



**Documents Related to 4.201 [Major New Domestic Water/Wastewater]**

1. Preliminary Review by CDPHE and CDNR
2. Water System Scope of Proposal
3. Demonstration of Need
4. Water Source
5. Loss of Agricultural Productivity
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## Documents Related to 4.201 [Major New Domestic Water/Wastewater]

### 1. Preliminary Review by CDPHE and CDNR:

- a) *Preliminary review and comment on the proposal by the appropriate agency of the Colorado Department of Natural Resources and the Colorado Department of Public Health and Environment within sixty (60) days of the date of submittal of the proposal for review.*

The Colorado Division of Water Resources will issue an opinion of the proposed water supply through the PUD process. They are also the agency that will issue well permits.

The following documents will be submitted to the Colorado Department of Public Health and Environment (CDPHE) for review and approval:

- i. Site Location Application for both lift stations
- ii. Construction documents and Basis of Design Report (BDR) for both lift stations and force mains
- iii. BDR for the water system including water treatment facility, source water (wells) and storage tank.
- iv. Construction documents for the water treatment facility, storage tanks and wells.

Copies of all CDPHE approvals shall be provided to El Paso County as they are received. The permitting and design approvals by CDPHE are anticipated to be issued beginning in mid-2022 through mid-2023.

### 2. Water System Scope of Proposal:

- a) *Scope of Proposal:*

*Provide detailed plans of the proposal, including proposed system capacity and service area plans mapped at a scale acceptable to the Department.*

The proposed project consists of the water infrastructure necessary to support development within the Grandview Reserve Metropolitan District (GRMD). The water infrastructure includes source water wells, water treatment facilities, water storage tanks and the associated piping.

The wells will be Denver Basin wells typically with 2 wells (one Arapahoe and one Laramie Fox Hills) per well site. Exhibit DD contains a map of the proposed well sites within GRMD. The total number of well sites to be developed will be dependent on well production and the rate of development.

A total of up to 3 water treatment facilities are planned for the project. All water treatment facilities will utilize pressure sand filtration and iron and manganese precipitation to treat raw water from the wells. The capacity of each water treatment facility will be determined by the filings that it will serve. The first water treatment facility will be sized to treat approximately 0.5 MGD with room to expand to 1.0 MGD. The total treatment capacity needed for full buildout of GRMD is approximately 3.0 MGD. Exhibit DD shows the proposed locations of the water treatment facilities.

Once treated at the water treatment facilities, water will be stored in tanks. Multiple tanks will be constructed to serve the project, at up to 3 different sites identified in Exhibit DD. The tanks will be sized to store 24 hours of average daily flow and the fire flow requirement. The first tank is anticipated to be approximately 400,000 gallons. The size and number of future tanks will be determined as development progresses. Total storage capacity for the development at buildout is anticipated to be 1.5-2.5 million gallons. The total storage required will be determined by the building with the largest fire flow requirement. The raw and potable water facilities will be connected by water lines ranging from 4"-16" diameter as depicted in Exhibit DD.

The project also includes wastewater infrastructure to support development within GRMD and 4-Way Ranch Metropolitan District (4RMD). The wastewater infrastructure includes two lift stations and force mains as well as two gravity interceptor alignments. The wastewater infrastructure will convey the wastewater from GRMD and 4RMD to the Cherokee Metropolitan District (CMD) Water Reclamation Facility (WRF) for treatment as depicted in Exhibit EE.

It is anticipated that parallel force mains will be installed in the force main alignments as shown in Exhibit EE. A 6" diameter force main will be installed to convey flows during the early stages of development so that flushing velocities of 3.5 ft/s can be achieved with minimal water added. A second force main will be 10"-16" to convey the remainder of the wastewater flows for full build-out. The gravity lines are anticipated to be 15"-18" diameter and the exact size will be determined once a design profile is developed and the minimum slope is known. The force mains shall be approximately 25,400 ft and the gravity interceptors shall be approximately 29,600 ft.

The lift stations will include the following below grade components: wet well, dry well, pumping equipment, emergency storage and equalization storage. Both lift stations will include the following above grade components: structure housing electrical equipment and a back-up generator. The south lift station will also include pre-treatment as required by CMD to include a bar screen and grit removal equipment. Both lift stations will include odor control.

GRMD is proposed to have approximately 3340 single family equivalents (SFE) at buildout and 4RMD is anticipated to have approximately 1278 SFE at buildout. All development

except for the existing 42 lots in 4RMD will be served by the wastewater infrastructure in the proposed project. Please see Exhibit Y for a sketch of the water treatment plant process flow.

- b. *Provide a description of all existing or approved proposed domestic water or sewage treatment systems within the Project area.*

There are no existing or approved proposed water or wastewater treatment systems in the project area. There are several existing water treatment facilities in the general area. Meridian Service Metropolitan District (MSMD) operates one and Woodmen Hills Metropolitan District operates 3. There are two existing wastewater treatment facilities in the area: the WHMD WRF and the CMD WRF.

- c. *Describe the design capacity of each domestic water or sewage treatment system facility proposed and the distribution or collection network proposed in the Project area.*

The projected maximum daily water demand for full buildout is approximately 3.0 MGD. Three water treatment facilities are proposed each with a capacity of approximately 1.0 MGD. As development progresses, the design capacities of each water treatment facility may be adjusted as necessary. The raw and potable water distribution system will be designed to handle fire flows which shall vary throughout the development based on the square footage of buildings proposed.

The projected average daily wastewater flows from GRMD and 4RmD at full buildout are approximately 1.0 MGD. The IGA with CMD limits the maximum flow from the lift stations to 1.5 times the average daily flow. The lift stations will be designed for a maximum flow of approximately 1.5 MGD.

- d. *Describe the excess capacity of each treatment system and distribution or collection network in the affected community or Project area.*

The water treatment and distribution system is not intended to have excess capacity above the 3.0 MGD anticipated to serve full buildout of GRMD. The lift stations will be designed to serve full buildout from GRMD and 4RMD (1.5 MGD). The wastewater conveyance system will be master-planned to allow for future expansion for possible future connections.

- e. *Provide an inventory of total commitments already made for current water or sewage services.*

Cherokee Metro District committed to providing 0.5MGD of capacity to Grandview Reserve. The IGA between CMD and GRMD is included as Exhibit AA.

GRMD has not committed to provided water or wastewater service to any projects except water service to the Grandview Reserve Development.

- f. Describe the operational efficiency of each existing system in the Project area, including the age, state of repair and level of treatment.*

4WMD has an existing water treatment facility constructed approximately in 2008. The system includes pressure sand filtration and disinfection. The system is in good condition but was not planned for expansion and the proposed project does not include water service for 4WMD.

CMD has an existing WRF which was constructed in approximately 2010. It is currently in violation of its discharge permit but upgrades are underway to allow it to meet the discharge permit. Otherwise the system is in good condition. The WRF has a permitted capacity of 4.8 MGD and the current loading is approximately 2.0 MGD.

- g. Describe the existing water utilization, including the historic yield from rights and use by category such as agricultural, municipal and industrial supply obligations to other systems.*

Grandview Reserve Metro District is a new water district and utilization will be 100% for residential, commercial, and institutional use. The water rights to be used for the project were historically agricultural however there is no record of those water rights being used for any purpose, agricultural or otherwise.

### 3. Demonstration of Need:

- a) Provide population trends for the Project area, including present population, population growth and growth rates, documenting the sources used.*

This project is located adjacent to new residential growth in the Falcon area. The recently adopted El Paso County Master Plan has marked this area as suburban land use which would include single family housing, multifamily housing, commercial, parks and open space and institutional. The Falcon/Peyton Small Area Master Plan marks this area as proposed Urban Density Development. Refer to census.gov for more information about current population trends in the area. Refer to Exhibit J – District Service Plan for population projections.

- b) Specify the predominant types of developments to be served by the proposed new water and/or sewage systems or extensions thereof.*

Suburban Residential: this will consist primarily of Single-family detached dwellings, but supports single family attached, multifamily, commercial retail, commercial service, parks and open space and institutional uses.

- c) Specify at what percentage of the design capacity the current system is now operating:*

*i. Water treatment system.*

This is a new system designed for the Grandview Reserve Metro District.

*ii. Wastewater treatment system.*

The CMD WRF is currently operating at approximately 2.0 MGD and has a permitted rating of 4.8 MGD. The existing CMD force main along Hwy 94 conveys approximately 90-95% of the WRF loading. That force main is sized to convey up to the permitted rating of the WRF. The 0.5 MGD capacity that GRMD has purchased via the IGA is within the 4.8 MGD rating of the WRF. No expansions to the WRF or CMD force main are required for the first 0.5 MGD. As development progresses, GRMD will negotiate for CMD to acquire additional capacity which may require an expansion of CMD infrastructure.

*d) Specify whether present facilities can be upgraded to accommodate adequately the ten-year projected increase needed in treatment and/or hydraulic capacity.*

There are no water systems in the area that are feasible to tie into to provide water to the project due aquifer rights and current allocations.

There are no adjacent wastewater gravity tie-in locations to service the project. Lift Stations will be required to deliver wastewater effluent to the CMD WRF which is currently operating at 2.0 MGD out of the permitted 4.8 MGD capacity (~42%). As such, the CMD WRF will not need to be upgraded to provide service for the projected ten-year wastewater loading from this project.

GRMD approached WHMD regarding the possibility of WHMD providing wastewater treatment for GRMD. The two sides could not agree on terms related to service and the WRF expansion needed to serve GRMD. The WHMD WRF has less than 0.3 MGD capacity available so an expansion would be required.

#### 4. Water Source:

- a) Description of the water to be used by the Project and, to the extent identified by the Director in consultation with the applicant, alternatives, including: the source, amount, the quality of such water; the applicant's right to use the water, including adjudicated decrees or determinations and any substitute water supply plans, and applications for decrees or determinations; proposed points of diversion and changes in the points of diversion; the existing uses of the water; adequate proof that adequate water resources have been or can and will be committed to and retained for the Project, and that applicant can and will supply the Project with water of adequate quality, quantity, and dependability; and approval by the respective Designated Ground Water Management District if applicable. If an augmentation or replacement plan for the Project has been decreed or determined or an application for such plan has been filed in the court or with the Ground Water Commission, the applicant must submit a copy of that plan or application.*

The project will use water from Determinations 510-BD and 511-BD. GRMD currently owns 140,000 acre-ft of Arapahoe water under 511-BD. GRMD is under contract to purchase 131,250 acre-ft of LFH water under 510-BD. Closing is anticipated in January 2022. The District is also filing change of determinations for both water rights to allow for municipal use by GRMD. Those changes are anticipated to be approved around March of 2022. The Water Resource Report (Exhibit BB) contains additional information and details regarding water supply.

## 5. Loss of Agricultural Productivity:

- a) *Information on any agricultural water rights in the region converted to provide water for the Project, now or in the future.*

No agricultural water rights were converted to provide water for the Project.

- b) *Information on the amount of irrigated agricultural lands taken out of production, and a description of revegetation plans.*

No agricultural water rights were converted to provide water for the Project.

- c) *Economic consequences of any loss of irrigated agriculture, including loss of tax base, in the region.*

N/A

- d) *Information as to loss of wildlife habitat, loss of topsoil, or noxious weed invasion, as a result of the transfer of water rights and subsequent dry-up of lands.*

No water rights were transferred for this project. All water rights were part of the overall 4 Way Ranch property.

- e) *Information on impacts to agricultural head gates and water delivery systems.*

N/A

## 6. Financial Impact Analysis:

- a) *The financial impact analysis of site selection and construction of major new water and sewage treatment facilities and/or major extension of existing domestic water and sewage treatment systems shall include but need not be limited to the following items:*

*A review and summary of an existing engineering and/or financial feasibility studies, assessed taxable property valuations and all other matters of financial aid and resources in determining the feasibility of the proposed new facility including:*

- i) *Service area and/or boundaries.*

The proposed water infrastructure shall serve all of Grandview Metropolitan District (Districts 1-4) and the proposed wastewater infrastructure shall serve all of GRMD (Districts 1-4) and all of 4 Way Ranch Metropolitan District. For more information, refer to the Grandview Reserve Metro District Service Plan, Exhibit J.

- ii) *Applicable methods of transmitting, storing, treating and delivering water and collecting, transmitting, treating and discharging sewage, including effluent and/or sludge disposal.*

**Treatment Facility:** Water treatment will be in the form of a single or multiple treatment facilities utilizing pressure-sand filtration. Ideally, a single centralized facility is easier for operation and maintenance. However, construction of a single facility capable of meeting buildout demands is not always economical in early stages. Therefore, two or more facilities may be constructed as building progresses. Pressure-sand treatment systems are utilized by many other metropolitan districts in the Falcon area. They are typically used to treat secondary contaminant levels in source water (iron and manganese), primarily for aesthetics (taste and odor).

**Storage Facility:** Water storage will have to be sized for the largest demand in the development to meet International Fire Code standards. That fire-flow volume will be added to the Maximum Daily Demand to establish the required water storage volume. Hydro pneumatic storage tanks are anticipated to be located adjacent to the proposed Water Treatment Facilities.

**Distribution/Transmission:** Distribution lines will likely be PVC, adequately sized to convey fire-flows throughout the subdivision. They will be constructed by GRMD. No other districts are planned to provide water or infrastructure for GRMD water system. The project and subsequent filings will be looped to provide redundancy and reliability of the system.

**Collection System Description:** The Grandview Reserve Filings wastewater effluent will discharge into the Grandview Reserve Metropolitan District (GRMD) trunkline within Curtis Road which is proposed to flow south through a series of two lift stations and forcemains to the Cherokee Metropolitan District Wastewater Treatment Plant interceptor located near the intersection of Curtis Road and Highway 94, eventually flowing to the wastewater treatment facility. GRMD would account for approximately 93.2% of the proposed allowable capacity of the GMD allowed capacity. It is anticipated that equalization basins will be required at the initial lift station for the purposes of fluctuating flow and to act as emergency storage in the event of a system failure.

GRMD is proposed to have approximately 3340 single family equivalents (SFE) at buildout and 4RMD is anticipated to have approximately 1278 SFE at buildout. All

development except for the existing 42 lots in 4RMD will be served by the wastewater infrastructure in the proposed project.

*iii) Estimated construction costs and period of construction of each new or extension facility component.*

It is anticipated that permitting and construction of the new water and wastewater facilities will take 18 months.

The Water System treatment and delivery infrastructure is anticipated to be approximately \$60M-\$70M. The proposed project consists of the water infrastructure necessary to support development within the Grandview Reserve Metropolitan District (GRMD). The water infrastructure includes source water wells, water treatment facilities, water storage tanks and the associated piping.

The wells will be Denver Basin wells typically with 2 wells (one Arapahoe and one Laramie Fox Hills) per well site. Exhibit DD contains a map of the proposed well sites within GRMD. The total number of well sites to be developed will be dependent on well production and the rate of development.

A total of up to 3 water treatment facilities are planned for the project. The capacity of each water treatment facility will be determined by the filings that it will serve. The total treatment capacity needed for full buildout of GRMD is approximately 3.0 MGD. Exhibit DD shows the proposed locations of the water treatment facilities.

Once treated at the water treatment facilities, water will be stored in tanks. Multiple tanks will be constructed to serve the project, at up to 3 different sites identified in Exhibit DD. The raw and potable water facilities will be connected by water lines ranging from 4"-16" diameter as depicted in Exhibit DD.

The project also includes wastewater infrastructure to support development within GRMD and 4-Way Ranch Metropolitan District (4RMD). The wastewater infrastructure includes two lift stations and force mains as well as two gravity interceptor alignments. The wastewater infrastructure will convey the wastewater from GRMD and 4RMD to the Cherokee Metropolitan District (CMD) Water Reclamation Facility (WRF) for treatment as depicted in Exhibit EE. It is anticipated that parallel force mains will be installed in the force main alignments as shown in Exhibit EE. A 6" diameter force main will be installed to convey flows during the early stages of development so that flushing velocities of 3.5 ft/s can be achieved with minimal water added. A second force main will be 10"-16" to convey the remainder of the wastewater flows for full build-out. The gravity lines are anticipated to be 15"-18" diameter and the exact size will be determined once a design profile is developed and the minimum slope is known. Both lift stations will include the

following above grade components: structure housing electrical equipment and a back-up generator.

- iv) Assessed valuation of the property to be included within the service area boundaries.*

Refer to the Grandview Reserve Metro District Service Plan located in Exhibit J

- v) Revenues and operating expenses of the proposed new or extension facility, including but not limited to historical and estimated property taxation, service charges and rates, assessments, connection and tap fees, standby charges and all other anticipated revenues of the proposed new facility.*

Refer to the Grandview Reserve Metro District Service Plan, Exhibit J.

- vi) Amount and security of the proposed debt and method and estimated cost of debt service.*

Refer to the Grandview Reserve Metro District Service Plan, Exhibit J.

- vii) Provide the detail of any substantial contract or agreement for revenues or for services to be paid, furnished, or used by or with any person, association, corporation, or governmental body.*

The only substantial contract that has been executed related to the proposed project is the IGA between GRMD and CMD. The IGA is attached as Exhibit AA. Contract negotiations are currently in progress for other services including operation of the proposed facilities.