

APPENDIX A
UTILITIES & TRANSPORTATION SYSTEMS ANALYSIS

Comprehensive Plan Designations

The Annexation Area is currently zoned FD-10, Future Development (10 acre minimum) by Washington County. The applicants are not requesting a zone change to City zoning with this application. Implementation of City zoning will occur through a separate application process.

The gross areas allocated for each zone will be reduced to net areas with the dedication of the proposed West Side Circulator Street deducted. The street rights-of-way, including the West Circulator, extension of NW Wilkes Street and future extension of the West Circulator will consume 6.63 acres. Therefore the net developable area is 23.48 acres.

Conceptual Development Plan

At this time the applicant has a General Development Plan, based on the Comprehensive Plan designations and applicable densities. As reflected in Table 1, the applicant anticipates the maximum level of development would be about 167 residential units, in various configurations, plus in the range of 171,000 square feet of industrial uses.

Table 1
GENERAL CONCEPT PLAN
UGB/Comp Plan Allocation comparison to Surveyed Areas

Banks Zoning	Comp Plan Assigned Area	Gross Annexed Area (Surveyed)	Net Area (Surveyed)	Density	Units Allowed
MU	4.9	4.82	3.56	10/acre	35.6
HDSF	9.2	9.39	7.95	10/acre	79.5
HDMF	1.9	2.40	2.17	24/acre	52.08
				Total Units	167.18
Industrial	12.5	11.77	9.80	40% lot coverage	170,755 sf
Net buildable			23.48		
West Circulator North	*		4.90		
West Circulator South	1.73	1.73	1.73	N/A	
Total	30.23	30.11	30.11		

***Notes Table 1:** The second column UGB/Comp Plan Area does not include a 60 strip (TL 800) for future extension of the west circulator road to the South. The gross and net surveyed area includes a portion of tax lot 5200 (0.04 acres).

Tax Lot 6000 is available for access purposes, but is already within the City. This property is reflected on the General Concept Plan, but is not included in the annexation, and does not affect the available buildable land.

The Net Area also includes deducting out the West Side Circulator road which is approximately 6.63 acres.

Existing City Utilities

The City has existing infrastructure, adjacent or nearby, which is available to serve development of the annexation area as summarized in Table 2:

Table 2
Existing Utilities

Service	Provider	Size	Location	Distance from Site
Water	City	12-14 inch	Main Street	Adjacent
Sanitary Sewer	CWS	8 inch	Cedar Canyon Rd., CWS pump station	Adjacent
Storm Drainage	CWS	N/A	Discharge to W. Fork Dairy Ck.	Adjacent

Water System

Supply: The City of Banks owns three sources of water supply.

- The Large Green Mountain Springs can reliably supply 110 gallons per minute (gpm).
- The Small Green Mountain Springs can reliably supply 20 gpm, but this is high turbidity water and has not been used recently.
- The Behrman Well can reliably supply 230 gpm.

The spring water sources are located about 3.2 miles north of the city, north of Highway 26. The Behrman Well and Well #2 are located just east of the City on Banks Road.

The City has four storage reservoirs for a total storage capacity of 1.79 million gallons (MG). Two located to the north near the spring supply, while the two Carsten Reservoirs are located just north of the city, east of Sellers Road.

The 2011 Water Master Plan update specifically to address the UGB Expansion Areas includes a List of 15 capital improvement projects.

The Water Master Plan identifies a supply deficiency, and lists several alternative solutions to ensure adequate supply is available. A specific solution will be forthcoming from the City.

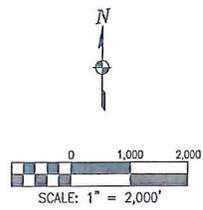
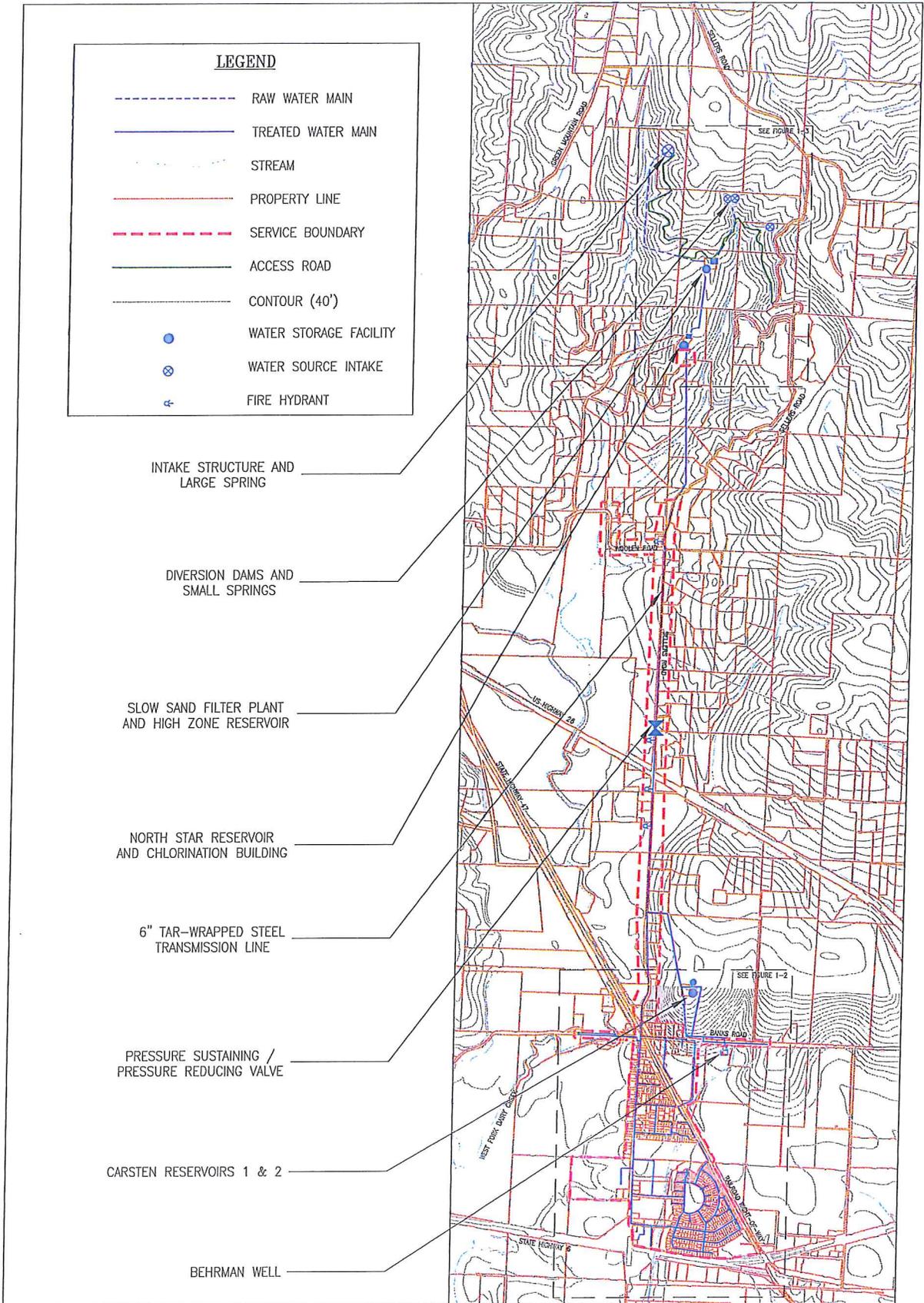
In response to the system deficiencies, for the prior annexations, the City has required the Petitioners/Owners to execute a Development Agreement to ensure adequate water supply is available at the time of development. The Petitioners anticipate execution of a similar Development Agreement. It is understood the selection and delivery of enhanced supply will be necessary prior to future development for any of the annexed properties.

Site Development – Water Supply and Distribution

The conceptual development potential for the annexed property anticipates construction of approximately 140 residential units and 210,000 square feet of industrial development. Based on the average daily per capita demand of 152 gpcpd and an average household size of 2.7, the residential uses would be expected to create additional daily system demand of 9,720 gpd.

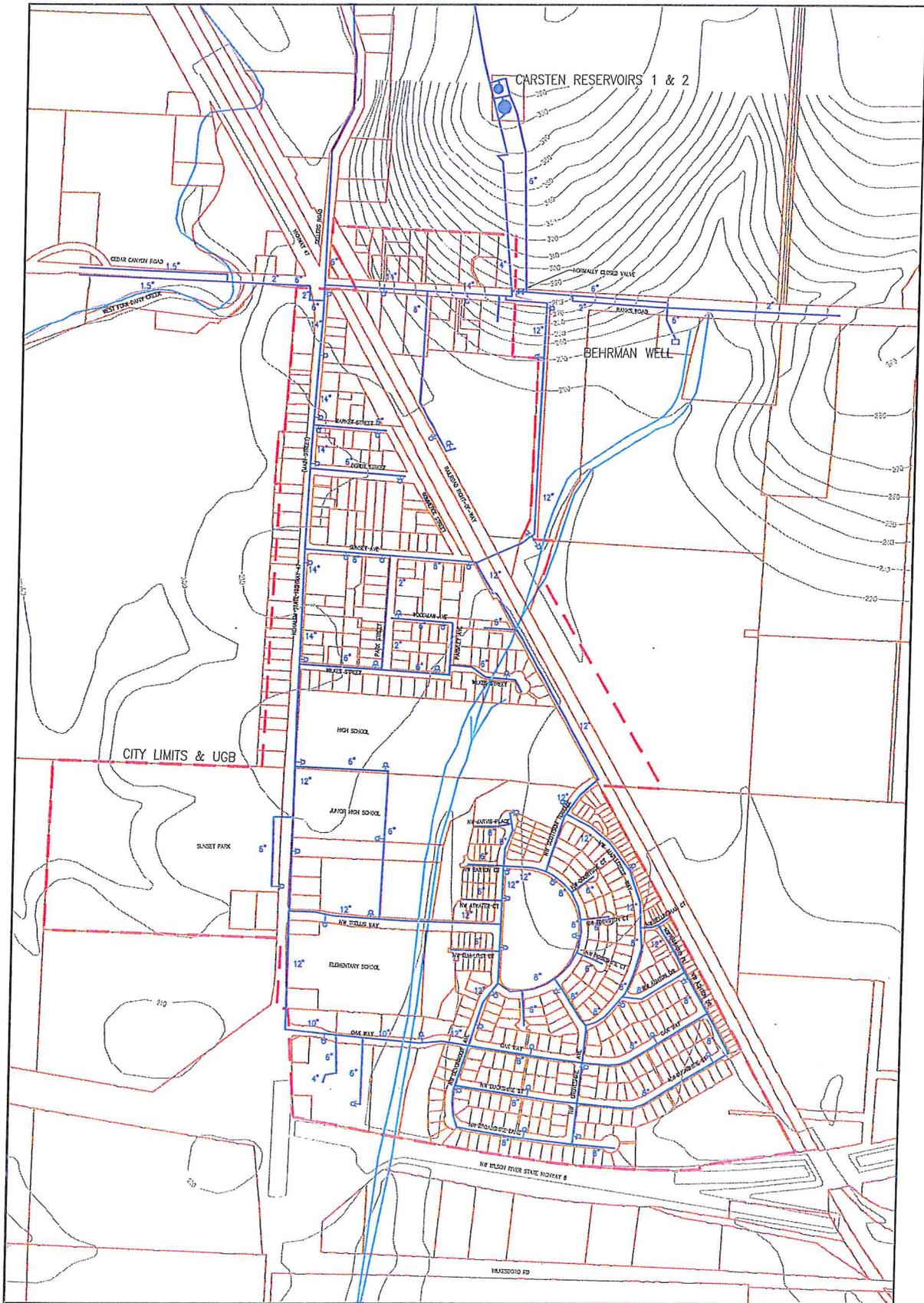
As the subject property is developed, water service will be extended from the line in Main Street and looped through the development, with connections through Tax Lots 5200 and 6000.

The City's Water system Master Plan calls for a main line connection between the 12 inch line in Main Street and the 15 inch line in NW Cedar Canyon Road, which extends through the subject properties.



Kennedy/Jonks Consultants
 CITY OF BANKS
 WATER SYSTEM MASTER PLAN
WATER SYSTEM MAP

K/J 0791015.10
FIGURE 1-1



LEGEND

- 6" DISTRIBUTION MAIN WITH PIPE DIAMETER
- STREAM
- PROPERTY LINE
- CONTOUR (10')
- FIRE HYDRANT

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○
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0 250 500
|-----|-----|
SCALE: 1" = 500'

Kennedy/Jenks Consultants
CITY OF BANKS
WATER SYSTEM MASTER PLAN

DISTRIBUTION SYSTEM

K/J 0791015.10
FIGURE 1-2

LEGEND

- RAW WATER MAIN
- TREATED WATER MAIN
- STREAM
- PROPERTY LINE
- CITY LIMITS & UGB
- ACCESS ROAD
- CONTOUR (40')
- WATER STORAGE FACILITY
- ⊗ WATER SOURCE INTAKE
- + FIRE HYDRANT

INTAKE STRUCTURE AND
LARGE SPRING

DIVERSION DAMS AND
SMALL SPRINGS

SLOW SAND FILTER PLANT,
HIGH ZONE RESERVOIR,
AND NEW SODIUM
HYPOCHLORITE BUILDING

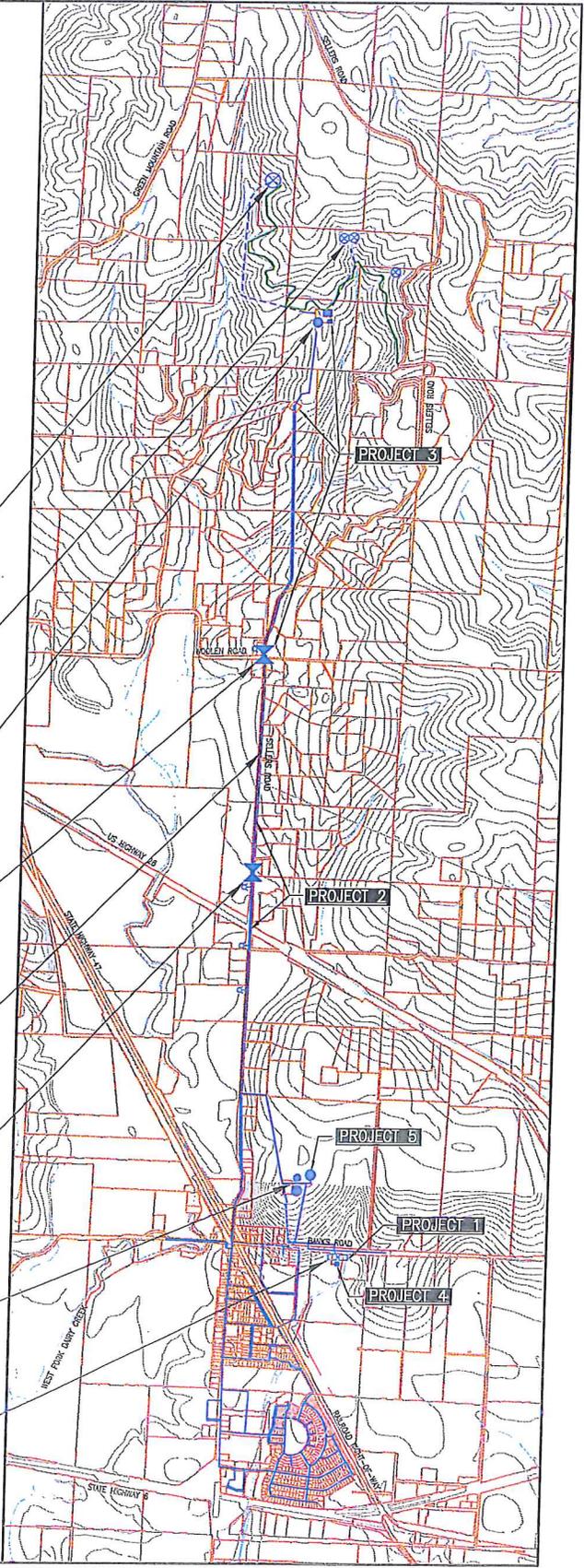
NEW PRV STATION

NEW 8" TREATED WATER
TRANSMISSION LINE

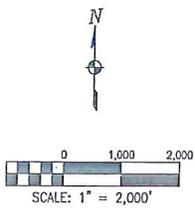
PRESSURE SUSTAINING /
PRESSURE REDUCING VALVE

CARSTEN RESERVOIRS 1 & 2,
AND NEW 1.0-MG RESERVOIR

BEHRMAN WELL & WELL NO. 2 WITH
NEW SODIUM HYPOCHLORITE BUILDING



NOTE: THICK WATER LINES INDICATE NEW OR UPGRADED FEATURES IN THE TRANSMISSION AND DISTRIBUTION SYSTEM

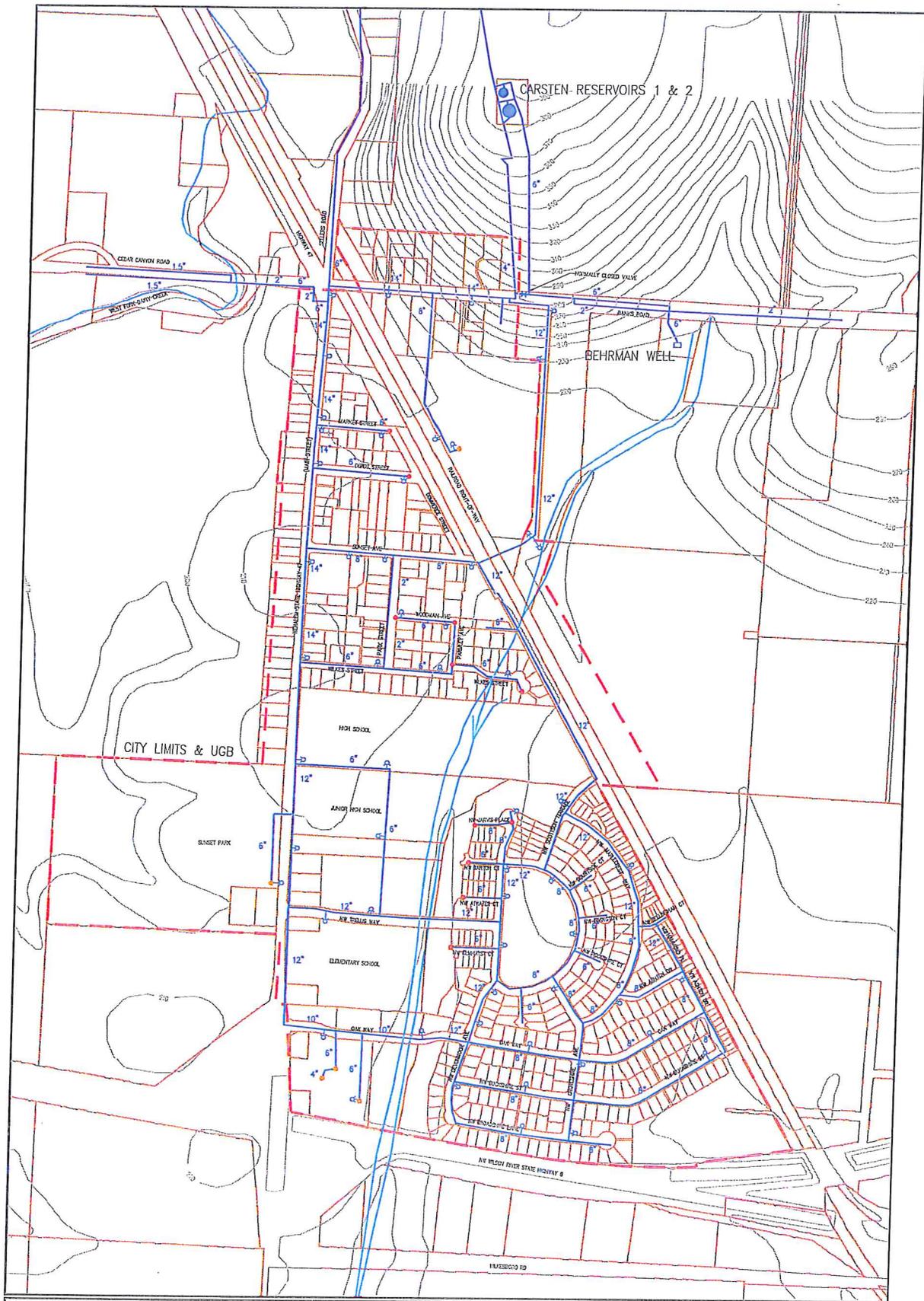


Kennedy/Jenks Consultants
CITY OF BANKS
WATER SYSTEM MASTER PLAN

**FUTURE WATER
SYSTEM MAP**

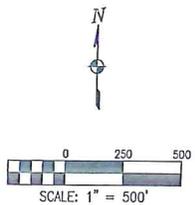
K/J 0791015.10

FIGURE 4-1



LEGEND

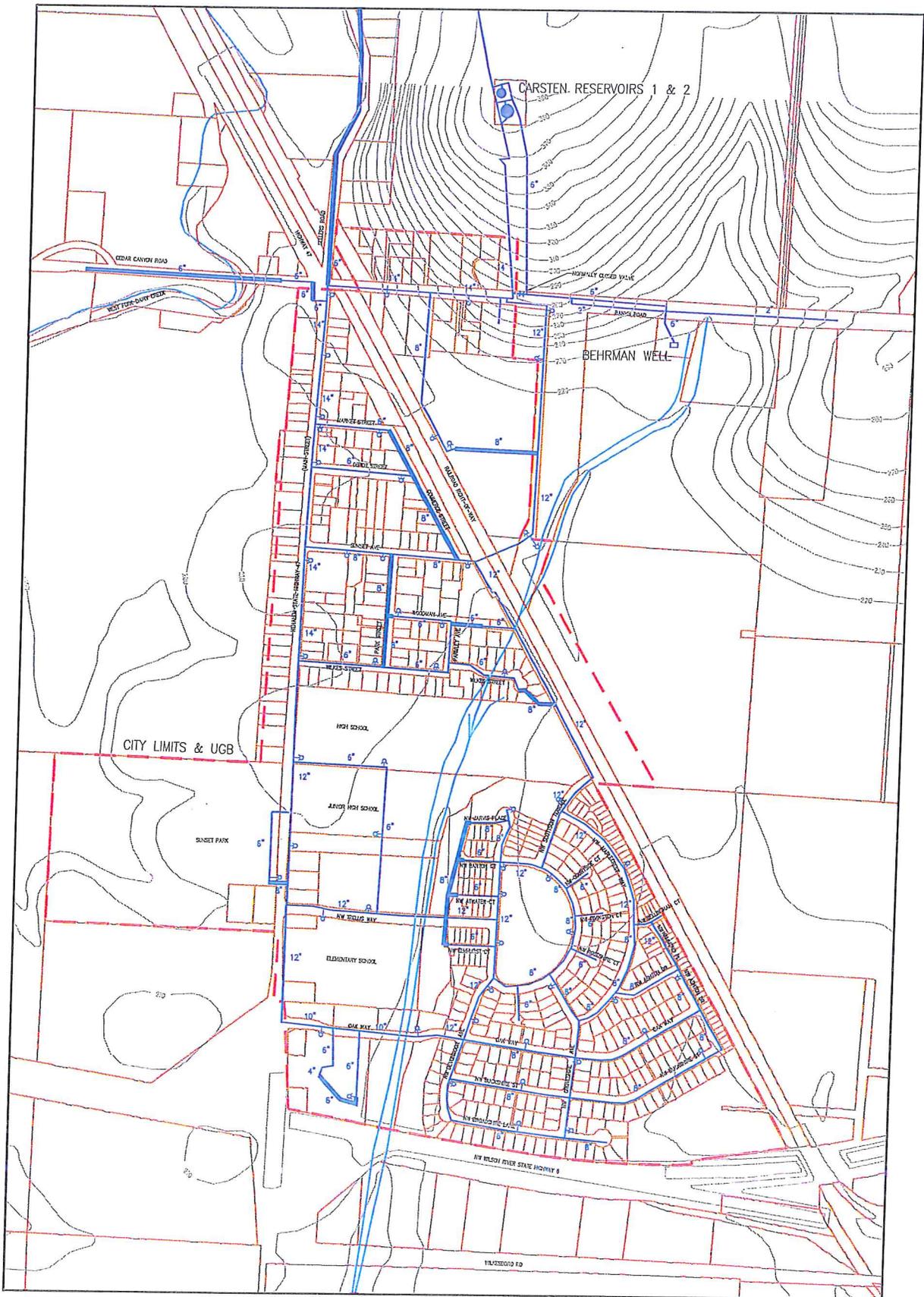
	DISTRIBUTION MAIN WITH PIPE DIAMETER		FIRE FLOW DEFICIENCY, COMMERCIAL ZONING
	STREAM		FIRE FLOW DEFICIENCY, RESIDENTIAL ZONING
	PROPERTY LINE		
	CONTOUR (10')		
	FIRE HYDRANT		



Kennedy/Jenks Consultants
 CITY OF BANKS
 WATER SYSTEM MASTER PLAN

EXISTING SYSTEM FIRE FLOW DEFICIENCIES

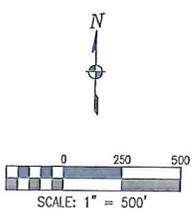
K/J 0791015.10
FIGURE 4-2



NOTE: THICK WATER LINES INDICATE NEW OR UPGRADED FEATURES IN THE TRANSMISSION AND DISTRIBUTION SYSTEM

LEGEND

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-
-



Kennedy/Jenks Consultants
 CITY OF BANKS
 WATER SYSTEM MASTER PLAN
FUTURE DISTRIBUTION SYSTEM
 K/J 0791015.10
 FIGURE 4-3

Sanitary Sewer System

Sanitary sewer is provided by Clean Water Services (CWS). There is a 10 inch line in Main Street, and a 15 inch line in NW Cedar Canyon Road.

CWS has a pump station located near the northern boundary of the Annexation Area, just south of NW Cedar Canyon Road, on Tax Lot 601. The elevation of the pump station is sufficient to accommodate gravity flow sanitary sewer from the annexed property. CWS has confirmed that the pump station has capacity to serve the annexed property.

Storm Drainage System

Storm drainage is also provided by Clean Water Services. Based on the topography of the annexed property storm drainage will be directed to the West Fork of Dairy Creek, consistent with CWS standards.

The 2010 UGB Expansion Technical Report found that the expansion areas can be efficiently served by sanitary sewer and storm drainage conveyance provided by Clean Water Services (CWS).

Based on prior annexations, the applicant understands that the subject property must also be annexed into the Clean Water Service District.

Ben Altman

o: Laurie Harris
Subject: RE: 16-002174 42580 NW CEDAR CANYON

From: Laurie Harris
Sent: Monday, August 08, 2016 11:59 AM
To: 'Ben Altman' <baltman@pd-grp.com>
Cc: Elle Allan <AllanE@CleanWaterServices.org>; Andy Braun <BraunA@CleanWaterServices.org>; Marvin Spiering <SpieringM@CleanWaterServices.org>
Subject: RE: 16-002174 42580 NW CEDAR CANYON

Hello Ben,

The vegetated corridor/sensitive area service provider letter is not required for annexation; therefore, Clean Water Services does not require the environmental site assessment at this time (nor the pre-screen review, for that matter). I think the reference to the subdivision on the pre-screen form caused some confusion on our part.

Regarding your request for general confirmation about sanitary sewer and surface water management, I can confirm that Clean Water Services (District) is the sanitary sewer and stormwater management utility for the City of Banks (City). Please note the following items:

1. The subject property will need to be annexed into District's boundary upon annexation to the City.
2. While sanitary sewer and storm sewer are available in the vicinity of the property, District has not developed specific plans to serve the property.
3. An applicant proposing to develop this parcel will need to comply with District's Design and Construction Standards which will include determining the sanitary and storm capacity and conveyance improvements necessary to serve the property as well as addressing protection of the vegetated corridors.

If you haven't already had conversations with Clean Water Services, a [pre-design meeting](#) would probably be a good next step towards identifying the scope of improvements. Clean Water Services looks forward to working with your firm to develop plans for this area.

Sincerely,

Laurie Harris | Engineering Technician
[Clean Water Services](#) | Development Services
2550 SW Hillsboro Hwy | Hillsboro OR 97123
o 503.681.3639 | f 503.681.4439
[engage news](#) | [facebook](#) | [twitter](#)

From: Ben Altman [<mailto:baltman@pd-grp.com>]
Sent: Friday, August 05, 2016 11:09 AM
To: SPL Review <SPLReview@CleanWaterServices.org>
Subject: RE: 16-002174 42580 NW CEDAR CANYON

Chuck, we are aware that an environmental assessment will be required prior to specific site development. However, at this time all we are doing is annexation to the City of Banks. Therefore, is there any requirement for the Assessment at is time?

What we need for Annexation is just a general confirmation that sewer and storm services are available.

Ben Altman SENIOR PLANNER | PROJECT MANAGER | D 971.708.6258
PIONEER DESIGN GROUP, INC. CIVIL | LAND USE PLANNING | SURVEY
9020 SW Washington Square Rd. Suite 170 Portland, OR 97223 P 503.643.8286 pd-grp.com

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From: SPL Review [<mailto:SPLReview@CleanWaterServices.org>]
Sent: Friday, June 10, 2016 9:52 AM
To: Ben Altman
Subject: 16-002174 42580 NW CEDAR CANYON

From: SPL Review
Sent: Friday, June 10, 2016 9:49 AM
To: baltman@pd-grp.com
Subject: 16-002174 42580 NW CEDAR CANYON

Hello,

Clean Water Services has completed the Sensitive Area Pre-Screen review for the proposed development at the subject property. Based upon the review it appears that Sensitive Areas potentially exist on-site or within 200 feet of the subject property. In order to continue with the review please submit a Site Assessment as indicated on the attached signed Pre-Screen form.

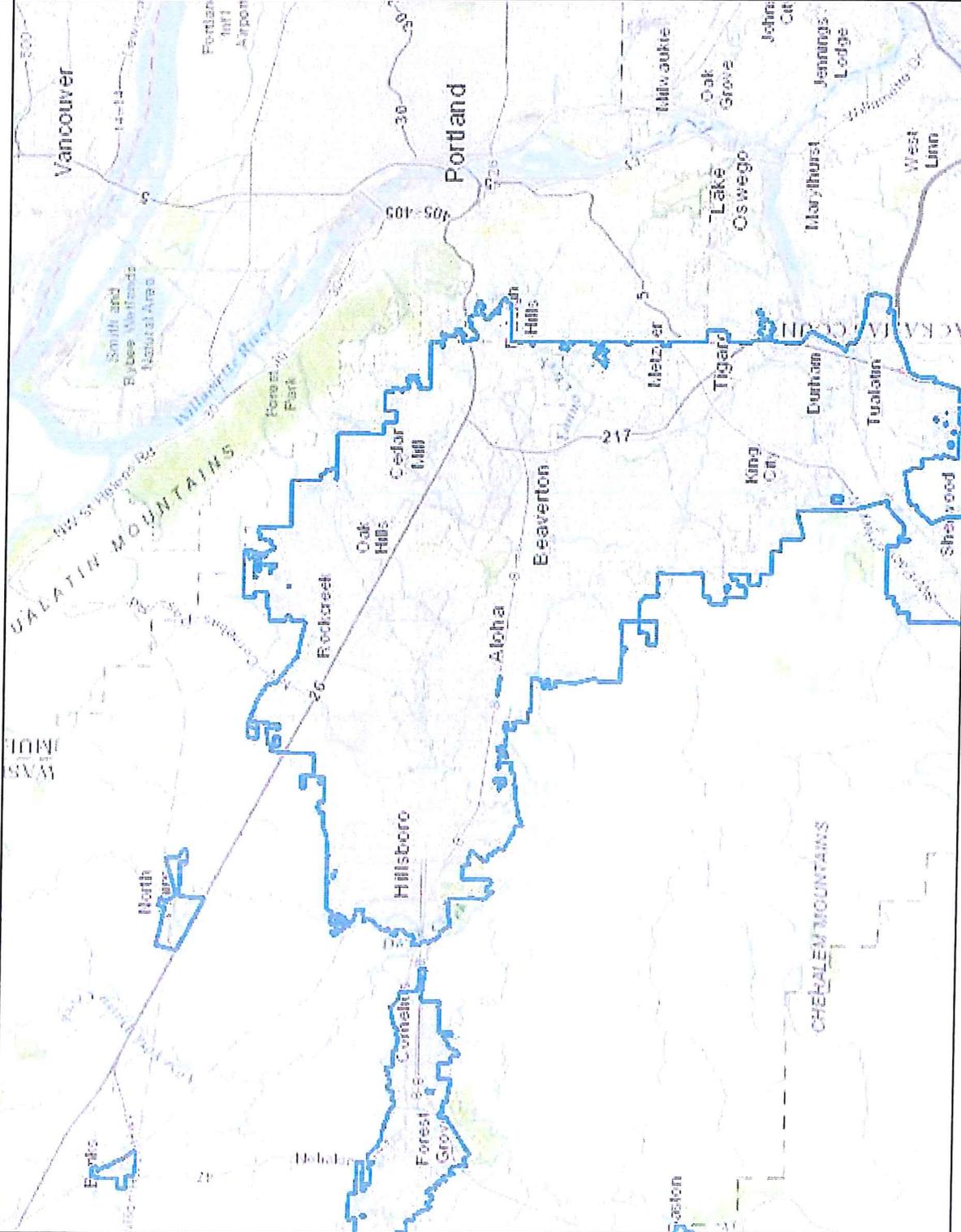
You can find the Site Assessment submittal requirements and review standards at Clean Water Services web site:
<http://www.cleanwaterservices.org/permits-development/step-by-step-process/environmental-review/>

You may contact Amber Wierck, Environmental Review Project Manager, at 503-681-3653 if you have any questions about the Site Assessment process or submittal requirements.

Thank you

Chuck Buckallew | Engineering Technician
[Clean Water Services](#) | Development Services
2550 SW Hillsboro Hwy | Hillsboro OR 97123
o 503.681.3605 | f 503.681.4439
engage [news](#) | [facebook](#) | [twitter](#)

Clean Water Services -- Sewer Map



Legend

- Cleanout
- Fitting
- ⊕ Valve
- Manhole
- Inlet
- △ Pond
- Vault
- ☆ Treatment Plant
- Ⓟ Pump Station
- ↑ Gravity Line
- ↑ Pressure Line
- ↑ Open Channel
- ↑ Virtual Flow
- ⋮ Pond Outline
- ▭ CWS Boundary
- ▭ County Boundary
- ▭ Urban Growth Boundary

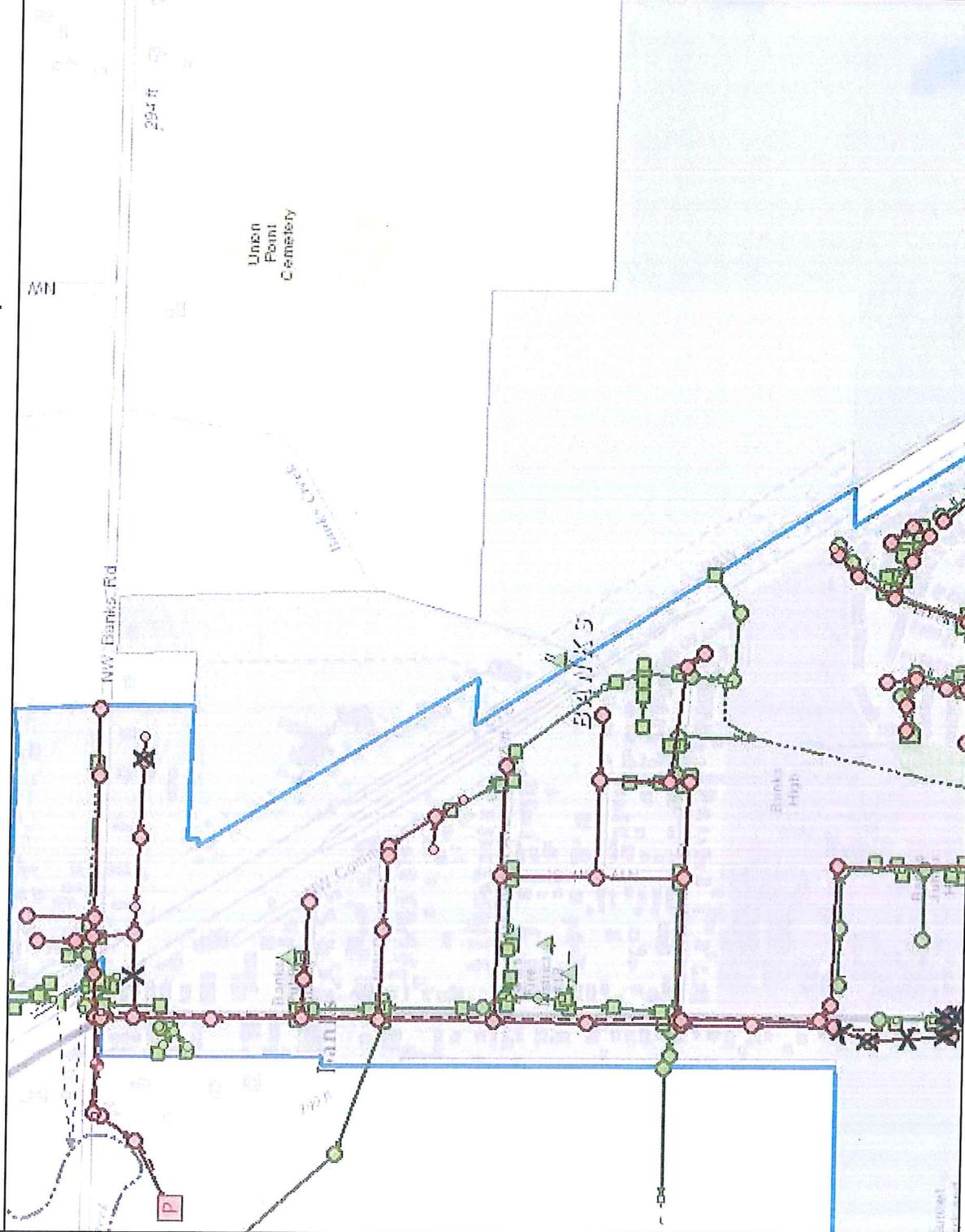
- X Abandoned
- CWS Sani
- Partner Sani
- CWS Storm
- Partner Storm



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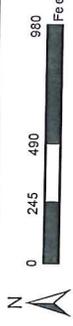
Clean Water Services -- Sewer Map



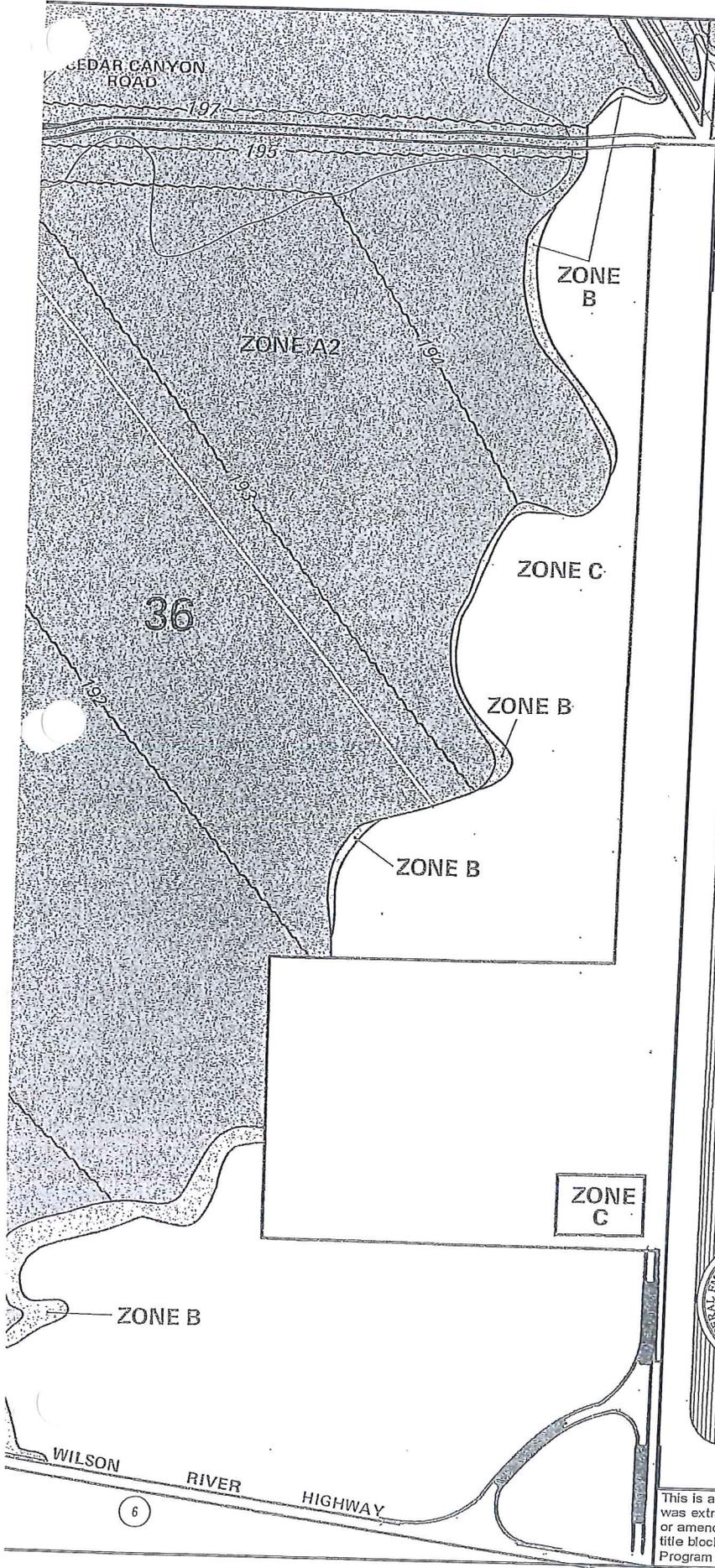
Legend

- Cleanout
- Fitting
- ⊕ Valve
- Manhole
- Inlet
- △ Pond
- Vault
- ☆ Treatment Plant
- Ⓟ Pump Station
- Gravity Line
- Pressure Line
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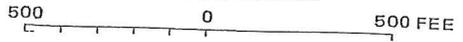
- X Abandoned
- CWS Sani
- CWS Storm
- Partner Sani
- Partner Storm



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APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

**WASHINGTON COUNTY,
 OREGON**
 (UNINCORPORATED AREAS)

PANEL 301 OF 575
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
410238 0301 B

EFFECTIVE DATE:
SEPTEMBER 30, 1982



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Transportation Infrastructure

Arterial Access

Arterial circulation for the City of Banks is provided by the Highway 6, south of the site and Highway 47 (Main Street), east of the site, both state highways under ODOT jurisdiction. However, there is no direct site access proposed or required from either of these two state highways.

The primary site has about 200 feet of frontage on NW Cedar Canyon Road which is a collector. The site is located one row of lots west of Main Street. Main Street is classified as an Arterial in the 2010 TSP. In addition to a future access to Main Street via a new street over tax lot 5200 connecting across from the existing Wilkes Street, another access will connect to Cedar Canyon Road.

Collector Circulation

The TSP Alternative Analysis identifies the need for a new street connection that would extend through the annexation area, as follows:

“Alternative #8: New north-south circulator road in west side Banks area between Cedar Canyon Road and area south of Sunset Park

This alternative entails constructing a new north-south road on the west side of the existing City of Banks with termini intersections at Cedar Canyon Road in the north and Main Street in the south (see Figure 8 below). The termini intersection at Main Street south of Sunset Park would be restricted to right-in/right-out movements. This roadway would be a 40 foot wide paved roadway with sidewalks, illumination, landscaping and drainage, occupying a right-of-way footprint of 64 feet, and meeting City of Banks Collector standards. This alternative would address the need to provide a primary circulator road for the UGB expansion area to the west of Main Street (both north and south of Sunset Park).

The location of this proposed roadway is optimal because it will allow for double-loading of mixed uses on the lot line in the northern segment of the road and will provide access to the commercial and industrial areas, while simultaneously providing this critical north-south roadway within the constraints of the adjacent floodplain.

This alternative would be constructed only when warranted based on future traffic conditions associated with future development of the UGB expansion area west of Main Street.

The proposed Westside north-south circulator road corridor as shown on Figure 8 is conceptual and would be defined through the land development process as it is funded, designed, and built.

Criteria Evaluation

"Traffic Operations

As noted, constructing a circulator road would be necessary for the development of the UGB expansion area west of Main Street, both north and south of Sunset Park. The UGB expansion area north of Sunset Park will be primarily residential (with the exception of approximately 12 acres that would be zoned industrial immediately north of Sunset Park); the area south of Sunset Park would be zoned both industrial and commercial. This alternative would include right-in/right-out only restrictions at the new road's intersection with both Cedar Canyon Road and Main Street. Both of these new intersections would need to be analyzed prior to programming for funding in tandem with trip generation information from planned developments on the west side of Banks to determine the extent to which intersection modifications would be warranted to mitigate traffic operation issues revealed at that future time...

Support for Implementation

This alternative has been presented to ODOT, Washington County, City of Banks staff, City of Banks Council members, City of Banks Planning Commission members, and the general public as a necessary element to UGB expansion on the west side of Banks. There has been some opposition to the planned UGB expansion on the west side of Banks, but no pointed opposition or expressions of disapproval from any of the aforementioned parties with regard to this road alternative (again, assuming UGB expansion west of Banks); therefore, it is assumed that there is support for this alternative.

Cost-Effectiveness

Based on planning level estimate tools, this projected is estimated at \$12,673,100. This estimate includes the design and construction of new City of Banks Collector roadway, new right-of-way, contingency, and engineering costs. No escalation factor is included...

Conclusion

Based on the above assessment, this alternative is recommended as a project to be placed on the City's transportation CIP list for consideration to be constructed (when warranted based on future conditions). A detailed discussion of potential transportation funding sources for this alternative is provided in Section D of this memorandum."

General Concept Plan

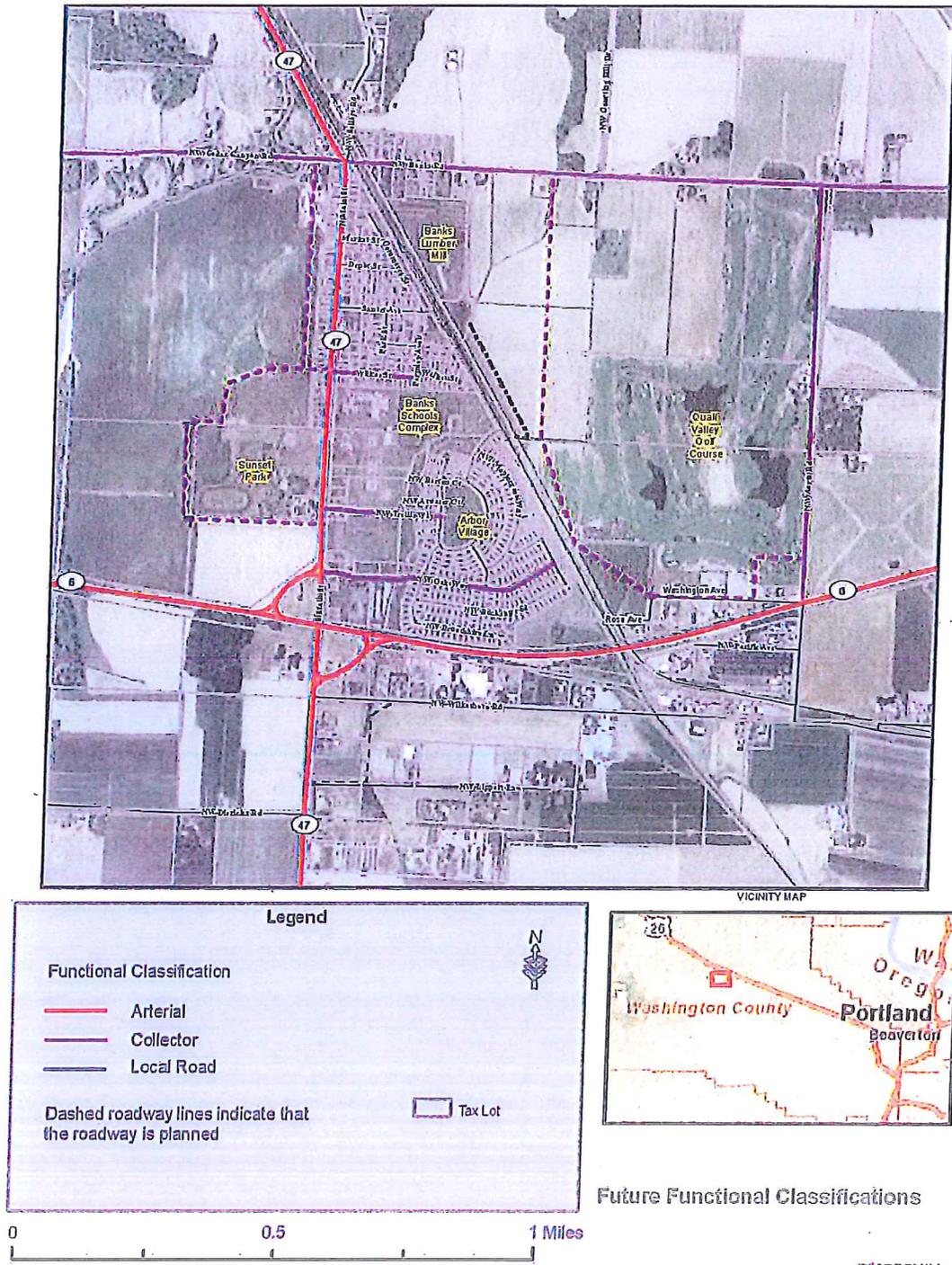
The existing access from NW Cedar Canyon Road will be maintained and improved. In addition to the land proposed for annexation, the applicant owns property along Main Street, (TL 5200). Tax Lot 5200 in particular aligns with NW Wilkes Street and can provide access from Main Street to the annexed property. As the site is developed, a system of local streets will be constructed providing access and circulation throughout the site, with access from Main Street and Cedar Canyon Road.

The TSP identifies a new north-south circulator street that is to extend through the subject property and around Sunset Park back to Main Street. The UGB expansion included a 60 foot

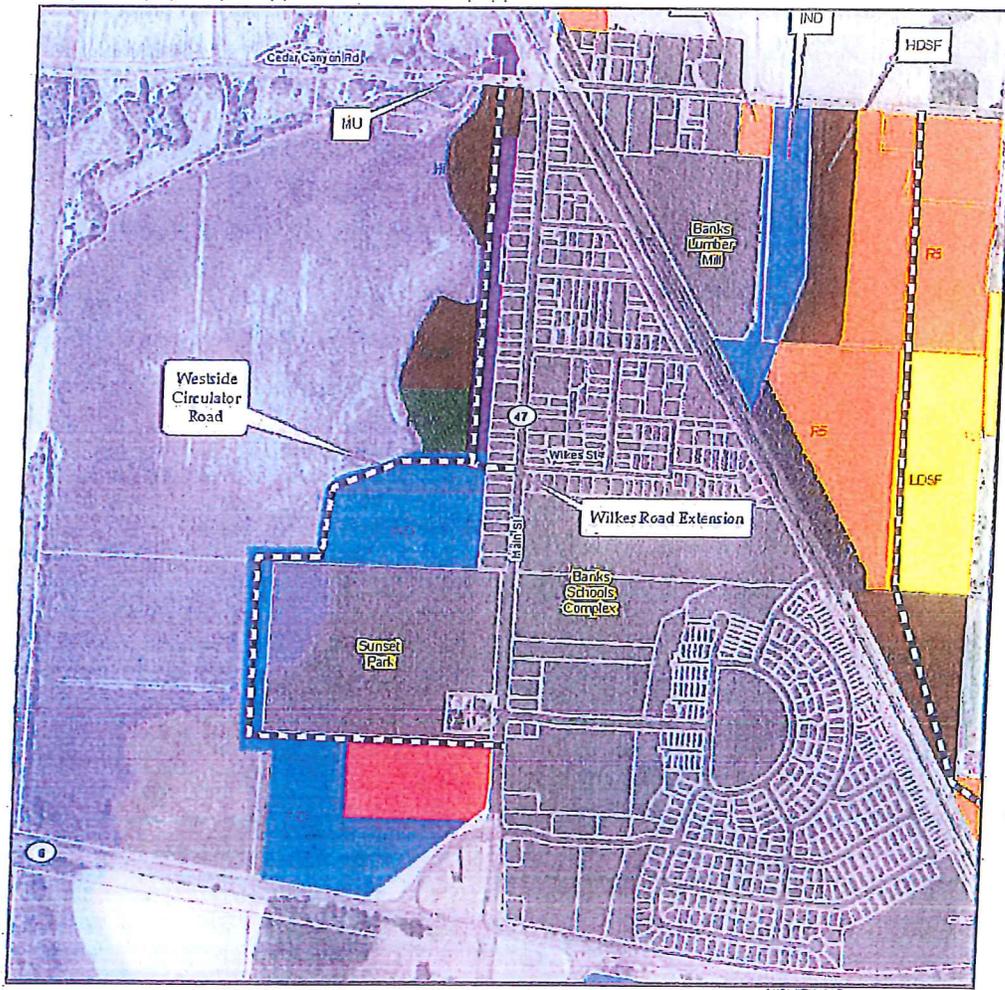
wide strip along the east boundary of Tax Lot 800, adjacent to Sunset Park, which is intended to accommodate this street. This area is reflected on the General Concept Plan as “Future Street.”

The UGB expansion also included a narrow strip of land lying within the floodplain intended to accommodate development of the Circulator Street. This specific area is along the western edge of the HDSF area.

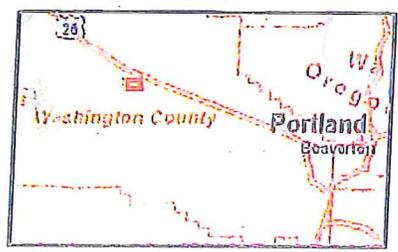
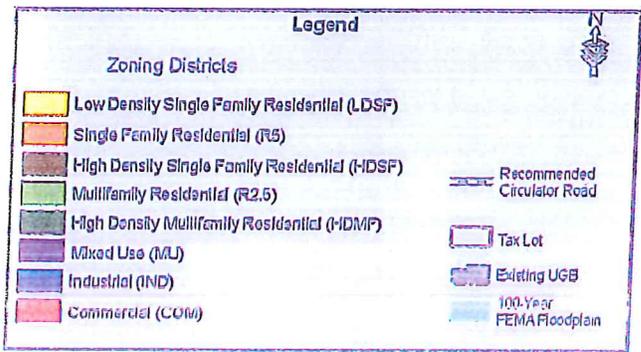
Figure 11: Future Functional Classifications



Alternative 8: Westside Circulator Road



VICINITY MAP



Westside Circulator Road & Wilkes Rd. Extension



CH2MHILL