



**CITY OF ORLAND**  
**CITY COUNCIL AGENDA ITEM #:7.A.**

**MEETING DATE: October 5, 2021**

**TO:** Honorable Mayor and Members of the City Council

**FROM:** Scott Friend, AICP, Contract City Planner  
Paul Rabo, Contract City Engineer  
Ed Vonasek, Public Works Director  
Peter R. Carr, City Manager

**SUBJECT:** Policy Change – Irrigation Canal and Irrigation Lateral Canal Undergrounding and Surface Treatment

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**PURPOSE**

The purpose of this report is to present a summary chronology of the events leading up to this discussion, and, to present a modified policy to the City Council for consideration and adoption related to the City's treatment of Irrigation Canals and Irrigation Lateral Canals in the City.

**BACKGROUND**

At the City Council meeting of April 19, 2021, City staff and Council Members engaged in a discussion concerning current issues and concerns regarding the treatment of Orland Unit Water Users Association (OUWUA) / United States Bureau of Reclamation (USBOR) irrigation laterals in the City and the implications of the City's policies relative to land development in Orland. This discussion led the Council to direct Staff to bring this matter back for further discussion on potential policy changes. At the City Council meeting of August 2, 2021, city staff again presented the topic for discussion to the City Council. Following a discussion and after taking public comments on the matter, the City Council directed staff to proactively seek to engage the OUWUA in a dialogue about the proposed policy changes.

On Wednesday, September 16, 2021, City Engineer Paul Rabo, Public Works Director Ed Vonasek and City Planner Scott Friend met with and presented the City's irrigation canal policy modification proposal to the Board of Directors of the OUWUA. After a robust, positive and fruitful discussion, the Board of Directors of the OUWUA indicated that they did not oppose the City's policy changes based upon the Board's review of the City's draft policy guidelines (*Attachment A*).

As part of the conversation, the Board of the OUWUA expressed their hesitancy and reservations about a perception of enhancing the potential liability to the Association relative to the policy change; acknowledged the highly unlikely potential to place the OUWUA's system in a pressurized, underground condition; and, concurred with the city's statements regarding the costs and construction difficulties associated with the placement of the system underground. The Board of the OUWUA also recognized and discussed the myriad of issues related to access, debris collection and removal, and maintenance associated with the operation of the system. Additionally, the Board discussed options associated with the change of materials to further reduce and control construction cost impacts.

With this staff report, staff is requesting that the City Council approve a modified policy related to the treatment of irrigation canals in the City. To implement the action, staff will return to the City Council with a formal Resolution(s) and/or regulatory change documents after the policy is review and approved.

## DISCUSSION

In or about 1954, the OUWUA assumed responsibility for the care, operation and maintenance of the irrigation canals and laterals in and around the City of Orland. Since that time, the Association has maintained that their primary purpose and goal is to supply water to their members for agricultural purposes; not to accommodate future development. Simultaneously with this, the OUWUA has espoused that they seek to support development when and where possible and that they don't intended for their programs to hinder, harm or penalize those seeking to develop land.

For decades, the City of Orland has attempted to balance the desire of property owners in the City to utilize, divide and develop their private properties with the needs, wants and desires of the United States Bureau of Reclamation (USBOR) and the Orland Unit Water Users Association (OUWUA) to operate and maintain a functioning system of irrigation canals and laterals in, through and beyond the City limits.

In August of 1990, the City Council adopted a policy that was endorsed by both OUWUA and USBOR that states the following:

*....the City of Orland requires the undergrounding of all U.S.I.D. canals with the development of any residential, commercial, or industrial properties adjacent to the canals or adjacent to the public right-of-way abutting canals.*

*(adopted via a unanimous vote of the Orland City Council on August 13, 1990)*

The adopted policy was a result of the City, OUWUA and USBOR agreeing that open irrigation laterals/canals/ditches abutting or passing through existing and proposed land that are proposed for development pose a serious safety and health hazard. At the time of its consideration, it was agreed by all parties the undergrounding of open irrigation laterals was an appropriate measure to mitigate the safety and health hazards posed by the presence of the features. Since the adoption of this policy, the City of Orland has required irrigation laterals through and adjacent to proposed developments to be buried underground in a pipe. While exceptions exist at various locations in the City (e.g. Whitehawk Subdivision, Fieldstone Subdivision) the City continues to require the adherence to this policy. Recent examples include the Linwood Subdivision and Conditions of Development Approval applied to projects located south of Bryant Street and north and south of Road 15.

Since the adoption of the "undergrounding policy", landowners and potential developers have questioned the City about the need to place irrigation canals underground, the cost implications to development projects, and have sought creative ways to proceed with the division and development of land impacted by the policy.

The primary contention of those seeking to develop land on which irrigation canals are located on or adjacent to is that the existing policy makes development either financially infeasible in the worst of cases and financially challenging in the majority of cases. Due in-part to the fact that staff are not developers of land themselves, staff offers no opinions as to the factual nature of the statements made to them in this regard. However, experience and a review of the land use and development pattern of the city suggest that a reduced level of development occurs near irrigation canals– especially major canals like Lateral 40. Considering the information available to it, staff concurs with the assertions made by members of the land development community that the



placement of canals and canal laterals underground adds to the overall cost of a project, adds to the overall uncertainty associated with land development, and adds additional factors or elements of concern and exposure to development in the city (time and cost).

The existing underground policy has no considerations for alternatives to the placement of the canals and laterals underground. As such, any consideration of the use of fencing, bollards, cable railing, enhanced setbacks, placement of roadways between a canal and development, vegetative plantings, etc. cannot be considered as being compliant with the policy. The only option available to persons developing land is to place canals and laterals underground in a pipe and leaving a surface corridor open and unobstructed in the event that maintenance activities or access is needed.

### *Differing Perspectives*

Many Cities throughout the State and Country have irrigation canals/laterals that transverse through them. These cities maintain different policies regarding how to development near canals ranging from a "do nothing approach" to establishing setbacks and fencing requirements.

In researching the policy change recommendation presented with this report, staff has identified a myriad of alternative approaches that are currently being used by other cities and water providers to address this issue. A sampling of the results of those research efforts are shown below:

#### *City of Bakersfield*

L. Lots Abutting Park Sites, Drilling Island, Oil Well Sites, and Canals. Where it is found to be necessary for orderly development, any lot which shares a common property line with a lot designed to serve as a park site, drilling island, oil well site or canal shall be separated by a masonry block wall, along said property line a minimum of six feet but not exceeding eight feet in height as measured from highest adjacent finished grade. Timing of said wall installation to be determined by the advisory agency (Chapter 16.28 Design Standards - Section 16.28.170 Lots).

#### *City of Modesto*

Modesto Irrigation District Canal or Substation next to a residential zone requires a 6-foot (minimum) solid masonry wall (Modesto Municipal Code - Title 10 Zoning Regulations § 10-4.406. Walls and Fences).

#### *City of Grass Valley / Nevada Irrigation District*

The canals that are within the City of Grass Valley are owned by Nevada Irrigation District (NID), and it is written in the Grass Valley City Development Code Section 17.50.020 that a project near an NID canal must submit an analysis and work with NID directly, as NID determines the setbacks and requirements around their canals since they usually have their own easement. [Page 37 and 38 of Standard Details https://www.nidwater.com/development-standards](https://www.nidwater.com/development-standards)

Grass Valley Development Code - Chapter 17.50 Creek and Riparian Resource Protection:

"Projects adjacent to Nevada Irrigation District canals shall provide an analysis to establish appropriate protection measures based on factors of the canal abutting the project. These measures will include provisions for fencing, elimination of runoff into the canal, establishment of the appropriate setbacks, notification procedures for seepage issues, and other improvements to protect the canal."

*City of Lemoore*

"All lots adjacent to canal are 10,000 square foot lots and must have a 40-foot clearance between house and canal." (Lemoore Municipal Code Section 9-9B-4: Special Development Standards for Specific Planned Unit Developments).

*City of Waterford Municipal Code*

16.11.030 Canals and water courses.

A. The planning commission may require irrigation canals and similar watercourses to be placed in underground conduits or fenced, or otherwise improved in accordance with the standards of this title or the water purveyor, subject to the approval of the city engineer.

B. The subdivider shall, subject to riparian rights, dedicate a right-of-way for irrigation, storm drainage or riparian conservation purposes, conforming substantially to a minimum line ten feet from the high water limit of any natural watercourse (stream, river or creek), drainage channel or irrigation canal that traverses the subdivision, or to provide additional easements or both, to facilitate maintenance and protection of the water course or support open space and riparian wildlife habitat. (Ord. 08-01 §1, 2008).

**CEQA ACTION(S) REQUESTED or REQUIRED**

None.

**FINANCIAL / BUDGET IMPACT**

None at this time.

**RECOMMENDATION**

Staff recommends that the City Council of the City of Orland adopt a modified policy addressing when, where and how irrigation canals shall be placed underground in the City of Orland as outlined in *Attachment A* of this report.

**ATTACHMENT(S):**

*Attachment A* – Policy Position and Recommendation Paper – October 1, 2021

Approved by City Manager
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## Policy Position and Recommendations Paper

Subject: Canal Undergrounding - Orland

October 1, 2021



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### Guiding Principles and Purpose Statements:

- 1) The longstanding and current City policy of placing canals/laterals underground has not resulted in the intended elimination of all waterway-involved accidents or public safety incidents.
- 2) The current City policy of placing canals/laterals underground has led to a patch-work pattern whereby facilities are often located both above-ground and underground thereby resulting in a lack of consistency within the City.
- 3) The current City policy of placing canals/laterals underground when the facility is on or adjacent to land to be developed has resulted in a disjointed and random pattern which is detrimental to overall system safety, creates operational difficulties, places a burden on emergency first-responders due to uncertainty in responding to emergency situations and increases the difficulty associated with messaging to the community about safety and awareness.
- 4) Development potential within the City of Orland has been negatively impacted by the existing policy as policy compliance requires expensive – usually cost-prohibitive -- actions by property owners, investors, and those seeking to develop land.
- 5) Costs associated with the placement of canals underground have resulted in a fragmented land use development pattern that has negatively impacted public safety and public infrastructure, and does not reflect the concepts of smart growth and efficient land utilization embraced by the City.
- 6) The policy of placing canals/laterals underground may require construction activities to occur on property owned by persons/entities other than a project applicant thereby requiring off-site improvements to be made that may run contrary to local and state laws and regulations.
- 7) The OUWUA has indicated that overall system maintenance costs are increased due to the current status of canals being both above-ground and below-ground.
- 8) The OUWUA has indicated that the use of protective and maintenance equipment (grates, debris collectors, etc.) has increased the workload on the Association and its employees.
- 9) Neither the OUWUA or the U.S Bureau of Reclamation have taken tangible or measurable actions to place sections of the canal system within the City underground nor have either party meaningfully advanced the dialogue related to this topic.
- 10) The various technical studies used to support the concept of a canal-based irrigation system underground within the City are outdated; the assumptions of said studies are no longer supported as presented in the studies which can lead to confusion, unnecessary time delays and investment uncertainty.

**Current City Policy:**

The City of Orland requires the undergrounding of all U.S.I.D. canals with the development of any residential, commercial or industrial properties adjacent to the canals or adjacent to a public right-of-way abutting canals.

The recommendations and policy considerations contained in this paper are based upon Table 1 shown below which is contained in the OUWUA "Construction Guidelines For The Undergrounding Of The OUWUA Irrigation Canals Within The City Of Orland" and dated July, 2016.

**Table 1**

Lateral No.	**Minimum Inside Diameter (inches)	Minimum Capacity (CFS)
SC	60	83
L4	24	11
40	54	83
42	24	4
43	24	10
44	36	36
45	24	5
46	24	12
50	30	15
51	24	15
52	24	15
8	24	9
10	48	50
12	24	12
30	36	36
30	24	15
35	24	15
37	36	36
38	24	15



## Revised Policy Recommendations:

### **Proposed City Policy:**

The City of Orland requires the undergrounding of all U.S.I.D. canals with the development of any residential, commercial, or industrial properties adjacent to the canals or adjacent to a public right-of-way abutting canals when an involved canal has the ability to be placed in a conduit having a diameter of 30" or less (by capacity, not adjusting for slope). Canals shall not be required to be placed underground but shall meet City and U.S.I.D. standards for access, maintenance and access control when such facilities are identified as requiring that the conduit diameter necessary for the conveyance of water is greater than 30" (by capacity, not adjusting for slope).

Irrigation laterals NOT subject to being placed underground shall be subject to the following:

1) All residentially zoned lots/parcels located adjacent to or abutting a canal/lateral shall be fenced pursuant to the requirements of the City Code and shall meet the fencing requirement specified below.

#### *Residentially Zoned Parcels:*

A) Fencing constructed as follows shall be required for all residential developments:

- Minimum six (6) foot in height;
- Maximum wood plank spacing shall be ½";
- All fences adjacent to a lateral shall utilize metal posts anchored in concrete and spaced no more than eight (8) feet apart;
- All fence panels adjacent to a canal/lateral shall utilize ring-shank nails or screws (staples and non-ring shank nails not permitted);
- Chain-link fences or fences made out of materials other than wood are prohibited unless otherwise approved by the City Council or Planning Commission.

B) All fences shall be located a minimum of one (1) foot from (interior to) the property/parcel line.

C) A one (1) foot no-access easement shall be recorded across all yards adjacent to or abutting a lateral.

D) A landscape maintenance district shall be established on all lots located adjacent to or abutting a lateral sufficient to fund activities associated with maintenance and repair of the fences.

2) All Commercially zoned lots/parcels located adjacent to or abutting a lateral shall be fenced pursuant to the requirements of the City Code and shall meet the fencing requirement specified below.

*Commercially Zoned Parcels:*

A) Fencing constructed as follows shall be required for all commercial developments:

- Minimum six (6) foot in height;
- All fences adjacent to a lateral shall utilize metal posts anchored in concrete and spaced no more than eight (8) feet apart;
- Metal chain-link fencing and concrete block fencing (concreted/grouted not stacked) are permitted to be utilized on commercially zoned parcels.

B) All fences shall be located a minimum of one (1) foot from (interior to) the property/parcel property line.

C) A one (1) foot no-access easement shall be recorded across all yards adjacent to or abutting a lateral.

D) MAD for maintenance...

3) All Industrially zoned lots/parcels located adjacent to or abutting a lateral shall be fenced pursuant to the requirements of the City Code and shall meet the fencing requirement specified below.

*Industrially Zoned Parcels:*

A) Fencing constructed as follows shall be required for all industrial developments:

- Minimum six (6) foot in height;
- All fences adjacent to a lateral shall utilize metal posts anchored in concrete and spaced no more than eight (8) feet apart;
- Metal chain-link fencing and concrete block fencing (concreted/grouted not stacked) are permitted to be utilized on industrially zoned parcels.

B) All fences shall be located a minimum of one (1) foot from (interior to) the property/parcel property line.

C) A one (1) foot no-access easement shall be recorded across all yards adjacent to or abutting a lateral.

D) MAD for maintenance...

4) All laterals regardless of zoning or size may be placed underground pursuant to approved OUWUA construction standards and guidelines upon approval of the City and lateral owner/operator.

5) The City of Orland encourages abandonment and removal of unused and/or unnecessary lateral features as agreed upon and approved by the City and lateral owner/operator.

6) All fencing and barriers located adjacent to laterals shall be maintained by the property owner in proper, safe and a satisfactory condition at all times.



7) Laterals located adjacent to dedicated road rights-of-way and located adjacent to a pedestrian feature (e.g. sidewalk, trail, multi-use path, etc.) may be secured utilizing bollards and cabling or an appropriate form of similarly suitable physical access barrier to be approved by both the City and the owner/operator limiting direct access to the facility.

8) Recreation trails on or directly adjacent to a major irrigation canal/lateral shall either:

- a) install pole-and-cable barrier fencing;
- b) install 6' cyclone or metal chain-link wire fencing; or
- c) install an appropriate form of similarly suitable physical access barrier to be approved by both the City and the owner/operator limiting direct access to the facility.

#### Lateral Crossings:

9) Bridges and box culverts with appropriate headwalls and/or guardrails will be constructed of appropriate size and height to allow free flow of water with minimal hinderance of obstructions and allowance for debris collection.

10) Facilities will be constructed prior to or during development construction and prior to the issuance of an occupancy permit (as applicable).

11) Laterals placed underground shall be overlaid with low-growing, non-root penetrating drought-tolerant landscaping, mobility and recreation improvements or community benefit elements.

#### Access:

12) In all cases where an access road or way is required, an open and accessible Association access road shall be maintained having a minimum width of ten (10) feet on at least one side of the lateral.

#### Canal Realignment:

13) The City and the OUWUA/BOR support the concept of the realignment of existing facilities when the realignment would result in the underground of the facility (lateral) and when the realigned facility is located within a dedicated public right-of-way and when an easement for access and maintenance purposes is established for the benefit of OUWUA.

#### Work and Access Cooperation:

1) The City of Orland shall work cooperatively with the U.S. BOR and OUWUA to seek and utilize available opportunities to accomplish the undergrounding of the entire reach of canal/lateral 40 inside of the City limits.

2) The City of Orland shall work cooperatively with the U.S. BOR and OUWUA to advance opportunities for the productive use of currently undergrounded segments of laterals in the City. This shall include the establishment of trails and pathways.

3) Within the confines of the law, the City of Orland will require fencing on both sides of an irrigation canal when the affected canal is located entirely on a property owned by a property owner involved in a land development or entitlement action.

DRAFT



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## **Other Water District Policies:**

### Central California Irrigation District: Contacted 8/3/2021

“Currently CCID’s policy regarding urban development adjacent to CCID’s infrastructure has no limitations so long as they do not encroach on the District’s right-of-way or impact our operations.

We have kept our canals open channel, we did lease our canal right-of-way to the city for conditional development which allowed them to construct a scenic trail/bike path along the canal under the condition that they keep it maintained and all development was reviewed and approved by the district and was such that it did not interfere with the District’s ability to operate and maintain the canal.

We opted not to pipe our canals as we did not want to create a scenario where the pipe or culvert could fail and a significant disruption in operations could occur as a result of needing to repair a failed pipe. The only negative to keeping open channel we’ve seen is canal pollution issues from the increasing local transient population.”

(Mr. Benjamin Fenters 8/3/2021)

### Fresno Irrigation District:

By city ordinance (at least in the City of Fresno), canals that can be contained in a 54” pipe or smaller, must be piped. Clovis and others have followed this model as we typically use this as our requirements. In many cases, developers will find it economical to pipe up to 60” or even a bit more to get better use of their land.

There are no fencing requirements unless required by the cities. FID pre-dates most of the development so we believe that public safety is the obligation of the entitlement agency, not FID, and FID is an affected/impacted party.”

(Mr. Laurence Kimura, 08/03/21)

### City of Clovis:

City provided a link to the city’s Municipal Code and stated there were guidelines regarding fencing in the M-1 district (Industrial) only.

(Ms. Maria Spera, 06/18/21)

### City of Grass Valley:

The canals that are within the City of Grass Valley are owned by Nevada Irrigation District (NID), and it is written in the Grass Valley City Development Code Section 17.50.020 that a project near an NID canal must submit an analysis and work with NID directly, as NID determines the setbacks and requirements around their canals since they usually have their own easement.

"Projects adjacent to Nevada Irrigation District canals shall provide an analysis to establish appropriate protection measures based on factors of the canal abutting the project. These measures will include provisions for fencing, elimination of runoff into the canal, establishment of the appropriate setbacks, notification procedures for seepage issues, and other improvements to protect the canal."

(Ms. Aleena Loomis, 06/16/21)

City of Fresno:

By city ordinance (at least in the City of Fresno), canals that can be contained in a 54" pipe or smaller, must be piped.

Page 4-19: "Class 1 [bike] paths have been built within abandoned rail spur lines and municipal parkland, and dedications have been made adjacent to canals or Expressways as a condition of property development, and on land along the San Joaquin River. The City is working to resolve issues identified by the Fresno Irrigation District to accomplish development of path or trail improvements along canals. Currently within the urban area, the City has only been successful where new development has provided additional space adjacent to the canal. However, in the future the City will continue efforts to resolve impediments and implement paths along canal alignments."

Page 4-39: "MT-6-e: Utilize Public Rights of Way. Pursue the attainment of path and trail corridors within abandoned railroad rights-of-way, canal alignments, PG&E transmission tower easements, limited access streets (Expressways, freeways), riverbottom/bluff areas, or other such rights-of-ways. Offer existing easements and rights-of-way to local agencies before selling them to private parties."

Fresno County General Plan:

Policy PF-A.4: The County **shall encourage** the placement of irrigation canals and utility lines underground as urban, residential, commercial, and industrial development takes place.

San Joaquin Municipal Code: Chapter 9-857M – Major Subdivisions:

9-857.2M – Requirements for Application.

In addition to the application requirements specified in Section 9-857.2 and Chapters 9-905 and 9-905M of the Development Title, the application requirements listed below shall be applicable. The Community Development Director may waive one or more of the application requirements if inapplicable to the project, or valid information has been previously submitted.

- a) Reports. The following reports/documents shall be submitted with the Major Subdivision Application:
  - 2) Canal Report, evaluating the safety of open canals within one-half (½) mile of the boundaries of the proposed subdivision, and specifying the means to be taken to



reduce the attractive nuisance of such canals to the future residents of the proposed subdivision;

San Joaquin County: College Park at Mountain House, Specific Plan III, Environmental Impact Report – Public Health and Safety:

Page 4.8-21: “e) On-site agricultural canals and ditches, used to convey water from BBID [Byron-Bethany Irrigation District], as well as the Delta-Mendota Canal, **will be properly fenced and screened by the developer**, as may be required by BBID to eliminate site hazards and to prohibit interference with water flow to agricultural BBID customers.”

City of Modesto:

Modesto Irrigation District Canal or Substation next to a residential zone requires a 6-foot (minimum) solid masonry wall (Modesto Municipal Code - Title 10 Zoning Regulations § 10-4.406. Walls and Fences).

City of Lemoore:

“All lots adjacent to canal are 10,000 square foot lots and must have a 40-foot clearance between house and canal.” (Lemoore Municipal Code Section 9-9B-4: Special Development Standards for Specific Planned Unit Developments).

City of Waterford:

16.11.030 Canals and water courses.

A. The planning commission may require irrigation canals and similar watercourses to be placed in underground conduits or fenced, or otherwise improved in accordance with the standards of this title or the water purveyor, subject to the approval of the city engineer.