Department of
Land Use & Transportation

Alexander Street Project
General Design Plan

For improvements to SW Alexander Street
from SW 185th Avenue to SW 170th Avenue, and
SW 178th Avenue from SW Alexander Street to TV Highway

Project Understanding 2
Define Existing Conditions 3
Existing Land Use Profile 4
Demographic characteristics 7
Built and Natural Environment Attributes 10
Transportation System Characteristics 17
Auto/Truck system 17
Pedestrian System 20
Bicycle System 22
Transit System 22
Future Conditions 26
Planning Context 26
Washington County 2020 Transportation Plan 26
Aloha-Reedville Community Plan 26
Beaverton Transportation System Plan 27
State Highway Plan 27
Current Planning Activities and Issues: 27
Land Uses 30
Transportation System 31
Transportation Needs and Solutions 32
Recommended Roadway System Improvements 33
Recommended Bicycle System Improvements 35
Recommended Pedestrian System Improvements 35
Recommended Transit System Support Improvements 36
Alexander Street Project Solutions 36

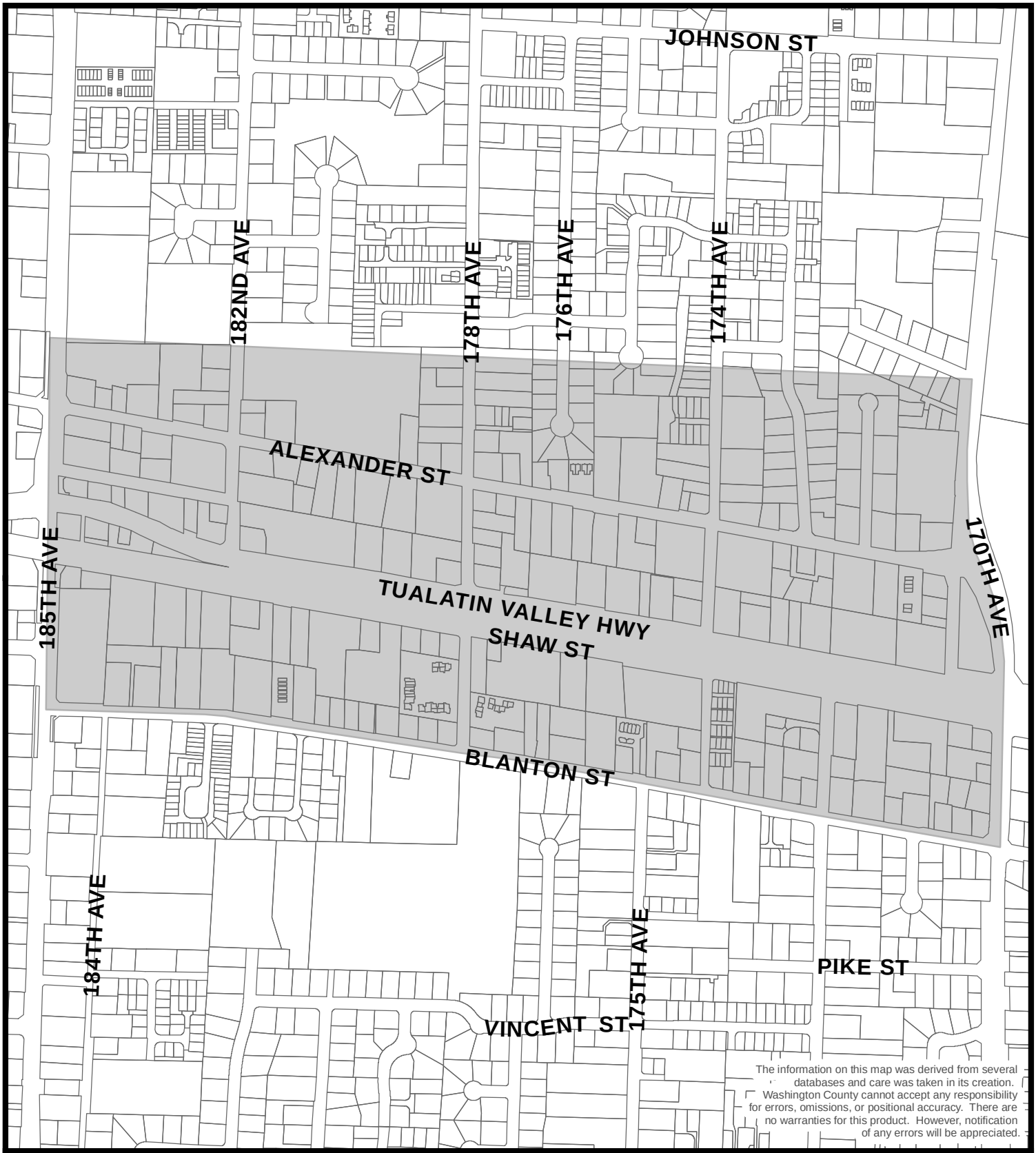
Appendices:
Storm Water Systems map ..... Appendix 1

I. Project Understanding

The Alexander Street Project is located in the community of Aloha in eastern Washington County, Oregon within a study area defined by SW 185th Avenue, SW 170th Avenue and from approximately 500 feet north of Alexander Street to SW Blanton Street (Exhibit 1). The proposal calls for defining planning level alignment, design and cost of improving this roadway section to the County's Special Area Street design standard and improving a pedestrian route along SW 178th Avenue to Tualatin Valley Highway (TV Highway). The Work Plan calls for exploring the possibility of extending these pedestrian improvements across the railroad track south of TV Highway to SW Blanton Street.

Element 2, Task 2.3 of TGM Grant Agreement No. 26621implements the work plan identified developed under Task 2.2, defining existing conditions and demographics in the Sue/Dogwood study area, including descriptions of built and natural environment attributes and transportation system conditions. It provides an overview the planning context for activities in the area, describes current planning activities and issues, and provides an overview of future land use and transportation needs. The plan describes planning level alignment, design and cost alternatives, and ultimately recommendations, for improvements to Alexander Street, 178th Avenue and other ancillary improvements in the study area.

This plan establishes a baseline of information that can be used to solicit project funding and which prepares the project for additional project development work and construction as funding becomes available. While the project involved field work, much of the work relies on information available from geographic information systems and other data bases.



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Study Area

Study Area

0 275 550

Feet

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Exhibit 1

II. Existing Conditions

Existing Land Use Profile

Exhibit 2 shows land use plan designations in the study area. Land use designations along the northern portion of the study area (north of SW Alexander Street) vary, and include Commercial Business District (CBD), Residential 18-24 Dwelling Units Per Acre (R-24), some Residential 4-5 Dwelling Units Per Acre (R-5), Institutional (INST), and Residential 7-9 Dwelling Units Per Acre (R-9). The middle portion of the study area south of SW Alexander Street and North of Tualatin Valley Highway (TV Highway) is 100% CBD. The southern portion of the project study area, south of TV Highway to SW Blanton Street is comprised of five plan designations: small amounts of Institutional (INST) and Office Commercial (OC) in the southeast quadrant of the 185th/ TV Highway intersection, and R-24 and Residential 25-48 Dwelling Units Per Acre (R-25+) extending east to a small area of General Commercial (GC) that occupies the southwest quadrant of the 170th/TV Highway Intersection.

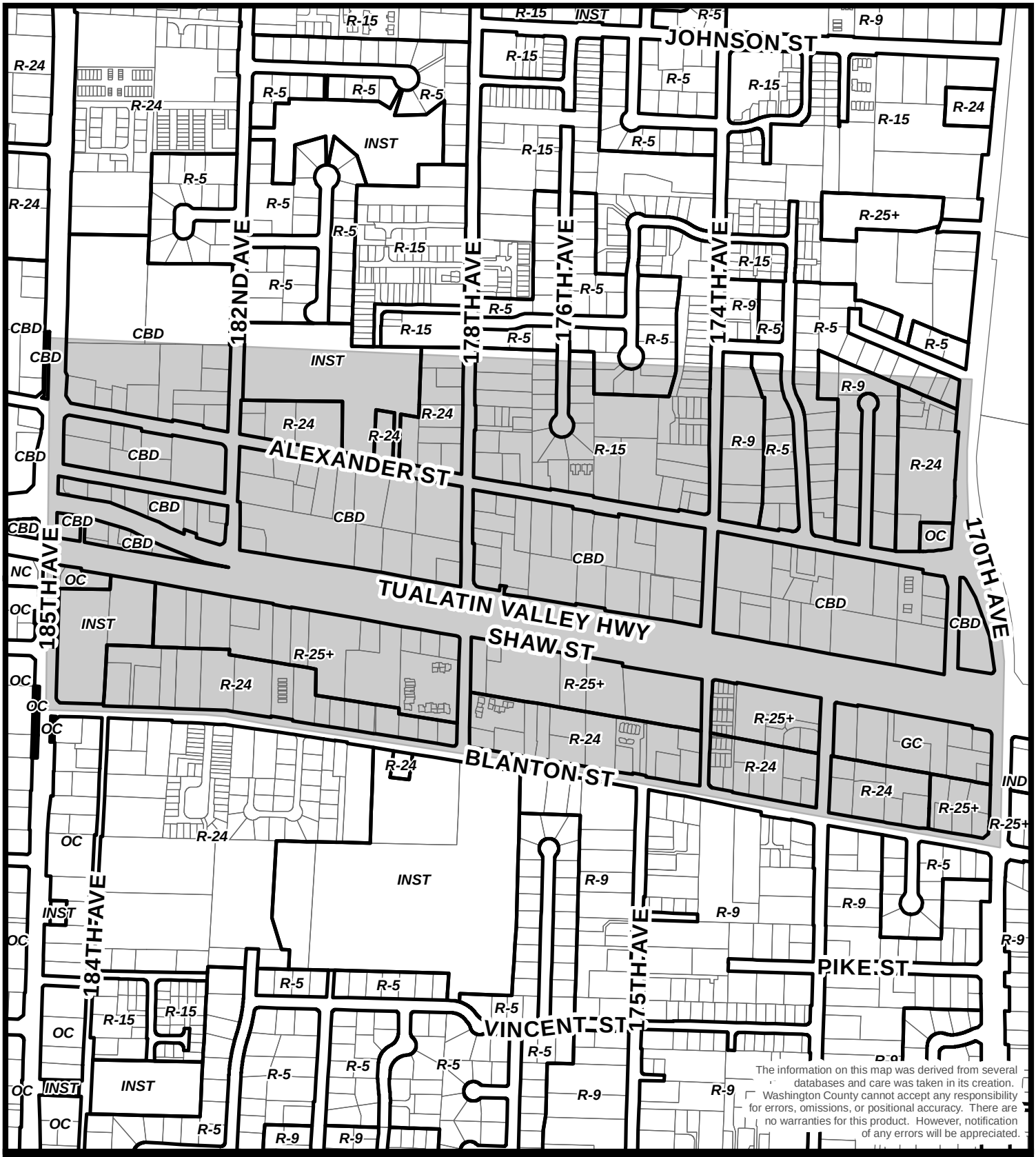
Additionally, this project is located within the proposed but as yet unplanned Aloha Town Center (Exhibit 3), a Region 2040 Growth Concept land use type that calls for more mixed-use land uses, a transportation system with good connectivity and strong non-auto elements that facilitate and encourage pedestrian travel, and which are intended to be well served by transit.

Exhibit 4 provides a general description of existing land use activities associated with these uses, including but not limited to shops, restaurants, medical facilities, entertainment, parks, churches, and schools. (Generally, parcels north of TV Highway that are not designated otherwise are occupied by single-family residences.) Between 185th Avenue and 182nd Avenue, most of the property with frontage on Alexander Street is fully developed with little adjacent land with any redevelopment potential. Between 182nd Avenue and 170th Avenue, a good portion of the property with frontage on Alexander Street has redevelopment potential.

Relatively large commercial operations that attract non-local customers are an intermittent presence in an eclectic mix of commercial or institutional entities along the Tualatin Valley Highway Corridor. Franz Bakery, Gallery Furniture Outlet, and a Kaiser Permanente Dental Clinic are examples in the study area. Some of this commercial activity filters north and fronts on Alexander, where an assortment of small businesses occupy quarters often originally designed and built as residences. There has been little development activity in the study area in recent decades except in the area between 182nd and 185th, where the only remaining sizable amounts of vacant multi-family residential land were developed in the early to mid-1990s.

While the land between Alexander Street and T.V. Hwy, from 170th to 185th is zoned CBD, it remains dominated by houses on small lots, particularly along Alexander Street. There are some small businesses, mostly in structures built as residences. There has been some very limited redevelopment along Alexander St. east of SW 185th for destinations like day care facilities and pre-schools. The retail properties fronting on T.V. Hwy are nearly all developed. Much of this building stock is old. The land is fragmented and under multiple ownership, adding a challenge to redevelopment.

Areas in and near the study area that are planned for higher density residential development have not seen much activity either, most likely in large part because the vacancy rate for apartments has been high for over a decade, after significant apartment development during the 80's and early 90's resulted in a glut of apartment buildings and home ownership financing made ownership an attractive alternative to renting. Now, with the recession and vacancy rates dropping, there is some indication of a renewed interest in apartment development. Ownership patterns in this area may present a challenge, however. (E-mail from Senior Planner Ross Van Loo, May 11, 2011)



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Planned Land Use

R-9 / Residential 9 units per acre
R-15 / Residential 15 units per acre
R-24 / Residential 24 units per acre
R-25+ / Residential 25+ units per acre

CBD / Community Business District
OC / Office Commercial
INST / Institutional

Study Area

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Feet

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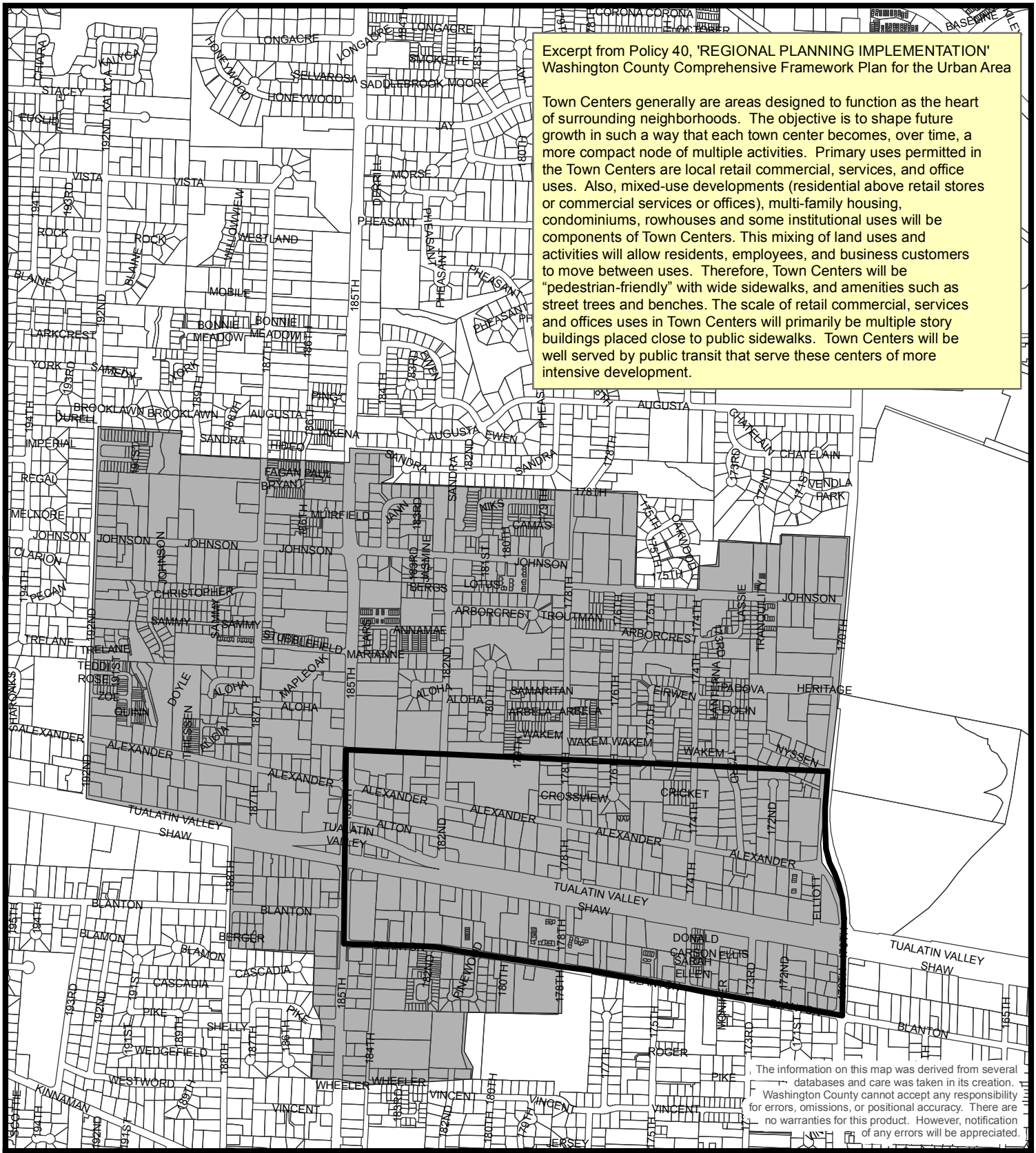
Exhibit 2



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - 2040 Design Types

Town Center
2040 Growth Concept Design Type

Study Area

0 500 1,000
Feet

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Exhibit 3

Aloha Medical/Dental Group
Living Hope Church
Aloha Mall
Northwest College
Franz Bakery
Aloha Village Mall
Kaiser Permanente
Our Lady of Peace Retreat
ALEXANDER
ALTON
SHAW
BLANTON
TUALATIN VALLEY
CROSSVIEW
CRICKET
WAKEM
NYSSEN
ELLIS
ELLIOTT
MONIKER
PINEWOOD
PIKE
185TH
184TH
182ND
180TH
179TH
178TH
177TH
176TH
175TH
174TH
173RD
172ND
171ST
170TH

Washington County - Long Range Planning Division

Alexander Project - Generalized Land Use* and Existing Development Map

- Commercial
- Multi Family
- Public Facility
- Single Family
- Apartment Complex
- Bank
- General Commercial
- Grocery
- Medical Office
- Office
- Restaurant
- Study Area

0 262.5 525
Feet

* *Generalized land use designation may not reflect existing land use. Unless noted as otherwise, parcels in the study area north of TV Highway are occupied by single family residences.*

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Exhibit 4

Table 1 below contains year 2000 U.S. Census population and housing data for the Alexander Street study area and compares it to similar data for Washington County**.** Exhibit 5 shows how census block group boundaries match up with study area boundaries. Note that block group boundaries extend north of the study area. Lacking detailed data below the block group level, no attempt was made to estimate what portion of the block group data in these areas was within the study area. This, of course, will overestimate such data items as total population and housing units. On the other hand, the more relative types of data, such as the percentage based data or data based on an average or median will tend to be a more accurate reflection of population and housing characteristics within the study area.

Population Characteristics

Almost 60 percent of the population falls within the 21 to 64 age cohort. Approximately 34 percent of the population is less than 21 years old, and about 6 percent is of typical retirement age of 65 or older. The median age of the study area population is 25.94 years old. The study area population appears to be generally younger than that of Washington County as a whole. This is reflected in the study area's lower median age, the higher percentage of population in the youngest less than 20 years old age cohort and the lower percentage of people in the oldest 65 and over cohort.

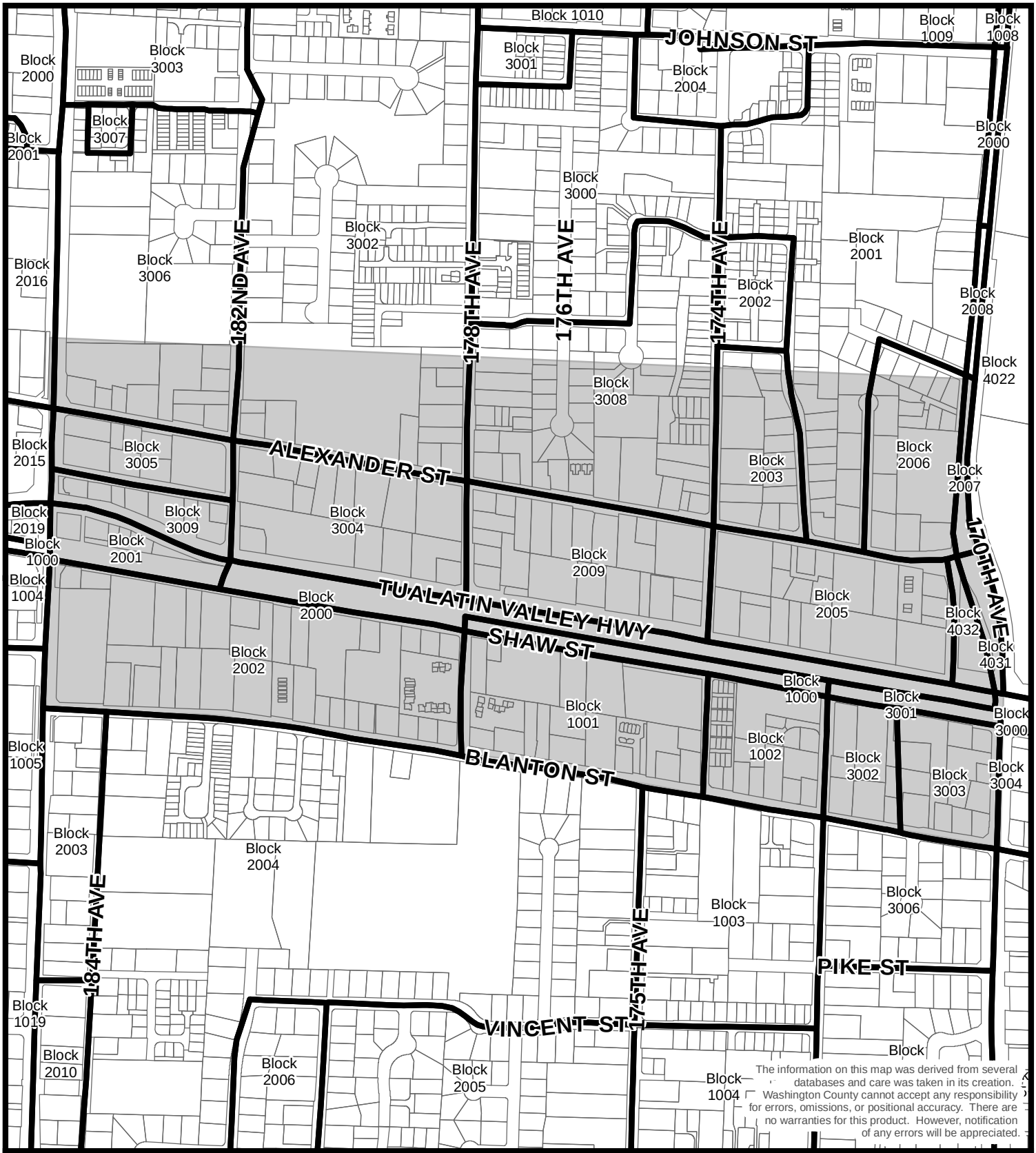
Racial composition data indicates that approximately 71 percent of the population is White with nearly 29 percent being either Non-white or a mix of races. The percentage of White population is lower than that of Washington County as a whole; the percentage of "Other" or "Multi-race" exceeds that of the county by more than 10 percent. Almost 35 percent of the study area population is of Hispanic origin, which greatly exceeds the countywide proportion of 11 percent.

Housing Characteristics

Slightly more than 92 percent of the housing units within the study area are occupied, which is lower than the countywide figure of almost 95 percent occupancy. However, only 25 percent of the units are owner-occupied, which means that almost 75 percent of the units occupied are renter-occupied. This percent of owner-occupied units in the study area is significantly lower than the almost 61 percent owner-occupancy rate countywide.

The study area average number of persons per household is 2.86 as compared to 2.61 countywide. This is probably indicative of lower incomes of this area, however data to support this theory are unavailable.

The median home value of almost $146,000 is almost $21,000 less than the median value for the county as a whole.



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - 2010 Census

2010 Census Blocks

Study Area

N

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Exhibit 5

Table 1:

Population and Housing Data

	Alexander	Washington County
Population Data		
Total population	3,153	445,342
% less than 20 years old	33.90%	30.57%
% between 21 and 64	59.91%	60.60%
% 65 or older	6.18%	8.84%
Median Age	25.94	32.10
% White	71.33%	82.19%
% Other or Multi-race	28.67%	17.81%
% Hispanic	34.89%	11.17%
Housing Data		
Total housing units	1192	178,886
% Occupied housing units	92.28%	94.55%
% Owner occ. housing units	25.45%	60.59%
Avg. persons per household	2.86	2.61
Median home value (yr. 2000)	$145,760	$166,520

Built and Natural Environment Attributes

Environmental Attributes

No wetlands, environmentally sensitive, archaeological sites or areas were located in the project study area. Exhibit 6 contains the following pertinent redevelopment data: EPA water contamination, and land contamination sites.

Historical Attributes

Two properties in the project study area are listed historical sites. The two historic parcels are tax lot 1S1 07CC 200 and 1S1 07CC 1700; located in the central and western portion of the project study area (Exhibit 7). Uses and changes to these properties must abide by Section 373 of the Community Development Code (CDC).

Drainage and Water Infrastructure

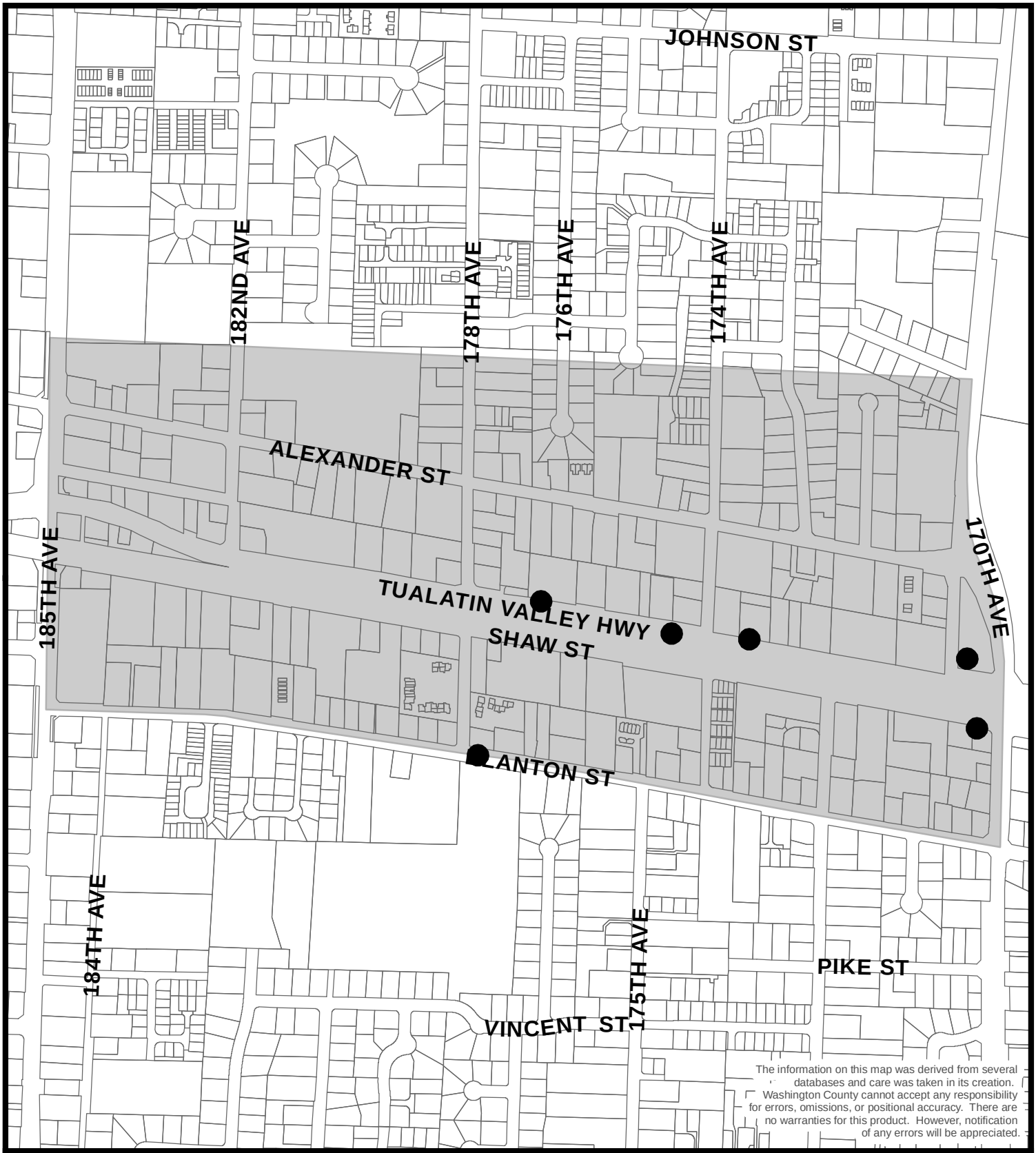
Exhibit 8 shows the topographical information for the project study area. Drainage hazard area is shown in Exhibit 9. Replacement of an existing culvert will be required at the location shown on each of the alternative plans. (See Exhibit 16). Study area drainage facilities are identified on the large format map from Clean Water Services included in this report as Appendix 1.

Soil and Geotechnical Data

Table 2 below indicates the five predominant soil types contained in the Alexander Street Study Area. Soil depth indicates the upper and lower boundaries of each layer as it pertains to Soil Reaction, which is a measure of acidity or alkalinity used in evaluating soil amendments for stabilization and determining the risk of corrosion. A map of soil types in the study area is provided in Exhibit 10. More detailed soil analysis will be required when the Alexander Street project enters the actual project design phase.

Table 2 – Alexander Street Study Area Soil Types

Map Unit Symbol	Soil Type Name	Acres of Soil Type	Percent of Study Area with Soil Type	Soil Depth (Inches)	Soil Reaction (pH)
1	Aloha Silt Loam	47.7	37.0%	8-46	5.6-6.5
2	Amity Silt Loam	2.4	1.8%	12-40	5.6-6.5
42	Verboort silty clay loam	7.2	5.6%	19-33	6.1-6.5
45A	Woodburn Silt Loam, 0-3 percent slope	58.8	45.6%	16-31	5.6-6.5
45B	Woodburn Silt Loam, 3-7 percent slope	12.9	10%	16-31	5.6-6.5
Total		128.9	100.0%		



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Contamination Sites

- EPA Land and Water Contamination
- Study Area

0 275 550
Feet

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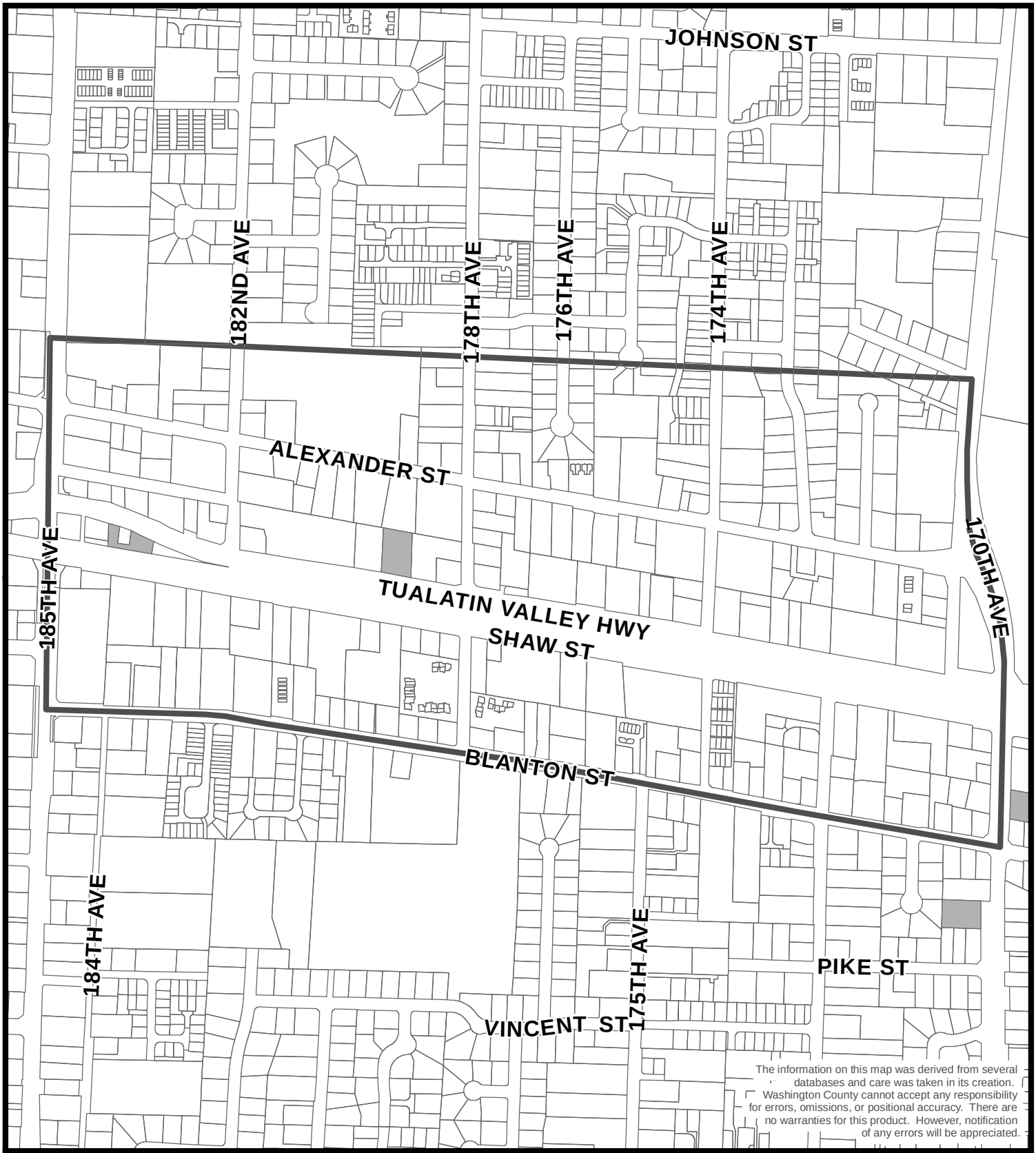
Exhibit 6



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Historic Preservation

Properties with an historic overlay

Study Area

0 275 550

Feet

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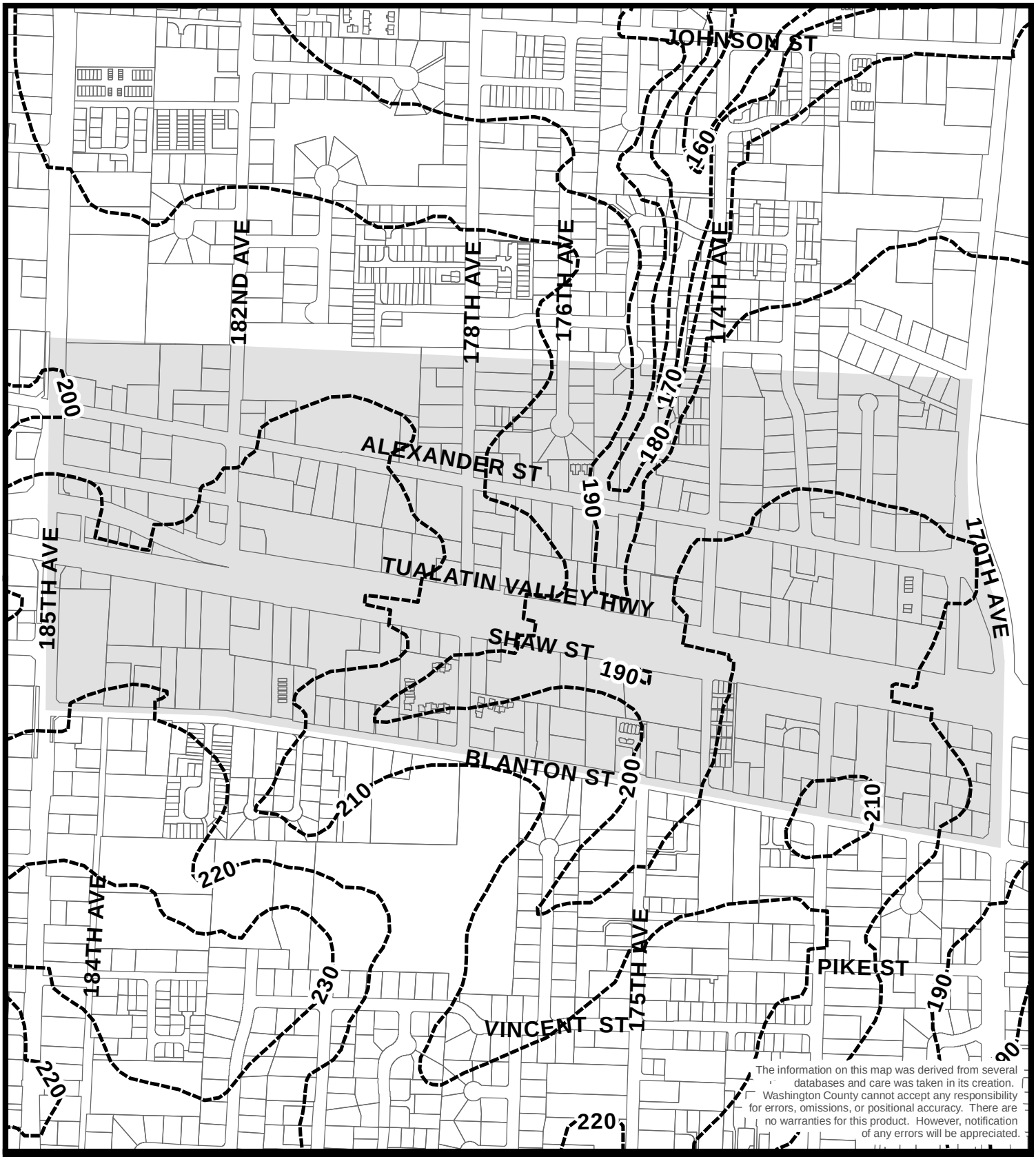
Exhibit 7



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Topography

20' Contours Study Area

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Feet

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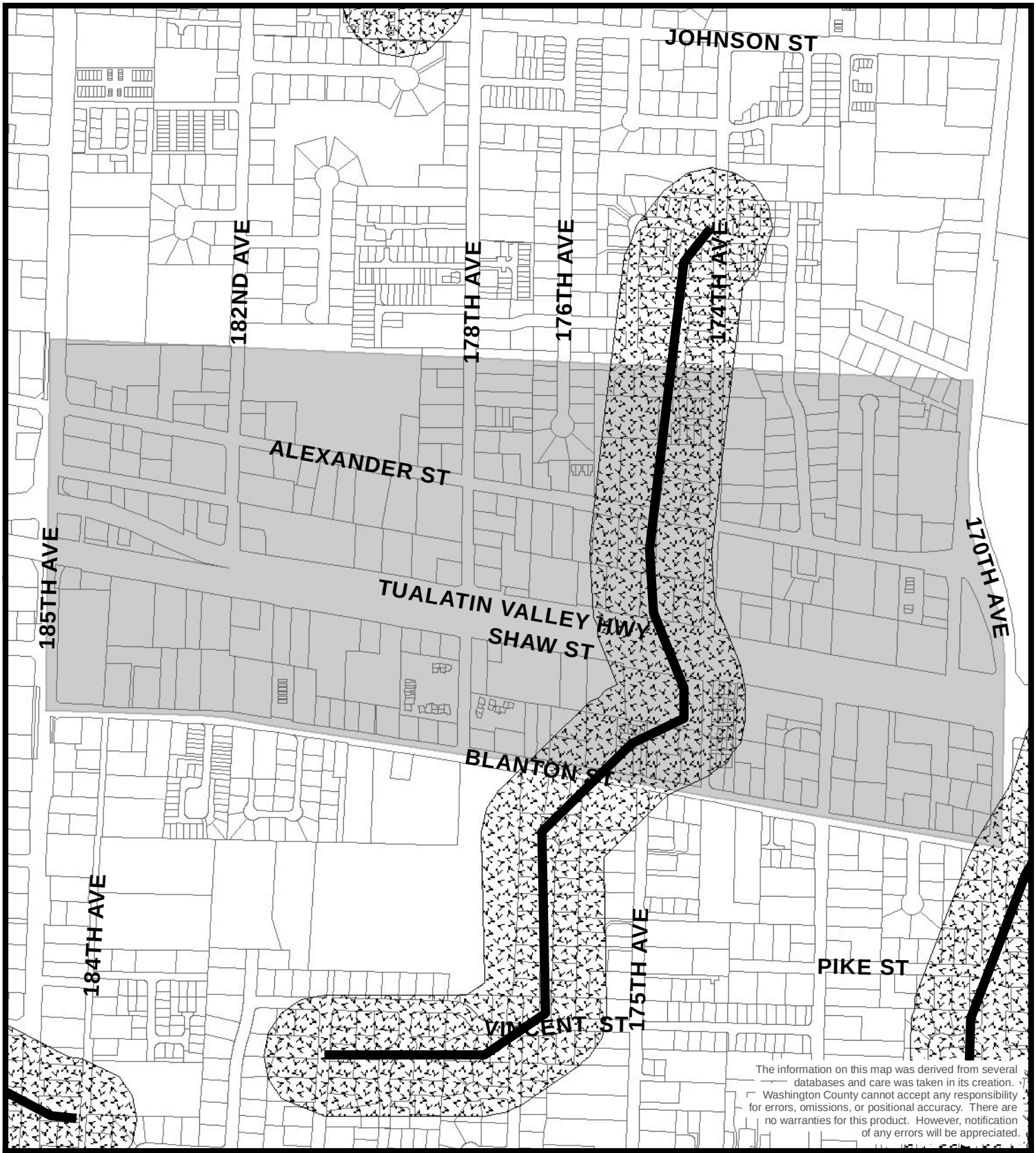
Exhibit 8



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Drainage Hazard Area

Drainage Hazard Area

Drainage Hazard Area Buffer

Study Area

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Feet

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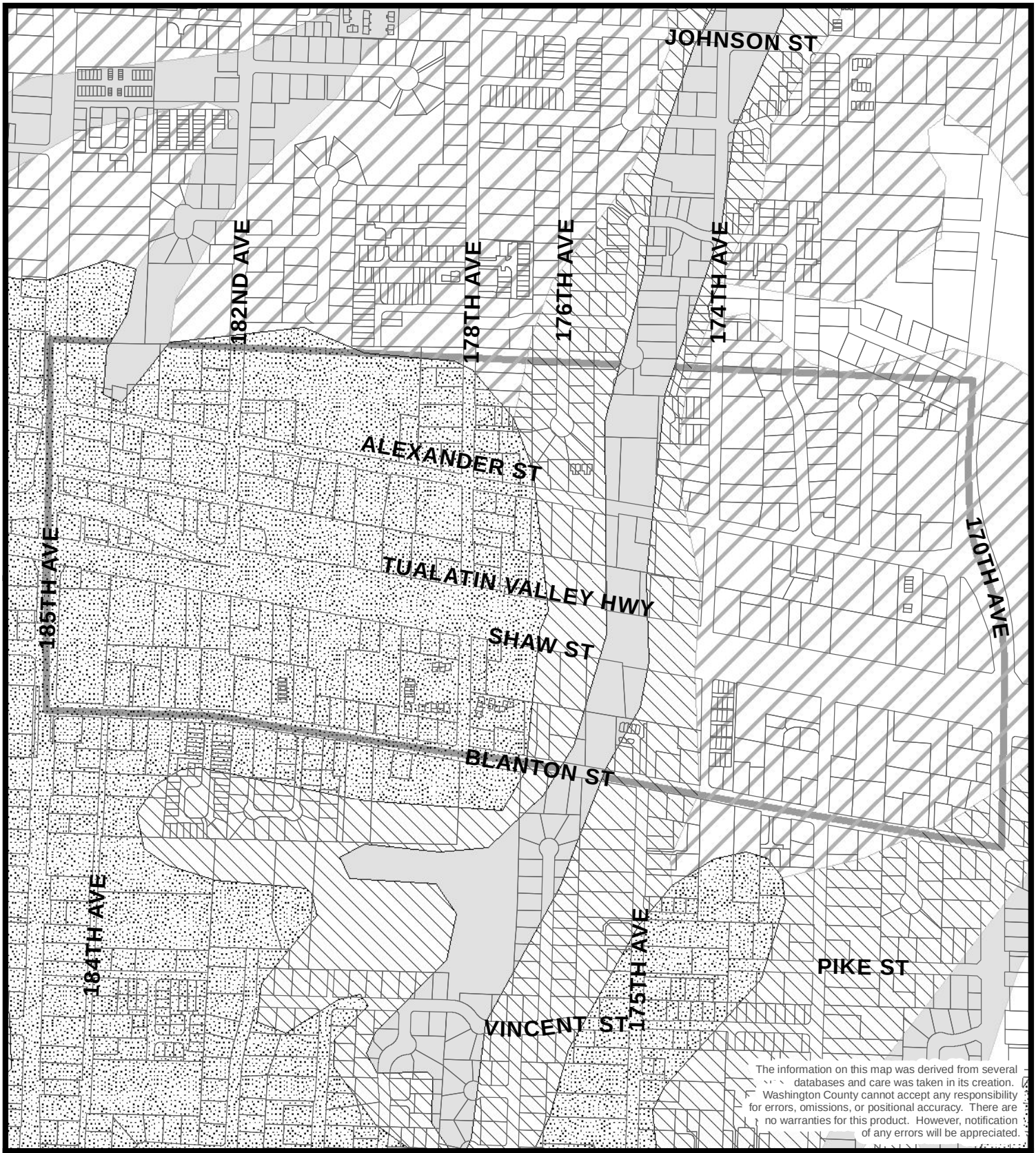
Exhibit 9



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Soils

- 1
- 42
- 45A
- 45B
- Study Area

N

0 275 550

Feet

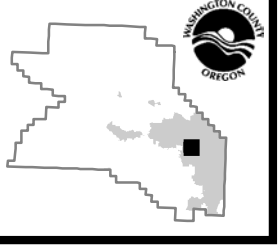


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Exhibit 10

Transportation System Characteristics

Functional Classification

The functional classification of non-local streets in the study area is shown in Exhibit 11. Alexander Street is classified as a Collector. It extends from 209th to 170th Avenue, paralleling the Tualatin Valley Highway (TV Highway) a block to the north. TV Highway is a Principal Arterial, carrying through traffic between the cities of Beaverton and Hillsboro and beyond. 185th and 170th Avenues are Arterial roadways, providing routes for those making relatively long, high speed trips, and forming the east and west boundaries of the study area. 178th is a Neighborhood Route, serving as a route for local trips between neighborhoods and TV Highway. Other streets in the study area are classified as Local Streets.

Street Design

Table 3 below shows general roadway design parameters for roadways identified for improvement as part of the Alexander Street Project.

Table 3 – Alexander Street Project Study Area Street Design Parameters

Road Name	Roadway Classification	Number of Lanes	Bike Lanes	Max. Right-of-Way (Feet)	Max. Paved Width (Feet)	Existing Paved Width
Alexander Street	Collector	3	Yes	74	50	26-36
178th Avenue	Neighborhood Route	2	No[1]	60	36	20-30

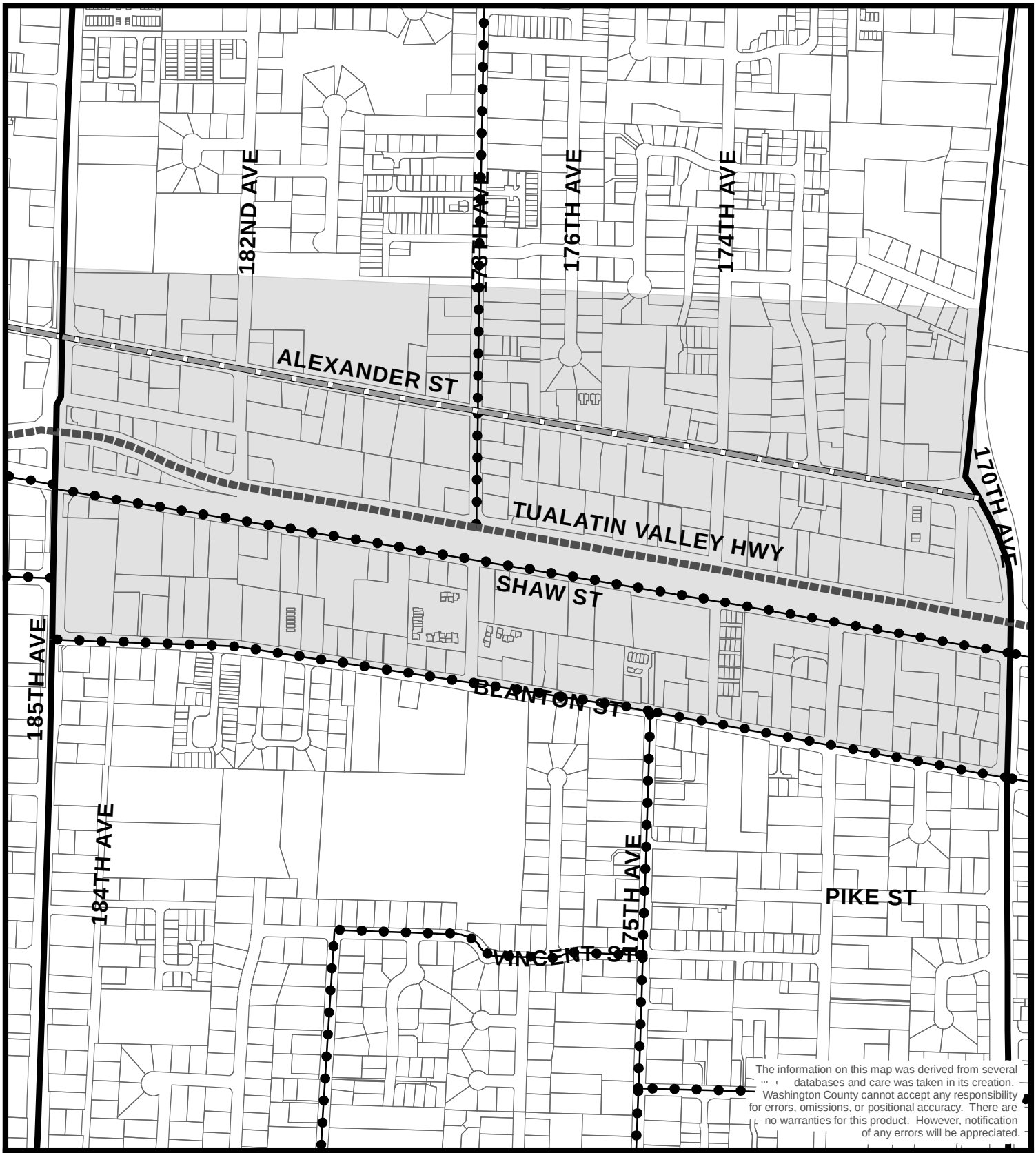
Notes:
[1] Requires 14-foot wide travel lane to accommodate bicycles.

Motor Vehicle Data

Two Washington County count stations are located on Alexander Street, including Station 259, east of 185th Avenue and Station 260, east of 170th Avenue. The 2010 data is in Table 4:

Table 4: Alexander Study Area Traffic Data

Station Number	*Location*	*2010 ADT*	*85th Percentile Speed*	*Posted Speed*	*Percent Trucks*
259	Alexander	3,029	27 mph	25 mph	3.6%
260	Alexander	3,663	31 mph	25 mph	5.1%



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Functional Classification

- Principal Arterial
- Arterial
- Collector
- Neighborhood Route
- Study Area

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Feet

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Exhibit 11

Crash Data and Safety Issues
Washington County compiles intersection crash data for more than 250 intersections of County with City or State-owned roads. This data is entered into the Safety Priority Indexing System (SPIS), which calculates a safety (i.e., SPIS) score based on the number, frequency and severity of accidents over a running three-year period, and assigns a ranking to each intersection.

This section of Alexander Street contains no SPIS locations. Crashes occurring at the intersections of Alexander and 185th, 174th, and 170th Avenues and Elliot Place for the period of January 1, 2007 through December 31, 2009 are as follows:

- Alexander Street at 185th Avenue: There were eight reported crashes. Of these, two resulted in injuries and one was at night. None of the crashes involved pedestrians or bicyclists.
- Alexander Street at 174th Avenue: There were three reported crashes. Of these, two resulted in injuries. None of the crashes involved pedestrians or bicyclists.
- Alexander Street at Elliot Place: There was one reported crash. No injuries were reported and the crash did not involve a pedestrian or a bicyclist.
- Alexander Street at 170th Avenue: There were three reported crashes. Of these, two resulted in injuries and one was at night. None of the crashes involved pedestrians or bicyclists.

Perceived safety problems along Alexander Street include the lack of sidewalks, illumination and bicycle lanes. Alexander Street, east of 182nd Avenue is narrow. The lack of sidewalks and bicycle lanes force pedestrians, bicyclists and disabled people using motorized scooters to walk and/or ride close to moving traffic. Open ditches along some of these roads also are a safety concern. Open ditches prevent pedestrians, bicyclists and motorized scooter users from making evasive maneuvers away from approaching traffic.

Street Lighting
Street lighting exists at the intersections of Alexander Street and 185th, 174th and 170th Avenues. Continuous street lighting exists along 185th Avenue with 250 watt cobra head fixtures. Five intersection and street lights are present at and near the intersection of Alexander Street and 174th Avenue with 150 watt cobra head fixtures. The four signal poles at the intersection of Alexander Street and 170th Avenue each have a 250 watt luminary attached to them. Continuous street lighting exists along 170th Avenue with 250 watt acorn style fixtures. There is no other street lighting on Alexander Street. The estimated cost to provide street lighting along Alexander Street from 185th Avenue to 170th Avenue is $350,000.

Other System and Facility Characteristics
Pavement conditions on Alexander Street vary from good to poor. Pavement conditions at the approaches to 185th and 170th Avenues are generally in good condition. The majority of the remaining pavement is in fair to poor condition.

Vegetation on the northwest and southeast corner of the intersection of Alexander Street and 182nd Avenue restricts the sight-distance to drivers on the northbound and southbound approaches. According to Mike Mills, Washington County's Neighborhood Streets Program

Coordinator, there have been no complaints of speeding on Alexander Street over the last few years. The design speed on Alexander Street is 35 mph. The posted speed is 25 mph.

Neighborhood and Local Road Characteristics

178th is a Neighborhood Route varying from 20-30 feet wide. It serves as a route for local traffic between neighborhoods to the north and Tualatin Valley Highway. With the exception of Alexander and the arterial roadways discussed below, the remaining streets in the study area are classified as Local streets. These streets and their approximate widths, which vary, are as follows: 182nd (25-35 feet), Alton (30-35 feet), Wakem (30-40 feet), 176th (30 feet), 175th (30 feet), 174th (20-30 feet), 173rd (30 feet), 172nd (30 feet), and Elliot (15-30 feet) are all Local streets. Many of the local roads vary in width, in some cases narrowing to 15-20 feet.

Arterial and Collector Roadway Characteristics

There are three arterial roadways in or adjacent to the Study Area. Tualatin Valley Highway is a Principal Arterial under state jurisdiction, carrying through traffic between the cities of Beaverton and Hillsboro and beyond. It is five lanes, generally, with turning or exit lanes in some areas. The west and east boundaries of the Study Area are 185th and 170th Avenues, which are arterial roadways under County jurisdiction. 185th is five lanes wide in this area; 170th Avenue is three lanes wide in this area. 170th is planned to be five-lanes, although this project has not been programmed for funding. Alexander Street is a collector roadway, also under County jurisdiction, and is planned to be a three lanes.

Alexander Street currently is a two-lane road with no centerline or edge striping except on the eastbound approach to 170th Avenue. Centerline striping starts near 172nd Avenue for the eastbound approach to 170th Avenue. The eastbound approach of Alexander Street to 170th Avenue consists of three travel lanes including: one westbound lane, an eastbound left-turn lane and an eastbound through and right-turn lane. Alexander Street is approximately 36 feet (curb to curb) on the approaches to 185th and 170th Avenues and 26 feet wide (edge of pavement to edge of pavement) east of 182nd Avenue.

Alexander Street at 185th Avenue is an improved, three-way unsignalized intersection. Westbound traffic at 185th Avenue is stop controlled. Access to Alexander Street from 185th Avenue for north and southbound traffic is allowed. The southbound, left-turning traffic is separated from southbound through traffic by a concrete median. This median prevents westbound traffic on Alexander Street from crossing or turning left onto 185th Avenue.

Alexander Street at 182nd and 178th Avenues are unimproved, four-way stop controlled intersections. Alexander Street at 174th Avenue is an unimproved, two-way stop controlled intersection. Alexander Street at 173rd and 172nd Avenues are three-way unimproved, stop controlled intersections. Alexander Street at Elliot Place is a three-way improved intersection.

The intersection of Alexander Street and 170th Avenue is a four-way, signalized intersection that has been improved and has a Model 170 controller. Only 100 feet separate Elliot Place and 170th Avenue making this a non-conforming access near 170th Avenue.

The northwest corner of Alexander Street at 174th Avenue and the northwest corner of Alexander Street at 173rd Avenue have been improved and meet design standards. The north side of Alexander Street, between 172nd and 170th Avenues has been improved.

The southwest and southeast corners of Alexander Street and Elliot Place have also been improved and meet design standards. The intersection of Alexander Street and 170th Avenue is

a four-way, signalized intersection that has been improved and meets design standards. Other than the previously discussed intersections, the majority of Alexander Street east of 182nd Avenue does not meet design standards.

On street parking is permitted along the majority of Alexander Street, except where no parking signs are posted, mainly between 185th and 182nd Avenues and at 174th Avenue.

Pedestrian System Characteristics

Sidewalks exist along both sides of Alexander Street between 185th and 182nd Avenues. Short sections of sidewalks exist at the northwest corner of Alexander Street and 174th Avenue, as it has recently been improved. Short sections of sidewalks exist at the intersection of Alexander Street and 173rd Avenue. A sidewalk starts near 172nd Avenue on both the north and south sides of Alexander Street to the east to the intersection of 170th Avenue.

Sections of Alton Street also have sidewalks. There are other sections of sidewalk along Alexander Street, 170th Avenue, and Nyssen Street, some of which are at their ultimate location while others sections are not at the ultimate location.

Many sections of the sidewalks were installed as part of one-half street improvements and generally do not connect to nearby roads. Most of the sidewalks along Alexander Street are located at their ultimate location and meet design standards. At the intersection of 178th Avenue and TV Highway, the Oregon Department of Transportation installed a rectangular rapid flashing beacon system across TV Highway. This system was installed in 2004. ODOT is currently designing modifications to this crossing in anticipation of further improvements.

Notable gaps in the pedestrian system include: (1) the lack of continuous sidewalks along all the roads within the project area study limits; and (2) the lack of a pedestrian crossing facility across 185th Avenue at Alexander Street. Here pedestrians are informed to walk south to TV Highway and cross 185th at the signalized intersection. In addition, some sections of Alexander Street and 182nd, 178th, and 174th Avenues are narrow, forcing pedestrians, bicyclists, and disabled and elderly travelers on scooters to walk and/or ride perilously close to moving traffic. This is also a gap in the pedestrian system. The recent completion of the new signal at Alexander Street and 170th Avenue provided marked crosswalks across these roads. Another noticeable gap in the pedestrian system are the numerous abrupt ends to sidewalks. At some locations, the sidewalk ends abruptly with no transition to the surrounding grade leaving a 4-6 inch unmarked drop.

The most notable section of sidewalk that needs repair is at the southwest corner of the intersection of Alexander Street and 174th Avenue. The existing sidewalk is slightly below grade where it collects water, dirt, and moss making its use undesirable during wet periods. Other areas in the pedestrian system that need repair are the numerous abrupt ends to sidewalks.

Site observations confirmed that many pedestrians walk along Alexander Street and 178th Avenue. A few bicyclists, a motorized scooter (used by a disabled person) and a few parents pushing strollers were also observed. With two exceptions, at Alexander Street and 185th and 170th Avenues, where sidewalks exist, all non-motorized use occurred in the streets.

Bicycle System

Washington County's transportation plan calls for bicycle lanes on arterial and collector roadways. TV Highway, which bisects the study area, is a state-owned and regulated Principal Arterial. Southwest 170th and 185th Avenues, which establish the east and west boundaries of the study area, are county-owned Arterials. Alexander is a Collector roadway.

On Neighborhood Routes and Local Streets, bicycles and motor vehicles share travel lanes. County design standards call for 14-foot outside travel lanes on Neighborhood Routes to facilitate this sharing; standard 12-foot travel lanes are expected to accommodate lane sharing on Local Streets. 178th is the only Neighborhood Route in the study area. Remaining streets are classified as Local Streets.

No bicycle lanes exist on Alexander. No bicycle lanes exist on 185th in the vicinity of the Alexander/185th intersection at the west end of the study area. Bike lanes exist on 170th near the Alexander/170th intersection at the east end of the study area. TV Highway has a wide shoulder for most of its length that provides space for bicycle lanes but is not striped for them.

Construction of either of the two Alexander Street alternatives presented in this report would include bicycle lanes on Alexander, resulting in a facility that would adequately support existing and future bicycle use in the study area.

Bicycle lanes should be provided on 185th in this area as part of future projects. Bike lanes should be striped on TV Highway in this area. Building 178th, a Neighborhood Route, with 14-foot outside lanes and 5-6 foot sidewalks would do the same for this Neighborhood Route. Building other roadways in the area, which are local roads, to a standard that provides a 12-foot outside lane and a 5-foot sidewalk would adequately support existing and future bicycle activity in the area.

Transit System

The Alexander study area is served by two TriMet Bus lines, the #52-Farmington/185th, which runs along 185th on the west edge of the study area, and the #57 – TV Highway/Forest Grove, which runs along TV Highway, east and west through the study area near its southern boundary.

The #52 runs between Beaverton Transit Center, Aloha, Willow Creek Transit Center, Tanasbourne and PCC Rock Creek, along Farmington, 185th and Springville. The #57-TV Hwy/Forest Grove connects Forest Grove, Cornelius, Hillsboro, Aloha and Beaverton, via Pacific, Baseline, TV Highway and Canyon Road. During the weekday morning and afternoon rush hours, #57 buses run about every 15 minutes.

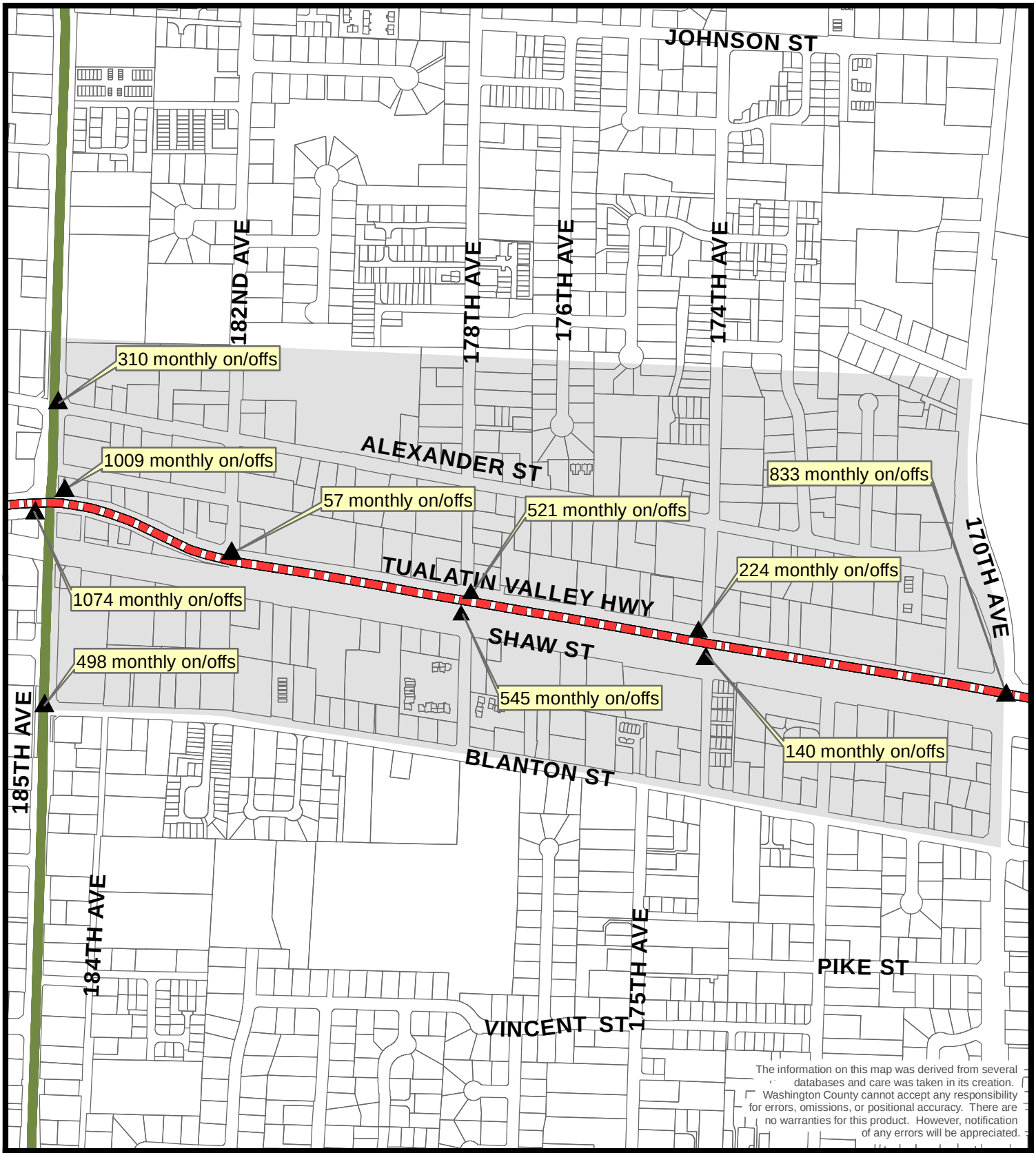
Route locations, and monthly boardings/de-boardings (on/offs) shown by bus stop are identified in Exhibit 12.

Service frequencies for these routes are as follows (due to slight variations in schedules throughout the day all frequencies have been approximated here for simplification):

- # 57 both directions between Beaverton and Forest Grove – On weekdays, 15-minute a.m. and p.m. service frequencies with 20 minute frequencies during other hours. On weekends, 20 minute service between 7:00 am and 10 pm, with half hour service before and after that. Bus boardings and deboardings at the seven stops in the study area range from 57 to 1009 per month.

- # 52 both directions between PCC Rock Creek and the Beaverton Transit Center – On weekdays, 20 minute service between 6:00 am and 6:00 pm, with half hour service before and after that. On weekends, approximately 25-35 minute service from 7:00 am until 9:00 pm and 45-60 minute service before and after that. Bus boardings and deboardings at the six stops near or adjacent to the study area range from 88 to 621 per month.

The busiest stops in the vicinity of the study area for these routes are the eastbound and westbound #57 stops on TV Highway at the 185th intersection, with between 1000-1100 bus boardings and deboardings each month.



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Transit

Bus Route 57
TV Highway

Bus Route 52
185th Ave

Study Area

N

0 275 550

Feet

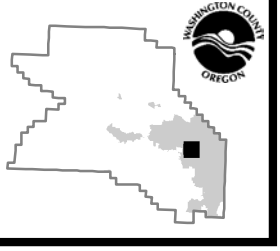


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Exhibit 12

Rail System

A heavy rail track owned by Union Pacific Railroad parallels Tualatin Valley Highway along its south side. The existence of well worn pathways across the railroad right of way at approximately 178th and 174th provide evidence of considerable demand for crossing the right of way in this vicinity. Full street crossings at 185th and 170th, which serve all modes, are the nearest improved and protected crossings available to pedestrians and bicyclists. Residents of the multi-family apartment complexes south of Shaw Street, the first east-west street paralleling the tracks on the south, provide a significant source of pedestrian traffic seeking to reach and cross TV Highway to access the commercial areas north of TV Highway and transit services on TV Highway. Staff determined that the potential to provide a multiuse bike and pedestrian pathway across the tracks as far as SW Shaw Street should be explored. SW 178th was chosen primarily because ODOT already provides a pedestrian/bicycle crossing in that location. Given the level of pedestrian traffic between TV Highway and Blanton, ODOT Rail staff were receptive to the idea but would not actively support the proposal unless Union Pacific Railroad, which owns the right of way, and Portland & Western Railroad, which operates on the line, were agreeable.

Staff held a telephone conference on March 14, 2011 to discuss the matter with Railroad representatives. The following railroad company representatives were invited:

- *Terrel Anderson, Manager Industry and Public Projects, Union Pacific Railroad (916) 789-5124*
- *Ronald Russ, President and General Manager, Portland & Western Railroad (503) 480-7760*
- *David Lanning, Crossing Specialist, ODOT Rail Division (503) 986-4267*

Railroad representatives participating in the conference call were not receptive to an at-grade pedestrian crossing, primarily for reasons of liability. They noted that it is currently illegal to trespass on rail road property. After some discussion of the matter, it became clear that they were firm in their position.

The possibility of building a pedestrian bridge at the location was briefly discussed. As a practical matter, it is staff's view is such a pedestrian crossing would be feasible and cost effective only if done in conjunction with a larger project that established a lengthy barrier preventing pedestrian or bicycle traffic from crossing at-grade in this vicinity. While a bridge would improve crossing safety, the added inconvenience of using it would likely limit its use under current conditions, in which gaps in traffic are not infrequent and, aside from a relatively short, easily circumvented section of fencing associated with a south-side TriMet transit stop, there are no barriers to crossing the rail tracks in this area. This is generally true along TV Highway from Beaverton to Hillsboro. Staff observes that the forthcoming Tualatin Valley Highway Corridor Refinement Study will likely provide a venue for discussion of TV Highway and railroad crossing issues. If future roadway or land development project characteristics envisioned by the study do increase barriers to crossing, the benefits and costs of a pedestrian bridge in this location should be further investigated.

III. Future Conditions

Planning Context

Washington County 2020 Transportation Plan

The Washington County Transportation Plan defines transportation system attributes and transportation policy and strategy provisions that have been determined to be necessary to support anticipated growth through the year 2020. The plan addresses the need for improved vehicle, pedestrian, bicycle and transit facilities to address issues most generally associated with population and employment growth that has occurred within the County.

The plan works with other Comprehensive Plan elements, including the Community Development Code, to guide land development and implementation of the transportation system necessary to support it. Most plan provisions pertain more to system attributes and characteristics than to specific project attributes. While many provisions contribute in some fashion to the need for and characteristics of this project, perhaps the most pertinent plan elements are those related to functional classification (Policy 10), and connectivity (e.g., Policy 1, Strategy 1.3; Policy 6, Strategy 6.1).

More specifically in relation to this project, the Transportation Plan designates the TV Highway as a study area in which additional analysis is necessary to determine specifically how it would meet an identified need.

Aloha-Reedville Community Plan

For context, pertinent elements of the Aloha-Reedville-Cooper Mountain Community Plan include the Background Summary and Community Plan Overview sections, which provide an overview of plan elements and attributes of the entire planning area. Pertinent to this project, the plan notes that:

> *"The land use pattern planned for the Aloha-Reedville-Cooper Mountain area focuses most development tin corridors along Tualatin Valley Highway and Farmington Road. The highest intensity land uses such as high density residences, stores and industries occur near the major street intersections of 185th and Tualatin Valley Highway, 185th and Farmington, and Kinnaman and Farmington. This land use pattern reflects existing land use commitments, proximity to major employment centers, and the high degree of access to surrounding areas offered by these major traffic routes (Community Plan Overview (pg 9/34))…and,*
>
> *The primary community business district in the planning area extends east-west along the north side of the highway between 170th and 209th. The location of this Aloha-Reedville commercial area is intended to take advantage of the exposure offered by the highway. (Community Plan Overview (pg 10/34)).*"

The Community Design section provides a set of general implementation prescriptions, again, for the entire planning area, and a characterization of plan intent for each of the six subareas of the Community Plan. The plan subarea within which this project is located is called the Tualatin Valley Highway Corridor subarea. While specific plan provisions pertaining to the project are listed here, being aware of the lower density residential character of the North Residential Area subarea that abuts the north edge of the TV Highway Corridor subarea is helpful in understanding these provisions.

The community plan notes the following of the Tualatin Valley Corridor Subarea:

> *"Most of this area is planned for more intensive development such as stores, offices, industries and higher density residences. The most intensive development is concentrated in the Community Business District (CBD) along Tualatin Valley Highway. The district extends in an east-west direction on the north side of the highway between 170th and 209th. To the immediate south of the CBD, properties fronting on 185th Avenue are designated Office Commercial to buffer nearby residential areas from traffic impacts. Properties along the south side of Tualatin Valley Highway, south of the Southern Pacific right-of-way, are generally designated either high density (25 or more units per acre) residential or industrial, depending on existing development commitments…..*
>
> *"… With the exception of existing subdivisions, much of the area between Alexander and Johnson Streets is planned for higher density residences due to the proximity to the Community Business District and good traffic and transit access…."*

Beaverton Transportation System Plan

The City of Beaverton city limits extend as far west as 170th, the easternmost edge of the project study area. While plan provisions are not directly applicable here, coordination with the city should occur as part of future work on this project.

State Highway Plan

The 1999 Oregon Highway Plan (OHP) defines policies and investment strategies for Oregon's state highway system for the next 20 years. It refines goals and policies outlined in the State Transportation Plan. A key goals of the OHP is to maintain and improve safe and efficient movement of people and goods, while supporting statewide, regional, and local economic growth and community livability.

Policies with a bearing on the portion of TV Highway near this project call for maintaining a balance between the state highway and "main street" functions (aka. needs of the communities traversed by the state highway), including encouraging the use of non-auto modes and working collaboratively with affected local governments in system management planning and decision making. The OHP contains mobility standards, and safety and access management provisions that would need to be addressed for improvements to or substantially affecting TV Highway.

Current Planning Activities and Issues:

Two significant planning studies are just beginning in the area:

Aloha-Reedville Study and Livable Community Plan

Over the next three years Washington County is leading an in-depth study to understand what are the existing conditions in unincorporated Aloha and Reedville, what are the community's aspirations for the future, and what strategies, plans or actions could the county take to improve or realize these opportunities. The study will look at local, regional, and global economic trends, their land use and transportation impacts and what strategies might be effective in response.. Housing affordability and variety will be assessed under current conditions and in relation to trends and forecasts. The study also will examine delivery of services, governance alternatives, jobs opportunities and transportation connectivity in addition to transit access and multi-modal opportunities.

The Aloha-Reedville study will engage the community in these discussions and endeavor to involve community members who typically don't participate. This engagement strategy is a significant element of the project's funding. Funding is from a combination of grants: a

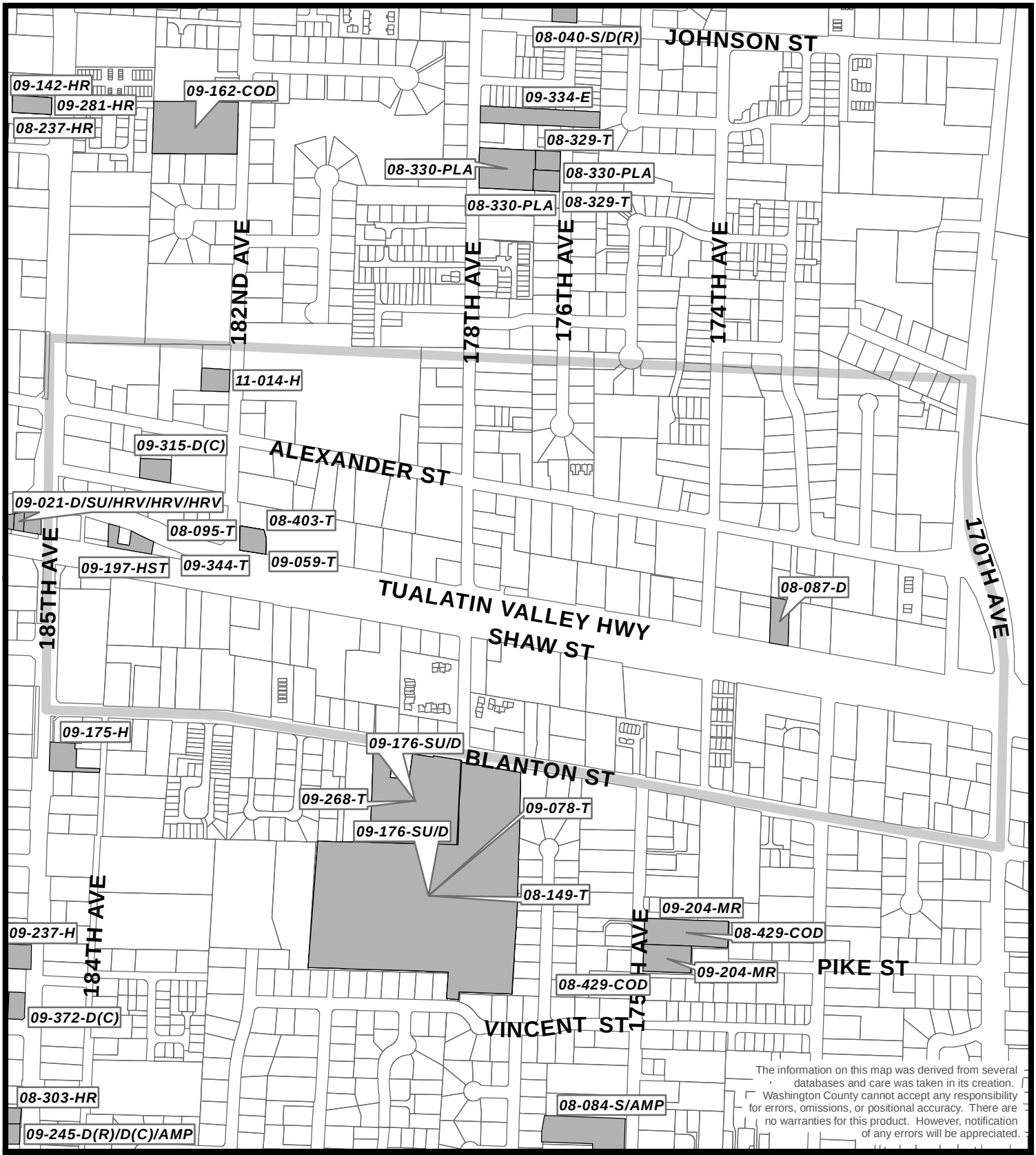
Community Challenge Grant ($.5 million - U.S. Department of Housing and Urban Development and $1.5 million - U.S. Department of Transportation TIGER II) and $442,000 Metro CET grant.

Tualatin Valley Highway Corridor Refinement Plan and Focus Area Plan
Concurrent with the Aloha-Reedville Study, the City of Hillsboro in cooperation with the Oregon Department of Transportation is conducting a study of the 8.5 mile Tualatin Valley Highway corridor from downtown Beaverton to downtown Hillsboro. This two year study will assess existing conditions and develop recommendations to improve mobility in the corridor and to address the likely impacts of future growth. The Focus Area Plan portion of the project will look more in depth at Tualatin Valley Highway's functionality between Brookwood Avenue and 209th Avenue. This stretch of highway will be critically important to planned future development of the South Hillsboro area once it is brought into the Urban Growth Boundary. This project is funded through a TGM grant administered by ODOT.

These two studies are being closely coordinated. Work on the TV Highway Corridor Refinement Plan is expected to be complete in the spring of 2012, with the Focus Area Plan occurring between then and mid-2013. Work on the Aloha Reedville Study/Livable Community Plan is expected to be complete by early 2014.

Recent levels of development activity:

No major projects have been completed in the area in recent years. Development activity in the vicinity of the Alexander Street Study Area has been very light. Activity occurring from 2008 through 2011 is shown on the map and table in Exhibit 13.



WASHINGTON COUNTY - LONG RANGE PLANNING

Alexander Project - Recent Development

Development Casefiles 2008-2011

Study Area

N

0 275 550

Feet

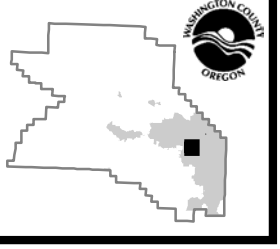


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Exhibit 13

Permitting Activity in and near the Alexander Street Study Area: 2008 - 2011

L0800040	S/D(R)--PRELIMINARY REVIEW OF A 6-LOT SUBDIVISION, "JOHNSON'S LANDING," AND DEVELOPMENT REVIEW FOR 6 ATTACHED SINGLE FAMILY DWELLINGS	1S107BD00200	R15
L0800077	S/D(R)/HRV-PRELIMINARY REVIEW APPROVAL FOR A 5-LOT SUBDIVISION, "JOHNSON STREET"; DEVELOPMENT REVIEW FOR 5 ATTACHED UNITS AND A HARDSHIP RELIEF VARIANCE FROM THE REQUIRED 100-FT ACCESS SPACING STANDARD ON SW JOHNSON STREET TO A 90-FT ACCESS SPACING	1S212AC00101	R15
L0800087	D-DEVELOPMENT REVIEW FOR AN ADDITION TO A VETERINARY HOSPITAL	1S107DC01000	CBD
L0800095	T-TEMPORARY USE PERMIT FOR A GARDEN CENTER	1S107CC00301	CBD
L0800149	T-TEMPORARY USE PERMIT FOR 3 PORTABLE CLASSROOMS AT THE INTERNATIONAL SCHOOL OF BEAVERTON	1S118BA00600	INST
L0800157	T-TEMPORARY USE PERMIT FOR 2 PORTABLE CLASSROOMS	1S212DB00900	R15
L0800205	D-DEVELOPMENT REVIEW FOR AN 857 SQUARE FT ADDITION FOR STORAGE SPACE IN THE EXISTING CHURCH & A 75 SPACE PARKING LOT EXPANSION	1S212DB00900	R15
L0800219	MR-MINOR REVISION TO CASEFILE 07-532-D-(INS) TO REDUCE THE EXPANSION OF KINNAMAN ELEMENTARY SCHOOL BY ABOUT 8,000 SQUARE FEET.	1S213AB00101	INST
L0800231	H-HOME OCCUPATION PERMIT FOR FISH PROPAGATION	1S212DC01401	R9
L0800237	HR-HOME OCCUPATION RENEWAL FOR HAIR SALON	1S212AD04700	R-24
L0800329	T-TEMPORARY USE PERMIT FOR SHED & BARN STRUCTURES	1S107BD01200	R15
L0800330	PLA-PROPERTY LINE ADJUSTMENTS BETWEEN TAX LOTS 1200 & 8400 & 8500	1S107BD01200	R15
L0800334	D(R)-DEVELOPMENT REVIEW FOR A 22-UNIT APARTMENT COMPEX IN TWO BUILDINGS, "18670 SW BLANTON STREET APARTMENTS"	1S212DD02400	R24
L0800387	T-TEMPORARY USE PERMIT FOR 1 PORTABLE CLASSROOM AT KINNAMAN ELEMENTARY	1S213AB00101	INST
L0800403	T - HOLIDAY TREE SALES	1S107CC00301	CBD
L0800406	TR-RENEWAL REQUEST FOR A TEMPORARY HEALTH HARDSHIP FOR A SECONDARY MANUFACTURED DWELLING	1S212AC00801	R5
L0800408	HR-HOME OCCUPATION RENEWAL REQUEST FOR A NAIL & HAIR SALON	1S107BC01601	R24
L0900021	D/SU/HRV/HRV/HRV-DEVELOPMENT REVIEW AND SPECIAL USE APPROVAL TO REPLACE AN EXISTING SERVICE STATION, CONSTRUCT A CONVENIENCE STORE, & THREE HARDSHIP RELIEF VARIANCES	1S212DA07300	CBD
L0900059	T-TEMPORARY USE PERMIT FOR GARDEN CENTER	1S107CC00301	CBD
L0900063	T-TEMPORARY USE PERMIT FOR PORTABLE BLDG	1S212DB00900	R15
L0900078	T - TEMPORARY USE PERMIT FOR ISB (INTERNATIONAL SCHOOL OF BEAVERTON)	1S118BA00600	INST
L0900142	HR - HOME OCCUPATION RENEWAL - HAIR SALON	1S212AD04700	R-24
L0900162	COD - COMMENCENT OF DEVELOPMENT FOR "VICTORIA ESTATE" - (CASEFILE NO: 06-453-S/DR/HRV)	1S107BC03400	R-24
L0900175	H-HOME OCCUPATION PERMIT FOR A LAW OFFICE	1S107CC02901	OC
L0900176	SU/D-SPECIAL USE & DEVELOPMENT REVIEW FOR THE ADDITION OF A PORTABLE BUILDING IN A PORTION OF THE SITE NOT COVERED BY PREVIOUS SPECIAL USE APPROVALS	1S118BA00600	INST
L0900197	HST - HISTORICAL/CULTURAL/RESO - REMOVAL OF HISTORICAL & CULTURAL RESOURCE.	1S107CC01700	CBD
L0900264	D(C)-DEVELOPMENT REVIEW FOR AN APPOXIMATE 2,280 SQ. FT. MEDICAL CLINIC (ALLERGY, ASTHMA, & IMMUNOLOGY)	1S212DB02500	CBD
L0900268	T - TEMPORARY USE PERMIT FOR THE STORAGE OF A MODULAR UNIT	1S107CC06000	INST
L0900281	HR-RENEWAL OF A HOME OCCUPATION PERMIT FOR A HAIR SALON, "SHALOM SALON"	1S212AD04700	R24
L0900334	E-REQUEST FOR AN EXTENSION FOR PRELIMINARY APPROVAL FOR A 10-LOT SUBDIVISION & DEVELOPMENT REVIEW OF ATTACHED UNITS FOR 5 OF THOSE LOTS (1 DUPLEX & 1 TRIPLEX)	1S107BD01101	R15
L0900344	T - TEMPORARY USE PERMIT FOR HOLIDAY TREE SALES	1S107CC00301	CBD
L0900351	FP/REP-REVIEW OF A FLOOD PLAIN & A REPLACMENT DWELLING	1S4240000400	EFU
L0900378	T - TEMPORARY USE PERMIT FOR 1 PORTABLE CLASSROOM AT; "KINNAMAN ELEM SCHOOL."	1S213AB00101	INST
L1100014	H-REQUEST FOR A HOME OCCUPATION PERMIT -- UTILIZATION OF NO MORE THAN 25% OF RESIDENCE AS OFFICE SPACE	1S107CB02900	CBD
L1100061	T-TEMPORARY USE PERMIT FOR "BOB'Z GARDEN CENTER"	1S107CC00301	CBD
L1100084	T-TEMPORARY USE PERMIT FOR MODULAR CLASSROOM	1S212DB00900	R15

Exhibit 13

Planned Land Uses

Land Use Districts discussed in this section can be generally described as follows (more specific information found in the CFP Policy 18 and in CDC Article III):

CBD: Community Business District: Permits a mix of retail, office, service and business uses of a size intended to serve the larger community.

R-15: Residential 15 Units per Acre: Permits (detached and attached) residential development with densities from 12 units per acre to 15 units per acre.

R-24: Residential 24 Units per Acre: Permits higher density (primarily attached) residential development with densities from 18 units per acre to 24 units per acre.

A map of planned land use designations is contained in Exhibit 2.

Currently, all lands from 170th to 185th between Alexander and TV Highway are designated Central Business District (CBD) and lands north of Alexander – walking distance from TV Highway -- are planned for relatively high density residential uses (generally R-15 to R-24). The plan notes that this is to take advantage of the presence of TV Highway and the transit services provided there. The plan recognizes that the existing small lot, single family home residential development will not easily transition to planned residential densities without some consolidation. The plan requires property owners seeking to subdivide land or to build structures to demonstrate during the land development review process that they will not compromise the potential for lands around them to develop to planned densities (see General Design Element 17 for specifics).

This project's emphasis on supporting walking and biking access between the future relatively high density residential areas north of TV Highway and the highway itself helps realize some of the objectives of the current land use scheme.

Additionally, this project is located within the proposed but as yet unplanned Aloha Town Center, a Region 2040 Growth Concept land use type that calls for more mixed-use land uses, a transportation system with good connectivity and strong non-auto elements that facilitate and encourage pedestrian travel, and which are intended to be well served by transit.

Also, it should be noted that the "Aloha Reedville Study and Livable Community Plan" and the "Tualatin Valley Highway Corridor Refinement Plan and Focus Area Study" (see Section III.A.2 above for specifics) are in their initial stages and have potential implications for both land-use and transportation facilities in this area. If additional work is contemplated on this project during the periods these studies are in progress, communication with project staff should be established to ensure the project remains consistent with the direction of those planning projects, and if not, how the project might be modified during subsequent phases to ensure that consistency.

Transportation System

Growth in Washington County and the Regional between 2010 and 2035 is expected to lead to increased traffic countywide, including the network of streets serving the Alexander Street Study Area. Traffic volumes on nearby arterials are expected to increase as indicated in the following table:

Table 3:

Roadway Segment	2010 Average Daily Traffic (ADT)	2035 ADT**	Percent Increase
170th: TV Hwy. to Johnson (ADT)	14411 (#221*)	26630	84%
170th: TV Hwy to Johnson Volume to Capacity Ratio (V/C)	1.02	.74 1.88 without planned improvement***	
185th: TV Hwy. to Johnson (ADT)	21529 (#229*)	26950	25%.
185th: TV Hwy to Johnson (V/C)	.57	.73	
Alexander: 170th to 185th (ADT)	3029 (#259*) 3663 (#260*)	5740	56-89%
Alexander: 179th to 185th (V/C)	.22 or .26	.32 .41.without planned improvement ***	

* Nearest Traffic County Station Number
** ADT derived from 2035 Washington County TSP PM Peak 1 Hour Travel Demand.
*** The model includes assumptions that 1) this section of 170th will have been increased from three-lanes to five, and 2) Alexander, which now has two travel lanes only, will include a middle turn lane (or equivalent improvements). The numbers in small font are theoretical V/C ratios for the facility without the improvement, all else remaining the same. No additional capacity is assumed to have been added to this section of 185th, which has five lanes today.

Based upon existing county standards, the referenced section of 170th exceeds the volume to capacity (V/C) target range, and the section of 185th in this vicinity is within the target range in 2010 (i.e., afternoon peak one-hour volume to capacity ratio .90 or less in this area). Alexander operates well within acceptable standards, with an ADT volume of 4760 and a V/C of .34 in 2005.

The addition of sidewalks and bike lanes on Alexander, 185th and 178th would significantly improve the bicycle and pedestrian environment, improving access between the residential areas north of Alexander through the commercial areas south of Alexander to TV highway and the transit services to be found there.

Conceptual Funding Plan

Funding for this project would most likely come from one or a combination of three sources: 1) federal funds allocated through Metro's Regional Flexible Funds allocation (RFFA) process; local public funds, most likely generated by the local Major Streets Transportation Improvement Program (MSTIP) or Transportation Development Tax (TDT), or 2) private funds that would pay for design and construction of the facility as part of a redevelopment project in the area. The project was selected in large part because of its location within the still proposed Region 2040 Aloha Town Center (the nature of which will be identified through the Aloha Reedville study mentioned earlier, and the Regional Flexible Funds allocation criteria that favor alternatives to road widening, such as improving connectivity for all modes in Region 2040 centers, and projects benefitting Environmental Justice communities. Although the project parameters for RFFA selection vary from one funding cycle to another, it is safe to assume that RFFA funds will continue to target transportation improvements in 2040 centers and improving connectivity for all modes among its objectives. Construction of ultimate improvements to Alexander with private funding would occur as development -- mostly redevelopment, in this case -- occurs.

Transportation Needs and Solutions

Recommended Roadway System Improvements

A primary purpose of this project is to improve the walking and bicycling environment for the Alexander Street study area neighborhood. Providing a safe environment with facilities sized to meet demand is fundamental to meeting this objective. More specifically, the successful design alternative should facilitate safe travel within the neighborhood, improve non-auto access and circulation between residential and other area uses, and improve the safety and quality of access to transit on TV Highway. Beyond that, the essential difference between the two alternatives examined in this study is the level of the support for these objectives they provide.

Two alternative improvement designs are included in this report.

- A standard three-lane Collector design that is the default standard based on the current plan provisions, which require 74 feet of right-of-way, and

- A modified two-lane Special Area street that is a hybrid between a Special Area Commercial Street and a Special Area Collector Street section, which requires 69 feet of right of way. Special Area street sections are typically found in Region 2040 mixed use land use districts (generally TO (transit-oriented) districts in Washington County). They provide a higher level design with greater emphasis on support for non-auto modes and on the interaction between the facility and adjacent land uses.

The standard three-lane Collector design supports pedestrian and bicycling by providing five-foot sidewalks and six-foot bike lanes where there currently are none. The Special Area Street alternative achieves these aims but also seeks to include elements designed to encourage a more dynamic pedestrian environment (e.g., nine-foot sidewalks) and to strengthen the links between "the street" and adjacent and nearby land uses (e.g., on-street parking).

The Special Area Street hybrid includes bike lanes, which a Special Area Commercial Street does not, and on-street parking, which the standard Special Area Collector does not.

The essential differences between the two alternatives are:

- The Collector has three lanes for motor vehicles, two travel lanes and one turn lane. The Special Area Street has two travel lanes and no turn lane,
- Both alternatives have a 5- to 6-foot bike lane in each direction,
- The Collector standard calls for five-foot foot sidewalks and 4.5-foot planting strip; the Special Area street alternative provides nine-foot sidewalks,
- The Collector has no on-street parking, while the Special Area Street provides eight-feet for on-street parking on each side.

Additionally, the Special Area street design assumes higher quality, higher cost treatments than the standard Collector design, as is apparent from the differences in unit costs (see "Roadway" cost section in Exhibit 16). Higher level design lighting, street furniture, sidewalk treatments, underground utilities and the like all add to costs reflected in the Special Area street design but not in the Collector design.

Adjacent land use should also be a significant factor in determining which alternative is most appropriate. The Washington County transportation plan provides some direction in this regard:

- *"Collector streets provide both access and circulation between residential, commercial, industrial and agricultural community areas and the Arterial system. As such, Collectors tend to carry fewer, motor vehicles than Arterials, with reduced travel speeds. Collectors may serve as freight access routes, providing local connections to the Arterial network."*

- Special Area Streets are intended to be *"…in areas where transit-oriented development is planned, such as Regional Centers, Town Centers and Light Rail Station Area Communities, different street designs may be appropriate…."*

- Special Area Collectors are intended to *"… link traffic from Special Area Local Streets, Special Area Neighborhood Routes and some Special Area Commercial Streets to Arterials. Speeds should be low to moderate. A moderate degree of non-transit oriented development traffic would be appropriate for these facilities."*

- Special Area Commercial Streets *" are intended to serve local access and service needs associated with urban high density residential, mixed use and employment oriented land uses. These facilities are not intended to serve through trips but may have significant traffic volumes…."*

Table 6 provides a summary of the costs of the alternatives. (More specific information on the alternatives are provided in Exhibits 14, 15 and 16.)

Table 6 – Alexander Street Study Area Roadway Cost Estimates

Option	Design Costs	Right-of Way Costs	Construction Costs	Total Costs
A	$1,495,000	$2,200,000	$3,986,670	$7,681,670
B	$2,519,000	$1,705,000	$6,719,849	$10,943,849

In staff's view, the nature of near-term improvement to Alexander will depend on two things:

1) The broad questions of what sort of land use and development environment is anticipated in the area and what kind of facility best supports land use objectives. The area is within the boundaries of a designated but not yet planned Regional Town Center. Two studies discussed earlier (Aloha Reedville and the TV Highway Corridor Refinement Plan) will be establishing broader community objectives that will help shape future growth and development in the area.

2) Cost and Resources Available: The difference between the costs of the two alternatives is substantial and likely to be a significant consideration that will depend on the sources and amounts of available resources, the general countywide and regional commitment to moving quickly toward providing higher levels of pedestrian support in centers and transit corridors, and assuming strong support in general, the priority for improvements within the study area relative to others in the County and the Region.

Staff prefers and recommends Alternative B, the hybrid Special Area street design as a long-term solution that provides the type of pedestrian environment and support appropriate for this major transit corridor. Existing land use designations allow higher density residential and commercial uses than exist now. To the extent the Aloha Reedville study discussed earlier concludes with recommendations to modify study area land uses to be consistent with the Town Center designation, the benefits of Alternative B over Alternative A will be even stronger.

While Alternatives A and B exhibit significant differences in nearly every element, the aggregate right of way required for each is much the same (existing right of way on Alexander ranges from 50-63 feet). Alternative A is a standard three-lane Collector and requires 74 feet of right of way. (Current regulations require developers to dedicate to this standard.) Alternative B, the Special Area Street hybrid, requires 69 feet of right of way, fitting neatly within the three-lane Collector requirement. And Alternative B has the flexibility to be modified to address operational requirements. For example, if traffic analysis conducted during project development indicates that a left turn pocket is required at some point on this two-lane roadway, on-street parking could be removed from one or both sides of Alexander in the vicinity to provide the space needed for the turn pocket without requiring additional right of way.

Recommended Bicycle System Improvements

Washington County's transportation plan supports on-street bicycle use by including 5- to 6-foot bicycle lanes on arterial and collector roadways and a fourteen-foot outside lane on neighborhood routes to facilitate shared-use by motor vehicles and bicyclists. Shared use of local streets occurs without modifications to the standard 12-foot standard on local roadways.

No bicycle lanes exist on Alexander (a collector). No bicycle lanes exist on 185th (an arterial) in the vicinity of the Alexander/185th intersection at the west end of the study area. Bike lanes exist on 170th near the Alexander/170th intersection at the east end of the study area. TV Highway has a wide shoulder for most of its length that provides space for bicycle lanes but is not striped for them.

Construction of either of the two Alexander design alternatives presented in this analysis would include bicycle lanes on Alexander, resulting in a facility that would adequately support existing and future bicycle use in the study area.

Bicycle lanes should be provided on 185th in this area as part of future projects. Bike lanes should be striped on TV Highway in this area. Building 178th with 14-foot outside lanes and 5-6 foot sidewalks would provide the shared use lanes necessary to support existing and future bicycle activity on this Neighborhood Route. Building other roadways in the area to a standard that provides a 12-foot outside lane and 4-5 foot sidewalk would do the same for local streets.

Recommended Pedestrian System Improvements

Sidewalks are the preferred type of pedestrian facility for all facilities in the Alexander Street Study Area. Sidewalks exist along both sides of Alexander between 185th and 182nd Avenues, at the northwest corner of Alexander and 174th Avenue (it has recently been improved), and in short sections at the Alexander/173rd intersection. A sidewalk also exists on both sides of Alexander between 172nd Avenue and the 170th Avenue/Alexander intersection. Short sections of sidewalk exist elsewhere along Alexander, some in their ultimate location, some not. Also, some sections of Alexander – and 182nd, 178th and 174th as well – are narrow enough to make walking and bicycling in the presence of traffic uncomfortable.

As was the case for bicycles, either Alexander Street alternative would provide the sidewalks necessary to provide basic support for pedestrian activity. However, Alternative A, the Standard Collector Alternative, would provide only that – in the form of a basic six-foot sidewalk. Alternative B, the Special Area Street hybrid would provide a nine-foot sidewalk with a higher level design treatment and amenities intended to contribute to a more comfortable and attractive pedestrian environment.

As noted in the first section of this Transportation Needs and Solutions section, the alternative selected will in large part depend on answers to broad questions of what sort of land use and development environment is anticipated in the area, and what kind of facility best supports land use objectives.

While the specifics of land use and street configuration remain to be determined, staff believes Alternative B will better support the type of future development scenarios that might reasonably be anticipated in a major transit corridor like this, given local and regional land use policy.

Finally, project staff suggests that prioritization of construction of sidewalks on other study area streets should strongly weigh both safety and enhancing access to TV Highway from Alexander. This would bolster safe pedestrian access to transit as well as to commercial activity in the area.

Recommended Transit System Support Improvements

As noted in the Transit Section on page 10, there are two TriMet bus routes that connect the study area with points north, south, east and west. #57 serves east-west travel, with four westbound and three eastbound stops adjacent to the study area. #52 serves north south travel along 185th, with six stops near or adjacent to the study area.

Project staff conclude that improvements associated with this project will facilitate and increase the quality of pedestrian access from points within the study area primarily to transit stops on both the TV Highway and 185th.

More broadly, and as described in the Pedestrian recommendations above, staff recommends providing and/or improving sidewalks on study area streets between Alexander and Tualatin Valley Highway a priority in order to further facilitate access to transit.

While beyond the scope of this project, project staff note that study area residents interested in improving transit services have the opportunity to participate in TriMet's regular service planning process. Transit services are provided regionally, and decisions regarding funding and allocating these services are regional as well. Improving the frequency and scope of transit service will make study area connections project staff recommend that much more valuable.

Alexander Street Project Solutions

The improvements necessary to address identified needs of motor vehicle, bicycle, pedestrian and transit users in the Alexander Street study area are described in the preceding portions of this section. General design drawings of the two alternatives are provided in Exhibit 16. Tables delineating cost estimates for the alternatives are also attached: Right-of-way costs, including relocation, are identified in Exhibit 14; cost estimates for other project elements and total costs are described in Exhibit 15.

Washington County Interoffice Memo

Date: June 9, 2011

To: Clare Fuchs
Associate Planner

From: Steve Hansen
Right-of-Way Supervisor

Subject: **Program Estimate**
Roadway: **SW Alexander Street**
Section: **TGM Grant - 170th to 185th - Alt. A**
Project # **100159**

I estimate the funds necessary to complete the Right of Way acquisition on the above referenced project as follows:

This estimate is effective June 9, 2011
and is subject to market change.

Estimated No. of Files	62
Land	906,690
Improvements	292,080
Damages	55,000
Relocation	0
Demolition	0
Personnel Cost	531,960
Misc. Cost	15,500
Legal & Contingencies	376,131
Total:	$ 2,177,423
(Rounded)	$2,200,000

Assumes	65575	sq. ft. of right-of-way purchased. (Estimated)
Assumes	0	sq. ft. of Permanent Easement purchased. (Estimated)
Assumes	0	sq. ft. of Temporary Construction Easement purchased. (Estimated)

Estimated Impacts:

0	Sq. ft. of Wetland Mitigation purchased
0	Number of Relocations
0	Number of Displaced Businesses/NPO
0	Number of Displaced Residences
12	Estimated time in months to acquire the right-of-way

Washington County Interoffice Memo

Date: June 6, 2011

To: Clare Fuchs
Associate Planner

From: Steve Hansen
Right-of-Way Supervisor

Subject: **Program Estimate**
Roadway: **SW Alexander Street**
Section: **TGM Grant - 170th to 185th - Alt. B**
Project # **100159**

I estimate the funds necessary to complete the Right of Way acquisition on the above referenced project as follows:

This estimate is effective June 6, 2011
and is subject to market change.

Estimated No. of Files	67
Land	656,115
Improvements	199,590
Damages	0
Relocation	0
Demolition	0
Personnel Cost	574,860
Misc. Cost	16,210
Legal & Contingencies	256,712
Total:	$ 1,703,554
(Rounded)	$1,705,000

Assumes	47035	sq. ft. of right-of-way purchased. (Estimated)
Assumes	0	sq. ft. of Permanent Easement purchased. (Estimated)
Assumes	0	sq. ft. of Temporary Construction Easement purchased. (Estimated)

Estimated Impacts:

0	Sq. ft. of Wetland Mitigation purchased
0	Number of Relocations
0	Number of Displaced Businesses/NPO
0	Number of Displaced Residences
12	Estimated time in months to acquire the right-of-way

Alexander Street Project Cost Estimate Breakdown

TGM Grant Assumptions

+ LF Cost derived from past projects similar to those proposed
+ Right-of-Way costs calculated separately, see estimating sheets from Steve Hansen

Last Updated - 02-JUN-11

COST ASSUMPTION DATA	
Developer ROW (per AC)	N/A
Private ROW (per AC)	N/A
Bridge (per SF)	$ 275.00
Mitigation (per acre)	$ 150,000.00
Earthwork (per cubic yard)	$ 12.00
Intersections	$ 200,000.00
Construction Contingency	20%
PE / CE	45%
Walls (per SF)	$ 40.00

PROJECT INFORMATION			
Project Name	Limits		Total
	From	To	Length (ft)
SW Alexander St--Alt A	SW 185th Ave	SW 170th Ave	3831
SW Alexander St--Alt B	SW 185th Ave	SW 170th Ave	3831

ROADWAY				
Net Length	Travel Lanes		Cost per Ft	Total
(ft)	Existing	Proposed	Roadway	Cost
3831	2	3	$ 575	$ 2,202,825
3831	2	2	$ 1,170	$ 4,480,474

INTERSECTIONS		
No. Intersections	Cost Per Intersection	Total Cost
5	$ 200,000	$ 1,000,000
5	$ 200,000	$ 1,000,000

BRIDGE			
Bridge		Bridge Cost	Total
Length	Width	Per SF	Cost
0	0	$ 275	$ -
0	0	$ 275	$ -

WATER QUALITY & MITIGATION		
Mitigation Area Req'd	WQ/Mitigation Cost	Total Cost
1.00	$ 105,000	$ 105,000
1.00	$ 105,000	$ 105,000

EARTHWORK / WALLS		
Quantity (CY)	Unit Cost	Total Cost
1,200	$ 12.00	$ 14,400
1,200	$ 12.00	$ 14,400

CONSTRUCTION	
Construction Cost	Construction Cost w/ Contingency
$ 3,322,225	$ 3,986,670
$ 5,599,874	$ 6,719,849

PE and CE
PE & CE Total Cost
$ 1,495,010
$ 2,519,950

RIGHT-OF-WAY						
Proposed	Developer Controlled ROW			Other Controlled ROW		
ROW Width	Area (SF)	Acres	Cost	Area (SF)	Acre	Cost
74	65,575	1.51	$ 2,200,000			
69	47,035	1.08	$ 1,705,000			

CPM Estimate	CPM Estimate
TOTAL PROJECT COST	Construction & Design Cost ONLY
$ 7,700,000	$ 5,500,000
$ 11,000,000	$ 9,300,000

NOTES:

A) Standard Collector (C-1): 3-Lanes, Bike Lanes, 5 1/2' Sidewalks, Illumination
B) Special Area Commercial (SACM-1): 2-Lanes, On Street Parking, Bike Lanes, 9' Sidewalks, Illumination

Exhibit 15

Department of
Land Use & Transportation

Sue/Dogwood Street General Design Plan

for improvements to SW Dale, Sue and Dogwood Streets from Cornell to Saltzman Road.

I. Project Understanding 2

II. Define Existing Conditions 2

- Existing Land Use Profile 2
- Demographic Characteristics 6
  - Population Characteristics 6
  - Housing Characteristics 6
  - Population and Housing Data 7
- Built and Natural Environment Attributes 7
- Transportation System Characteristics 12
  - Auto/Truck System 12
  - Pedestrian System 18
  - Bicycle System 20
  - Transit System 20

III. Future Conditions 21

- A. Planning Context 22
  - a. Washington County 2020 Transportation Plan 22
  - b. Cedar Hills-Cedar Mill Community Plan 22
  - c. Current Activity and Issues 22
- B. Land Uses 22
- C. Transportation System 28
  - a. Planned Transportation System Characteristics 28
  - b. Conceptual Funding Plan 29
- D. Transportation Needs and Solutions 29
  - a. Recommended Bicycle System Improvements 33
  - b. Recommended Pedestrian System Improvements 33
  - c. Recommended Transit System Improvements 34

I. Project Understanding

The Sue/Dogwood Street Project is located in the community of Cedar Mill in eastern Washington County, Oregon, within a study area bounded by Cornell and Saltzman Roads, Murray Boulevard and Filbert Street (see Exhibit 1). The proposal calls for identifying planning level alignments, designs and costs of extending Dogwood St. west to connect to Sue Street. The anticipated benefits of making this connection are improved motor vehicle, bicycle and pedestrian connectivity and circulation within a portion of the Metro-designated 2040 Cedar Mill Town Center (see Exhibit 2). Proposed project improvements are expected to reduce out-of-direction travel for all modes, improve bicycle and pedestrian safety and reduce auto congestion on nearby arterial roads.

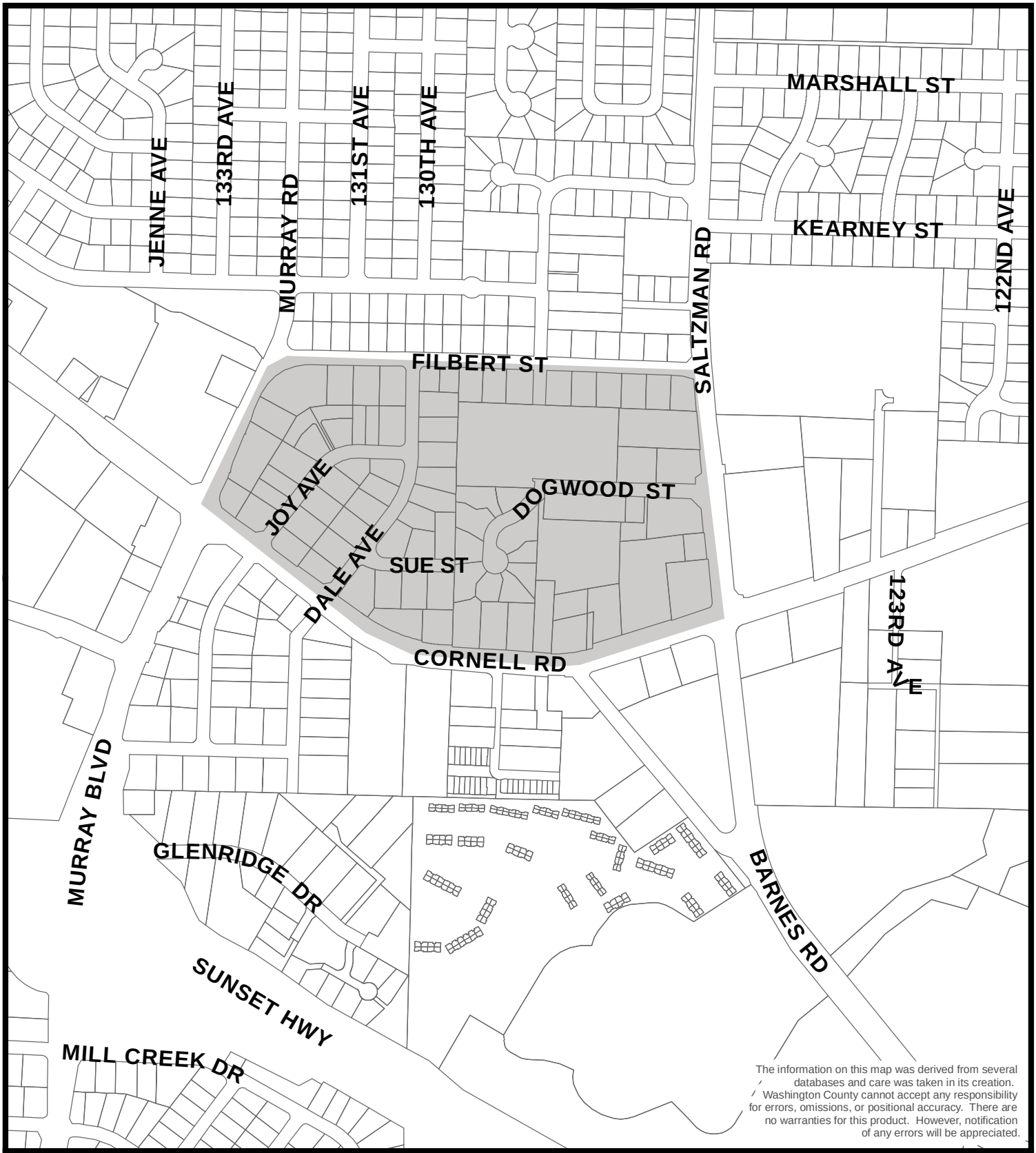
Element 2, Task 2.3 of TGM Grant Agreement No. 26621 implements the work plan identified developed under Task 2.2, defining existing conditions and demographics in the Sue/Dogwood study area, including descriptions of built and natural environment attributes and transportation system conditions. It provides an overview the planning context for activities in the area, describes current planning activities and issues, and provides an overview of future land use and transportation needs. The plan describes planning level alignment, design and cost alternatives, and ultimately recommendations, for improvements to Dale Ave., Sue St. and Dogwood St. between Cornell and Saltzman Road. This plan establishes a baseline of information that sets the project up for additional project development work and construction as funding becomes available. While the project involved field work, most of the work was accomplished using in-house geographic information system (GIS) and other existing data base resources.

II. Existing Conditions

Existing Land Use Profile

Exhibit 3 shows generalized land use designations and existing land uses in the study area. With regard to existing uses, commercial land uses predominate along the arterials, with focal points at the Murray/Cornell and Saltzman/Cornell intersections. There are several major land uses that attract visitors from within and outside the study area. Bales Thriftway supermarket dominates the southeastern portion of the study area near the Cornell/Saltzman intersection. A Walgreens drugstore and the Cedar Mill Library are located across Saltzman in the northeast quadrant of this intersection, outside of the study area. A Safeway supermarket occupies the northwest quadrant of the Murray/Cornell intersection, immediately outside the study area. Small businesses stretch along Cornell between Saltzman and Cornell Rd. along the southern edge of the study area, some in structures originally designed for residential use. Beyond these commercial uses and Christ United Methodist Church, which occupies the northern center of the study area north of Dogwood, the study area is occupied primarily by residential uses, mostly single family detached homes, with some multi-family units in the area between Dogwood and Sue.

As tends to be the case in many 2040 regional and town centers, a comparison of existing and planned land uses indicates that considerable redevelopment would be required to achieve the characteristics of planned uses. This is particularly true in the southern portion of the study area where auto-oriented commercial uses tend to predominate. Consistent with 2040 principles, a shift away from current auto-oriented uses to more mixed-use types



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Study Area

Sue/Dogwood Study Area

0 255 510

Feet

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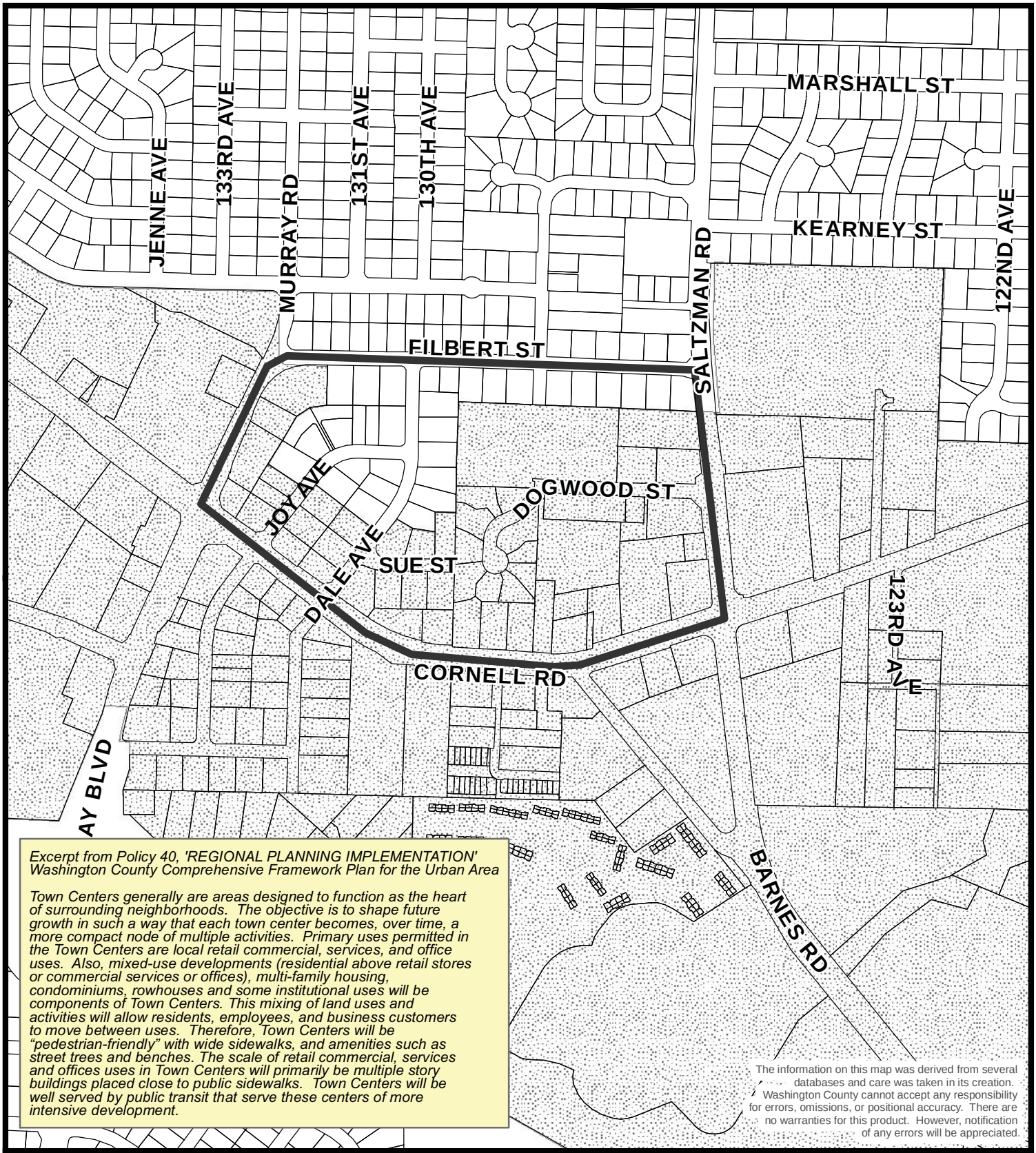
Exhibit 1



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - 2040 Design Types

Town Center
2040 Growth Concept Design Type

Sue/Dogwood Study Area

0 250 500
Feet

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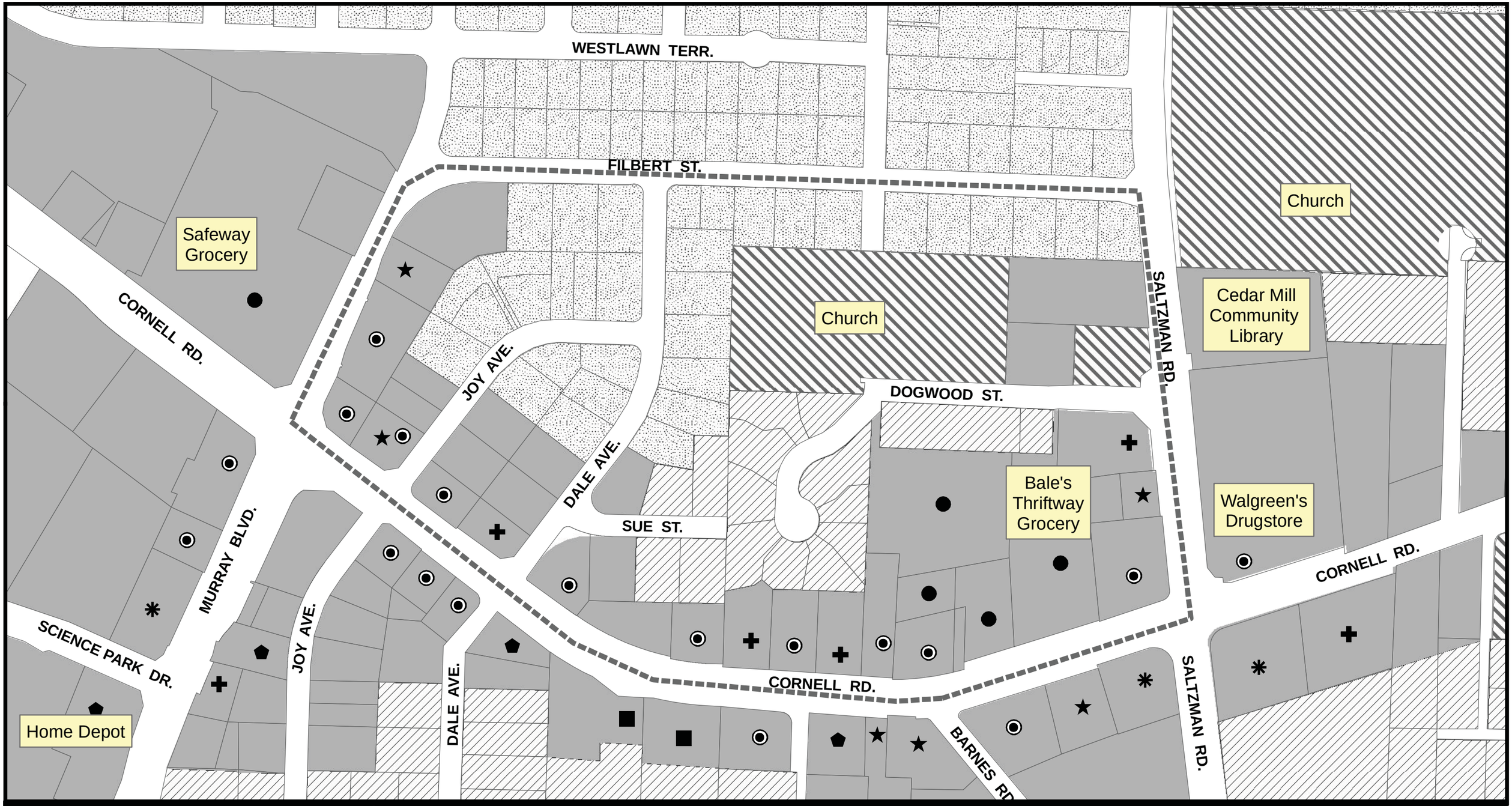
Exhibit 2



Washington County - Long Range Planning Division

Sue/Dogwood Project - Generalized Land Use* and Existing Development Map

Commercial
Multi Family
Public Facility
Single Family
Apartment Complex
Bank
General Commercial
Grocery
Medical Office
Office
Restaurant
Study Area

0 200 400
Feet

* *Generalized land use designation may not reflect existing land use.*

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Exhibit 3

of redevelopment requires more robust multi-modal system planning supported by transit, bicycle and pedestrian improvements.

Demographic Characteristics

Table 1 below compares year 2000 U.S. Census population and housing data for the Sue/Dogwood study area with that for Washington County as a whole.

Population Characteristics

As of the year 2000, there were 226 people residing within the Sue/Dogwood study area with 54 percent of them being in the 21 to 64 age cohort. Approximately 31 percent of the population is less than 21 years old, and slightly less than 15 percent of the population is of typical retirement age of 65 or older. The median age of the study area population is 34.29 years old. As compared to Washington County as a whole, the study area population is generally older than that of Washington County. This is reflected in the study area's higher median age and the 14 percent of the population that is in the oldest 65 and over cohort.

Racial composition data indicates that approximately three-quarters of the population is White with the remaining 25 percent being either Non-white or a mix of races. The percentage of White population is lower than that of Washington County, which has 82 percent in this category. Only 1 percent or so of the study area population is of Hispanic origin, which is far lower than the countywide proportion of 11 percent of Hispanic origin.

Housing Characteristics

As of the year 2000, there were 92 housing units in the study area. Approximately 92 percent of the housing units within the study area were occupied, which is slightly lower than the countywide figure of almost 95 percent occupancy. Approximately 42 percent of the units were owner-occupied and 58 percent were renter-occupied. This percent of owner-occupied units in the study area is lower than the 61 percent owner-occupancy rate countywide.

The study area average number of persons per household of 2.66 is only slightly higher than the 2.61 countywide average. The median home value of almost $160,000 is some $6,000 less than the $166,520 median value for the county as a whole.

Table 1 – Sue/Dogwood Study Area Population and Housing Data Comparison

	Sue/Dogwood Study Area	Washington County
Population Data		
Total population	226	445,342
% less than 20 years old	31.42%	30.57%
% between 21 and 64	54.42%	60.60%
% 65 or older	14.16%	8.84%
Median Age	34.29	32.10
% White	74.78%	82.19%
% Other or Multi-race	25.22%	17.81%
% Hispanic	1.33%	11.17%
Housing Data		
Total housing units	92	178,886
% Occupied housing units	92.39%	94.55%
% Owner occ. housing units	42.35%	60.59%
Avg. persons per household	2.66	2.61
Median home value (yr. 2000)	$160,320	$166,520

Built and Natural Environment Attributes

The project study area contains about 40% deciduous tree cover. The southeastern portion of the study area has been largely cleared of trees and vegetation with the development of the Safeway store-shopping complex. Most of the residential housing stock discussed above appears to have originated in the 1950's and 1960's. Some of the commercial areas have been more recently remodeled. Exhibit 4 contains pertinent data associated with EPA water contamination, and land contamination sites

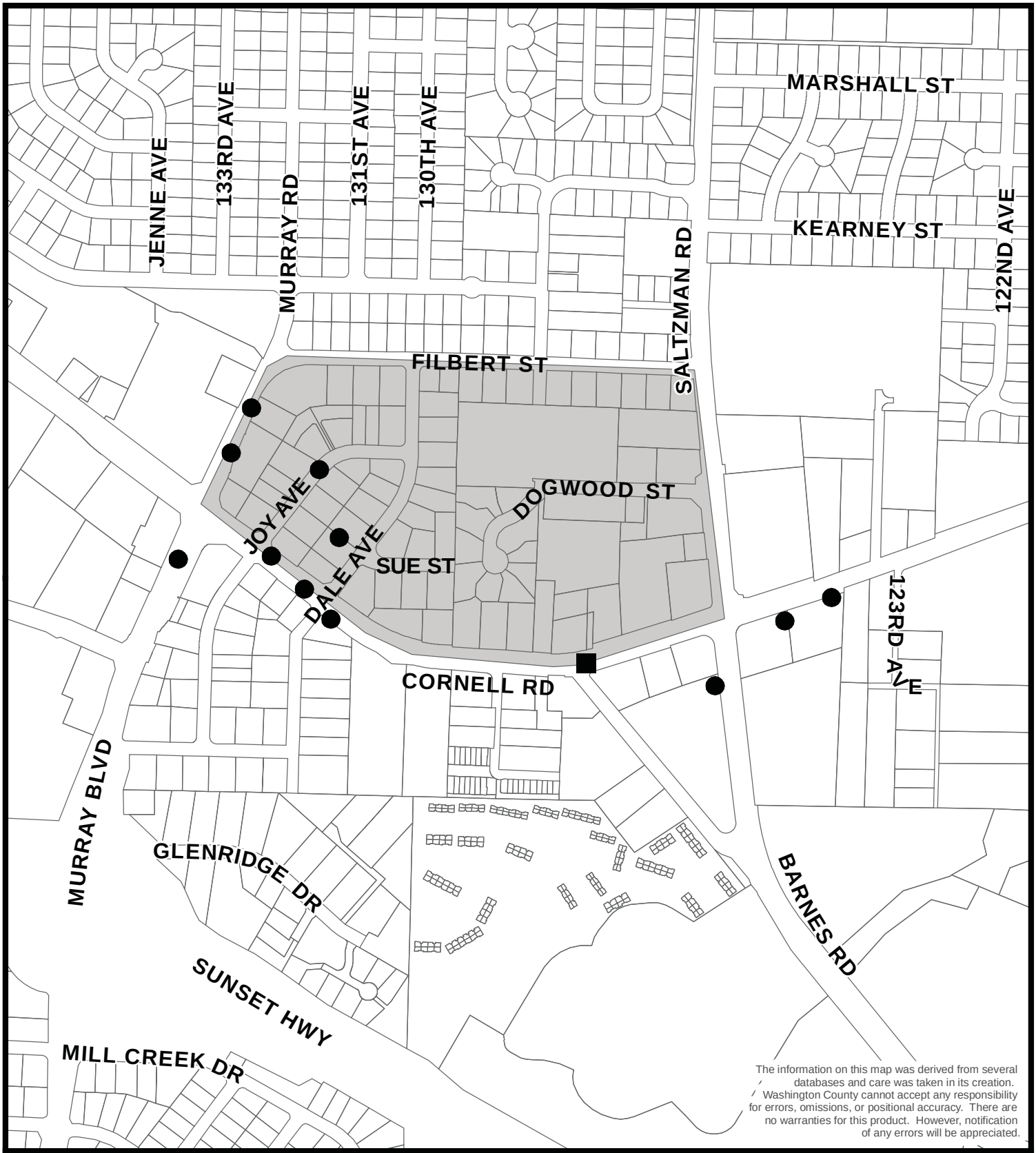
Drainage and Environmental Attributes

The project area does not contain any drainage hazard areas, but a drainage hazard area buffer does extend into the southwest portion of the study area (Exhibit 5). The southwestern portion of the site contains the 250-foot 25-year flood plain buffer area near the intersection of NW Dale Street and NW Cornell. Study area drainage facilities are identified on the large format map from Clean Water Services attached as Appendix A.

Exhibit 6 shows the topographical information for the study area. No wetlands, environmentally sensitive, or historically significant areas were located in the project study area.

Soil and Geotechnical Data

Exhibit 7 shows the extent of various soil types within and surrounding the study area. Table 2 below provides additional information on the three predominant soil types contained in the Sue/Dogwood Study Area. Soil depth indicates the upper and lower boundaries of each layer as it pertains to Soil Reaction, which is a measure of acidity or alkalinity used in evaluating soil amendments for stabilization and determining the risk of corrosion. More detailed soil analysis will be required when the Sue/Dogwood connection enters the actual project design phase.



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Contamination Sites

EPA Land and Water Contamination

EPA Water Contamination only

Sue/Dogwood Study Area

N

0 250 500

Feet

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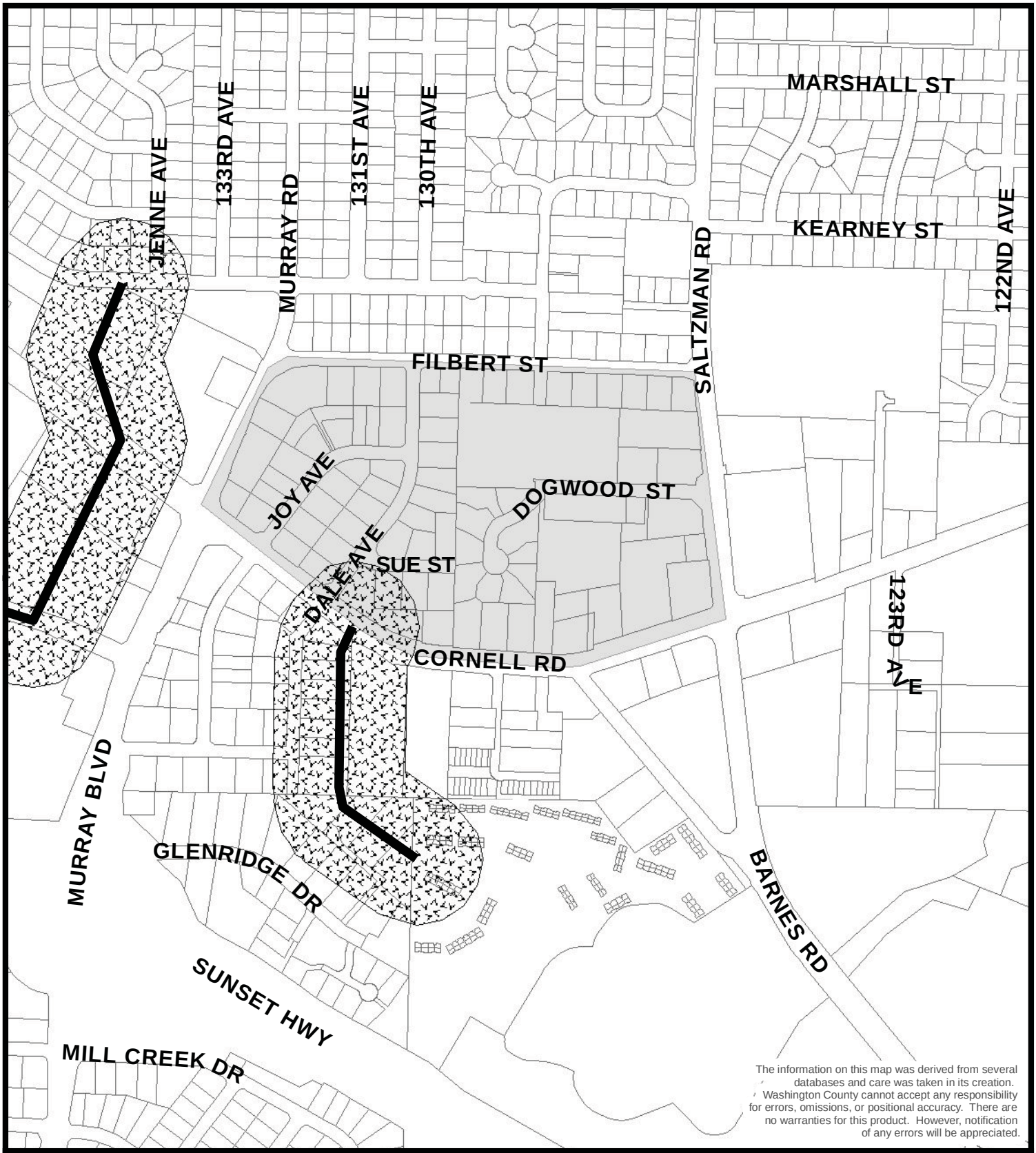
Exhibit 4



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Drainage Hazard Area

Drainage Hazard Area

Drainage Hazard Area Buffer

Sue/Dogwood Study Area

0 250 500

Feet

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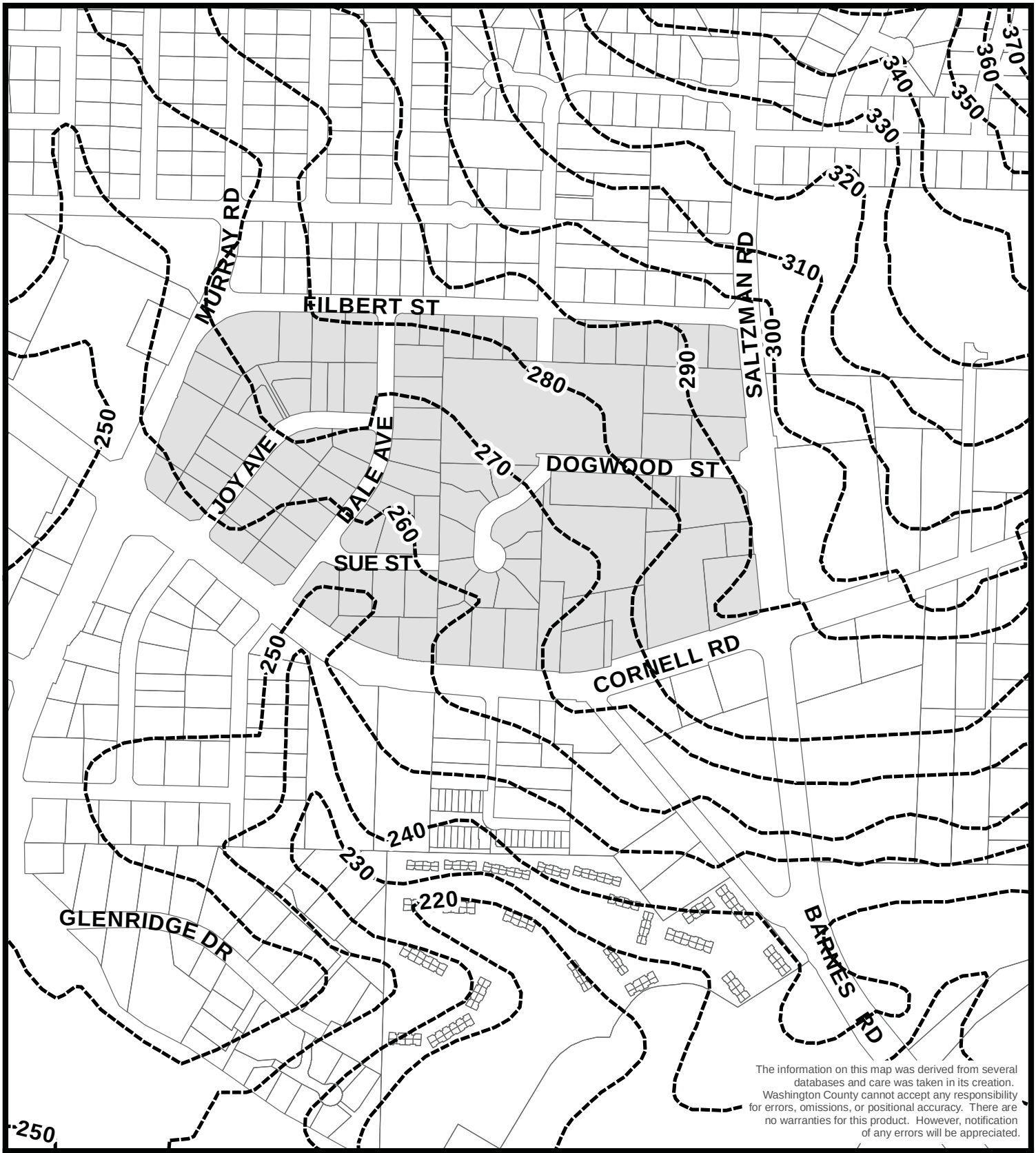
Exhibit 5



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Topography

20' Contours Sue/Dogwood Study Area

0 200 400

Feet

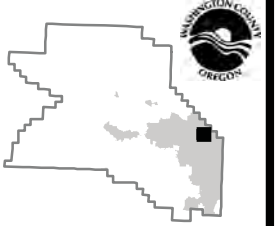


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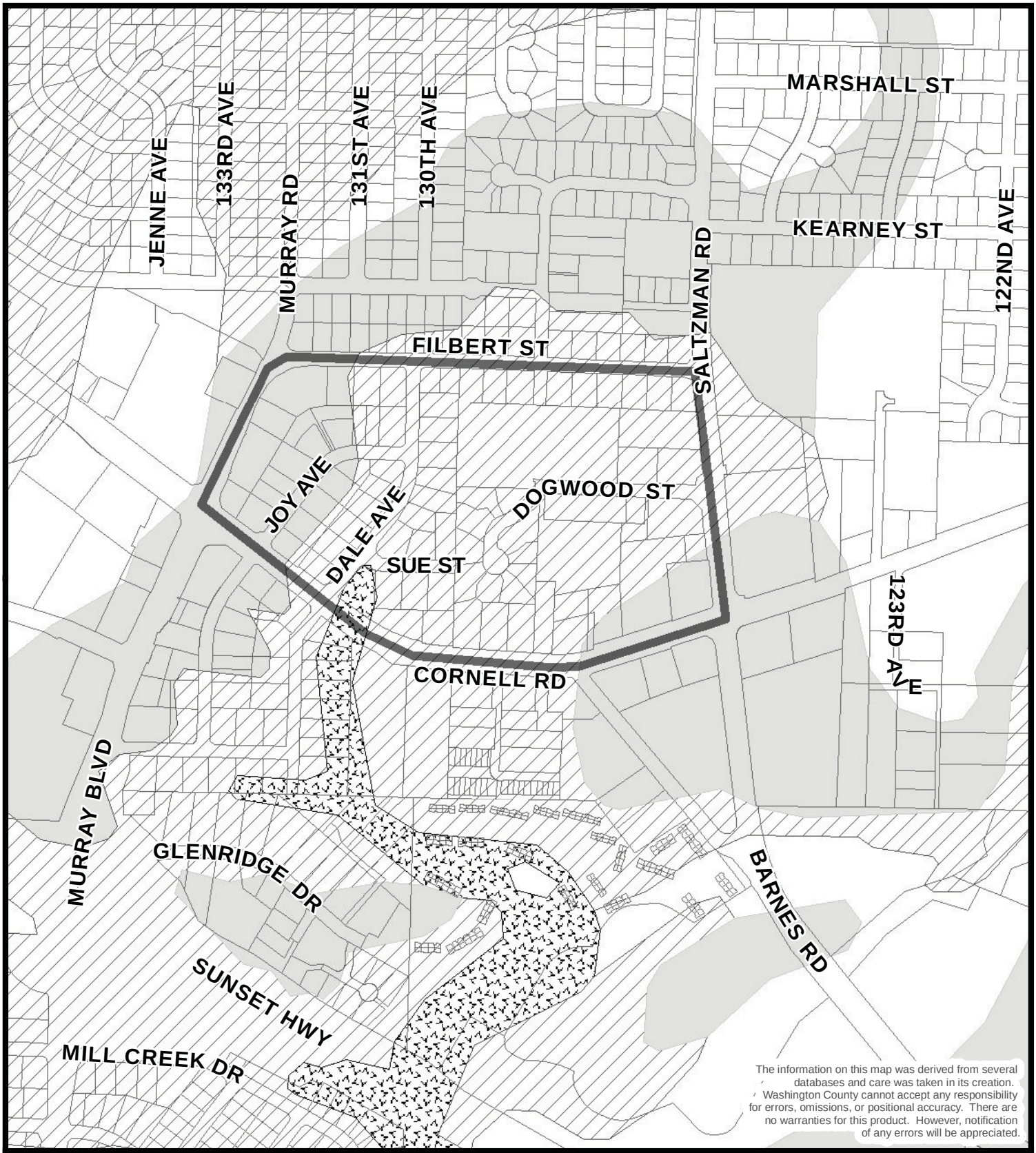
Exhibit 6



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Soils

1 - Aloha silt loam

19B - Helvetia silt loam

43 - Wapato silty clay loam

Sue/Dogwood Study Area

N

0 250 500

Feet

Path: J:\Users\DoriaM\GIS_maps_temp\STAFF\Walnut\TGM_SueDogwood_soils.mxd 6/28/2011

Exhibit 7

Table 2 – Sue/Dogwood Study Area Soil Types

Map Unit Symbol	Soil Type Name	Acres of Soil Type	Percent of Study Area with Soil Type	Soil Depth (Inches)	Soil Reaction (pH)
1	Aloha Silt Loam	15.0	97.4	8-46	5.6-6.5
19B	Helvetia Silt Loam, 2 to 7 percent slopes	0.3	2.3	10-48	5.1-6.5
43	Wapato Silty Clay Loam	0.1	0.3	14-42	5.1-6.5
Total		15.4	100.0		

.

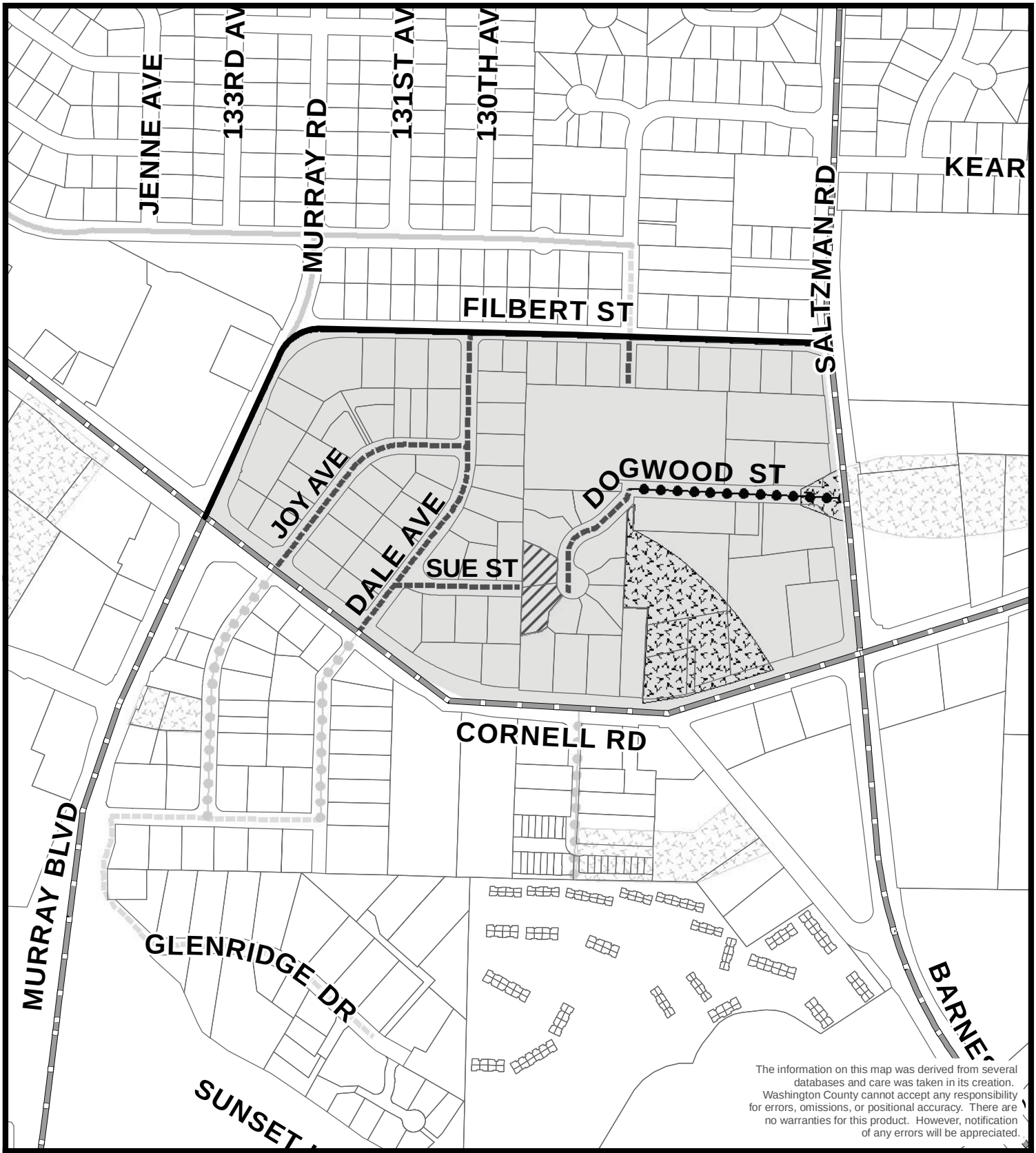
Transportation System Characteristics

Functional Classification

Exhibit 8 shows the adopted roadway functional classification from the *Washington County 2020 Transportation Plan.* Cornell, Saltzman and Murray south of Cornell are classified as arterial streets. Cornell, Saltzman and Murray south of Cornell have all been improved over the past 10 years through the County-funded Major Streets Transportation Improvement Program (MSTIP). Murray Boulevard north of Cornell and Filbert, which forms the north boundary of the study area, are designated Neighborhood Routes (i.e., roads that provide connectivity to the Collector and Arterial system while also serving higher order travel needs than designated Local roads) . Dale Avenue, Joy, 128th south of Filbert, and Sue and Dogwood Streets, which would be affected by the project, are classified as Local roads. These streets are further discussed in this section.

Street Design

Table 3 below shows roadway design standards for those roads involved in the proposed Sue/Dogwood connection.



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Functional Classification

- Arterial
- Special Area Neighborhood Route
- Special Area Local Street
- Special Area Commercial Street
- Special Area Commercial Street Corridor
- Special Area Street Corridor
- Sue/Dogwood Study Area

0 200 400
Feet

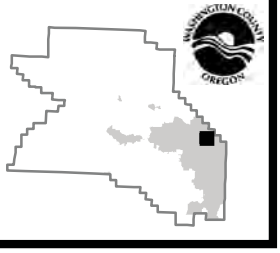


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Exhibit 8

Table 3 – Sue/Dogwood Study Area Street Design Standards

Road Name	Roadway Classification	Number of Lanes	Bike Lanes	Max. Right-of-Way (Feet)	Max. Paved Width (Feet)	Existing Paved Width
Dale Ave.	Special Area Local	2	No	38	32	19.5-28
Sue St.	Special Area Local	2	No	38	32	22
Dogwood St.	Special Area Commercial	2	No	46	40	32

The first block of Dale Avenue north of Cornell Road recently underwent a one-half street improvement on the west side that meets design standards and includes a section of sidewalk 191 feet long. The remaining portion of Dale Avenue (north of Sue Street) does not meet design standards. No portion of Sue Street meets design standards. The vast majority of Dogwood Street meets design standards.

Most of the property with frontage on Dale Avenue and Sue and Dogwood Street is developed, and little adjacent land is vacant. There is one empty residential lot near the north end of Dogwood Street. There is one commercial lot currently for sale at the intersection of Dale Avenue and Cornell Road. Currently there is what appears to be an older, poorly maintained ranch home occupying this site. "No Parking" signs are posted along the first 300 feet of Dogwood Street south of Saltzman Road on both sides of the road. Given the underlying land use designations discussed elsewhere, redevelopment potential within the study area is high.

Motor Vehicle Data

Table 4 below shows 2010 traffic volume, speed and vehicle classification data for count stations within the study area. Data indicates that Murray Blvd. with more than 22,000 vehicles over a 24-hour period carries approximately twice the volume of other individual arterial roads in the study area.

As indicated by comparing the 85th percentile speed (i.e., the speed attained by 85 percent of the vehicles using the street) to the posted speed, the 85th percentile speed of 33 mph exceeds the 30 mph posted speed on Cornell east of Saltzman. This may be indicative of a speeding problem on Cornell within the study area, however, this count station is located just outside the study area, and no count data is available on Cornell within the study area.

The percentage of trucks in the study area ranges from approximately 3 to 5 percent of total traffic. These percentages are much lower than the commonly accepted 10 percent truck threshold that is reflective of a high percentage of truck traffic.

Table 4 - Sue/Dogwood Study Area Traffic Data

Station No.	Location	24-Hour Traffic Vol.	85th Percentile Speed	Posted Speed (mph)	Percent Trucks
136	Murray south of Cornell	22,108	34 mph	35	5.3%
109	Cornell east of Saltzman	11,100	33 mph	30	3.8%
110	Saltzman north of Cornell	11,204	27 mph	35	3.2%

Limited count data is available for lower order roads. March 31, 2011 turn movement counts for the intersection of Dogwood and Saltzman Rd. are contained in Appendix B to this document. These counts show the a.m. peak hour volume entering this intersection were 1,083 vehicles between 7:30 and 8:30 a.m. Similarly, these counts show the p.m. peak hour volume entering this intersection were 1,498 vehicles between 4:55 and 5:55 p.m. There are no recent traffic counts or traffic composition data available for Dale Avenue or Sue Street.

Crash Data

Washington County compiles intersection crash data for more than 250 intersections of County with City or State-owned roads. This data is entered into the Safety Priority Indexing System (SPIS), which calculates a safety (i.e., SPIS) score based on the number, frequency and severity of accidents over a running three-year period, and assigns a ranking to each intersection. Table 5 below shows 2006-2008 SPIS rankings for intersections within the Sue/Dogwood Study area.

Table 5 - Sue/Dogwood Study Area SPIS Locations 2006-2008

SPIS Ranking[1]	Location	SPIS Score	Total Crashes	Number of Fatal / F&A / B&C / PDO[2]
102	Cornell at Murray	40.3	24	0 / 0 / 9 / 15
148	Cornell at Saltzman	33.0	22	0 / 0 / 5 / 17

Notes:
[1]Ranking out of 262 ranked intersections in Washington County.
[2]F = Number of crashes resulting in a fatality, F&A = Number of fatal and severe injury crashes, B&C = Number of moderate and minor injury crashes and PDO = Number of property damage only crashes.

In addition to the 2006-2008 SPIS ranking data, more recent 2007-2009 crash data was obtained for several locations in the study area as follows: (1) Cornell Road at Saltzman Road: 15 total crashes, four with injuries, one at night, six rear-end collisions, and nine angle collisions; (2) Barnes Road at Cornell Road: six total crashes, one with injuries, four rear-end collisions, and two angle collisions; (3) Cornell Road at Dale Avenue: three total crashes, one with injuries, and three rear-end collisions and (4) Dogwood at Saltzman: three total crashes, two of which involved vehicles entering or exiting Dogwood from a driveway or access point to a business. There are no reported crashes involving pedestrians or bicyclists at these intersections. Crash diagrams for these intersections are included in Appendix C to this document.

Street Lighting

There is no street lighting at the intersection of Dale Avenue and Cornell Road. Street lighting exists along both sides of Saltzman Road that was installed as part of the MSTIP 3C road widening project completed in 2010. These lights include 150 watt cobras on the west side of Saltzman and 150 watt acorns on the east side of Saltzman. Street lights are also attached to each of the four signal poles at the intersection of Dogwood Street and Saltzman Road. This intersection meets design standards. Street lighting exists along both sides of Cornell Road consisting of 250 watt acorns. There is a street light at the intersection of Filbert Street and Dale Avenue. There is one street light on Filbert near the intersection of Murray Boulevard. There are a couple of street lights turned in to illuminate private properties along Dale Street. There are no other street lights on these roads. None of these roads have sidewalks with the exception of a 248 foot long section on Joy Street.

Other System Characteristics

System and individual road facility characteristics can affect operations and safety.

Neighborhood and Local Roads

Filbert Street, Joy Avenue, Dale Avenue and 128th Avenue are all two-lane roads. Filbert Street is classified as a Neighborhood Route, and Joy, Dale and 128th Avenues are all classified as Local Roads. With a few minimal exceptions (e.g., Dale south of Sue), these roads lack striping, street lighting, sidewalks and bicycle lanes. These roads all have narrow

sections of pavement forcing the pedestrians and bicyclists to walk and/or ride close to traffic. There are no other perceived safety problems.

Dale Avenue is approximately 28-feet wide south of Sue Street, and Dogwood Street is approximately 32-feet wide for its entire length. Dale north of Sue, Sue itself and other local streets in the study area are narrower than 28 feet. No current perceived safety problems are identified for Dale Avenue or Sue Street. However, with the completion of the connection between Sue and Dogwood Streets, the current curbside parking along Dogwood Street will need reevaluated. According to Mike Mills, Washington County's Neighborhood Streets Program Coordinator, there have been no complaints of speeding on these roads over the last few years.

Dale Avenue at Cornell Road is a recently improved, three-way unsignalized intersection. There are no non-conforming accesses at or near this intersection. However, if the property at the northeast corner of the intersection is developed, access to and from this development will need careful attention to achieve proper access spacing requirements. Dogwood Street at Saltzman Road is a recently improved four-way signalized intersection with a model 2070 traffic signal controller. The ingress and egress to Bales Thriftway from and to Dogwood Street is made at two separate locations approximately 150 feet apart.

Pavement conditions on Dale and Sue vary from fair to poor but the majority of the pavement is in fair condition. Pavement conditions on Dogwood Street vary from fair to good, but the majority of the pavement is in fair condition. The design speed is 25 mph on Dale Avenue, 15 mph on Sue and 35 on Dogwood..

There is no posted speed on Dale Avenue or Sue and Dogwood Street. Street lighting exists at the intersection of Dale Avenue at Cornell Road from 250 watt Acorn lights located on both sides along Cornell Road. There is a streetlight attached to each of the four signal poles at the intersection of Dogwood Street and Saltzman Road. This intersection meets design standards. There is no other street lighting on Dale Avenue or Sue and Dogwood Streets.

Dale and 128th Avenue intersect Filbert Avenue. Both of these intersections are four-way stop controlled. Access to Saltzman Road from Filbert Avenue is restricted to a right-turn only. The four-way stop controlled intersections and the right-turn only to Saltzman Road were completed to limit cut-through traffic from Murray Boulevard to Saltzman Road on Filbert Avenue and force drivers to travel along Cornell Road instead of cutting through the neighborhood

Arterial Roads

Cornell and Saltzman Roads and Murray Boulevard south of Cornell are all classified as arterials. These three roads all have centerline and edge line striping, street lighting and sidewalks. Cornell and Saltzman Road have bicycle lanes. Murray Boulevard north of Cornell Road is generally a two-lane road with left turn lanes. Cornell Road is generally a two-lane road with left-turn lanes at intersections and accesses. Saltzman Road is also a two-lane road with a two-way left turn lane. These three roads are built to county standards and have no perceived safety problems.

Murray Boulevard was widened to its current configuration in 2009. The intersection of Murray Boulevard at Cornell Road is a four-way signalized intersection that was improved in 2009. The traffic signal controller at this intersection is a 2070. There are no non-

conforming accesses at or near this intersection. Pavement conditions on Murray Boulevard vary from fair to good. The majority of the pavement is in good condition.

Cornell Road was widened to its current configuration on 2006 through a MSTIP 3B project. This project included a southbound right turn lane to westbound Saltzman Road. The intersection of Cornell Road and Dale Road is a recently improved, three-way unsignalized intersection. However, as mentioned above, if the property in the northeast corner of the intersection of Dale Avenue and Cornell Road is developed, access to and from this development will need careful attention to achieve access spacing requirements. The intersection of Cornell Road and Barnes Road is a four-leg intersection. The traffic signal controller at this intersection is a 170. There are no non-conforming accesses at or near this intersection. The access to Bales Thriftway from Cornell Road consists of a right-in, right-out for southbound traffic and a left in for northbound traffic. The intersection of Cornell Road at Saltzman Road is a four-way signalized intersection that has recently been improved. The traffic signal controller at this intersection is a 2070. There are no non-conforming accesses at or near this intersection. Pavement conditions on Cornell Road vary from fair to good. The majority of the pavement is in fair condition.

Saltzman Road was widened to its current configuration in 2010 through a MSTIP 3C project. The intersection of Saltzman Road and Dogwood Street is a four-way signalized intersection that has recently been improved. The traffic signal controller at this intersection is a 2070. There is a private driveway located approximately 45 feet west of Dogwood on Saltzman Road. Pavement conditions on Saltzman Road vary from fair to good. The majority of the pavement is in good condition

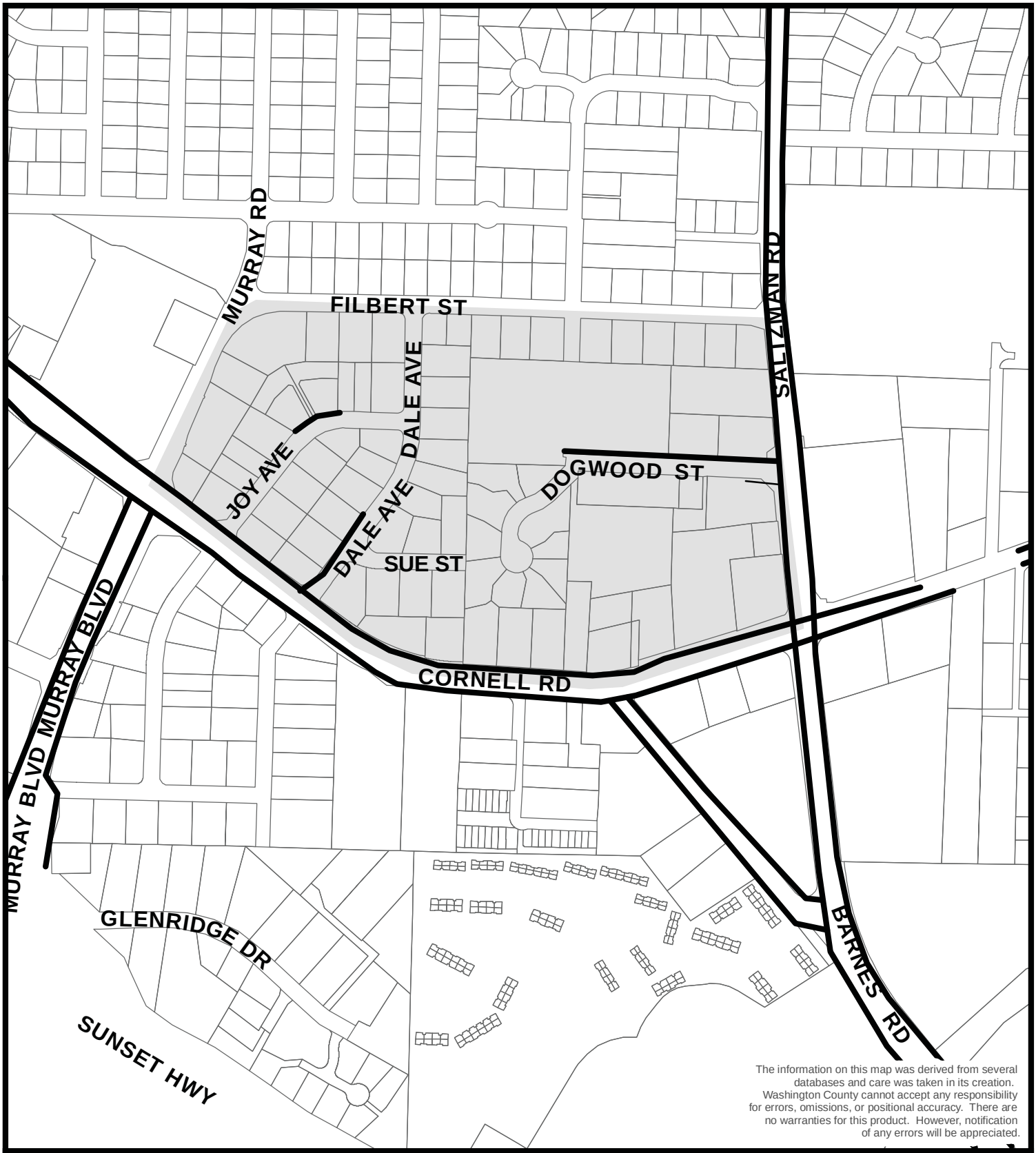
Pedestrian System

Exhibit 9 shows existing pedestrian facilities in the study area. Although sidewalks exist along the entire arterial system (Murray, Cornell and Saltzman), they do not exist along most of the local system. Local system sidewalks exist only on parts of Dogwood, Dale and Joy Avenue.

The recent completion of the new signal at Dogwood Street and Saltzman Road included marked crosswalks across both Dogwood Street and Saltzman Road. There is also a marked crosswalk across Saltzman Road north of Filbert Street. Marked crosswalks also exist at the intersections of Cornell Road with Saltzman and Barnes Road. Pedestrians use an unmaintained dirt path to walk between Sue Avenue and Dogwood Street.

The most notable gaps in the pedestrian system include: (1) the connection between Sue Avenue to Dogwood Street (i.e., the dirt path) (2) along Sue Street where no sidewalks exist; and (3) along Dale Avenue where no sidewalk exists on the east side of the road.

Site observations found many pedestrians walking along Sue and Dogwood Streets and Filbert Avenue. A number of school children get on and off buses at the intersection of Dale Avenue and Sue Street. There are significant potential pedestrian destinations in close proximity to Dogwood Street and Sue Street including Bales Thriftway, Cedar Mill Community Library and St. Pius X Catholic Church.



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Sidewalk Inventory

Existing sidewalk locations

Sue/Dogwood Study Area

0 200 400

Feet

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Exhibit 9

Bicycle System

Washington County's transportation plan calls for bicycle lanes on arterial and collector roadways. Bicycles and motor vehicle traffic share travel lanes on lower order streets.

Cornell, Murray and Saltzman, the three arterials that form study area boundaries, all have bicycle lanes in this area. The remainder of roadways in the study area are shared-lane facilities. While 12-foot lanes (the local street standard) may present no problem for drivers and riders sharing local streets in the area, the standard for Neighborhood Routes, which typically have higher traffic volumes than local streets, calls for 14-foot outer lanes to facilitate safe lane sharing by bicyclists and motor vehicle drivers. As noted earlier, Filbert Street and Murray Boulevard north of Cornell are the only Neighborhood Routes in the study area.

There are no existing or planning off-road trails in the Sue/Dogwood study area. The nearest off-road trail is the Tualatin Hills Parks and Recreation District's Cedar Mill Creek Trail. This trail is generally located east of Saltzman Rd. and south of Cornell Road.

Transit System

The Sue/Dogwood study area is served by three TriMet Bus lines, the #89 Tanasbourne, #62 Murray Blvd. and #50 Cedar Mill. Route locations, and monthly boardings/deboardings (on/offs) by bus stop location are reflected in Exhibit 10. As indicated, the busiest stop for these routes within the study area are the eastbound and westbound #89 stops on Cornell immediately west of the Saltzman/Barnes intersection with approximately 250-350 boardings and deboardings each month.

Service frequencies for these routes are as follows (due to slight variations in schedules throughout the day all frequencies have been approximated here for simplification):

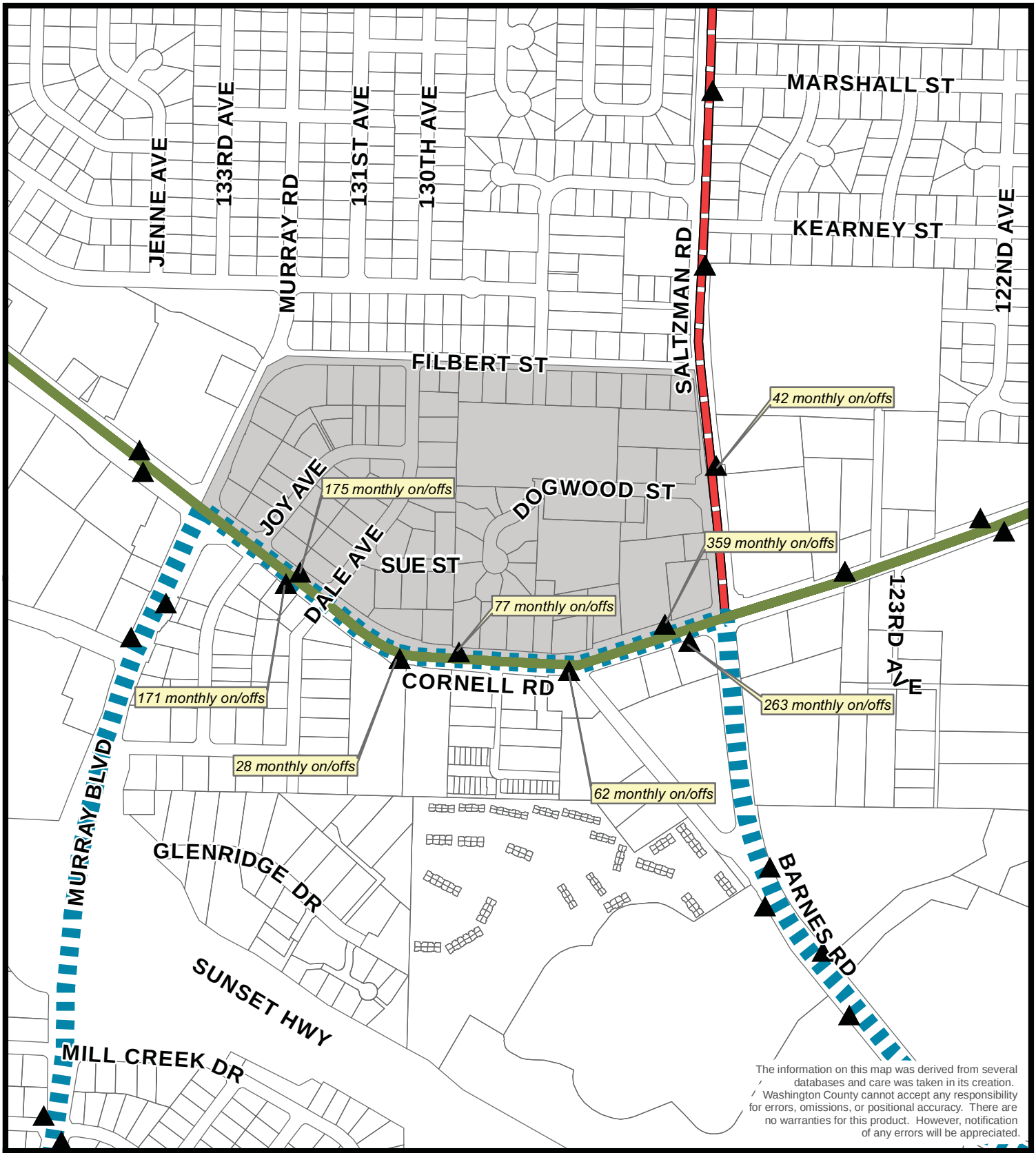
- #89 to Sunset TC – 30 minute a.m. and p.m. service frequencies on weekdays, and 60 minute a.m. and p.m. service frequencies on weekends.

  #89 to Tanasbourne - One hour service frequencies throughout most of the day on weekdays with two hour frequencies from about 9:30 a.m. to 1:30 p.m. Weekend service frequency is two hours.

- #62 to Sunset TC – 30 minute a.m. and p.m. service frequencies on weekdays and 40 minute a.m. and p.m. service frequencies on weekends.

  #62 to Washington Square – 30 minute a.m. and p.m. service frequencies on weekdays and 40 minute a.m. and p.m service frequencies on weekends.

- #50 – 30 minute service frequencies from 6:00 to 9:00 a.m. to Sunset TC on weekdays, and 30 minute service frequencies from 3:30 to 7:00 p.m. from Sunset TC. No weekend service is available..



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Transit

Bus Route 89
Cornell Rd.
Connects to Light Rail

Bus Route 62
Murray Blvd.
Connects to Light Rail

Bus Route 50
Morning Rush-Hour only
Connects to Light Rail

Bus Stops (On/Offs include LIFT)

Sue/Dogwood Study Area

N

0 250 500
Feet

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Exhibit 10

III. Future Conditions

The *Washington County 2020 Transportation Plan* defines transportation system attributes and transportation policy and strategy provisions that have been determined to be necessary to support anticipated growth through the year 2020. The plan works with other Comprehensive Plan elements, including the Community Development Code, to guide land development and implementation of the transportation system necessary to support it. Most plan provisions pertain more to system attributes and characteristics than to specific project attributes. While many provisions contribute in some fashion to the need for and characteristics of this project, perhaps the most pertinent plan elements are those related to functional classification (Policy 10), and connectivity (e.g., Policy 1, Strategy 1.3; Policy 6, Strategy 6.1).

Cedar Hills-Cedar Mill Community Plan

Pertinent elements of the Cedar Hills-Cedar Mill Community Plan include the Background Summary and Community Plan Overview sections, which provide an overview of plan elements and attributes of the entire planning area. The Community Design section provides a set of general implementation prescriptions, again, for the entire planning area, and a characterization of plan intent for each of the ten subareas of the Community Plan. The plan subarea within which this project is located is called Cedar Mill West. Specific plan provisions pertaining to the project and its environs are addressed there. These provisions are more specifically addressed below in the section pertaining to planned land uses in the area (Section III. B. 1. (a)).

Current Activity and Issues

Development activity in the immediate area, in the Cedar Mill Town Center and, more generally, in Cedar Mill has been relatively light in recent years. Activity in the vicinity of the project study area during the last five years is shown in Exhibit 11 (two pages).

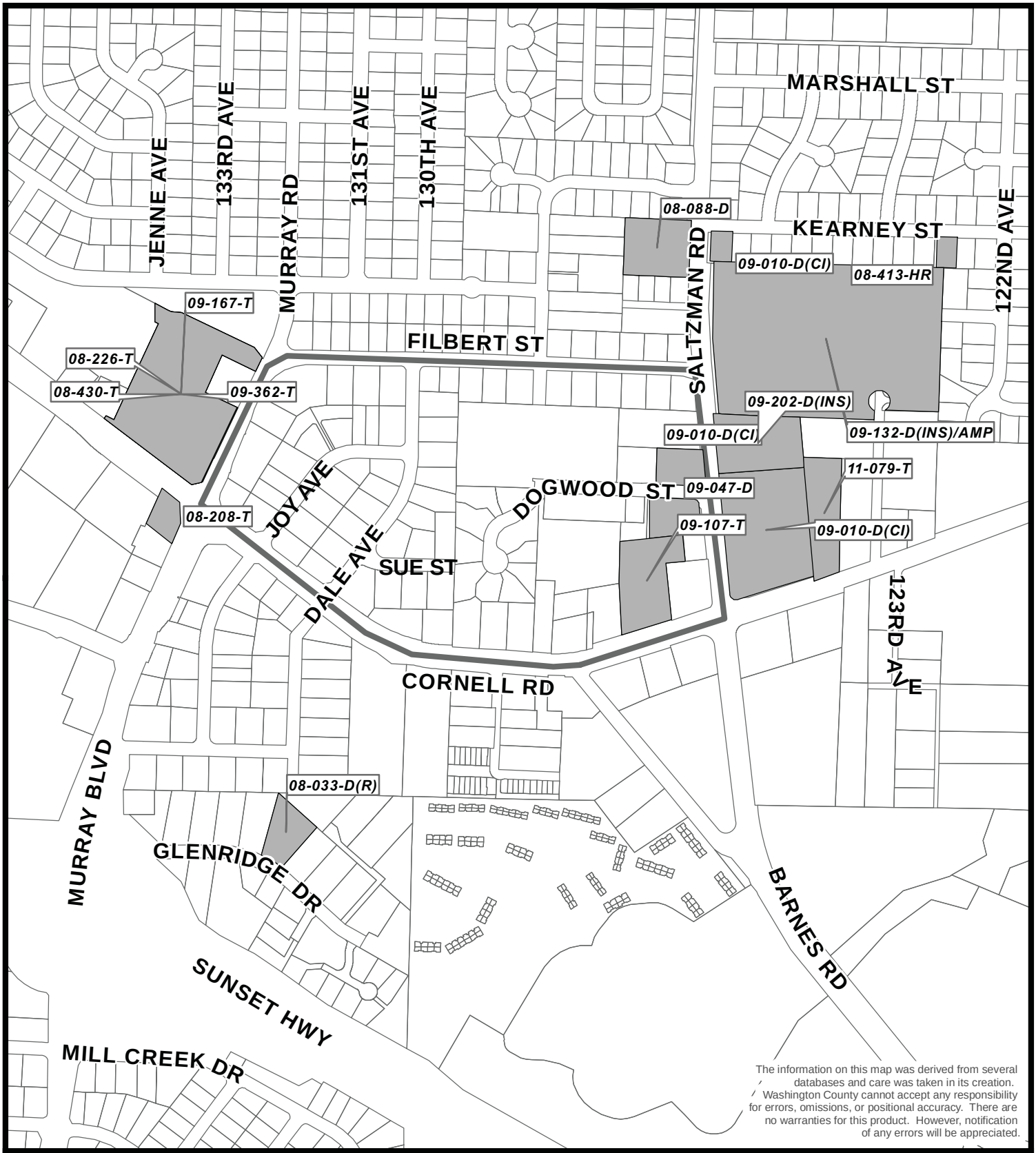
Some redevelopment of properties in the TO:RC district fronting on Cornell has occurred. Ross Van Loo, senior planner in the Current Planning Division suggests this is primarily in response to the recently completed Cornell Road project from Murray to Saltzman. He notes that elsewhere in the immediate area there has been little development and redevelopment activity, in large part due to the status of the economy and housing demand, but also because the lotting patterns (i.e., small lots) and ownership patterns (i.e., multiple ownerships) in the area also make redevelopment more challenging, even when the economy is good. (Ross Van Loo e-mail; May 11, 2011)

Planned Land Uses

Land Use Districts discussed in this section can be generally described as follows (more specific information found in the CFP Policy 18 and in CDC Article III):

TO:RC – Transit Oriented Retail Commercial District: Permits retail and office uses to serve people living and working in Transit Oriented Districts. Also permits some lodging and residential development as secondary uses.

TO: R12-18: Transit Oriented Residential 12-18 Units Per Acre: Permits medium density (primarily attached) residential development with densities from 12 units per acre to 18 units per acre.



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Recent Development

Development Casefiles 2008-2011

Sue/Dogwood Study Area

0 250 500

Feet

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Exhibit 11

Permitting Activity in and near the Sue-Dogwood Study Area: 2008 - 2011

L0800088	D-DEVELOPMENT REVIEW FOR AN ACCESSORY STRUCTURE (DETACHED GARAGE/STORAGE FACILITY)	APPLICANT	1N133AD00200	R5
L0800226	T-TEMPORARY USE PERMIT FOR FIREWORK STAND	APPLICANT	1N133AC09200	TO:RC
L0800430	T-TEMPORARY USE PERMIT FOR HOLIDAY TREE SALES	APPLICANT	1N133AC09200	RC
L0900010	D(CI)-DEVELOPMENT REVIEW FOR RECONSTRUCTION OF NW SALTZMAN ROAD FROM NW CORNELL RD TO NW BAUER WOODS DRIVE (SOUTH)	APPLICANT	1N134BC04900	R5;R6;R9;INS;TO:RC
L0900047	D - DEVELOPMENT REVIEW FOR THE MODIFICATION OF AN EXISTING PARKING LOT.	APPLICANT	1N133DA00105	RC
L0900132	D(INS)/AMP-MASTER PLAN AND DEVELOPMENT REVIEW FOR A THREE-PHASE ADDITION TO AN EXISTING CHURCH/PRIVATE SCHOOL (ST. PIUS X CATHOLIC CHURCH & SCHOOL) AND AN ACCESS MANAGEMENT PLAN FOR CONTINUED USE OF THE SINGLE NORTHERLY APPROACH TO NW SALTZMAN ROAD. PHASE 1 IS 6 NEW CLASSROOMS (APPROX. 8,192 SQ. FT.), INTERIOR REMODEL TO GYM & NEW 13,000 SQ. FT. OF ADDITIONAL SANCTURARY LOBBY/ANCILLARY SPACE. ALL PHASES INCLUDE UPDATES TO THE PARKING LOT.	APPLICANT	1N134BC04600	INST
L0900167	T - FOR TEMPORARY USE PERMIT FOR FIREWORKS STAND	APPLICANT	1N133AC09200	
L0900202	D(INS) - DEVELOPMENT REVIEW FOR AN APPROXIMATE 800 SQ FT LIBRARY STORAGE BUILDING.	APPLICANT	1N134BC04800	TO: RC
L0900362	T - TEMPORARY USE PERMIT FOR HOLIDAY TREE SALES	APPLICANT	1N133AC09200	TO: RC
L1100079	T-TEMPORARY USE PERMIT FOR TEMPORARY PARKING	APPLICANT	1N134BC04400	TO:RC

TO R18-24: Transit Oriented Residential 18-24 Units Per Acre: Permits medium density (primarily attached) residential development with densities from 18 units per acre to 24 units per acre.

TO: BUS: Transit Oriented Business District: Permits multiple uses, including office, residential, retail and institutional development.

TO: EMP: Transit Oriented Employment District: Permits predominantly employment related activities as well as some commercial uses.

A map of planned land use designations is shown in Exhibit 12.

The Sue/Dogwood connection is within the Cedar Mill Town Center in the Cedar Mill West portion of the Cedar Hills-Cedar Mill Community Plan. As in other town centers, plans for this area rely heavily on transit oriented (TO) land uses, the purpose for which is as follows:

"… to limit development to that which (1) has a sufficient density of employees, residents or users to be supportive of the type of transit provided to the area; (2) generates a relatively high percentage of trips serviceable by transit; (3) contains a complementary mix of land uses; (4) is designed to encourage people to walk; ride a bicycle or use transit for a significant percentage of their trips." (Article III, Section 375-1 of the Community Development Code)

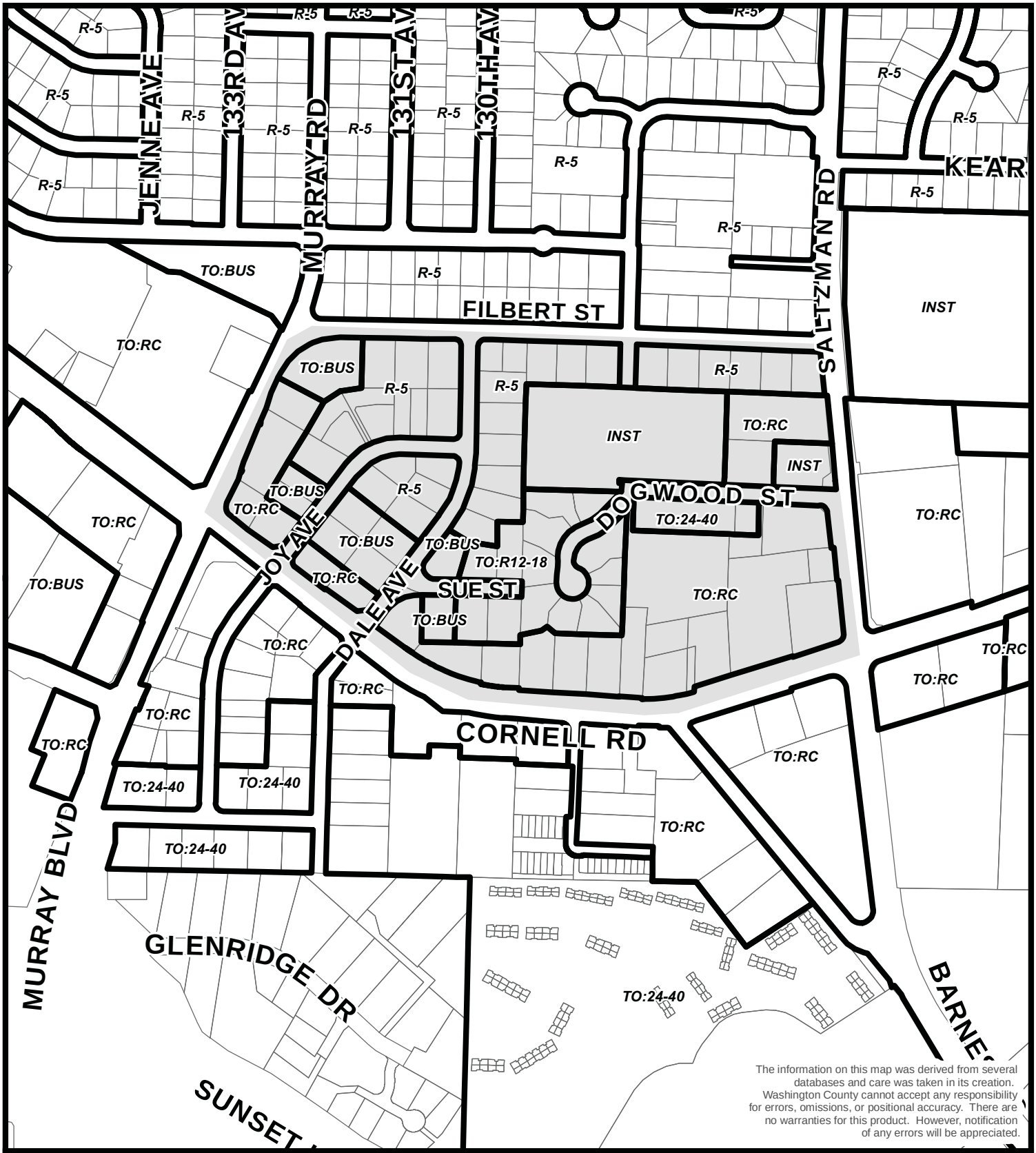
As noted in the map of land use designations**,** the Sue-Dogwood alignment between Saltzman and Dale Street (and south on Dale to Cornell) traverses TO land uses including, from east to west, TO retail commercial (TO:RC) TO residential land uses with densities of 12 to 24 units per acre (TO: 12-18 and TO:18-24), TO business district (TO:BUS), and back to TO:RC along Dale to Cornell. Currently, most of the land adjacent to the proposed alignment is developed as lower density residential use.

In addition, portions of the area directly served by this connection are in Areas of Special Concern 12, 14 and 15. (Areas of Special Concern (ASC) are used in the community plans to provide specific direction regarding the design of development within them.)

ASC 12 addresses arterial roadways within the Cedar Mill Town Center and their adjacent land uses. It calls for additional pedestrian, bicycle and transit design elements along these arterials, both to provide support for these modes and to encourage development of an area that is an *"… integrated whole, considering the interrelationship among land uses, the auto travelway and pedestrian, transit and bicycle needs."* With regard to the Sue-Dogwood Connection, ASC 12 direction suggests a need for coordination and design transition from the design attributes of the arterial roadways addressed by ASC 12 and the intersecting roadways (Dale at Cornell, and Dogwood at Saltzman.)

ASC 14 calls for buildings of at least two stories or twenty-feet high on three corners of the Dogwood-Saltzman intersection and a public space on the fourth. ASC 15 primarily addresses building orientation along Cornell, but it also states that new development in the area should be designed to encourage walking, bicycling and transit use along Cornell Road. (More specific information and direction regarding development design in ASC 14 and 15 are provided in the community plan and, by reference, the Community Development Code.)

The major future land use change that could indirectly affect the Sue/Dogwood area is the planned expansion of the Timberland planned unit development that extends east of Barnes Road and north to Cornell Road (the former Teufel Nursery site). Although only partially developed now, this development is anticipated to eventually accommodate 1300 dwelling units and some 300,000 square feet of commercial space. Build out of this development could generate significant traffic on arterial roads within and adjacent to the Sue/Dogwood study area.



WASHINGTON COUNTY - LONG RANGE PLANNING

Sue/Dogwood Project - Planned Land Use

R-5 / Residential 5 units per acre
TO:R12-18 / Residential 12-18 units per acre
TO:R18-24 / Residential 18-24 units per acre
TO:R24-40 / Residential 24-40 units per acre
TO:RC / Transit Oriented Retail Commercial
TO:BUS / Transit Oriented Business
INST / Institutional
Sue/Dogwood Study Area

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Feet

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Exhibit 12

Transportation System

Planned transportation system characteristics:
Regional growth, and specifically growth north of the Hwy 26 in Washington County between 2012 and 2035, is expected to lead to increased traffic on the network of streets in the vicinity of Sue/Dogwood. Traffic volumes on nearby arterials are expected to increase as indicated in the following table:

Table 6. Sue/Dogwood Study Area Traffic Volume and Volume to Capacity (V/C) Comparison 2010-2030

	2010 Average Daily Traffic*	2035 Average Daily Traffic**	Increase
Cornell Road: Murray to Saltzman	11,100	24,800	123 %
Volume to Capacity Ratio (V/C)	.62	1.35	
Saltzman Road: North of Cornell	11,204	21,570	93%
Volume to Capacity Ratio (V/C)	.63	1.19	

* 2010 data from two Washington County count stations near the study area, including Station 109, on Cornell Road, east of Saltzman Road; and Station 110, on Saltzman Road north of Cornell Road.
** ADT derived from 2035 Washington County Transportation System Plan PM Peak 1 Hour Travel Demand

Based upon existing county standards, both Cornell and Saltzman in this vicinity are currently within acceptable ranges (i.e., a peak afternoon one-hour volume to capacity ratio 0.99 or less in Town Centers). Intersection analysis of 2007 Saltzman and Cornell intersection operation conducted as part of the *Saltzman Road Traffic Analysis Report (October 2008)* indicates a LOS of C (V/C of .72) in the AM Peak Travel hour and a LOS of E (V/C of .85) in the PM peak travel hour.

By 2035, assuming no further capacity improvements are made, the operation of both arterials is expected to exceed currently acceptable standards, with trips seeking to use these facilities during the one-hour pm peak travel period exceeding roadway capacity by approximately 20-40 percent. This problem is becoming more common on the major roadway system in Washington County, and solutions associated with either adding capacity or reducing travel demand are proving difficult to implement. (Washington County will be examining this issue and considering how to address it during an update of its transportation plan scheduled to occur over the next 18 to 24 months).

Additionally, the project helps improve system connectivity. An interconnected local street system improves local access and circulation, which reduces the need for local trips to rely

on major roadways. A system that ensures local trips are reasonably direct and don't rely on the major system of arterial and collector roadways helps mitigate congestion on the major roadways at the margin. On the other hand, new local connections in areas with congested arterial and collector roadway can become cut-through routes for traffic seeking to avoid the congested roadways. In some cases, neighborhood traffic calming measures may need to be deployed to reduce any speeding that may result from cut-through traffic. More specific analysis conducted during project development or in association with nearby land development will indicate whether these mechanisms will need to be considered as part of part of a project linking Sue and Dogwood.

Conceptual Funding Plan

Funding for this project would most likely come from one or a combination of two sources: 1) federal funds allocated through Metro's Regional Flexible Funds Allocation (RFFA) process or 2) private funds that would pay for design and construction of the facility as part of a redevelopment project in the area. The project was selected in large part because of its location within the Region 2040 Cedar Mill Town Center, and the Regional Flexible Funds allocation criteria that favor alternatives to road widening such as improving connectivity for all modes in Region 2040 centers. RFFA projects are currently being developed for the FY2014-15 time period, so the next opportunity for obtaining RFFA funds for this project would be for FY2016-17. Although the project parameters for RFFA selection seem to vary from one funding cycle to another, it is safe to assume that RFFA funds will continue to target among its objectives transportation improvements in 2040 centers and improving connectivity for all modes. Construction of a roadway connection with private funding would probably only occur through redevelopment in conjunction with expansion of current transit oriented business and retail commercial land use districts along Cornell, Dogwood or Sue.

Transportation Needs and Solutions

Roadway capacity and safety deficiencies

Improving connectivity and circulation for all modes within the Cedar-Hills Cedar Mill Town Center is the primary objective of the Sue/Dogwood project. The two facilities are currently connected by a narrow dirt pathway. As previously mentioned, capacity and safety issues either exist or are projected to occur in the Sue/Dogwood Study Area. Traffic volumes on Cornell and Saltzman are projected to exceed available capacity by 2035, and the area generally lacks adequate pedestrian and bicycle facilities. The project would connect and construct Dogwood and Sue to appropriate Special Area Street standards.

Three alternative alignments for the Sue-Dogwood connection have been investigated: Alignments A, B and C. The alignments are shown in Exhibit 13a, 13b and 13c. Estimated project costs are shown in Table 7. All three alternative alignments are consistent with the functional classification of the roadways. Two alignment alternatives are consistent with the Special Area Street Corridor identified in the Transportation Plan (A and B). Alternative A reflects the straightest and most direct alignment connecting Sue and Dogwood within the Special Area Street Corridor. Alternative B reflects an effort to reduce impacts on structures by shifting the alignment, where possible, while also maintaining street design standards. This results in a more serpentine alignment and elimination of some parking along a portion of the alignment to reduce necessary right of way requirements.

Alignment Alternative C reflects the cross-sections of the other two alternatives but its alignment is not consistent with the location of the Special Area Street Corridor identified in

the Plan. This alignment was investigated because it appeared it might provide a full east-west connection with fewer structural impacts than Alternatives A or B.

While decisions regarding the preferred alignment will be, in part, shaped by circumstances at the time this project is pursued, at this juncture project staff favors Alignment Alternative B. Based on the analysis, this alignment results in the lowest impacts and the lowest cost. Project staff suspects that the serpentine alignment will have secondary benefits by mitigating cut through traffic and providing speed control. Additional traffic calming strategies (e.g., speed cushions, curb returns, etc) can also be examined if, on closer analysis, it appears problematic.

Table 7 – Sue/Dogwood Study Area Roadway Cost Estimates

Option	Design Costs	Right-of Way Costs	Construction Costs	Total Costs
A	$955,440	$1,400,000	$2,547,822	$4,903,262
B	$966,220	$815,000	$2,576,584	$4,357,804
C	$1,321,360	$1,585,000	$3,523,610	$6,429,970

Recommended Bicycle System Improvements

Washington County's transportation plan calls for bicycle lanes on arterial and collector roadways. Bicycles and motor vehicle traffic share travel lanes on lower order streets. Cornell, Murray and Saltzman, the three arterials that form study area boundaries, all have bicycle lanes in this area. No additional bicycle improvements are needed on these facilities.

Other roadways in the study area are classed as Local Streets, with the exception of Filbert, which is a Neighborhood Route. Motor vehicles and bicycles share travel lanes both classifications.

In all three street design options the Sue-Dogwood connection would be considered a shared lane facility. The Dogwood section of all options is considered to be a Special Area Commercial Street designation that calls for a two 12-foot wide travel lanes with eight-foot wide parking on both sides. This design is sufficient to accommodate both bicyclists and motorists. Sue and Dale in options A and B are designated as Special Area Local Streets with bicyclists sharing 12-foot wide travel lanes with motorists. In option C, which connects existing Dogwood directly to Dale, approximately the western half of Dogwood's length would be designated as a Special Area Local Street with a 12-foot wide shared lane

Improving the other streets to a width that supports shared use is the best way to support bicycle travel in the area. To prioritize improvement of these streets, recall that there may be cases on very low volume streets where narrower streets can be shared safely. Identifying relative priorities for improvement should consider traffic volumes as well as potential bicycle use of candidate streets.

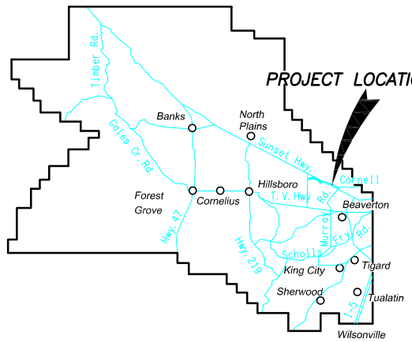
Recommended Pedestrian System Improvements

Sidewalks are the preferred type of pedestrian facility for all facilities in the Sue-Dogwood Project study area (there are no planned off-street trails in the area). The Sue-Dogwood project would include sidewalks, regardless of the option chosen. It should be noted that Special Area Street standards allow variations in the width of sidewalks, generally determined by the nature of adjacent land uses and level of activity. In general, the Special

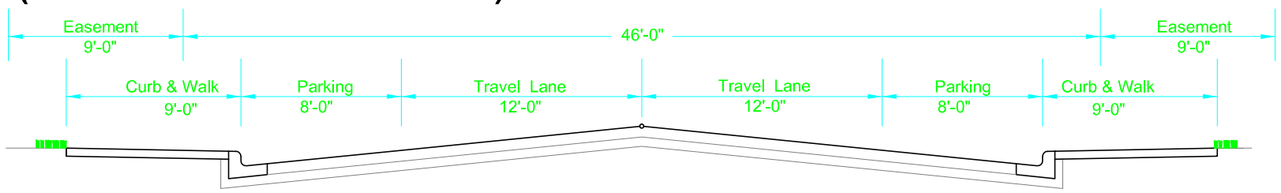
DOGWOOD / SUE ST. CONNECTION (DALE TO SALTZMAN) - ALTERNATIVE 'A'

SCALE 50 25 0 50 100 FEET

NORTH



WASHINGTON COUNTY



SPECIAL AREA COMMERCIAL - (SACM-1)

N.W. JOY AVE.

SPECIAL AREA COMMERCIAL (SACM-1)

N.W. DOGWOOD ST.

N.W. SALTZMAN RD.

SPECIAL AREA LOCAL (SAL-2^3)

R167.71'

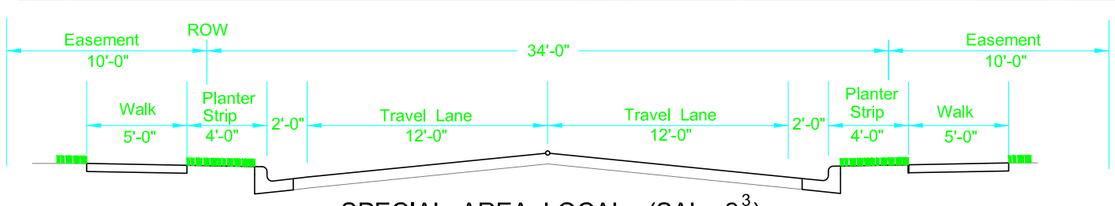
N.W. DALE AVE.

R300'

R300'

N.W. SUE ST.

N.W. CORNELL RD.



SPECIAL AREA LOCAL - (SAL - 2^3)

DEPARTMENT OF LAND USE & TRANSPORTATION ENGINEERING

WASHINGTON COUNTY OREGON

PLOT STAMP: 06/21/11 11:30A KELLYE
CAD: 100159PD ALT A.DWG, TAB: ALTA
PATH: O:\100159 (SUE TO DOGWOOD)\PRELIM ENGR\REPORT\

NO.	REVISIONS

N.W. DOGWOOD / SUE ST.
N.W. DALE TO N.W. SALTZMAN RD.
WASHINGTON COUNTY

ALTERNATIVE 'A'
PLAN & SECTIONS

PROJECT NUMBER
100159

SHEET NO.
OF

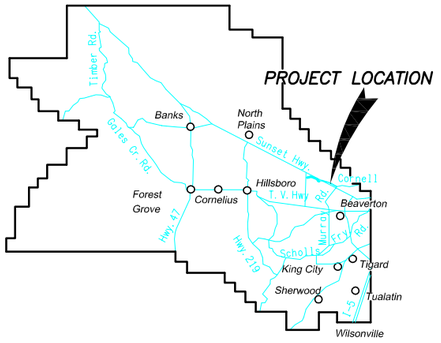
SHEET TITLE
FIG. 1

Exhibit 13

DOGWOOD / SUE CONNECTION (DALE TO SALTZMAN) - ALTERNATIVE 'B'

SCALE 50 25 0 50 100 FEET

NORTH



WASHINGTON COUNTY

SPECIAL AREA COMMERCIAL - (SACM-1)

SPECIAL AREA LOCAL - (SAL - 2^3)

DEPARTMENT OF LAND USE & TRANSPORTATION ENGINEERING

WASHINGTON COUNTY OREGON

PLOT STAMP: 06/21/11 11:37A KELLYE
CAD: 100159PD ALT B.DWG; TAB: ALTB
PATH: O:\100159 (SUE TO DOGWOOD)\PRELIM ENGR\REVISIONS

NO.	REVISIONS

N.W. DOGWOOD / SUE ST.
N.W. DALE TO N.W. SALTZMAN RD.
WASHINGTON COUNTY

ALTERNATIVE 'B'
PLAN & SECTIONS

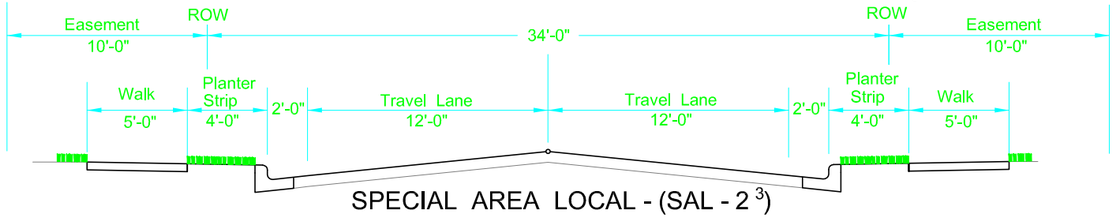
PROJECT NUMBER
100159

SHEET NO.
OF

SHEET TITLE
FIG. 2

Exhibit 13

DOGWOOD CONNECTION (DALE TO SALTZMAN) - ALTERNATIVE 'C'



SPECIAL AREA LOCAL - (SAL - 2^3)

SCALE 50 25 0 50 100 FEET

NORTH

N.W. SALTZMAN RD.

SPECIAL AREA LOCAL (SAL-2^3)

N.W. JOY AVE.

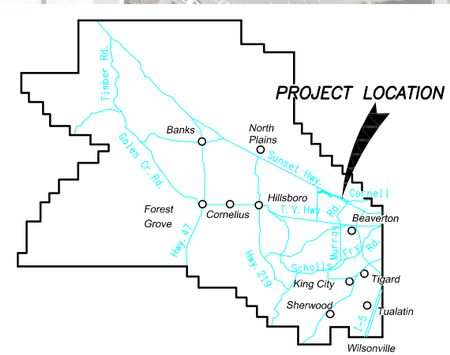
SPECIAL AREA COMMERCIAL (SACM-1)

N.W. DOGWOOD ST.

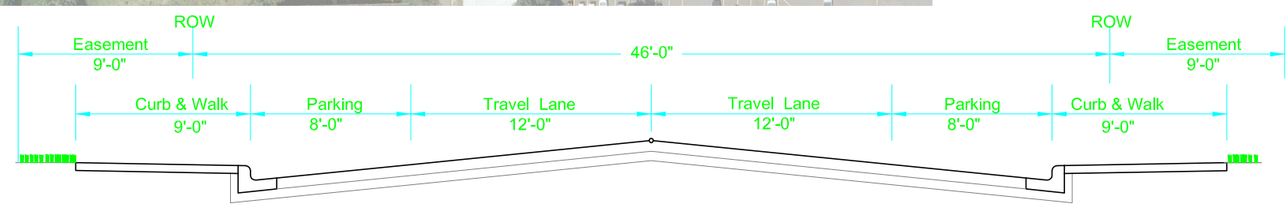
N.W. DALE AVE.

N.W. SUE ST.

N.W. CORNELL RD.



WASHINGTON COUNTY



SPECIAL AREA COMMERCIAL - (SACM-1)

DEPARTMENT OF LAND USE & TRANSPORTATION ENGINEERING

WASHINGTON COUNTY OREGON

PLOT STAMP: 06/21/11 11:44A KELLYE
CAD: 100159PD ALT C.DWG, TAB: ALTC
PATH: O:\100159 (SJE TO DOGWOOD)\PRELIM ENGR\REVISIONS

NO. REVISIONS

N.W. DOGWOOD ST.
N.W. DALE TO N.W. SALTZMAN RD.
WASHINGTON COUNTY

ALTERNATE 'C'
PLAN & SECTIONS

PROJECT NUMBER
100159

SHEET NO.
OF

SHEET TITLE
FIG. 3

Exhibit 13

Area Local Streets include a five-foot wide sidewalk with a four-foot wide planter strip. For the Special Area Commercial Street section of Dogwood, the design calls for a 8.5-foot wide sidewalk. The width and design of sidewalks, however, should be determined at the time and within the development context that exists when the project is pursued.

Sidewalks currently exist along the entire length of the north side of Dogwood. On the south side of Dogwood there is a missing section of approximately 471 feet long. No sidewalks exist on Sue. The Sue-Dogwood project would be built to a standard that ensures a continuous sidewalk is present.

Looking at the study area more broadly, there are no sidewalks on Filbert Avenue, Dale Avenue (north of Sue) and 128th Avenues. Only a short section of sidewalk exists along Joy Avenue, and it does not connect to either Dale Avenue or Cornell Road. There is a short section of sidewalk approximately 191 feet long on Dale Avenue from Cornell to Sue Street on the northwest side of the road. Sidewalks also exist along the entire length of Cornell Road and Saltzman Roads.

Project staff suggest that prioritization of construction of sidewalks on study area streets should strongly consider establishing and/or enhancing access to Cornell and Saltzman Roads to facilitate pedestrian access to transit. TriMet provides bus service along both Cornell and Saltzman Roads. Potential demand for pedestrian access to and from primary commercial and institutional pedestrian trip attractors and generators should also be considered.

Recommended Transit System Improvements

As noted in the Transit Section, there are three TriMet bus routes that connect the study area with points north, south, east and west. There are stops on Saltzman adjacent to the study area for Route 50, and stops on Cornell adjacent to the study area for busses serving routes 89 and 62.

Project staff conclude that completing this project will facilitate and increase the quality of pedestrian access from points within the study area to transit stops on both Saltzman and Cornell. More broadly, and as described in the Pedestrian Section recommendations above, staff recommends providing and/or improving sidewalks on study area streets that provide access to Cornell and Saltzman.

While beyond the scope of this project, project staff note that study area residents interested in improving transit services have the opportunity to participate in TriMet's regular service planning process. Transit services are provided regionally and decisions regarding funding and allocating these services are regional as well. Improving service frequency and scope will make the study area street connections project staff recommends that much more valuable.

Summary

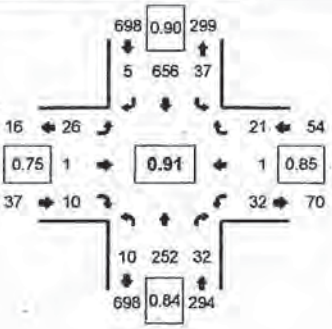
Descriptions and discussion of three project alignment alternatives are provided at the beginning of this section, Transportation Needs and Solutions. Plan view drawings are provided in Exhibit 13a, 13b and 13c. Tables delineating detailed cost estimates for the three project alignment alternatives are shown in Appendix D.

Type of peak hour being reported: Intersection Peak

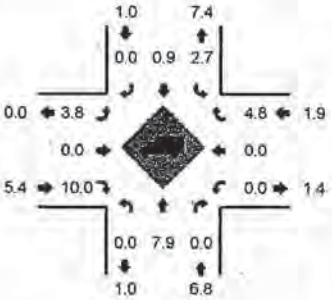
Method for determining peak hour: Total Entering Volume

LOCATION: NW Saltzman Rd -- NW Dogwood St
CITY/STATE: Beaverton, OR

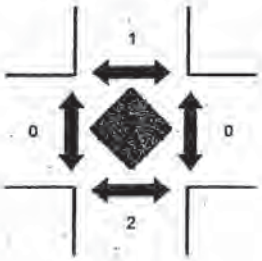
QC JOB #: 10596401
DATE: 3/30/2011

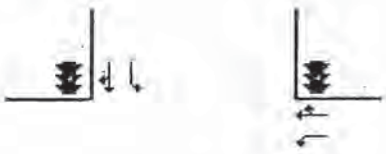


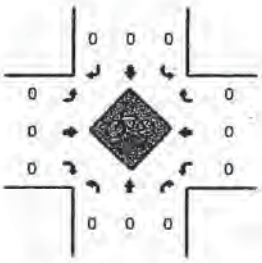
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

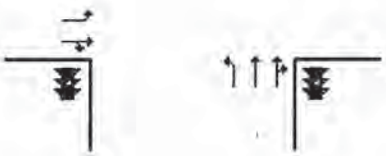


Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES









5-Min Count Period Beginning At	NW Saltzman Rd (Northbound)				NW Saltzman Rd (Southbound)				NW Dogwood St (Eastbound)				NW Dogwood St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	8	0	0	4	47	0	0	1	0	0	0	0	0	1	0	61	
7:05 AM	0	5	2	0	3	57	0	0	1	0	0	0	1	0	1	0	70	
7:10 AM	0	10	1	0	4	60	0	0	0	0	1	0	2	0	1	0	79	
7:15 AM	0	9	1	0	1	73	0	0	0	0	0	0	0	0	2	0	86	
7:20 AM	0	12	2	0	1	70	0	0	2	1	0	0	2	0	1	0	91	
7:25 AM	0	12	0	0	2	65	0	0	0	1	0	0	0	0	0	0	80	
[redacted]																		
[redacted]																		
[redacted]																		
[redacted]																		
[redacted]																		
[redacted]																		
[redacted]																		
8:30 AM	3	12	4	0	2	48	0	0	3	1	2	0	2	0	2	0	79	1070
8:35 AM	0	14	5	0	2	61	4	0	4	0	2	0	3	0	4	0	99	1055
8:40 AM	2	19	2	0	4	46	1	0	3	1	0	0	3	1	1	0	83	1047
8:45 AM	1	25	1	1	1	37	0	0	2	0	4	0	2	0	2	0	76	1038
8:50 AM	4	15	6	0	3	46	3	0	0	0	3	0	0	0	0	0	80	1031
8:55 AM	7	24	2	0	2	43	7	0	2	1	0	0	4	0	2	0	94	1025

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	276	12	0	28	784	0	0	36	0	8	0	12	0	28	0	1188
Heavy Trucks	0	16	0		0	0	0		0	0	4		0	0	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Appendix B

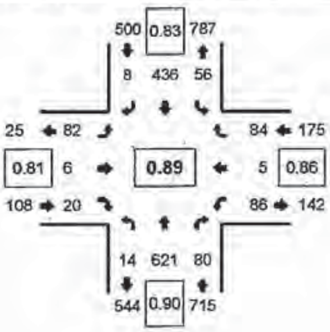
Report generated on 3/31/2011 4:51 PM

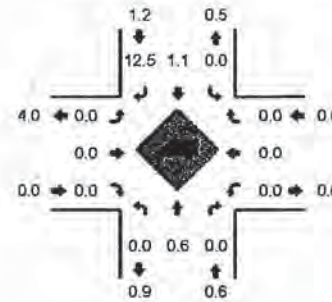
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of peak hour being reported: Intersection Peak Method for determining peak hour: Total Entering Volume

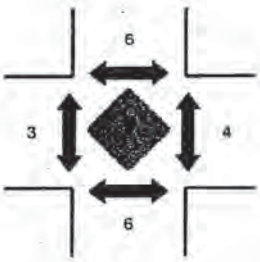
LOCATION: NW Saltzman Rd -- NW Dogwood St **QC JOB #:** 10596402
CITY/STATE: Beaverton, OR **DATE:** 3/29/2011

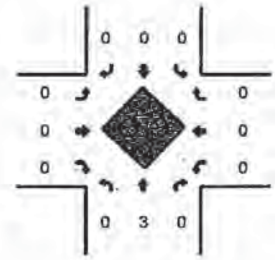
Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

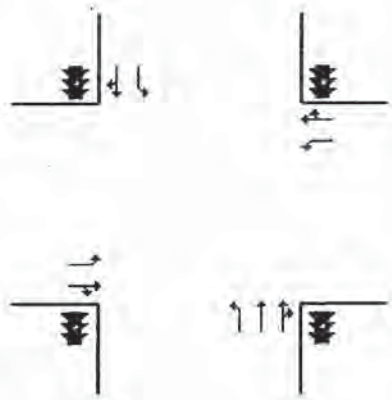


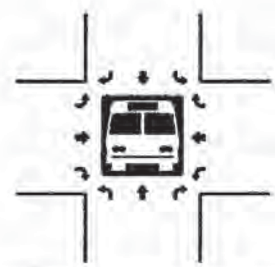


Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES









5-Min Count Period Beginning At	NW Saltzman Rd (Northbound)				NW Saltzman Rd (Southbound)				NW Dogwood St (Eastbound)				NW Dogwood St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	39	10	1	2	24	0	0	4	0	1	0	8	0	3	0	92	
4:05 PM	2	34	14	0	5	29	0	0	9	0	1	0	5	2	6	0	107	
4:10 PM	1	44	7	0	2	26	0	0	2	1	1	0	6	2	6	0	98	
4:15 PM	2	32	7	0	6	36	0	0	8	1	1	0	13	1	9	0	116	
4:20 PM	1	40	8	0	4	33	0	0	11	0	1	0	6	0	1	0	105	
4:25 PM	1	32	4	1	4	28	0	0	7	0	1	0	7	0	10	0	95	
4:30 PM	0	38	6	0	5	30	0	0	4	0	4	0	8	0	3	0	98	
4:35 PM	2	43	7	0	2	31	1	0	9	0	4	0	9	1	6	0	115	
4:40 PM	1	45	8	1	3	24	1	0	1	0	3	0	8	0	5	0	100	
4:45 PM	1	37	9	0	4	31	0	0	8	2	2	0	2	1	3	0	100	
4:50 PM	4	50	7	0	1	29	1	0	4	3	4	0	7	0	9	0	119	
4:55 PM	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	1	0	8	0	2	0	8	0	7	0	126	1271
5:00 PM	[illegible]	37	5	0	[illegible]	42	0	0	7	0	2	0	10	2	9	0	116	1297
5:05 PM	[illegible]	47	6	0	[illegible]	40	1	0	11	1	2	0	5	1	6	0	124	1314
[redacted]																		
5:25 PM	2	49	6	0	[illegible]	35	0	0	3	0	2	0	8	0	9	0	119	1442
5:30 PM	0	54	4	0	2	31	0	0	5	1	2	0	4	0	9	0	112	1456
5:35 PM	0	49	4	0	5	41	0	0	6	1	1	0	6	0	4	0	119	1460
5:40 PM	1	55	6	1	5	25	1	0	5	0	1	0	4	0	9	0	114	1474
5:45 PM	0	51	5	0	3	32	0	0	3	0	1	0	2	0	4	0	104	1478
5:50 PM	1	60	8	0	5	35	1	0	4	1	0	0	13	0	11	0	139	1498
5:55 PM	2	53	5	0	5	32	0	0	13	0	1	0	4	0	5	0	120	1492

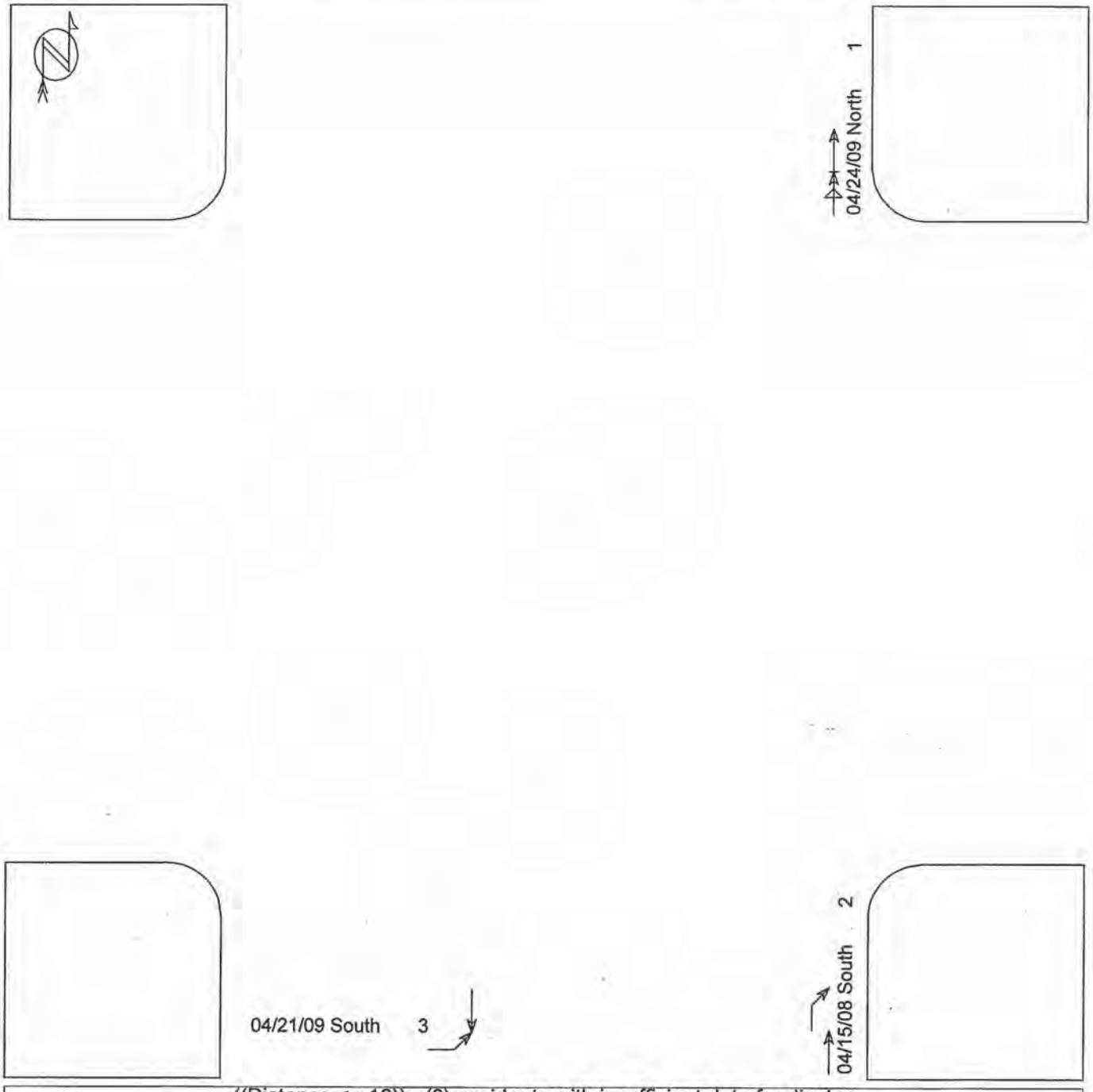
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	676	96	4	80	480	16	0	116	8	28	0	96	8	64	0	1692
Heavy Trucks	0	4	0		0	0	0		0	0	0		0	0	0		4
Pedestrians		16				8				4				4			32
Bicycles	0	2	0		0	0	0		0	0	0		0	0	0		2
Railroad																	
Stopped Buses																	

Comments: Appendix B

Nw Dogwood Ln & Nw Saltzman Rd

3 Accidents

01/01/07 - 12/31/09



((Distance <= 10)), (0) accidents with insufficient data for display

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

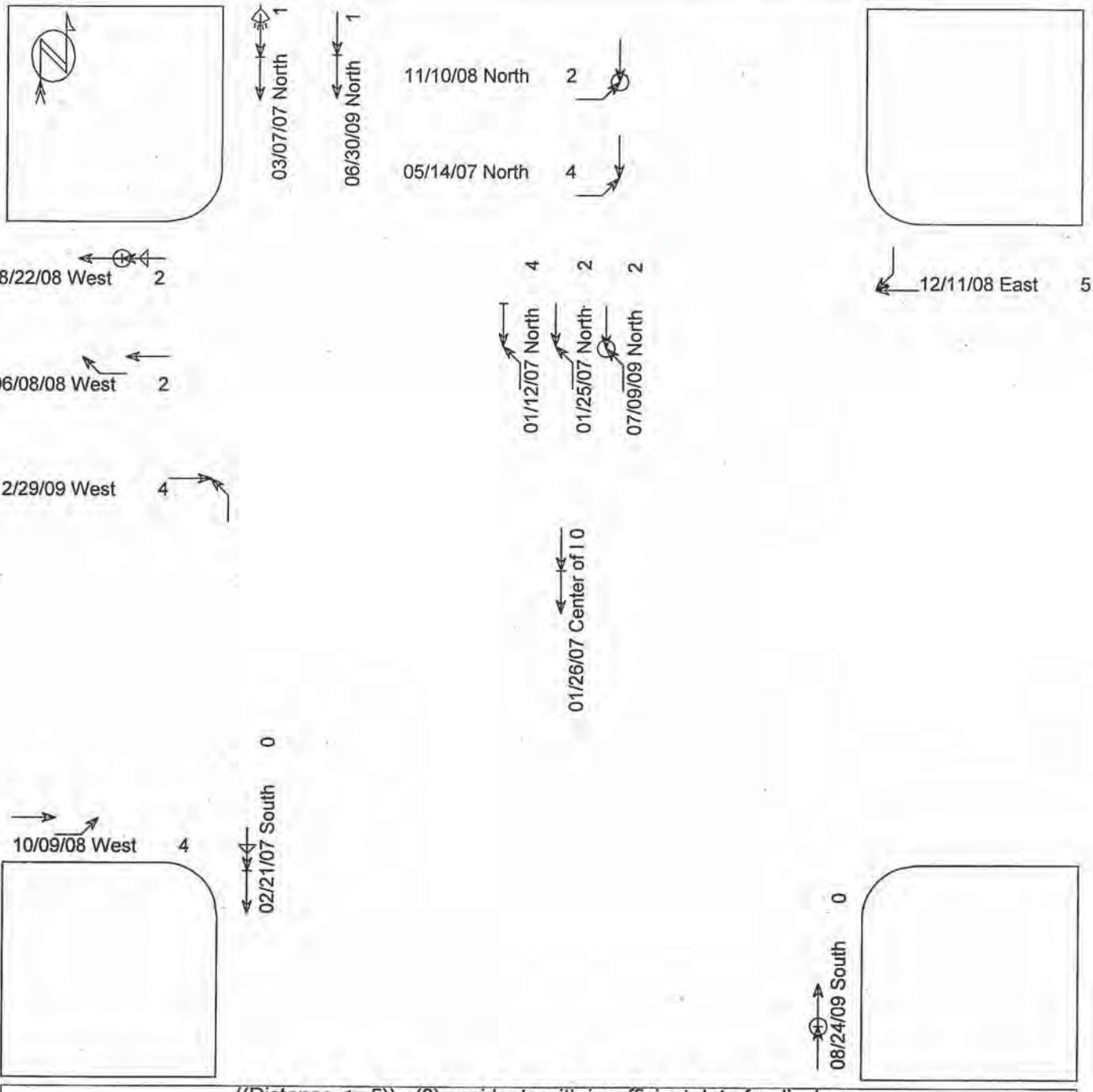
- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

Nw Cornell Rd & Nw Saltzman Rd

15 Accidents

01/01/07 - 12/31/09



((Distance <= 5)), (0) accidents with insufficient data for display

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

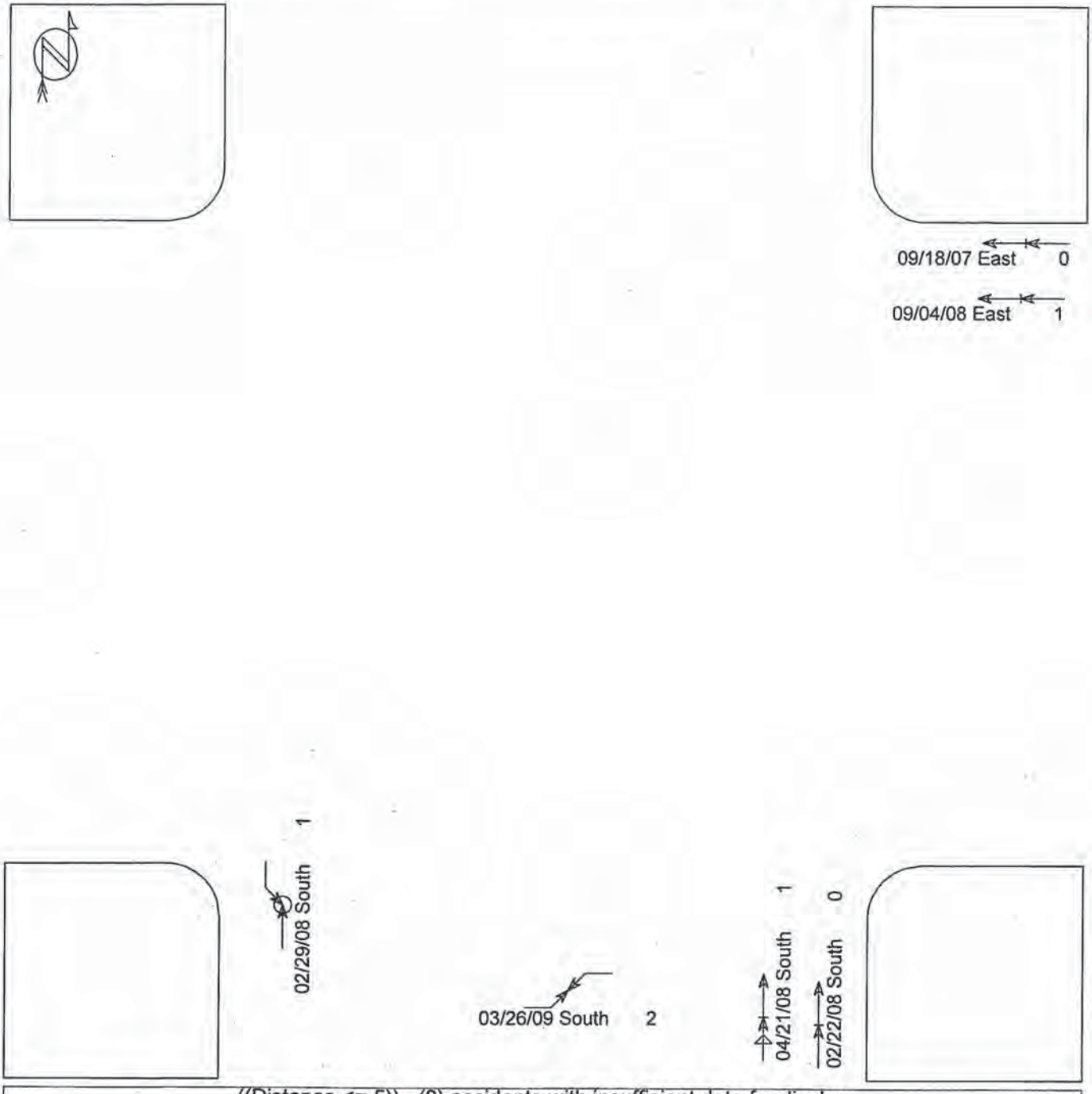
- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

Nw Barnes Rd & Nw Cornell Rd

6 Accidents

01/01/07 - 12/31/09



((Distance <= 5)), (0) accidents with insufficient data for display

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

Nw Cornell Rd & Nw Dale Ave

3 Accidents

01/01/07 - 12/31/09

((Distance <= 5)), (0) accidents with insufficient data for display

Straight	Parked	Pedestrian	Fixed objects:
Stopped	Erratic	Bicycle	General, Pole, Signal, Curb, Tree, Animal
Unknown	Out of control	Injury	
Backing	Right turn	Fatality	
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data

Sue/Dogwood Cost Estimate Breakdown

TGM Grant Assumptions

+ LF Cost derived from past projects similar to those proposed
+ Right-of-Way costs calculated separately, see estimating sheets from Steve Hansen

Last Updated - 02-JUN-11

COST ASSUMPTION DATA	
Developer ROW (per AC)	N/A
Private ROW (per AC)	N/A
Bridge (per SF)	$ 275.00
Mitigation (per acre)	$ 150,000.00
Earthwork (per cubic yard)	$ 12.00
Intersections	$ 200,000.00
Construction Contingency	20%
PE / CE	45%
Walls (per SF)	$ 40.00

PROJECT INFORMATION			
Project Name	Limits From	Limits To	Total Length (ft)
NW Sue/NW Dogwood--Alt A	NW Dale Rd	NW Saltzman R	1283
NW Sue/NW Dogwood--Alt B	NW Dale Rd	NW Saltzman R	1299
NW Joy/NW Dogwood--Alt C	NW Dale Rd	NW Saltzman R	1590

ROADWAY				
Net Length (ft)	Travel Lanes Existing	Travel Lanes Proposed	Cost per Ft Roadway	Total Cost
1283	2	2	$ 1,498	$ 1,921,185
1299	2	2	$ 1,498	$ 1,945,153
1590	2	2	$ 1,498	$ 2,382,341

INTERSECTIONS		
No. Intersections	Cost Per Intersection	Total Cost
0.75	$ 200,000	$ 150,000
0.75	$ 200,000	$ 150,000
2.25	$ 200,000	$ 450,000

BRIDGE				
Bridge Length	Bridge Width	Bridge Cost Per SF	Total Cost	
0	0	$ 275	$ -	
0	0	$ 275	$ -	
0	0	$ 275	$ -	

WATER QUALITY & MITIGATION		
Mitigation Area Req'd	WQ/Mitigation Cost	Total Cost
1.00	$ 52,000	$ 52,000
1.00	$ 52,000	$ 52,000
1.00	$ 104,000	$ 104,000

EARTHWORK / WALLS		
Quantity (CY)	Unit Cost	Total Cost
0	$ -	$ -
0	$ -	$ -
0	$ -	$ -

CONSTRUCTION	
Construction Cost	Construction Cost w/ Contingency
$ 2,123,185	$ 2,547,822
$ 2,147,153	$ 2,576,584
$ 2,936,341	$ 3,523,610

PE and CE
PE & CE Total Cost
$ 955,440
$ 966,220
$ 1,321,360

RIGHT-OF-WAY						
Proposed ROW Width	Developer Controlled ROW Area (SF)	Developer Controlled ROW Acres	Developer Controlled ROW Cost	Other Controlled ROW Area (SF)	Other Controlled ROW Acres	Other Controlled ROW Cost
47/59	30,972	0.71	$ 1,400,000			
47/59	19,250	0.44	$ 815,000			
51/59	32,875	0.75	$ 1,585,000			

CPM Estimate TOTAL PROJECT COST	CPM Estimate Construction & Design Cost ONLY
$ 5,000,000	$ 3,600,000
$ 4,400,000	$ 3,600,000
$ 6,500,000	$ 4,900,000

NOTES:

A) Special Area Local (SAL-2) & Special Area Commercial (SACM-1): 2-Lanes, On Street Parking, 9' & 4'/5' Landscape/Sidewalks, Illumination
B) Special Area Local (SAL-2) & Special Area Commercial (SACM-1): 2-Lanes, On Street Parking, 9' & 4'/5' Landscape/Sidewalks, Illumination
C) Special Area Local (SAL-2) & Special Area Commercial (SACM-1): 2-Lanes, On Street Parking, 9' & 4'/5' Landscape/Sidewalks, Illumination

Appendix D

Washington County Interoffice Memo

Date: June 8, 2011

To: Clare Fuchs
Associate Planner

From: Steve Hansen
Right-of-Way Supervisor

Subject: **Program Estimate**
Roadway: **TGM Grant - Sue to Dogwood Alt. A**
Section: **TGM Grant - Sue to Dogwood Alt. A**
Project # **100159**

I estimate the funds necessary to complete the Right of Way acquisition on the above referenced project as follows:

This estimate is effective June 8, 2011
and is subject to market change.

Estimated No. of Files	10
Land	488,005
Improvements	355,600
Damages	50,000
Relocation	50,000
Demolition	60,000
Personnel Cost	103,820
Misc. Cost	2,500
Legal & Contingencies	268,082
Total:	$ 1,378,017
(Rounded)	$1,400,000

Assumes 30972 sq. ft. of right-of-way purchased. (Estimated)
Assumes 0 sq. ft. of Permanent Easement purchased. (Estimated)
Assumes 0 sq. ft. of Temporary Construction Easement purchased. (Estimated)

Estimated Impacts:

0 Sq. ft. of Wetland Mitigation purchased
4 Number of Relocations
0 Number of Displaced Businesses/NPO
4 Number of Displaced Residences
12 Estimated time in months to acquire the right-of-way

Washington County Interoffice Memo

Date: June 8, 2011

To: Clare Fuchs
Associate Planner

From: Steve Hansen
Right-of-Way Supervisor

Subject: **Program Estimate**
Roadway: **TGM Grant - Sue to Dogwood Alt. B**
Section: **TGM Grant - Sue to Dogwood Alt. B**
Project # **100159**

I estimate the funds necessary to complete the Right of Way acquisition on the above referenced project as follows:

This estimate is effective June 8, 2011
and is subject to market change.

Estimated No. of Files	10
Land	307,525
Improvements	174,450
Damages	25,000
Relocation	25,000
Demolition	30,000
Personnel Cost	95,660
Misc. Cost	2,500
Legal & Contingencies	152,093
Total:	$812,236
(Rounded)	$815,000

Assumes 19250 sq. ft. of right-of-way purchased. (Estimated)
Assumes 0 sq. ft. of Permanent Easement purchased. (Estimated)
Assumes 0 sq. ft. of Temporary Construction Easement purchased. (Estimated)

Estimated Impacts:

0 Sq. ft. of Wetland Mitigation purchased
2 Number of Relocations
0 Number of Displaced Businesses/NPO
2 Number of Displaced Residences
12 Estimated time in months to acquire the right-of-way

Washington County Interoffice Memo

Date: June 8, 2011

To: Clare Fuchs
Associate Planner

From: Steve Hansen
Right-of-Way Supervisor

Subject: **Program Estimate**
Roadway: **TGM Grant - Sue to Dogwood Alt. C**
Section: **TGM Grant - Sue to Dogwood Alt. C**
Project # **100159**

I estimate the funds necessary to complete the Right of Way acquisition on the above referenced project as follows:

This estimate is effective June 8, 2011
and is subject to market change.

Estimated No. of Files	7
Land	522,125
Improvements	514,900
Damages	50,000
Relocation	45,000
Demolition	45,000
Personnel Cost	77,570
Misc. Cost	1,750
Legal & Contingencies	326,108
Total:	$1,582,460
(Rounded)	$1,585,000

Assumes	32875	sq. ft. of right-of-way purchased. (Estimated)
Assumes	0	sq. ft. of Permanent Easement purchased. (Estimated)
Assumes	0	sq. ft. of Temporary Construction Easement purchased. (Estimated)

Estimated Impacts:

0	Sq. ft. of Wetland Mitigation purchased
2	Number of Relocations
1	Number of Displaced Businesses/NPO
1	Number of Displaced Residences
12	Estimated time in months to acquire the right-of-way