

1. 2022 0201 Engineering & Operations Committee Agenda Packet

Documents:

[2022 0201 ENGINEERING COMMITTEE AGENDA PACKET.PDF](#)



VALLEY COUNTY WATER DISTRICT
14521 RAMONA BOULEVARD
BALDWIN PARK, CA 91706
OFFICE: (626) 338-7301 / FAX (626) 814-2973
<http://www.vcwd.org>

ENGINEERING & OPERATIONS COMMITTEE MEETING

The Public Affairs & Education Committee is responsible for discussing and reviewing on going operation and maintenance projects and focusing on long term planning and revisions to the District Master Plan

DATE & LOCATION:

Tuesday, February 1, 2022, 11:30 AM

COMMITTEE MEMBERS:

Javier E. Vargas, Chairperson
Ralph Galvan, Co-Chairperson
Jazmin Lopez, Alternate Member

TELECONFERENCE ACCESS

Pursuant to AB 361 signed by Governor Newsom in response to the COVID-19 outbreak as a precaution to protect staff, our constituents, and elected officials, the Valley County Water District will hold its Board meeting via teleconference or the most rapid means of communication available at the time.

Webex: www.webex.com

Meeting Number: 2553 052 3930

Password: 44546

Direct Meeting Link:

<https://valleycountywaterdistrict.my.webex.com/valleycountywaterdistrict.my/j.php?MTID=m4f78b4d26cf26388f40055f826e0506e>

Join by Phone

Phone Number: (415) 655-0001

Access Code: 2553 052 3930

Password: 44546

A. CALL TO ORDER**B. PUBLIC COMMENT****C. DISCUSSION/INFORMATION ITEMS**

1. DRAFT of the 2021 Master Plan
2. Capital Improvement Projects Update

D. ADJOURNMENT

Next Meeting Scheduled: To Be Determined.



VALLEY COUNTY WATER DISTRICT
Engineering & Operations Committee
Tuesday, February 1, 2022

AGENDA ITEM:

A

CALL TO ORDER

Meeting Called to Order At: _____

Meeting Chaired By: _____

Others Present:

- _____
- _____
- _____
- _____
- _____



VALLEY COUNTY WATER DISTRICT
Engineering & Operations Committee
Tuesday, February 1, 2022

AGENDA ITEM:

B

PUBLIC COMMENT

❖ Anyone wishing to discuss items on and not on the agenda may do so at this time. A three-minute time limit on remarks is requested.

MEMBERS OF THE PUBLIC:

COMMENTS:

❖ _____

❖ _____

❖ _____



VALLEY COUNTY WATER DISTRICT
Engineering & Operations Committee
Tuesday, February 1, 2022

AGENDA ITEM: **C1** **PRESENTATION / DISCUSSION**
DRAFT of the 2021 Water Master Plan



Executive Summary

General Description

In 1925, Valley County Water District (District) was formed and incorporated in January 1926 under the name Baldwin Park County Water District. On January 1, 1978, its name was officially changed to Valley County Water District.

The District’s sphere of influence (SOI) is 9.4 square miles and encompasses portions of Baldwin Park, Azusa, Irwindale, and West Covina. The District serves a current (2020) population of approximately 68,481 with 12,502 different connections and over 113 miles of transmission and distribution pipelines.

The District’s previous WMP was completed in 2014 and the District wishes to update its WMP to continue its efforts of improving its infrastructure.

Population

The population of the District’s service area was taken into account in order to estimate the impact any growth will on the distribution system. The District’s 2020 Urban Water Management Plan (UWMP) contains the District’s population analysis. The current and projected population of the District that was published in the 2020 UWMP is shown in the table below.

“Current and Projected Population”

Year	2020	2025	2030	2035	2040
Population	68,481	69,065	69,655	70,250	70,849

Land Usage

Land use has a large effect on water demand within a provider’s service area. Land use within the District’s service area is affected by four planning jurisdictions: Azusa, Baldwin Park, Irwindale and West Covina. The number of parcels and associated acreage of land usage designation within the District’s service area are shown in in the tables below. These values are as of late October 2020 and do not consider planned developments or pending land usage changes.



“Parcels by City and Land Usage Designation”

Land Usage Designation	Azusa	Baldwin Park	Irwindale	West Covina	Total
Single Family Residential	-	7,434	296	256	7,986
Multi-Family Residential	-	1,312	1	23	1,336
Mobile Homes and Trailer Parks	-	1	1	-	2
General Office Use/Commercial and Services	-	264	66	5	335
Public Facilities	-	87	15	-	102
Educational Institutions	-	9	-	-	9
Industrial	12	251	200	37	500
Utility Facilities	-	1	6	-	7
Transportation	-	13	-	-	13
Open Space and Recreation	-	308	33	-	342
Unknown	-	-	2	-	
Total	12	9,680	620	321	10,634

“Acreage by City and Land Usage Designation”

Land Usage Designation	Azusa	Baldwin Park	Irwindale	West Covina	Total
Single Family Residential	-	1,174	53	51	1,278
Multi-Family Residential	-	315	1	9	325
Mobile Homes and Trailer Parks	-	1	1	-	2
General Office Use/Commercial and Services	-	156	141	3	301
Public Facilities	-	62	41	-	103
Educational Institutions	-	134	-	-	134
Industrial	35	194	661	53	943
Utility Facilities	-	2	12	-	15
Transportation	-	7	-	-	7
Open Space and Recreation	-	200	1,838	-	1,988
Unknown	-	-	1	-	1
Total	35	2,245	2,749	116	5,143

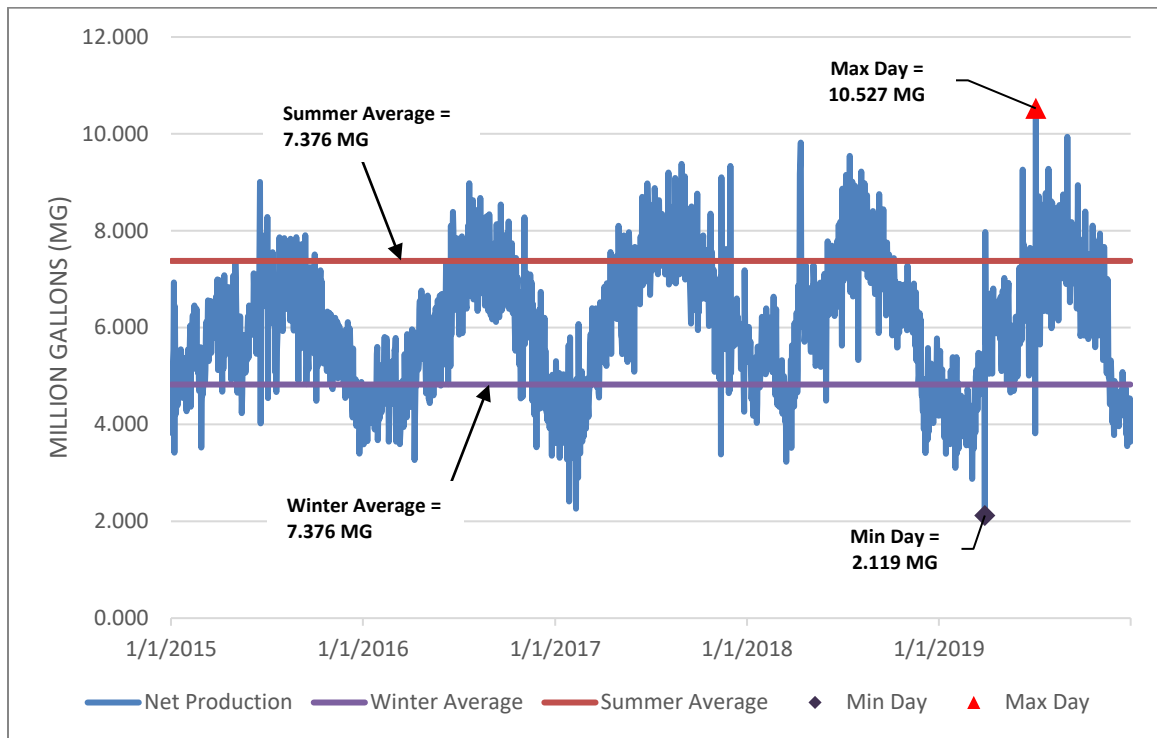


Water Demand

Water demand in a service area is affected by not only customer usage, but also water uses whose revenue cannot be recovered and other forms of unaccounted for water. Some examples of these water losses are water quality sampling, flushing, pumping to waste, hydrant testing, fire suppression, unmetered construction water, street cleaning water, leaks, reconciliation of inaccurate meters, unauthorized uses, pipe breaks, and undocumented maintenance.

The District produces water from the Main San Gabriel Basin using groundwater wells. Historical production data of each water source during the study period was provided by the District and has been summarized in the figure below.

Historical Production Demand



Peaking Factors (PF) compare peak demand conditions to the annual average to summarize water demand fluctuation in a distribution system. The Peaking Factors consist of Average Daily Demand (ADD), Maximum Daily Demand (MDD), Minimum Daily Demand (Min Day), and Peak Hour Demand (PHD).

ADD is the statistical average for the study period. MDD and Min Day were found by sorting the data set. Since there is no direct data describing fluctuation on an hourly basis, Per the California Code of Regulations Title 22 Section 64554, PHD is taken as 1.5 times the MDD. The analysis on the historical production data resulted in the demand peaking factors shown in the table below “Peaking Factors”.



“Peaking Factors”

Demand Condition	Abbr.	MGD	GPM	PF	Date
Average Day Demand	ADD	6.069	4,215	1.00	2015 to end of 2019
Maximum Day Demand	MDD	10.527	7,310	1.73	Thursday, July 4, 2019
Minimum Day Demand	Min Day	2.119	1,471	0.35	Friday, March 29, 2019
Peak Hour Demand	PHD	15.779	10,958	2.60	Per CA Code Standard

Water duty factors and unit demand factors were obtained and summarized in the table below using the billing data and land use records.

“Water Duty Factors Summary (Average)”

Water Duty Factor	AFY	gpm	Acre	AFY/ac	gpm/ac	AFY/unit	gpm/unit	unit
Single Family Residential	3,782	2,345	1,278	2.96	1.83	0.486	0.301	DU
Multi-Family Residential	570	354	327	1.74	1.08	0.758	0.470	DU
Retail and Commercial	1,220	757	301	4.05	2.51	0.093	0.058	1,000 sqft
Industrial	253	157	940	0.27	0.17	0.006	0.004	1,000 sqft
Public Facilities/Govt	172	107	103	1.67	1.04	0.038	0.024	1,000 sqft
Educational Institutions	317	196	134	2.36	1.47	0.054	0.034	1,000 sqft

The build out demand was estimated based on current land use planning. This was done by multiplying the acreage associated with each land use category shown with its appropriate water duty factor.

No duty factors were created for Utility Facilities, Transportation, Open Space/Recreation, or Unknown since there is no data tied with the other land usages. Those land usage designations were not taken inconsideration for the build-out demands summarized below. By utilizing this water duty factor method to forecast the demand, the build-out demand was estimated to be 6,311 AFY or 3,913 gpm as shown in the Build Out Demands table below.



“Build Out Demands Estimate using Land Use Planning.”

Land Usage Designation	Area (AC)	AFY per AC	AFY
Single Family Residential	1,278	2.96	3,782
Multi-Family Residential	327	1.74	570
General Office Use/Commercial and Services	300	4.05	1,216
Public Facilities	103	1.67	172
Educational Institutions	134	2.36	317
Industrial	943	0.27	254
Total			6,311

Water Supply

The District’s water supply is entirely due to local groundwater from the Main San Gabriel Basin, but it also has access to imported water from Upper San Gabriel Valley Municipal Water District (Upper District) and Covina Irrigation Company (CIC).

The District has an adjudicated right to 2.92206% of the operating safe yield (OSY) of the Main San Gabriel Basin. In the 2018-2019 Annual Report for the Main San Gabriel Basin Watermaster, it was stated that Park Water Company provided a permanent transfer to VCWD of an adjudicated right of 0.09311% of the OSY resulting in water rights to be 3.01517% of the 150,000 AF OSY.

As a party to the Main San Gabriel Basin adjudication, there is no limit to the quantity of groundwater that may be extracted, although replacement water must be purchased from Upper District for any volume beyond the sum of VCWD’s share of the Operating Safe Yield and any temporary leases or purchases from other parties to the judgment that VCWD may arrange on its customers’ behalf. Based on historical data related to groundwater production, VCWD has successfully produced up to 6,858 AFY of groundwater beyond its transfer commitments.

Imported water from Upper District or CIC is typically only used for emergency purposes or when groundwater production is temporarily unavailable.

VCWD continues to maintain no long-term contracts or commitments with Upper District. The connection between VCWD and Upper District, USG-9, is currently not in use.

The District is a shareholder of CIC. As of March 2020, VCWD owns 11 shares of CIC’s stock. Each share translates to approximately 1 AFY. Typically, VCWD only imports water from CIC in an amount equal to its allotment; however, the exact amount imported in any given year may vary according to use of a carry-over account, direct purchase of excess water from CIC, lease of water rights from another agency, or other types of transfers and transactions.



Current Infrastructure

In order to meet customer water demand, the District has the following infrastructure:

- Four system active wells
- Four inactive wells
- Imported water from Upper District and CIC
- Five inactive and Four active emergency interconnections
- Six booster pump stations which include a total of 19 booster pumps
- Four pressure reducing stations
- Six storage tanks containing a total of 10 million gallons
- 595,586 feet (113 miles) of pipeline
- Three Liquid Phase Granulated Activated Carbon (LPGAC) treatment facilities
- Three sodium hypochlorite disinfection stations

Current Water Model

As part of the water master planning effort, the VCWD Water Model was updated based on fire flows, available data for pump efficiency, operational control, system performance and demand allocation based on 2018 billing data.

The Water Model was programmed to perform various types of simulations such as steady state and fire flow events under varying demand conditions (ADD, MDD, PHD). The results of the simulations were evaluated against design criteria to determine the nature and magnitude of any hydraulic issues.

Analysis Results

The distribution system's performance and capacity and all facilities were evaluated against the design and planning criteria in Chapter 7. These criteria help evaluate a replacement criterion for components and act as a guide to develop infrastructure recommendations to meet future conditions.

Infrastructure Recommendations

- Construct or acquire additional groundwater production capacity equivalent to the future deficit under the primary criteria (approximately 288 gpm)
- Construct 4.84 MG of storage in the near term and construct an additional 1.18 MG of storage in the long term
- Increase booster capacity in the Morada Zone by 2,800 gpm to support MDD+FF requirements



Cyclical Replacement Recommendations

Over the next ten years, the following numbers of items should be scheduled to be done based on their life cycles:

- 62,273 feet of pipe replacement (see Section 6.2.1)
- 3 pump overhauls (see Section 6.2.2)
- 4 pump replacements (see Section 6.2.2)
- 7 control valve replacements (see Section 6.2.3)
- 3 storage tank recoatings (see Section 6.2.4)
- 5,683 water meter replacements (see Section 6.2.8)
- Additional SCADA equipment/upgrades (see Section 6.2.9)

Capital Improvements Program

The capital projects listed are considered on a 10-year planning horizon. Priority for projects is provided but is meant for the purpose of assisting with scheduling and implementation rather than being a rigid deadline. The pipeline improvements project rating breakdown as shown in the table below is provided as Appendix E. It is recommended to corroborate current conditions in the field with operations prior to implementation of these recommendations.

“Pipeline Replacement Candidates by Rating”

Priority	CIP#	Report Section	Recommended Improvement	LF for CIP	Rating
High	1	6.3.2.1	La Rica Avenue Pipeline Improvements	8,865	5.00
High	2	6.3.2.2	Paddy Lane and Adoue Place Pipeline Improvements	2,180	3.65
High	3	6.3.2.3	Benham and Palm Avenue Pipeline Improvements	2,430	3.55
High	4	6.3.2.4	Walnut Street Pipeline Improvements	696	3.20
High	5	6.3.2.5	Hallwood Drive Pipeline Improvements	1,930	3.10
High	6	6.3.2.6	Anniston Avenue Pipeline Improvements	1,261	3.10
Med	7	6.3.2.7	Landis Avenue Pipeline Improvements	7,410	2.75
Med	8	6.3.2.8	Feather Avenue Pipeline Improvements	3,960	2.65
Med	9	6.3.2.9	Borel Street Pipeline Improvements	700	2.65
Med	10	6.3.2.10	La Sena Avenue Pipeline Improvements	679	2.65
Med	11	6.3.2.11	Fortin Street Pipeline Improvements	1,349	2.65



Priority	CIP#	Report Section	Recommended Improvement	LF for CIP	Rating
Med	12	6.3.2.12	Bogart and Downing Avenue Pipeline Improvements	1,393	2.40
Med	13	6.3.2.13	Maine Avenue Pipeline Replacement	1,121	2.40
Med	14	6.3.2.14	Park Avenue Pipeline Improvements	1,303	2.30
Med	15	6.3.2.15	Los Angeles Street Pipeline Improvements	887	2.30
Med	16	6.3.2.16	Heintz and Cragmont Street Pipeline Improvements	1,606	2.30
Med	17	6.3.2.17	Elizabeth Avenue Pipeline Improvements	1,267	2.30
Med	18	6.3.2.18	Garvey Avenue Pipeline Improvements	485	2.30
Med	19	6.3.2.19	Millbury Avenue Pipeline Improvements	3,435	2.20
Low	20	6.3.2.20	Arrow Highway Pipeline Improvements	1,855	1.95
Low	21	6.3.2.21	Torrey Street Pipeline Improvements	1,867	1.75
Low	22	6.3.2.22	Pacific Avenue Pipeline Replacement	845	1.75
Low	23	6.3.2.23	Calais Street Pipeline Improvements	2,112	1.75
Low	24	6.3.2.24	Alta Lake and Landis Avenue Pipeline Improvements	632	1.75
Low	25	6.3.2.25	Larry Avenue Pipeline Improvements	1,435	1.75
Low	26	6.3.2.26	Cragmont and Sandstone Street Pipeline Improvements	1,305	1.75
Low	27	6.3.2.27	Downing Avenue and Masline Street Pipeline Improvements	1,285	1.60
Low	28	6.3.2.28	Stewart Avenue Pipeline Replacement	676	1.60
Low	29	6.3.2.29	Kenmore Avenue Pipeline Improvements	1,304	1.40
Low	30	6.3.2.30	Ott Place and Landis Avenue Pipeline Improvements	1,600	1.40
Low	31	6.3.2.31	Chilcot Street Pipeline Improvements	1,939	1.40
Low	32	6.3.2.32	Benham Avenue Pipeline Improvements	764	1.40
Low	33	6.3.2.33	Illinois Street Pipeline Improvements	692	1.05
Low	34	6.3.2.34	Joanbridge Street – Transmission Main Improvements	1,005	1.05
Total Linear Footage of CIP Projects				62,273	



“Capital Projects Costs”

Category	Priority	Recommended Improvement	Construction Cost	Engineering Cost	Admin and Inspection Cost	Contingency	Total Cost
Pipeline	High	La Rica Avenue Pipeline Improvements	\$3,102,750	\$155,138	\$232,706	\$310,275	\$3,800,869
	High	Paddy Lane and Adoue Place Pipeline Improvements	\$763,000	\$38,150	\$57,225	\$76,300	\$934,675
	High	Benham and Palm Avenue Pipeline Improvements	\$850,500	\$42,525	\$63,788	\$85,050	\$1,041,863
	High	Walnut Street Pipeline Improvements	\$243,600	\$12,180	\$18,270	\$24,360	\$298,410
	High	Hallwood Drive Pipeline Improvements	\$675,500	\$33,775	\$50,663	\$67,550	\$827,488
	High	Anniston Avenue Pipeline Improvements	\$441,350	\$22,068	\$33,101	\$44,135	\$540,654
	High	Landis Avenue Pipeline Improvements	\$2,593,500	\$129,675	\$194,513	\$259,350	\$3,177,038
	Med	Feather Avenue Pipeline Improvements	\$1,386,000	\$69,300	\$103,950	\$138,600	\$1,697,850
	Med	Borel Street Pipeline Improvements	\$245,000	\$12,250	\$18,375	\$24,500	\$300,125
	Med	La Sena Avenue Pipeline Improvements	\$237,650	\$11,883	\$17,824	\$23,765	\$291,121
	Med	Fortin Street Pipeline Improvements	\$472,150	\$23,608	\$35,411	\$47,215	\$578,384
	Med	Bogart and Downing Avenue Pipeline Improvements	\$487,550	\$24,378	\$36,566	\$48,755	\$597,249
	Med	Maine Avenue Pipeline Replacement	\$504,450	\$25,223	\$37,834	\$50,445	\$617,951
	Med	Park Avenue Pipeline Improvements	\$456,050	\$22,803	\$34,204	\$45,605	\$558,661



Category	Priority	Recommended Improvement	Construction Cost	Engineering Cost	Admin and Inspection Cost	Contingency	Total Cost
	Med	Los Angeles Street Pipeline Improvements	\$487,850	\$24,393	\$36,589	\$48,785	\$597,616
	Med	Heintz and Cragmont Street Pipeline Improvements	\$722,700	\$36,135	\$54,203	\$72,270	\$885,308
	Med	Elizabeth Avenue Pipeline Improvements	\$443,450	\$22,173	\$33,259	\$44,345	\$543,226
	Med	Garvey Avenue Pipeline Improvements	\$218,250	\$10,913	\$16,369	\$21,825	\$267,356
	Med	Millbury Avenue Pipeline Improvements	\$1,202,250	\$60,113	\$90,169	\$120,225	\$1,472,756
	Low	Arrow Highway Pipeline Improvements	\$1,020,250	\$51,013	\$76,519	\$102,025	\$1,249,806
	Low	Torrey Street Pipeline Improvements	\$653,450	\$32,673	\$49,009	\$65,345	\$800,476
	Low	Pacific Avenue Pipeline Replacement	\$380,250	\$19,013	\$28,519	\$38,025	\$465,806
	Low	Calais Street Pipeline Improvements	\$739,200	\$36,960	\$55,440	\$73,920	\$905,520
	Low	Alta Lake and Landis Avenue Pipeline Improvements	\$221,200	\$11,060	\$16,590	\$22,120	\$270,970
	Low	Larry Avenue Pipeline Improvements	\$502,250	\$25,113	\$37,669	\$50,225	\$615,256
	Low	Cragmont and Sandstone Street Pipeline Improvements	\$456,750	\$22,838	\$34,256	\$45,675	\$559,519
	Low	Downing Avenue and Masline Street Pipeline Improvements	\$449,750	\$22,488	\$33,731	\$44,975	\$550,944
	Low	Stewart Avenue Pipeline Replacement	\$304,200	\$15,210	\$22,815	\$30,420	\$372,645



Executive Summary

Valley County Water District

Category	Priority	Recommended Improvement	Construction Cost	Engineering Cost	Admin and Inspection Cost	Contingency	Total Cost
	Low	Kenmore Avenue Pipeline Improvements	\$456,400	\$22,820	\$34,230	\$45,640	\$559,090
	Low	Ott Place and Landis Avenue Pipeline Improvements	\$560,000	\$28,000	\$42,000	\$56,000	\$686,000
	Low	Chilcot Street Pipeline Improvements	\$678,650	\$33,933	\$50,899	\$67,865	\$831,346
	Low	Benham Avenue Pipeline Improvements	\$267,400	\$13,370	\$20,055	\$26,740	\$327,565
	Low	Illinois Street Pipeline Improvements	\$242,200	\$12,110	\$18,165	\$24,220	\$296,695
	Low	Joanbridge Street - Transmission Main Improvements	\$552,475	\$27,624	\$41,436	\$55,248	\$676,782
Pump	Med	3 Pump Overhauls	\$75,000	NA*	NA*	\$7,500	\$82,500
	Med	4 Pump Replacement	\$400,000	NA*	NA*	\$40,000	\$440,000
	Med	1 Pump Additions	\$500,000	NA*	NA*	\$50,000	\$550,000
Control Valve	Med	7 Valve Replacements	\$140,000	NA*	NA*	\$14,000	\$154,000
	Med	1 Valve Additions	\$150,000	NA*	NA*	\$15,000	\$165,000
Storage	Med	3 Storage Recoatings	\$1,500,000	NA*	NA*	\$150,000	\$1,650,000
Meters	Med	5,683 Water Meter Replacements	\$3,409,800	NA*	NA*	\$340,980	\$3,750,780
Generator	High	1 Generator	\$250,000	NA*	NA*	\$25,000	\$275,000
SCADA	High	Additional Upgrade/ Equipment	\$55,000	\$2,750	\$4,125	\$5,500	\$67,375
	Med	Additional Upgrade/ Equipment	\$500,000	\$25,000	\$37,500	\$50,000	\$612,500
Total Cost							\$35,944,175
* = no cost needed for the improvement							



VALLEY COUNTY WATER DISTRICT
Engineering & Operations Committee
Tuesday, February 1, 2022

AGENDA ITEM: **C2** **PRESENTATION / DISCUSSION**
Capital Improvement Projects Update
