



MEMORANDUM CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

FROM: Sherilyn Lombos, City Manager

DATE: May 11, 2015

SUBJECT: Work Session for May 11, 2015

6:00 p.m. (45 min) – Basalt Creek Concept Plan Briefing. Staff will share the results of the Sanitary System Alternatives Analysis for the Basalt Creek planning area for Council discussion. Council will be asked to provide direction on the alternatives.

6:45 p.m. (10 min) – Council Meeting Agenda Review, Communications & Roundtable. Council will review the agenda for the May 11th City Council meeting and brief the Council on issues of mutual interest.



MEMORANDUM

CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

THROUGH: Sherilyn Lombos

FROM: Cindy Hahn, Associate Planner
Aquilla Hurd-Ravich, Planning Manager and Alice Cannon, Assistant City Manager

DATE: 05/11/2015

SUBJECT: Basalt Creek Concept Plan Briefing

ISSUE BEFORE THE COUNCIL:

Staff will share the results of the Sanitary System Alternatives Analysis for the Basalt Creek planning area for Council discussion. Council will be asked to provide direction on the alternatives.

EXECUTIVE SUMMARY:

The Basalt Creek Concept Plan will establish a vision and jurisdictional boundary for the 847 acres between the cities of Tualatin and Wilsonville. At the Tualatin-Wilsonville Joint Council meeting in December, the project team presented a base-case infrastructure and land use scenario. Members of the Councils expressed significant concerns regarding the initial design and potential costs for sanitary sewer construction in the planning area. The Councils directed staff to re-evaluate the sanitary sewer system, seeking a more efficient system considering both construction and long-term operating and maintenance costs. In line with this request, the Councils also expressed concern about the uncertainty around the depth of bedrock in the planning area and therefore, the cost estimate.

In order to address these concerns, staff has spent the last three months conducting a more detailed sewer alternatives analysis and geotechnical exploratory borings to help inform routing options and depth of sewer lines (due to the potential costs and uncertainty around the depth and hardness of bedrock in the area). The analysis presents three additional sanitary sewer alternatives for consideration, with updated cost estimates:

1. A system that Minimizes Pump Stations (Alternative 1)
2. A system that Minimizes Impacts to the Existing Tualatin System (Alternative 2)
3. A Hybrid Alternative system (Alternative 3)

Attachment 1 contains a comparative summary of these three alternatives, Attachment 2 shows the rock excavation assumptions for sanitary sewer design, and Attachment 3 shows the

alternative conceptual sanitary sewer designs.

The findings reveal all three alternatives reduce overall estimated construction costs by \$3.5 million to \$6 million compared with the Base Case Alternative presented at the Joint Tualatin Wilsonville City Council meeting in December 2014. Each alternative also presents a different set of service boundaries. The service boundaries in all alternatives are different than proposed in the Base Case Alternative, which aligned with a proposed jurisdictional boundary along the E-W Connector between the cities of Tualatin and Wilsonville.

The project team's initial analysis concludes the most efficient system is Alternative 1, Minimize Pump Stations; and shared service agreements (among Tualatin, Wilsonville, and Clean Water Services) are an option to achieve both a more efficient sanitary system and the overall vision for the Basalt Creek planning area.

Expected Results

Once a conceptual sanitary system design is selected by the two Councils, the project team will refine the land use scenario. The updated scenario will include cost and revenue information reported out for each city using a proposed jurisdictional boundary.

With the selection of a conceptual sanitary system design, a jurisdictional boundary may be selected that corresponds to the sanitary sewer system service boundaries; alternatively, a jurisdictional boundary may be selected on other factors and vary from the sanitary sewer system service boundaries, creating a need for shared service agreements between the cities.

Timeline

Staff will return to City Council on June 8 with alternative land use scenario and jurisdictional boundary options to prepare for the next Tualatin-Wilsonville Joint Council meeting on June 17. An alternative land use scenario with a proposed jurisdictional boundary will be presented for discussion at that meeting. The alternative land use scenario will be refined into a preferred alternative over the summer with further input from the Councils and public.

RECOMMENDATION:

Staff recommends City Council discuss Basalt Creek sanitary sewer system alternatives analysis results and provide direction to staff regarding a preferred alternative and service boundaries.

Attachments: 1. Sanitary Sewer Summary Table
 2. Rock Excavation Assumptions
 3. Sewer Alternatives
 4. Presentation

BASALT CREEK: Conceptual Sanitary System Alternatives Analysis Summary

PREPARED FOR: Fregonese Associates / City of Tualatin / City of Wilsonville
 PREPARED BY: Kelli Walters, CH2M HILL
 DATE: April 6, 2015
 PROJECT NUMBER: 491811
 APPROVED BY: Mark Anderson, CH2M HILL

Sewer Alternatives Summary

TABLE 1
Sewer Alternatives Summary Table

| | | Base Case Alternative | Alternative 1: Minimize Pump Stations | Alternative 2: Minimize Impacts to the Existing Tualatin System | Alternative 3: Hybrid Alternative |
|--------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Sewer Flow | CWS Service Basin | 787 gpm | 628 gpm | 286 gpm | 740 gpm |
| | Wilsonville Service Basin | 567 gpm | 765 gpm | 1082 gpm | 627 gpm |
| Number of Pump Stations | CWS Service Basin | 5 | 2 | 3 | 3 |
| | Wilsonville Service Basin | 1 | 1 | 2 | 1 |
| | Total | 6 | 3 | 5 | 4 |
| PS O&M Costs | Tualatin | \$ 6,720,000 | \$ 2,240,000 | \$ 3,360,000 | \$ 3,360,000 |
| | Wilsonville | \$ 1,120,000 | \$ 1,120,000 | \$ 2,240,000 | \$ 1,120,000 |
| | Total O&M Cost | \$ 7,840,000 | \$ 3,360,000 | \$ 5,600,000 | \$ 4,480,000 |
| Project Cost | CWS Service Basin | \$ 31,930,000 | \$ 19,210,000 | \$ 13,810,000 | \$ 25,430,000 |
| | Wilsonville Service Basin | \$ 18,690,000 | \$ 25,310,000 | \$ 33,380,000 | \$ 21,930,000 |
| | Tualatin Jurisdiction | \$ 31,930,000 | \$ 24,520,000 | \$ 24,820,000 | \$ 27,500,000 |
| | Wilsonville Jurisdiction | \$ 18,690,000 | \$ 19,990,000 | \$ 22,380,000 | \$ 19,870,000 |
| | Total Project Cost | \$ 50,620,000 | \$ 44,520,000 | \$ 47,190,000 | \$ 47,360,000 |
| Phasing (Tualatin) | | Medium phasing opportunities for Tualatin | Poor phasing opportunities for Tualatin | Better phasing opportunities for Tualatin in NE, poor phasing in central/NW region | Good phasing for Tualatin in NE and central/NW areas |
| Existing Tualatin System Upgrades Required | | Martinazzi Lateral, 103rd Lateral, Tualatin Reservoir Trunk, above max. allowable flows | Martinazzi Lateral, Upper Tualatin Trunk | Martinazzi Lateral | Martinazzi Lateral, Upper Tualatin Trunk |
| Pros | | Service boundary along E-W connector road, approximately equal flows | Approx. equal flows between cities, least pump stations, low impact on existing system, least cost | Lowest impact on existing system | Good phasing opportunities, low impact on existing system, approx. equal flows |
| Cons | | Most pump stations, highest cost, high impact on existing system | Poor phasing opportunities | Majority of flow goes to Wilsonville, more pump stations | More pump stations |

Note: Jurisdictional boundary assumed to follow the proposed East-West connector road for jurisdictional cost breakdown.

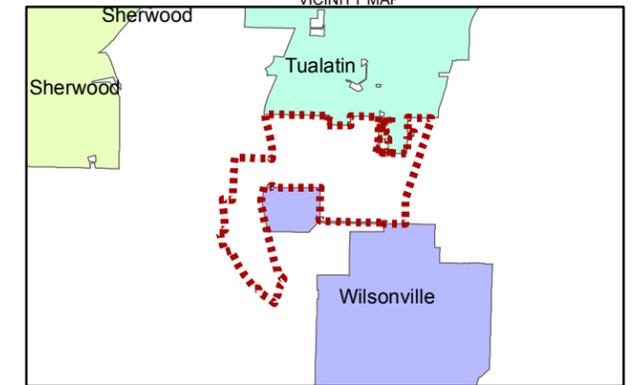
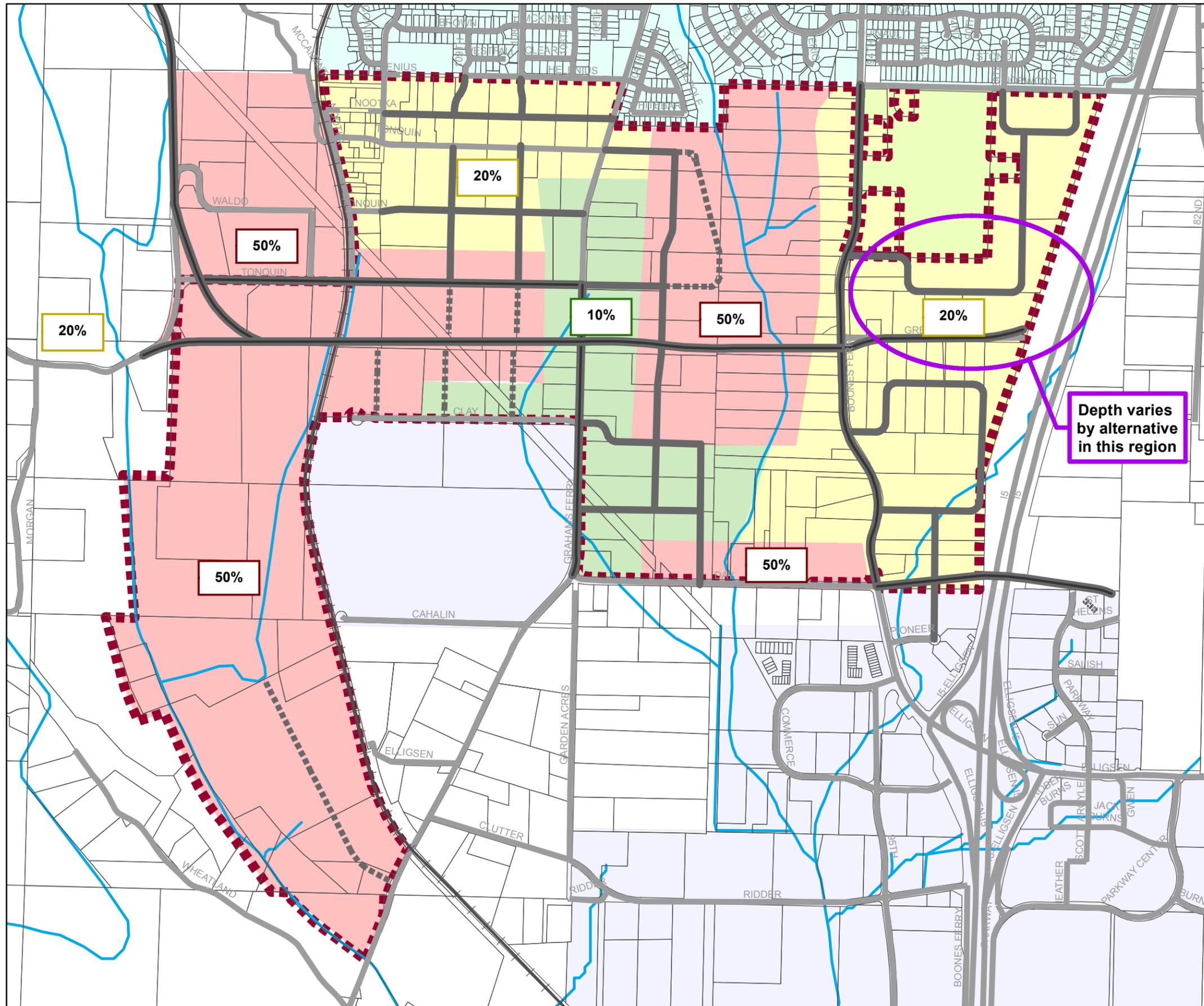
Project costs include pipe costs, rock excavation, pump station capital costs, pump station operations and maintenance costs for 30 years, engineering/legal/admin fees, contingency, and estimated existing system upgrade costs. The upgrades to the Wilsonville system was assumed to be the same for each alternative and includes the Coffee Creek Interceptor Railroad Undercrossing, Phase 1, and Phase 2 projects.

Table 2 provides the service and jurisdictional areas for each of the sewer alternatives. The jurisdictional boundary is constant and was assumed to match the Base Case Alternative service boundaries. Note the jurisdictional area includes open space areas along Basalt Creek and the southwestern railroad area.

TABLE 2
Sewer Alternatives Service and Jurisdictional Areas

| | Base Case Alternative | Alternative 1: Minimize Pump Stations | Alternative 2: Minimize Impacts to the Existing Tualatin System | Alternative 3: Hybrid Alternative |
|-------------------------------------|------------------------------|----------------------------------------------|------------------------------------------------------------------------|------------------------------------------|
| CWS Service Basin Area (ac) | 444 | 341 | 109 | 370 |
| Wilsonville Service Basin Area (ac) | 478 | 475 | 708 | 446 |
| Tualatin Jurisdiction* Area (ac) | 444 | 444 | 444 | 444 |
| Wilsonville Jurisdiction* Area (ac) | 478 | 478 | 478 | 478 |

*Jurisdictional boundary assumed to follow the proposed East-West connector road



- Legend**
- 50% Rock Excavation
 - 20% Rock Excavation
 - 10% Rock Excavation
 - Proposed Main E-W Arterial Roads
 - Proposed Collector Roads
 - Proposed Local Access Roads
 - Existing Railroad
 - Existing Roads
 - Taxlots
 - Streams
 - Planning Area
- City Boundaries**
- Sherwood
 - Tualatin
 - Wilsonville

% Rock Excavation indicates the amount of pipe length in a given location that will require rock excavation to install. Areas with shallow depths to rock, greatly varying rock depths, and/or with scarce data are assumed to have 50% of pipe length requiring rock excavation.

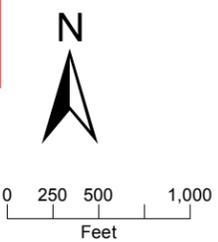
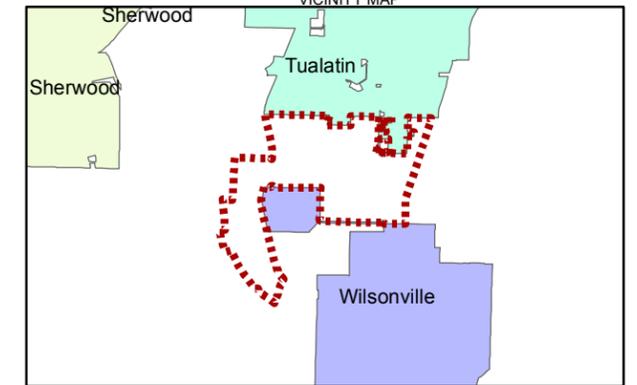
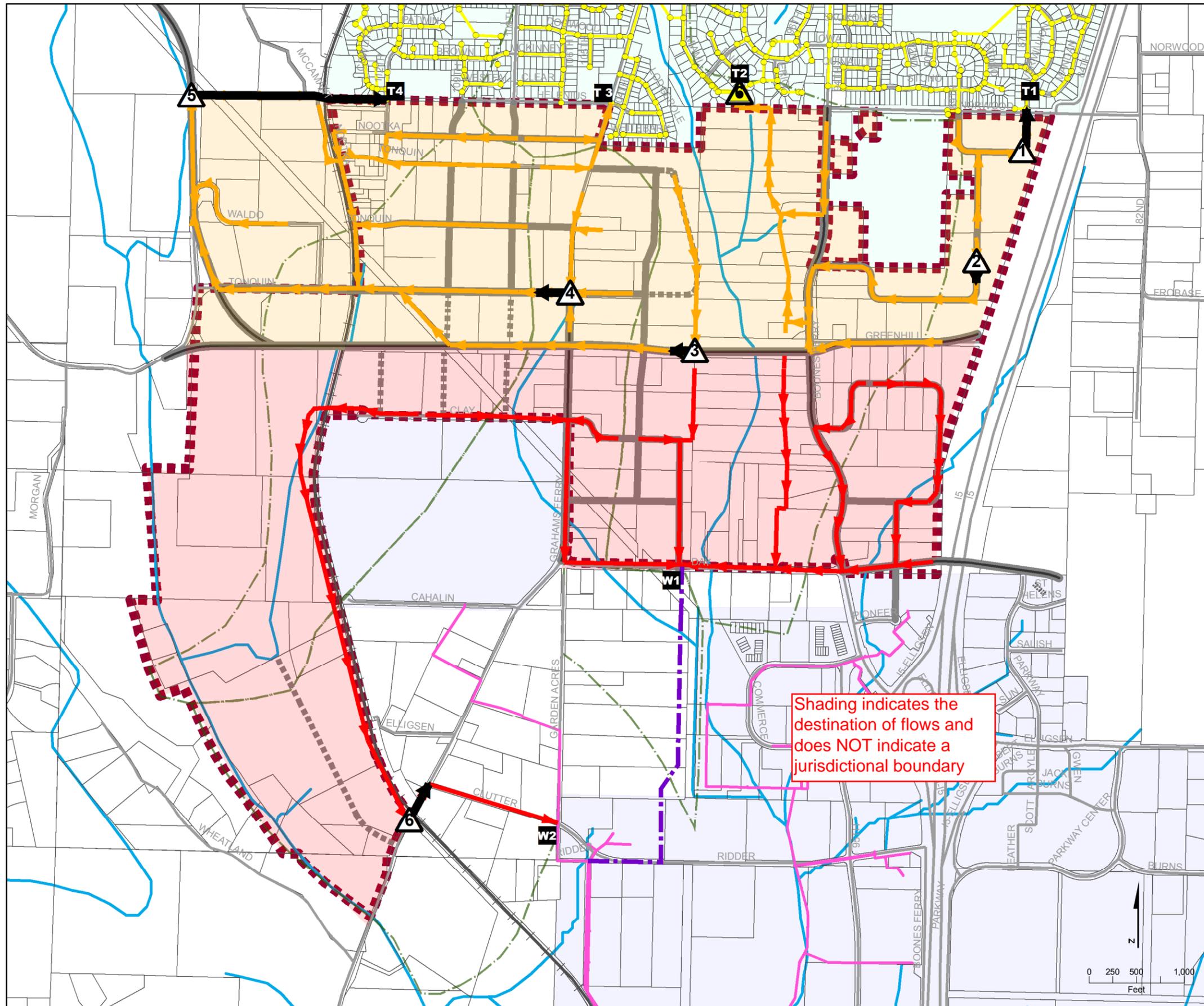


FIGURE 2
Rock Excavation Assumptions Map
Conceptual Sanitary System Design
 Basalt Creek Planning Area

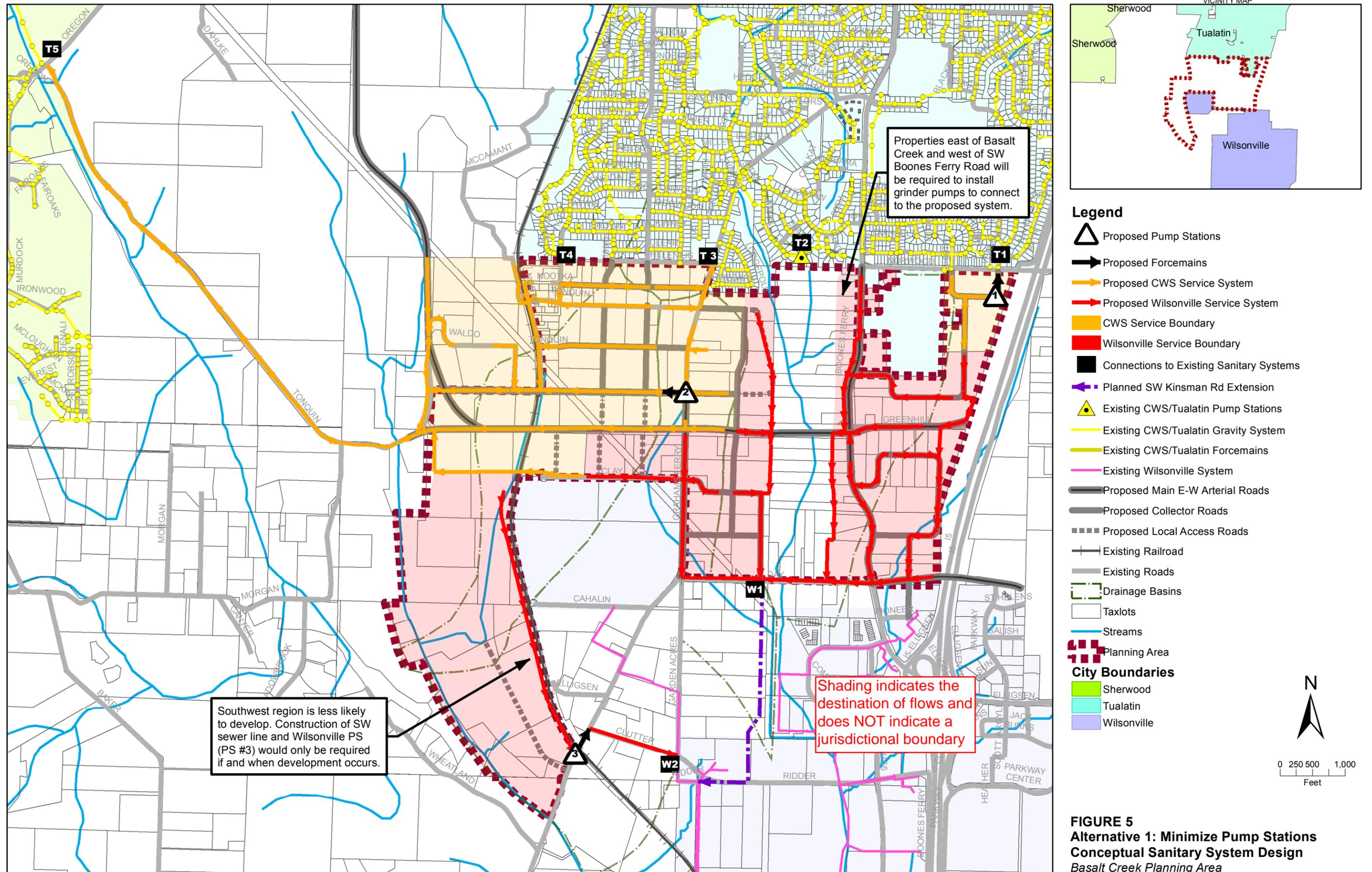
Attachment 3. Sanitary Sewer Alternatives Map: Base Case



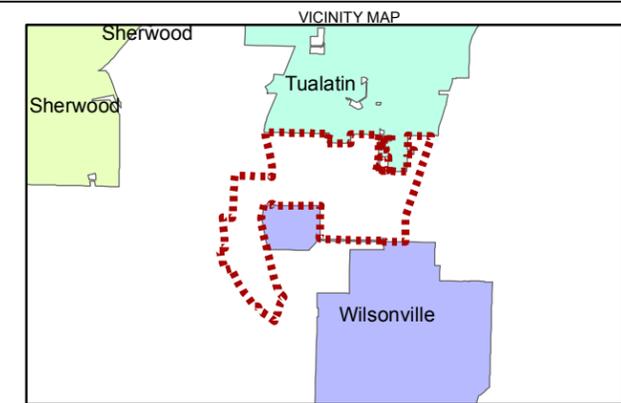
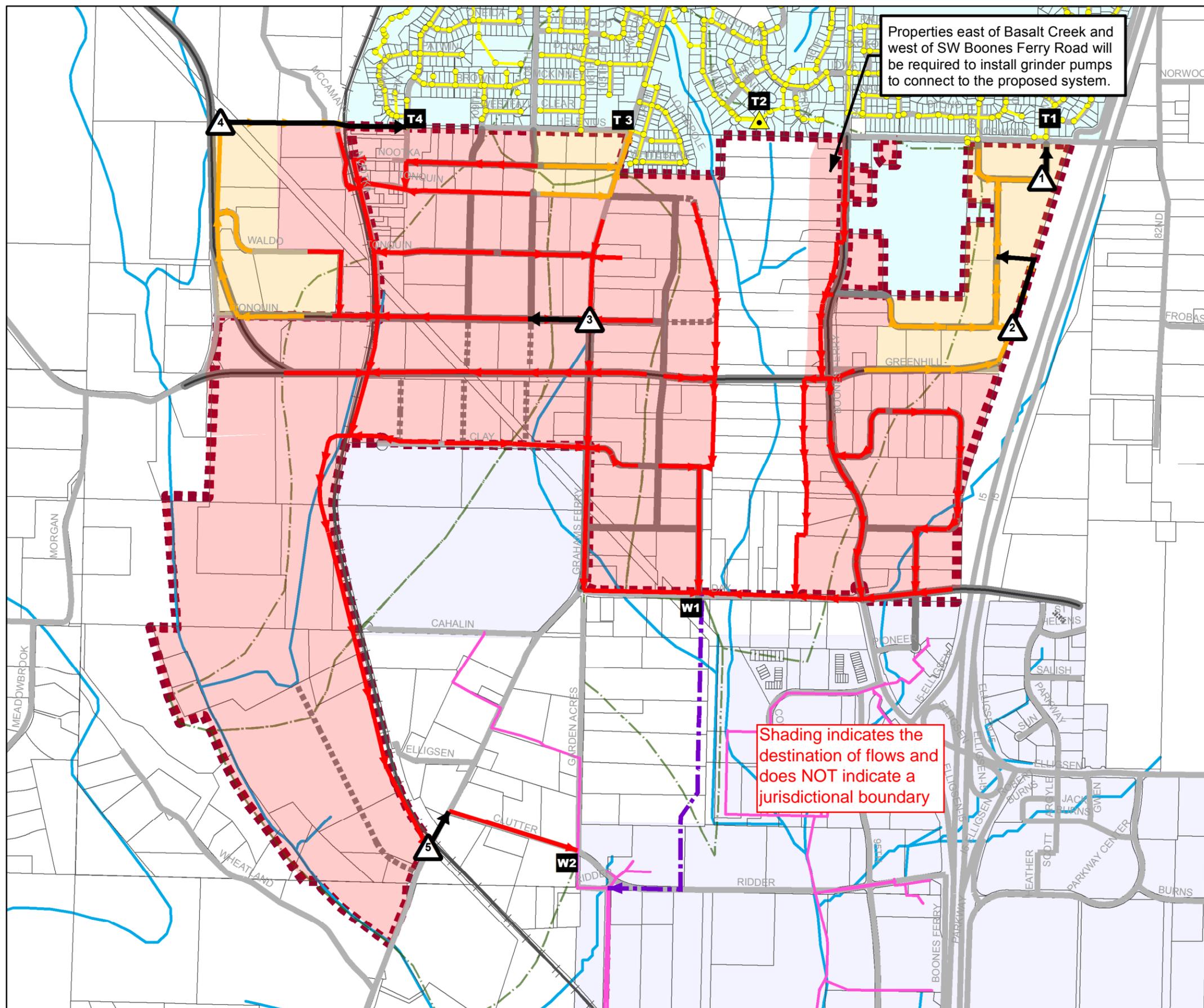
- Legend**
- Proposed Pump Stations
 - Proposed Forcemain
 - Proposed CWS Service System
 - Proposed Wilsonville Service System
 - CWS Sanitary Service Boundary
 - Wilsonville Sanitary Service Boundary
 - Connections to Existing Sanitary Systems
 - Planned Connection to Wilsonville
 - Existing CWS/Tualatin Pump Stations
 - Existing CWS/Tualatin Gravity System
 - Existing CWS/Tualatin Forcemains
 - Existing Wilsonville System
 - Proposed Main E-W Arterial Roads
 - Proposed Collector Roads
 - Proposed Local Access Roads
 - Existing Railroad
 - Existing Roads
 - Drainage Basins
 - Taxlots
 - Streams
 - Planning Area
 - City Boundaries**
 - Tualatin
 - Wilsonville

FIGURE 4
Base Case Alternative
Conceptual Sanitary System Design
Basalt Creek Planning Area

Attachment 3. Sanitary Sewer Alternatives Map: Minimize Pump Stations



Attachment 3. Sanitary System Alternatives Map: Minimize Impacts to Tualatin



- Legend**
- Proposed Pump Stations
 - Proposed Force mains
 - Proposed CWS Service System
 - Proposed Wilsonville Service System
 - CWS Service Boundary
 - Wilsonville Service Boundary
 - Connections to Existing Sanitary Systems
 - Planned SW Kinsman Rd Extension
 - Existing CWS/Tualatin Pump Stations
 - Existing CWS/Tualatin Gravity System
 - Existing CWS/Tualatin Force mains
 - Existing Wilsonville System
 - Proposed Main E-W Arterial Roads
 - Proposed Collector Roads
 - Proposed Local Access Roads
 - Existing Railroad
 - Existing Roads
 - Drainage Basins
 - Taxlots
 - Streams
 - Planning Area
 - City Boundaries**
 - Sherwood
 - Tualatin
 - Wilsonville

Shading indicates the destination of flows and does NOT indicate a jurisdictional boundary

Properties east of Basalt Creek and west of SW Boones Ferry Road will be required to install grinder pumps to connect to the proposed system.

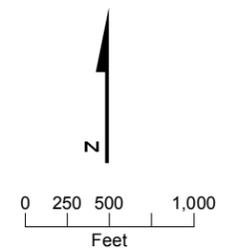
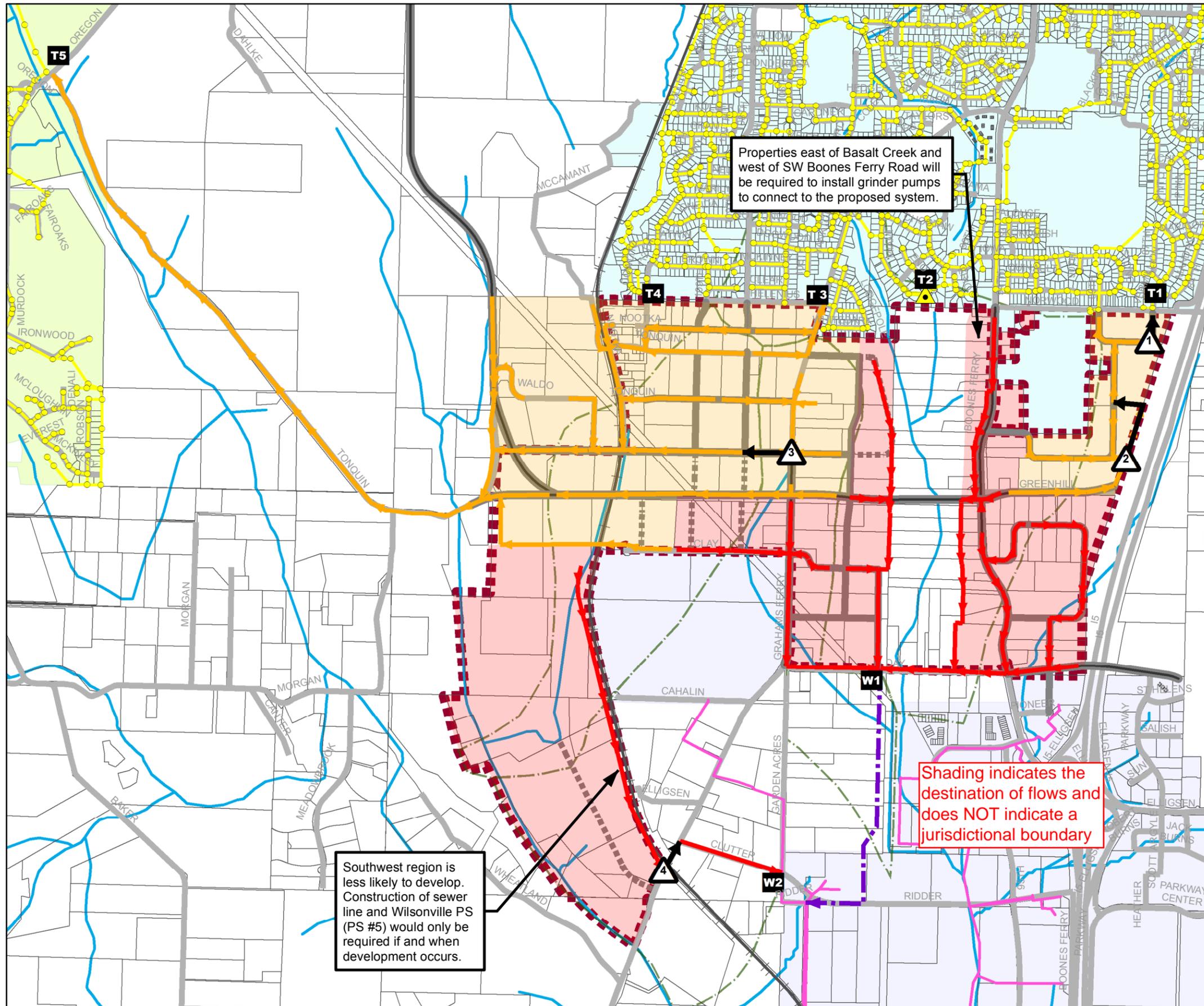


FIGURE 7
Alternative 2: Minimize Impacts to the Existing Tualatin System
Conceptual Sanitary System Design
Basalt Creek Planning Area



Legend

- ▲ Proposed Pump Stations
- ➔ Proposed Force mains
- ➔ Proposed CWS Service System
- ➔ Proposed Wilsonville Service System
- ▭ CWS Service Boundary
- ▭ Wilsonville Service Boundary
- Connections to Existing Sanitary Systems
- ➔ Planned SW Kinsman Rd Extension
- ▲ Existing CWS/Tualatin Pump Stations
- ➔ Existing CWS/Tualatin Gravity System
- ➔ Existing CWS/Tualatin Force mains
- ➔ Existing Wilsonville System
- ➔ Proposed Main E-W Arterial Roads
- ➔ Proposed Collector Roads
- ➔ Proposed Local Access Roads
- ➔ Existing Railroad
- ➔ Existing Roads
- ▭ Drainage Basins
- ▭ Taxlots
- ➔ Streams
- ▭ Planning Area
- City Boundaries**
- ▭ Sherwood
- ▭ Tualatin
- ▭ Wilsonville

0 250 500 1,000
Feet

FIGURE 8
Alternative 3: Hybrid Alternative
Conceptual Sanitary System Design
 Basalt Creek Planning Area



City Council Briefing

Sanitary Sewer Alternatives for Basalt Creek

Tualatin City Council
Work Session
May 11, 2015

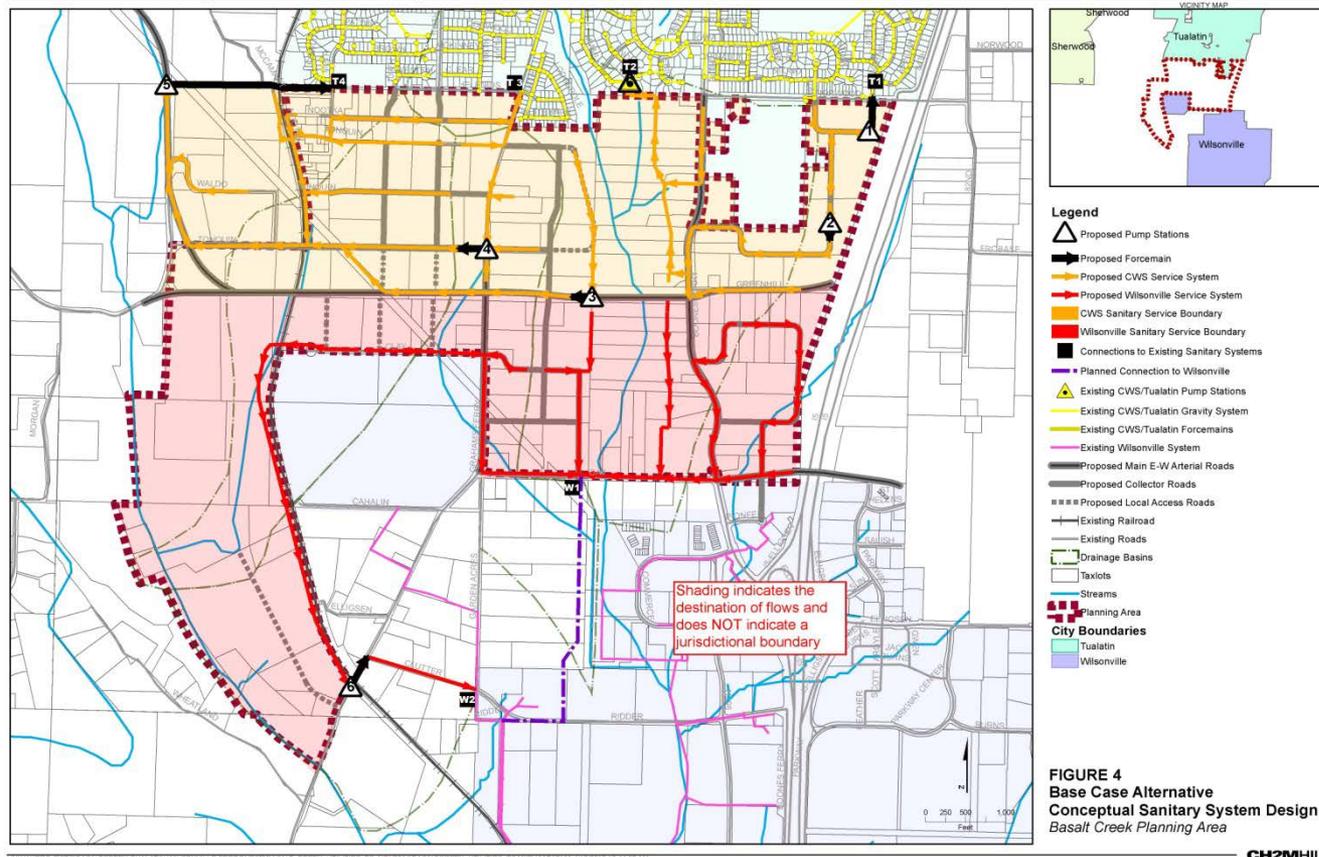


Purpose of Tonight's Meeting

- Share results of Sanitary System Alternatives Analysis
- Seek City Council direction:
 - Should service boundaries line up with jurisdictional boundaries?
 - Are shared service agreements an acceptable approach?

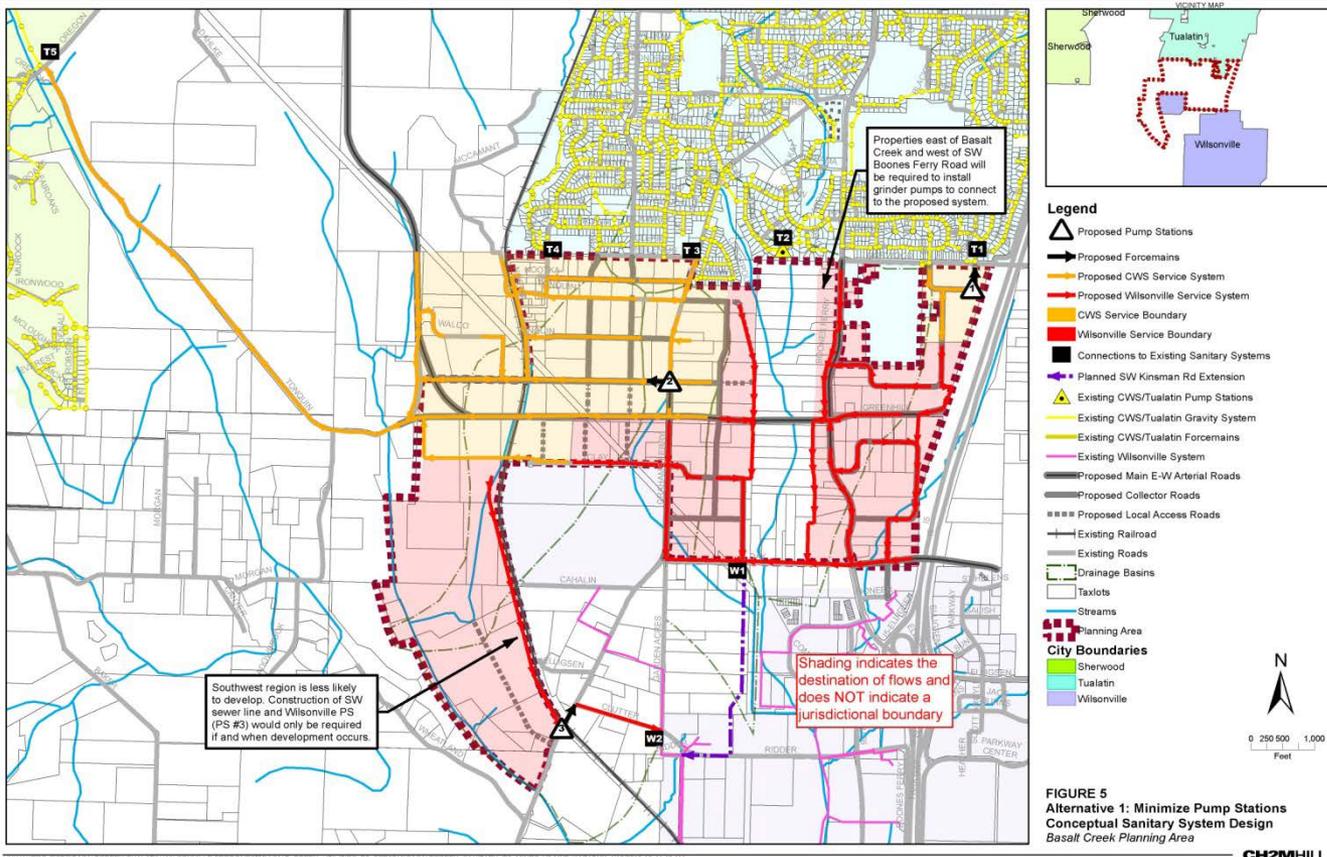
Base Case Alternative

Attachment 3. Sanitary Sewer Alternatives Map: Base Case



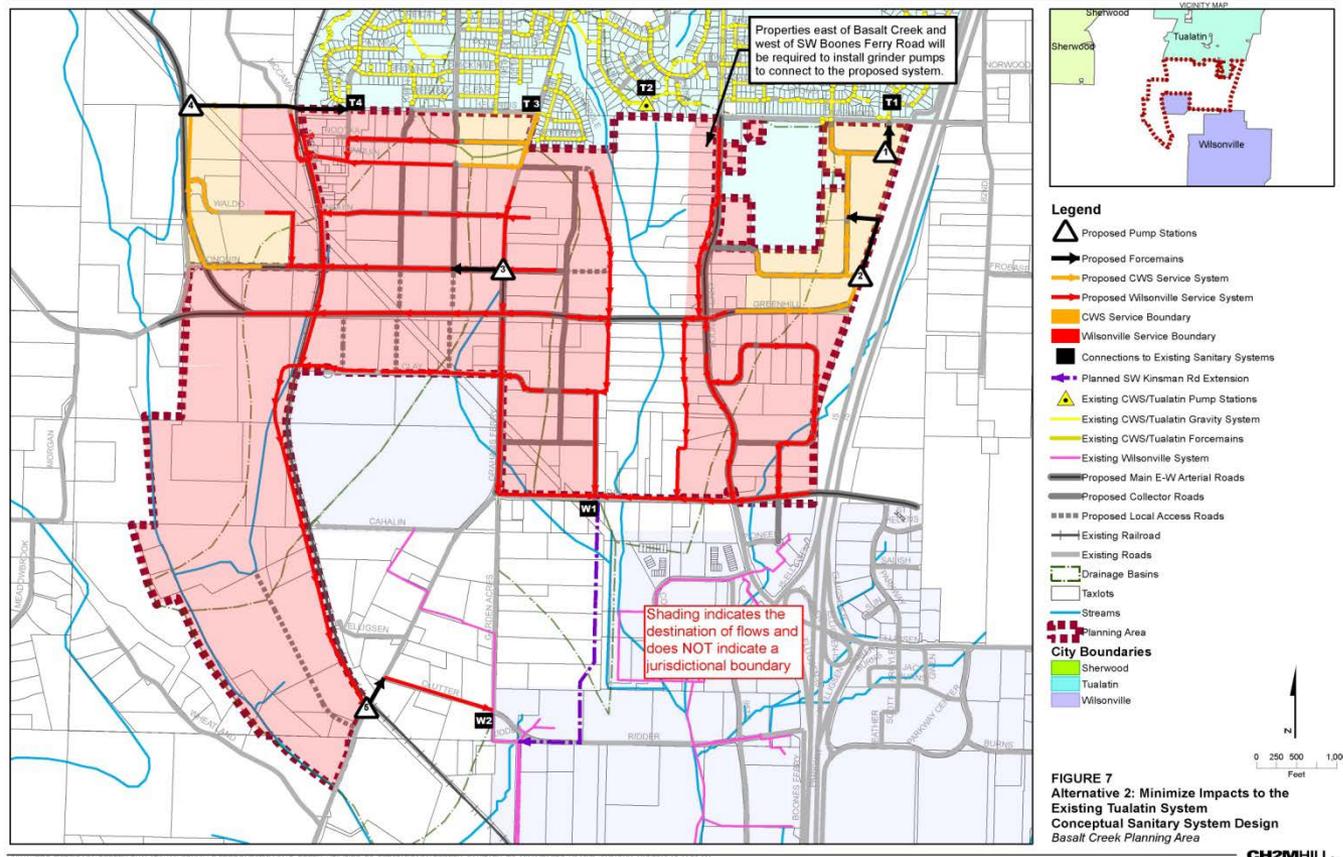
Minimize Pump Stations Alternative

Attachment 3. Sanitary Sewer Alternatives Map: Minimize Pump Stations



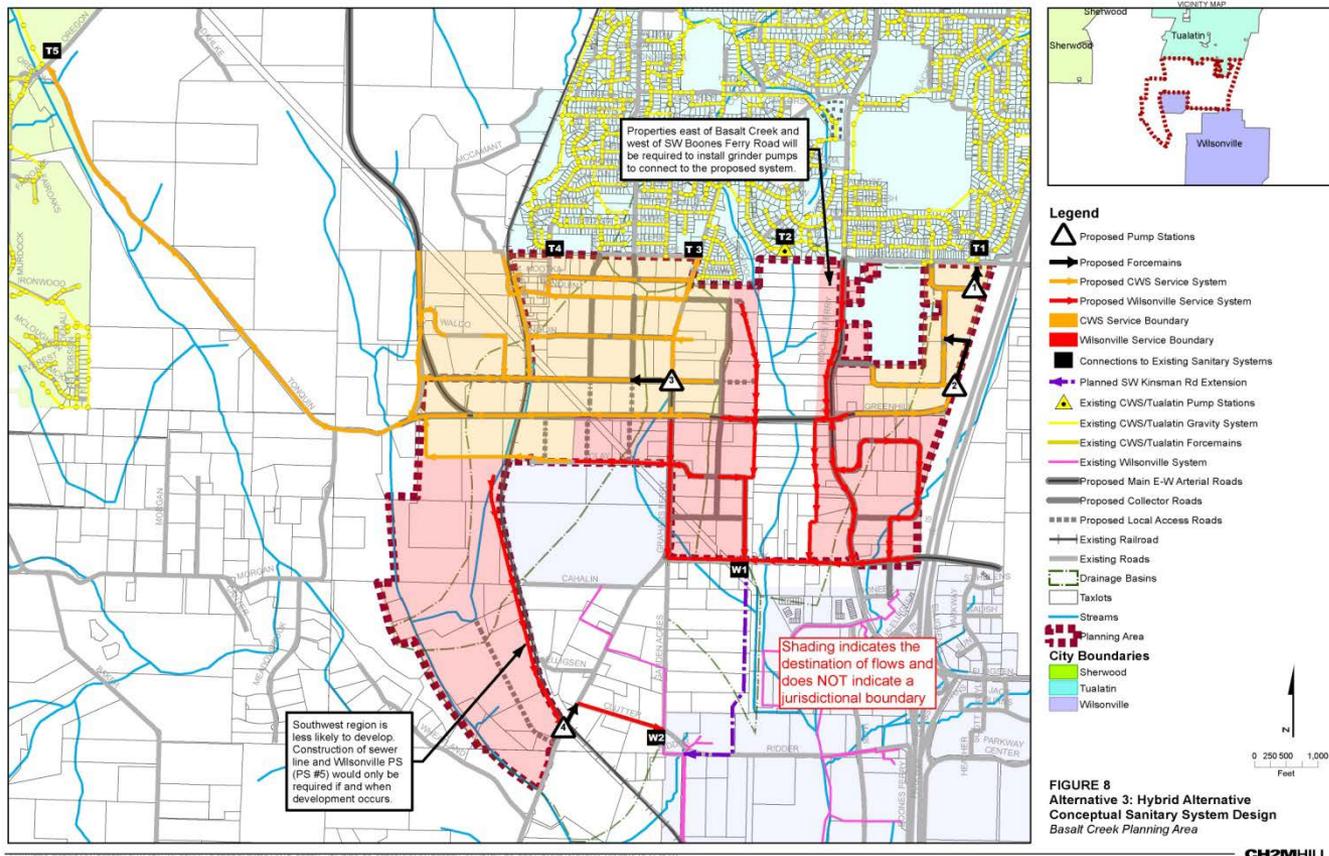
Minimize Impacts to Existing Tualatin Systems Alternative

Attachment 3. Sanitary System Alternatives Map: Minimize Impacts to Tualatin



Hybrid Alternative

Attachment 3. Sanitary System Alternatives Map: Hybrid



Comparison of Alternatives

| | Base Case | Minimize Pump Stations | Minimize Impacts to Existing System | Hybrid |
|----------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Total Project Cost | \$ 50.6 mil | \$ 44.5 mil | \$47.2 mil | \$47.4 mil |
| Phasing Opportunities (Tualatin) | Medium | Less than optimal* ² | Better in NE, Less than optimal* ² in Central & NW | Good in NE, Central and NW |
| Required Tualatin Upgrades | Martinazzi and 103 rd Laterals, Tualatin Reservoir Trunk | Martinazzi Lateral, Upper Tualatin Trunk* ¹ | Martinazzi Lateral | Martinazzi Lateral, Upper Tualatin Trunk |
| Pros | Service boundary along E-W Connector, about equal flows | About equal flows, least pump stations, low impact on existing system, least cost | Lowest impact on existing system | Good phasing, low impact on exiting system, about equal flows |
| Cons | Most pump stations, highest cost, high impact on existing system | Less than optimal phasing* ² | Majority of flow goes to Wilsonville, more pump stations | More pump stations |

*1 Clean Water Services capital project

*2 May be dependent on early multi-jurisdictional project to address current market demand. Near term development may need temporary service solutions; to be evaluated on a case-by-case basis.

Project Team Recommendation for Council Discussion

- “Minimize Pump Stations” is most efficient system
- Shared service agreements are an option
 - Achieve more efficient system
 - Achieve overall vision for planning area
 - Achieve each city’s desired outcomes

Next Steps

- **City Council Work Session: Land Use Alternative and Boundary Discussion**
 - June 8
- **Joint City Council Meeting**
 - June 17
- **Public Open House on All Scenarios**
 - August - September

Discussion