3,622.24	Coyote Springs	1,500.00	2,122.24	531	4.2	1.1
Hamlin Valley	196	31,856.00	15,928.00	Local Agriculture	0.00	15,928.00	3,982	31.9	8.0
Patterson Valley	202	37,647.31	18,823.66	Pioche	821.00	18,002.66	4,501	36.0	9.0
Clover Valley	204	28,960.00	14,480.00	Toquop/Caliente	7,864.00	6,616.00	1,654	13.2	3.3
Kane Springs Valley	206	18,376.00	9,188.00	Coyote Springs	1,000.00	8,188.00	2,047	16.4	4.1
Pahroc Valley	208	68,056.00	34,028.00	Coyote Springs	5,000.00	29,028.00	7,257	58.1	14.5
Tule Desert	221	31,065.00	15,532.50	Toquop	7,864.00	7,668.50	1,917	15.3	3.8
Virgin River Valley	222	28,960.00	14,480.00	Toquop	7864.00	6616.00	1654	13.232	3.3
TOTALS	~	337,217.66	168,608.83	~	36,422.00	132,186.83	33,047	264.4	66.1

^{*}The primary place of use is assumed to be the municipal or industrial location so designated; permitted rights in excess of the baseline municipal or industrial use are assumed to be used for local agriculture, the initial crop assumed to be alfalfa.

Table 5 - Water to Agriculture Under 25% Permitted Applications

Basin Name	Basin Number	Application Duty [AFA]	Assumed Permit Duty [AFA]	Primary Place of Use [POU]*	Water to Muncipal Use [AFA]	Water To Agricultural Use [AFA]	Irrigated Acres of Alfalfa**	No. of 125-Acre Alfalfa Pivots	No. of 640-Acre Sections in Pivots
Coal Valley	171	33,071.16	8,267.79	Coyote Springs	1,000.00	7,267.79	1,817	14.5	3.6
Garden Valley	172	26,063.75	6,515.94	Coyote Springs	1,000.00	5,515.94	1,379	11.0	2.8
Cave Valley	180	10,420.00	2,605.00	Coyote Springs	0.00	2,605.00	651	5.2	1.3
Dry Lake Valley	181	15,497.96	3,874.49	Coyote Springs	2,509.00	1,365.49	341	2.7	0.7
Delamar Valley	182	7,244.48	1,811.12	Coyote Springs	1,500.00	311.12	78	0.6	0.2
Hamlin Valley	196	31,856.00	7,964.00	Local Agriculture	0.00	7,964.00	1,991	15.9	4.0
Patterson Valley	202	37,647.31	9,411.83	Pioche	821.00	8,590.83	2,148	17.2	4.3
Clover Valley	204	28,960.00	7,240.00	Toquop/Caliente	7,240.00	0.00	0	0.0	0.0
Kane Springs Valley	206	18,376.00	4,594.00	Coyote Springs	1,000.00	3,594.00	899	7.2	1.8
Pahroc Valley	208	68,056.00	17,014.00	Coyote Springs	5,000.00	12,014.00	3,004	24.0	6.0
Tule Desert	221	31,065.00	7,766.25	Toquop	7,766.25	0.00	0	0.0	0.0
Virgin River Valley	222	28,960.00	7,240.00	Toquop	7240.00	0.00	0	0	0.0
TOTALS	~	337,217.66	84,304.41	~	35,076.25	49,228.16	12,307	98.5	24.6

^{*}The primary place of use is assumed to be the municipal or industrial location so designated; permitted rights in excess of the baseline municipal or industrial use are assumed to be used for local agriculture, the initial crop assumed to be alfalfa.

^{**}This calculation assumes a demand of 4.0 acre-feet of water per acre of alfalfa grown annually.

^{**}This calculation assumes a demand of 4.0 acre-feet of water per acre of alfalfa grown annually.

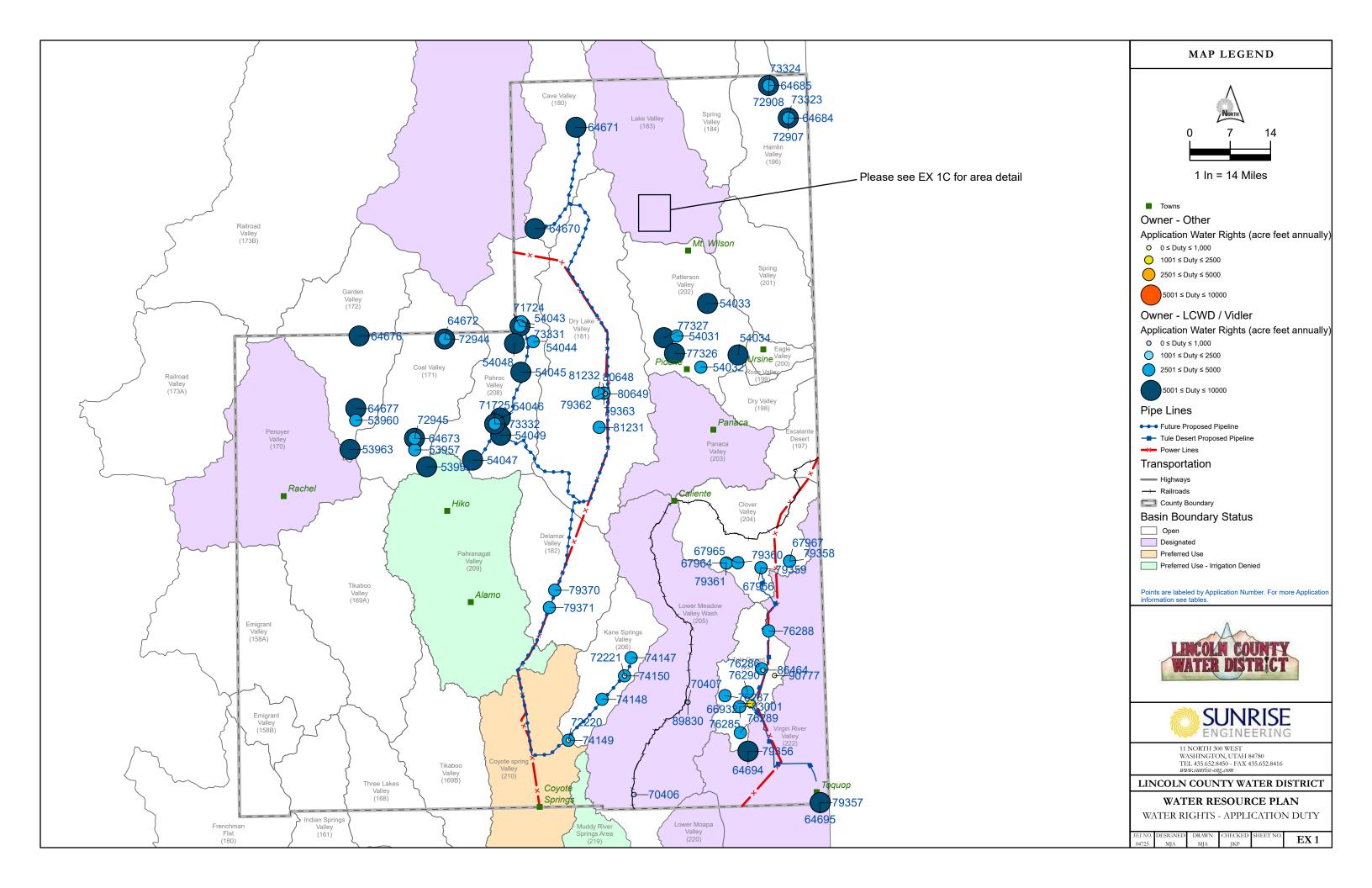
APPENDIX B

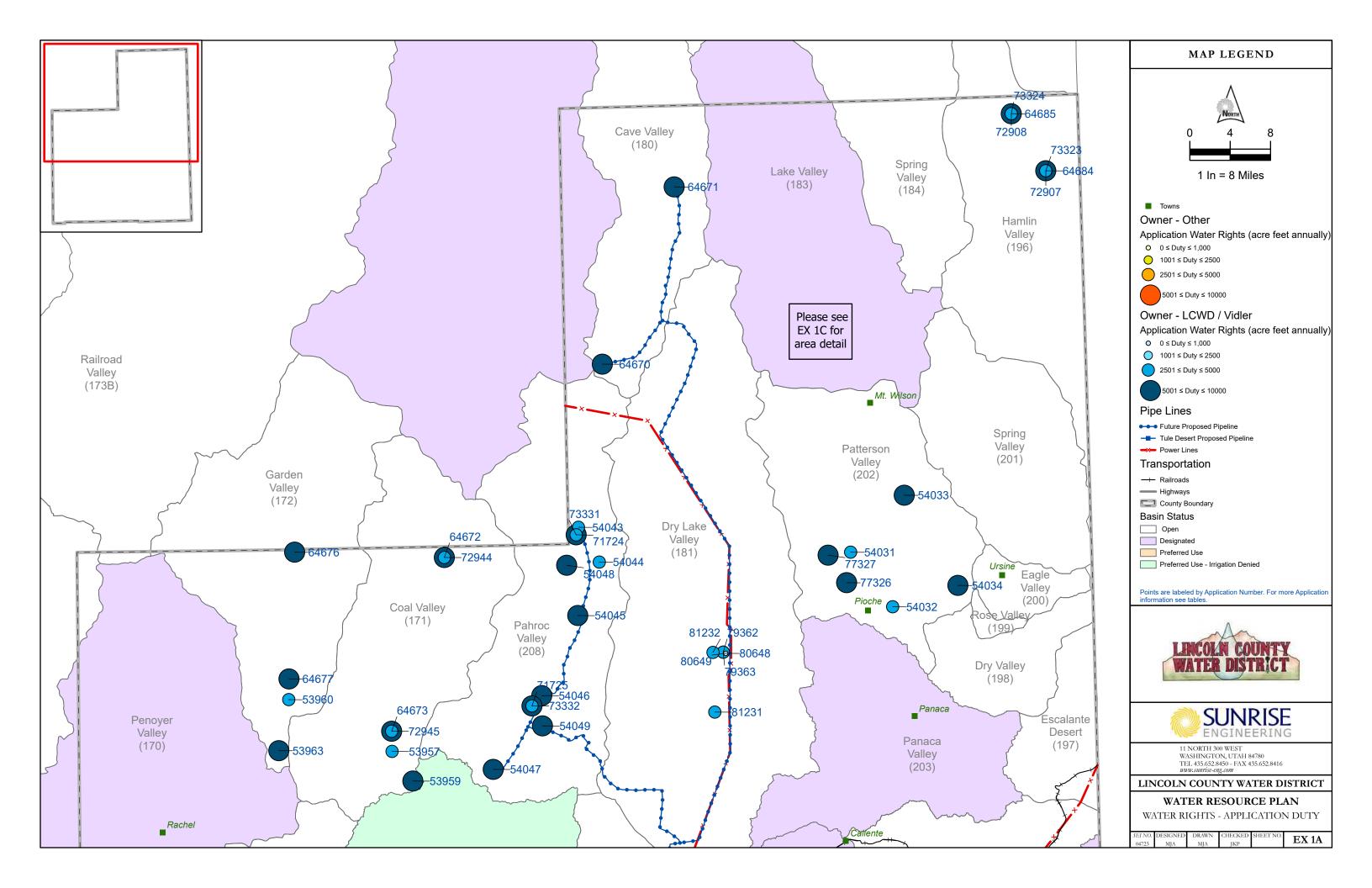
APPENDIX B

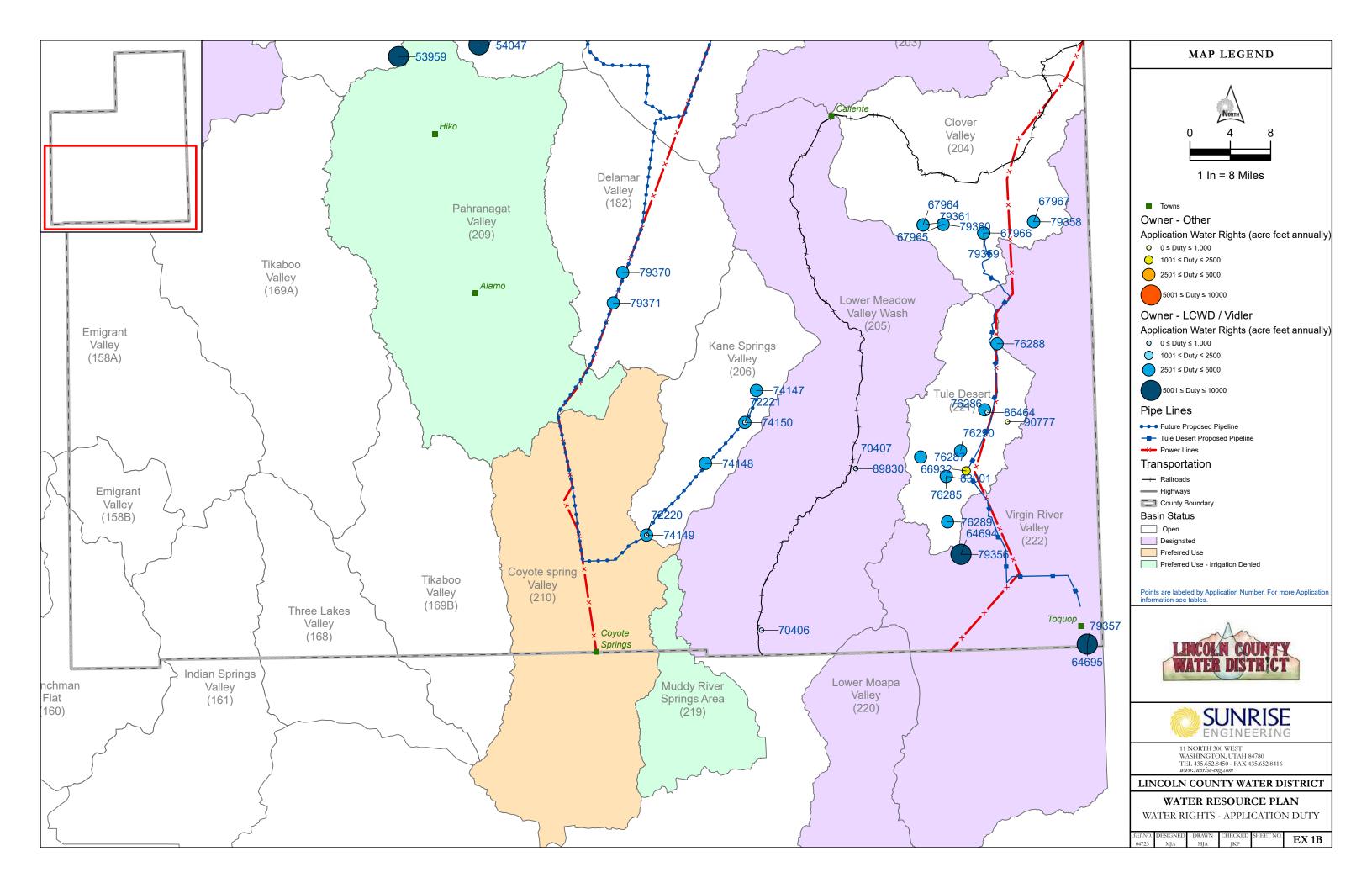
MISCELLANEOUS FIGURES

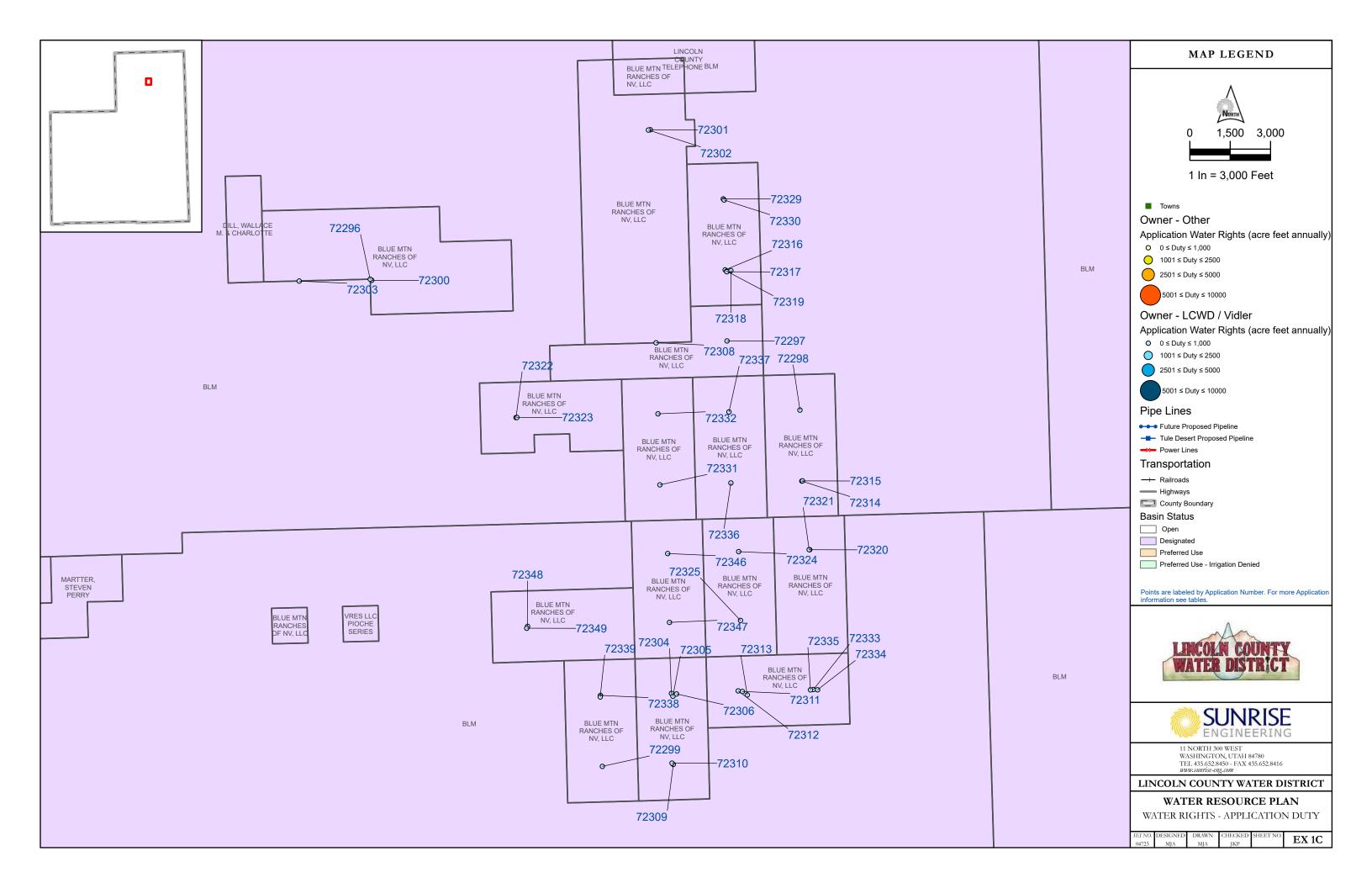


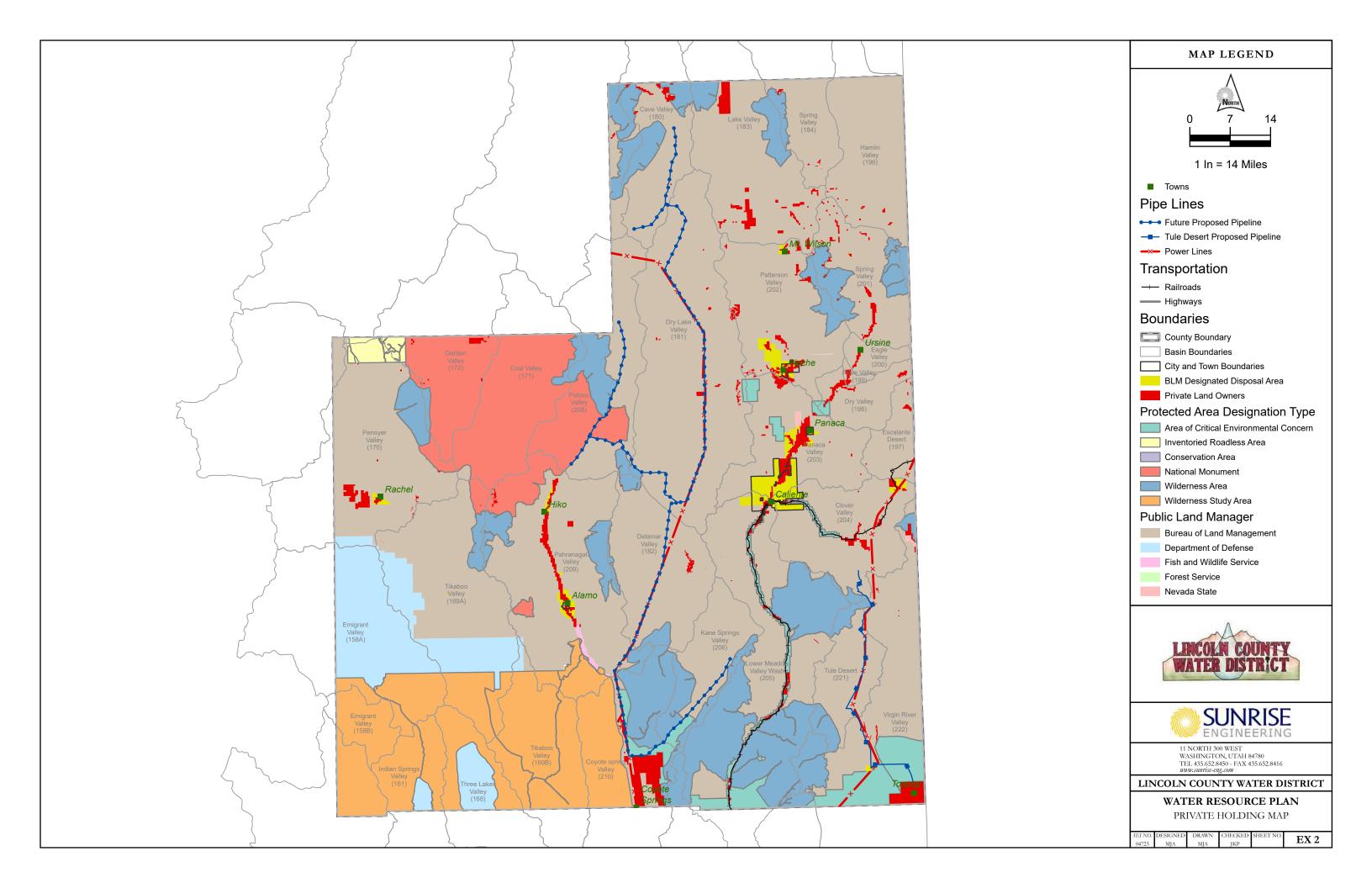


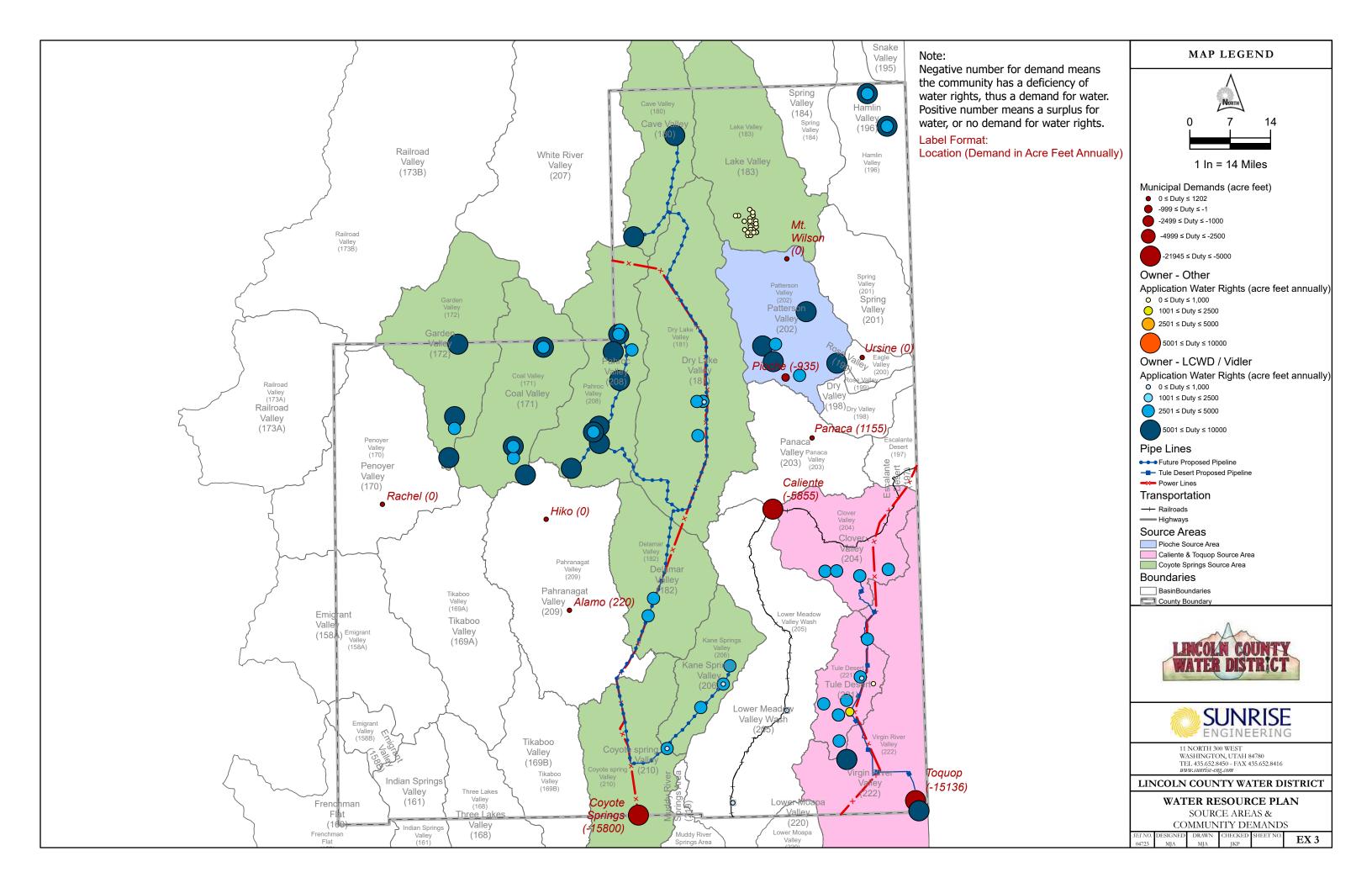


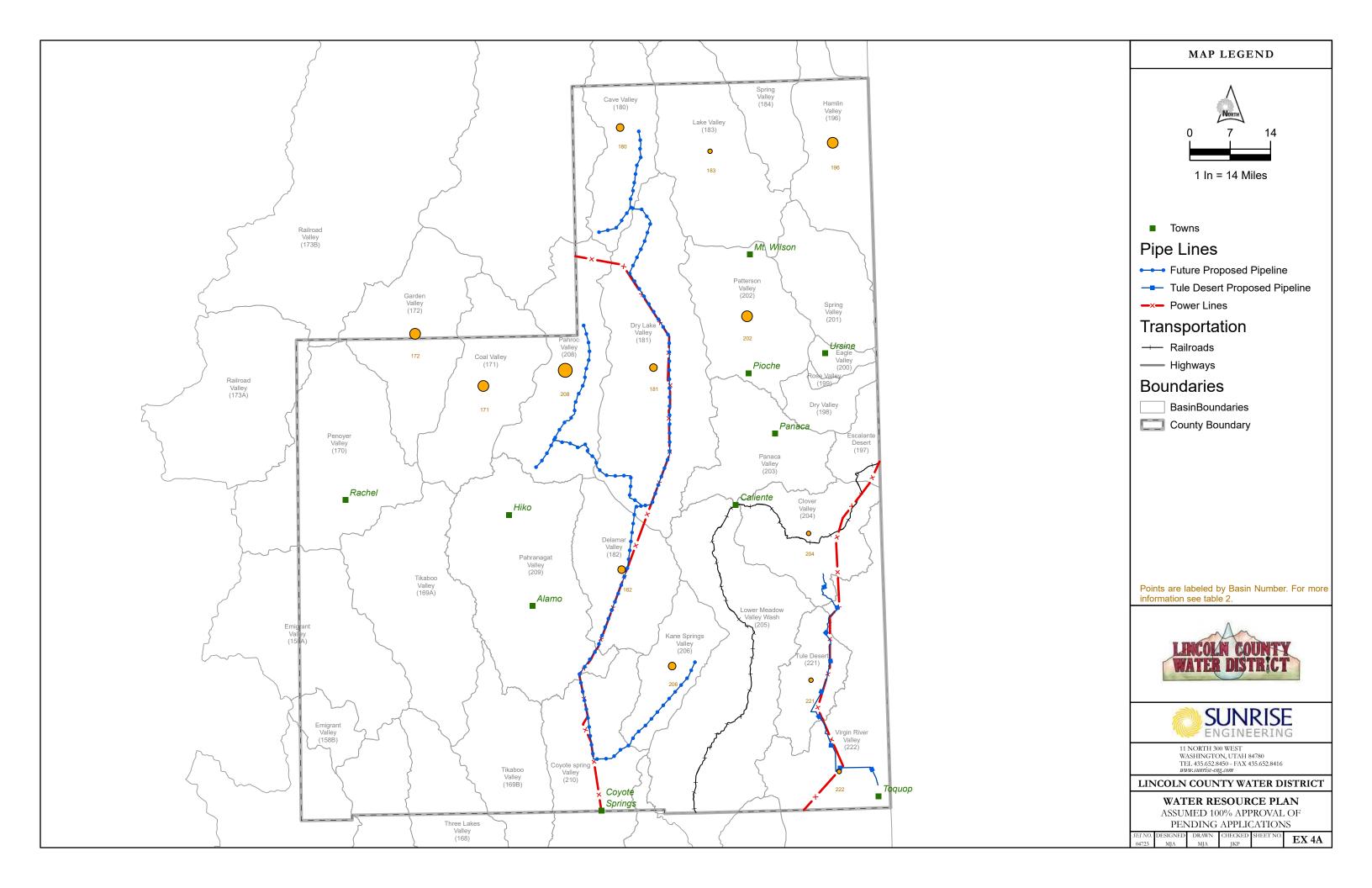


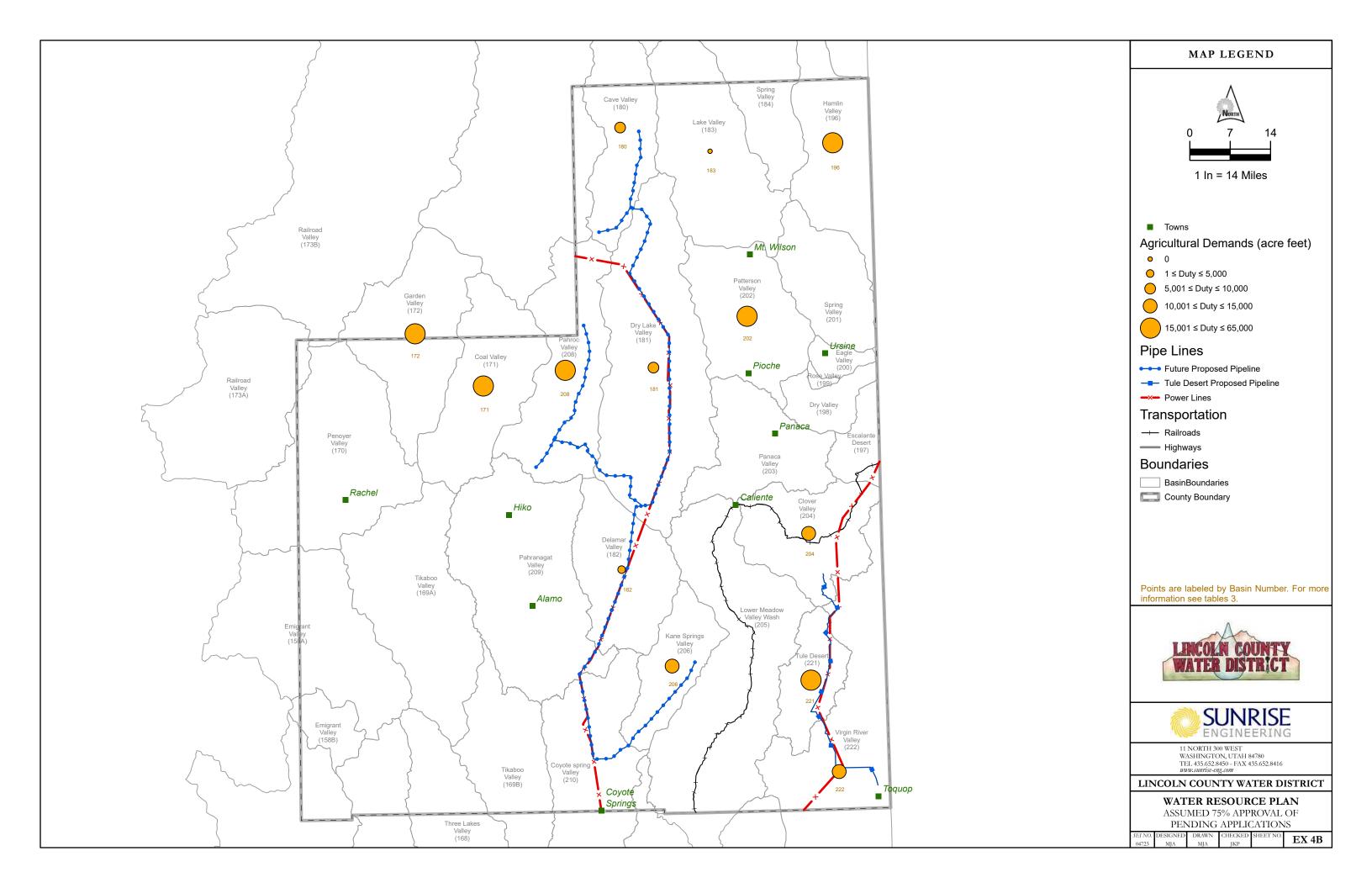


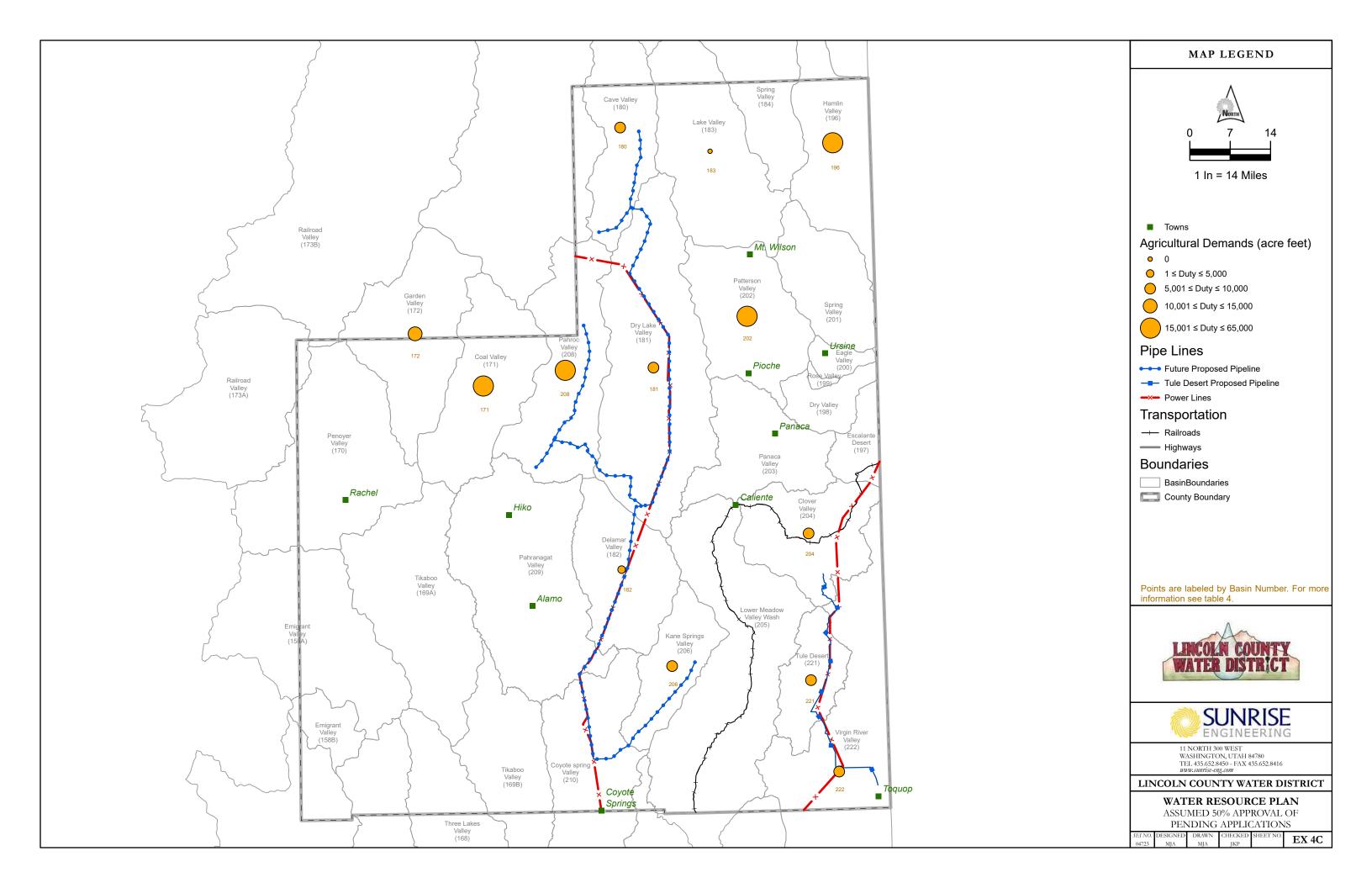


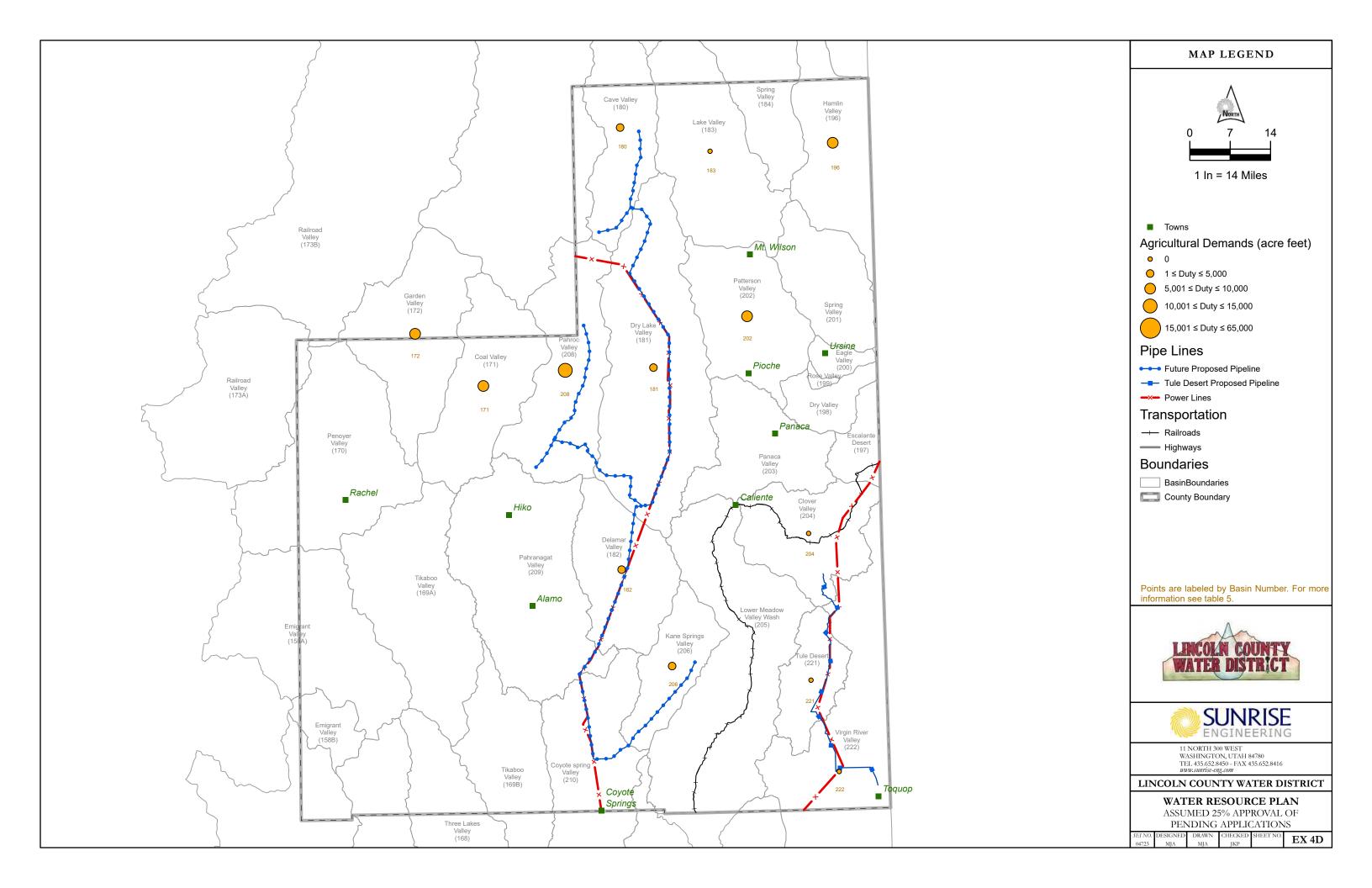












APPENDIX B

BASIN ANALYSIS FIGURES





