### **ORDINANCE NO. 239**

AN ORDINANCE OF THE CITY OF UNIVERSITY PLACE, WASHINGTON, AMENDING TITLE 13, CHAPTER 15 (TRANSPORTATION) OF THE UNIVERSITY PLACE MUNICIPAL CODE.

WHEREAS, on May 4, 1997, the City Council adopted the City of University Place Public Works Standards; and

WHEREAS, since adoption of the Public Works Standards, several necessary changes have become apparent; and

WHEREAS, on December 14, 1998, the City Council met to discuss the issue further; and,

WHEREAS, on February 2, 1999, the City Council held a second public hearing to hear and duly consider testimony and adopted the Amendment to Title 13, Chapter 15 (Transportation) of the University Place Municipal Code; and

WHEREAS, on June 7, 1999, the City Council held a public hearing to hear and duly consider testimony.

NOW THEREFORE THE CITY COUNCIL OF THE CITY OF UNIVERSITY PLACE, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. <u>Chapter 13.15, Transportation.</u> Chapter 13.15, Transportation, of the University Place Municipal Code is amended as set forth on Exhibit A to this Ordinance, attached and incorporated as part of this ordinance.

Section 2. <u>Severability</u>. If any section, sentence, clause, or phrase of this ordinance shall be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this ordinance.

Section 3. <u>Publication and Effective Date.</u> A summary of this Ordinance consisting of its title shall be published in the official newspaper of the City. This ordinance shall take effect five days after publication.

PASSED BY THE CITY COUNCIL ON JUNE 7, 1999.

Debbie Klosowski, Mayor

ATTEST:

Susan Matthew, City Clerk

APPROVED AS TO FORM:

Pimothy X Sullivan, City Attorney

Date of Publication:

June 10, 1999

**Effective Date:** 

June 15, 1999

### **EXHIBIT A -- ORDINANCE NO. 239**

# Chapter 13.15

### **TRANSPORTATION**

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### Article I. General Considerations

### 13.15.010 General.

The overall goal of this chapter is to encourage the uniform development of an integrated, fully accessible public transportation system that will facilitate present and future travel demand with minimal environmental impact to the community as a whole.

This chapter provides minimum development standards supplementing the applicable standards as set forth in UPMC 13.10.040.

## 13.15.020 Standardized format for traffic analyses.

A. Introduction. A traffic impact analysis (TIA) is a specialized study of the impacts a certain type and size of development will have on the surrounding transportation system. The traffic impact analysis is an integral part of the development impact review process. It is specifically concerned with the generation, distribution, and assignment of traffic to and from the development.

The purpose of a TIA is to determine what impact development traffic will have on the existing and proposed street network and what impact the existing and projected traffic on the street system will have on the project.

These guidelines have been prepared to establish the requirements for a traffic impact analysis. The public works department will be responsible under SEPA as well as city ordinances for determining the need for a traffic impact analysis.

B. When Required. To adequately assess a development traffic impact on the transportation system and level of traffic service (LOS) the public works department may require a traffic impact analysis (TIA). The requirement for a TIA will be based on the size of the development proposed, existing street and intersection conditions, traffic volumes, accident history, community concerns, and other pertinent factors relating to traffic impacts attributable to developments.

If a site action requires an environmental checklist be prepared, a TIA may be required if any of the following conditions are met: :

1. The development generates 10 or more trips in the peak hour(s) at any given intersection.

This would include site generated traffic for all turning movements for the peak hour(s) at all affected intersections. The public works department may require analysis for the a.m. and/or p.m. peak hour.

- 2. The development lies within an area that contains an existing or proposed local improvement districts (LID), local/state transportation improvement areas programmed for development reimbursements or at locations that have late-comer agreements.
- 3. The development proposes a use of the subject property which will increase the amount of sitegenerated traffic.
- 4. The original TIA is more than two years old or where the increase in traffic volume as measured by ADT, peak hour, or peak hour of the critical movement is more than 10 percent.

If the department of public works has made the determination to require a TIA, the TIA shall follow the for-mat outlined in subsection (D).

- C. Qualifications for Preparing TIA Documents. Impact analyses (TIA) shall be conducted under the direction of a responsible individual or firm. The TIA shall be prepared by an engineer licensed to practice in the state of Washington with special training and experience in traffic engineering and who is a member of the Institute of Transportation Engineers (ITE).
- D. Scope of Work. The level of detail and scope of work of a TIA may vary with the size, complexity, and location of the development. A TIA shall be a thorough review of the immediate and long-range effects of the development on the transportation system.

- 1.Development Prospectus.
- a. Provide a reduced copy of the site plan showing the type of development, street system, rights-of-way limits, access points, and other features of significance in the development. The site plan shall also include pertinent off-site information such as locations of adjacent intersections and driveways, land use descriptions, street right-of-way limits for the existing roadways and other features of significance. Exhibit "A" illustrates an example site plan for reference purposes.\*
- b. Provide a vicinity map of the project area showing the transportation system to be impacted by the development. Exhibit "B" illustrates an example vicinity map for reference purposes.\*
- c. Discuss specific development characteristics such as type of development proposed (single-family, multifamily, retail, industrial, etc.), internal street network, proposed access locations, parking requirements, zoning, and other pertinent factors attributable to the development.
- d. Discuss project completion and occupancy schedule for the development. Identify horizon years for traffic analysis purposes.
  - 2. Existing Conditions.
- a. Discuss street characteristics including functional classification, number of traveled lanes, lane width, shoulder treatment, bicycle path corridors and traffic control at study intersections. A figure shall be used to illustrate existing transportation facilities.
- b. Identify safety and access problems including discussions on accident history, sight distance restrictions, traffic control, and pedestrian conflicts.
- c. Obtain all available traffic data from the City of University Place and surrounding jurisdictions if applicable. If data is unavailable, the individual or firm preparing the TIA shall collect the necessary data to supplement the discussions and analysis in the TIA.
- d. Conduct manual peak hour turning movement counts at study intersections if traffic volume data is more than two years old, unless otherwise required by the public works department. A copy of the reduced data shall be attached to the TIA when submitted to public works for review.
- e. A figure shall be prepared showing existing average daily traffic (ADT) and peak(s) hour traffic volumes on the adjacent streets and intersections in the study area. Complete turning movement volumes shall be illustrated as shown in Exhibit "C".\*. This figure shall represent the base-line traffic volumes for analysis purposes.
- 3.Development Traffic. This element of the TIA shall be conducted initially to identify the limits of the study area. The study area shall include all pertinent intersections and streets impacts by development traffic.

The threshold requirement of development traffic exceeding 10 vehicles in the peak hour(s) on the adjacent streets and intersections shall apply.

The individual or firm preparing the TIA shall submit to the public works department a figure illustrating the proposed trip distribution for the development. The trip generation shall be included in a table format on the figure with the peak hour traffic volumes assigned to the study area in accordance with the trip distribution. Once approved by the public works department, a for-mal "scoping" by the public works department of the development proposal shall be conducted to clearly identify the study area and contents expected in the TIA. Exhibit "D" shows an example figure for reference purposes.\*

The methodology and procedures used in pre-paring the trip generation and trip distribution elements of the TIA are as follows:

a. Trip Generation. Site-generated traffic of developments shall be estimated using the latest edition of the ITE Trip Generation Manual. Variations of trip rates will require the approval of public works. Trip rate equations will be utilized for estimating site generated traffic. Average trip rates shall be used for all land use categories where applicable and/or required by public works.

Site traffic shall be generated for p.m. and/or a.m. peak hour periods as required by public works. Adjustments made for passer-by and mixed-use traffic volumes shall follow the methodology outlined in the latest edition of the ITE Trip Generation Manual. A passer-by traffic volume discount for commercial centers shall not exceed 25 percent.

For multi-use and/or phased projects, a trip generation table shall be prepared showing proposed land use, trip rates, and vehicle trips for daily and peak hour periods and appropriate traffic volume discounts if applicable.

b. Trip Distribution. The trip distribution for a development shall be approved by public works and prior to the formal scoping of the TIA. The methodology shall be clearly defined and discussed in detail in the TIA. Information on transportation modeling, regional distribution models, transportation analysis zones, and employment density areas may be available from Pierce County and/or the public works department. Available information can be used to assist in the preparation of the trip distribution model. A regional trip distribution map may be required by public works for large scale development projects. Exhibit "E" shows an example figure for reference purposes.\*

The TIA shall identify other transportation modes that may be applicable, such as transit use, bicycle and pedestrian facilities. Developments are encouraged to implement transportation demand management practices such as flex time for employees and ridesharing programs including carpools, van pools, shuttle buses, etc.

4. Future Traffic.

a. Future Traffic Conditions Not Including Site Traffic. Future traffic volumes shall be estimated using information from transportation models for applying an annual growth rate to baseline traffic volumes. The future traffic volumes shall be representative of the horizon year for project development. Public works shall deter-mine an appropriate growth rate, if that option is utilized.

In addition, proposed on-line development projects shall be taken into consideration when forecasting future traffic volumes. The increase in traffic from proposed on-line projects shall be compared to the increase in traffic by applying an annual growth rate.

If modeling information is unavailable, the greatest traffic increase from either the on-line developments or the application of an annual growth rate shall be used to forecast the future traffic volumes.

b. Future Traffic Conditions Including Site Traffic. The site-generated traffic shall be assigned to the street network in the study area based on the approved trip distribution model. The site traffic shall be combined with the forecasted traffic volume to show the total traffic conditions estimated at development completion. A figure will be required showing daily and peak period turning movement volumes for each traffic study intersection. Exhibit "F" shows an example figure for reference purposes.\*—In addition, a figure shall be prepared showing the base-line volumes with site- generated traffic added to the street network. This figure will represent site specific traffic impacts to existing conditions.

5.Traffic Operations. The level of service (LOS) and capacity analysis shall be conducted for each pertinent intersection in the study area as determined by public works. The methodology and procedures for conducting the capacity analysis shall follow the guidelines specified in the Highway Capacity Manual-Special Report 209, 1994 Manual. The individual or firm preparing the TIA shall calculate the intersection LOS for each of the following conditions:

- a. Existing peak hour traffic volumes (figure required).
- b. Existing peak hour traffic volumes including site-generated traffic (figure required).
- c. Future traffic volumes not including site traffic (figure required).
- d. Future traffic volumes including site traffic (figure required).
- e. Level of service results for each traffic volume scenario (table required).

The level of service table shall include LOS results for a.m. and p.m. peak periods if applicable. The table shall show LOS conditions with corresponding vehicle delays for signalized intersections and LOS conditions for the critical movements at unsignalized intersections. For signalized intersections, the LOS conditions and average vehicle delay shall be provided for each approach and the intersection as a whole.

The capacity analyses for existing signalized intersections shall include existing phasing, timing, splits and cycle lengths in the analysis as observed and measured during the peak hour traffic periods.

All traffic signal system operational data will be made available by the City of University Place and adjacent jurisdictions if applicable.

If the "new development" is scheduled to be completed in phases, the TIA shall conduct a LOS analysis for each separate development phase. The incremental increases in site traffic from each phase shall be included in the LOS analysis for each proceeding year of development completion. A figure will be required for each horizon year of phased development.

If the development impacts a traffic signal coordination system currently in operation, public works may require the TIA to include operational analysis of the system. Timing plans and proposed modifications to the coordination system may be required.

The capacity analysis shall be conducted using a city approved software package. The computer worksheets, along with a three-and-one-half- inch floppy disk of each capacity analysis, shall be submitted concurrently with the TIA document to public works. For unsignalized intersections, the Highway Capacity Manual methodology shall be used. A copy of the capacity analyses worksheets shall be submitted concurrently with the TIA document.

6.Mitigation. The TIA shall include a pro-posed mitigation plan. The mitigation may be either the construction of necessary transportation improvements or contributions to the city for the developments of a fair share of the costs for identified future transportation improvements. Level of service of "E" and "F" shall be used as the threshold for determining appropriate mitigating measures on roadways and intersections in the study area. Mitigating measures shall be required to the extent that the transportation facilities operate at a level of service "D" condition or better upon completion of the development.

The following guidelines shall be used to determine appropriate mitigating measures of traffic impacts generated by new developments.

- a. On transportation facilities where the need to construct improvements, by the horizon year of the development, the cost for the mitigation will be entirely borne by the development. However, in the event public works identifies more than one development under simultaneous review, cumulative impacts and distribution of mitigation costs may be considered. A latecomers agreement could be formulated by the development for reimbursement for mitigation costs.
- b. On transportation facilities programmed for improvements as part of a city project, the adverse traffic impacts of the development will be considered mitigated by providing a proportionate share contribution of the costs for the proposed improvements. The proportionate share of local costs for the improvements shall be based on the percentage of development traffic generated through the intersection. The percent-age shall be based on the total projected peak hour traffic volumes for the horizon year of the transportation facility.

If the transportation facility currently operates less than level of service "D", the development shall be required to make interim facility improvements to improve the level of service to LOS "D" or better. The cost of the interim improvements will be deducted from the development's proportionate share of costs for the programmed facility improvements only if the cost of the interim improvements is less than the ultimate proportionate share. If the interim improvements cannot be incorporated into the ultimate improvements programmed for the transportation facility, there will be no reimbursement for interim costs incurred.

- c. On transportation facilities where the existing level of service condition is less than LOS "D" and where no improvements are programmed to improve capacity and traffic operations, the "new development" shall mitigate the intersection to an acceptable level of service "D" condition or wait until the improvements are implemented by the city or other developments. Improvements made by the city prior to the development of the subject project shall be reimbursed by the development based on a proportionate fair share costs of the facility improvements.
- d. Unsignalized intersections that currently operate less than a level of service "D" condition shall be analyzed for traffic signal and intersection improvements. If three or more traffic signal warrants are satisfied, signal and intersection improvements will be required as a mitigating measure for the development. If at least three traffic signal warrants are not satisfied by the development's horizon year,

the TIA shall determine if traffic signal warrants and intersection improvements would be needed within a five-year period after the development's horizon year. The development would be required to provide a proportionate share cost as a traffic mitigation fee towards future traffic signal and intersection improvements if warranted within the five-year period.

However, if traffic signal warrants are not satisfied after a five-year period from the development's horizon year, mitigation fees would not be required from the development for traffic signal improvements.

- e. Signalized intersections where the projected level of service condition is at "D", but where one or more of the level of service conditions on the approaches falls below level of service "D", mitigating measures may be required to improve the capacity and traffic operations at the intersection. The city reserves the right to review all adverse traffic impacts at these intersections and to determine appropriate mitigating measures.
- f. Where there are no bicycle lanes on abutting streets which have been identified in the city's capital improvement plan as streets to have bicycle lanes, the applicant shall provide sufficient right-of-way to allow the construction of the planned bicycle lane.
- g. To mitigate pedestrian impacts, a concrete gutter/curb/sidewalk section shall be constructed along abutting streets. For formal plats, to provide for the safety of school children walking to the bus, concrete curbs, gutters, and sidewalks shall be provided along each side of all interior plat roads.

To mitigate pedestrian impacts, a bus stop shelter on a concrete pad shall be constructed where Pierce Transit and/or the school district has identified a need for a bus stop to serve the development and the citizens of University Place. Design standards for the bus shelter shall be provided by Pierce Transit and/or the school district.

\* Exhibits A - F are available in the office of the city clerk.

## Article II. Streets

### 13.15.030 General.

Street design must provide for the maximum loading conditions anticipated. The width and grade of the pavement must conform to specific standards set forth herein for safety and uniformity.

### 13.15.040 Design standards.

The design of streets and roads shall depend upon their type and usage. The design elements of city streets shall conform to city standards as set forth herein and current design practice as set forth in UPMC 13.10.040. Standard roadway sections for each street classification are provided at the end of this chapter. The design of pavement structures shall be based on the criteria as outlined in UPMC 13.15.190.

The layout of streets shall provide for the continuation of existing principal streets in adjoining subdivisions or of their proper projection when adjoining property is not subdivided. Minor streets, which serve primarily to provide access to abutting property, shall be designed to encourage through non-motorized traffic (pedestrians and bicycles). See the Minimum Public Street Design Standards Table.

- A. Alignment of major arterials and collectors shall conform as nearly as possible with that shown in the City's comprehensive plan.
- B. Grade. Street grade should conform closely to the natural contour of the land. In some cases a different grade may be required by the director of public works. The minimum allowable grade shall be 0.5 percent. The maximum allowable grade shall be 15 percent, depending upon the street classification.

- C. Width. The pavement and right-of-way width depend upon street classification. The table of Minimum Street Design Standards show the minimum widths allowed.
- D. Street widths shall be measured from face of curb to face of curb on streets with cement concrete curb and gutter.
- E. The general notes in UPMC 13.15.045 shall be included on any plans dealing with street design in addition to all applicable requirements in UPMC 13.10..050.
- F. Parking and fire lanes shall be provided in accordance with the requirements of zoning and fire codes.
- G. Bus stops, pullout, and other bus transit amenities shall be in accordance with the requirements of Pierce Transit.

# 13.15.045 Street construction.

- A. All workmanship and materials shall be in accordance with City of University Place standards and the most current copy of the State of Washington Standard Specifications for Road, Bridge, and Municipal Construction.
- B. The contractor shall be responsible for all traffic control in accordance with MUTCD. Prior to disruption of any traffic, traffic control plans shall be prepared and submitted to the city for approval. No work shall commence until all approved traffic control is in place.
- C. All curb and gutter, street grades, sidewalk grades, and any other vertical and/or horizontal alignment shall be staked by an engineering or surveying firm capable of performing such work.
- D. Where new asphalt joins existing, the existing asphalt shall be cut to a neat vertical edge and tacked with asphalt emulsion type CSS-1 in accordance with the standard specifications. The new asphalt shall be feathered back over existing to provide for a seal at the saw cut location and the joint sealed with grade AR-4000W paving asphalt.
- E. Compaction of subgrade, rock, and asphalt shall be in accordance with the standard specifications.
- F. Form and subgrade inspection by the city is required before pouring concrete. Twenty-four hours notice is required for form inspection.
- G. The city will procure and install street name and regulatory signs at the contractor's/developer's expense. Signs shall be requested at the time construction begins.
- H. Temporary erosion control/water pollution measures shall be required in accordance with the King County Surface Water Design Manual. At no time will silts and debris be allowed to drain into an existing or newly installed facility.

### 13.15.050 Functional classification.\*

A. Functional Classification Elements. Streets and highways are most effectively classified by their function, according to the character of the service they are intended to provide. The primary functions of streets and highways are to provide mobility and to provide access, and the degree to which these functions are provided is considered an integral part of classifying streets. The functional classification system creates a hierarchy of a classified streets.

For example, a freeway provides a high degree of mobility and limited access (available only at interchanges) that could be spaced several miles apart. Higher vehicle speeds and volumes are typical on freeways and are, in fact, desirable. On the other hand, a local street within a residential neighborhood provides a high degree of access by way of numerous driveways to adjacent lots, and lower vehicle speeds and volumes are desired. Between these two extremes are the remainder of the streets, commonly called the arterial system, that must provide both mobility and access.

Streets are grouped into a number of different classifications for administrative, planning, and design purposes. For example, the classification system can be used for planning new routes, improvements to existing streets, and planning for area development in concert with the transportation network and providing minimum design standards or criteria to encourage the use of the street as intended.

The main considerations for classifying streets into functional groups are the travel desires of the public, land service needs based on existing and expected land use, and the overall continuity of the system. A classification plan which fits the various classes of streets together into a logical pattern and assigns realistic improvement standards to each class will promote the highest overall level of service for the funds that are available.

City definitions for each functional classification are presented below. A table of design elements, the standard, and application for each functional classification are in the pages that follow. Geometric design criteria follow each functional classification table. The city transportation plan will include transportation plans for modes other than passenger vehicles. These modal plans are intended to overlay onto the functional classification system. For example, the bicycle plan would overlay the function classification system to identify those streetways that should include bicycle facilities as a design element of the streetway.

The city functional classification system directly addresses all streets that are under the jurisdiction of the city. City streets are divided into major (or principal) arterials, secondary arterials, collector arterials and local access streets in accordance with regional transportation needs and the functional use each serves. Function is the controlling element for classification and shall govern rights-of- way, road width, and road geometrics. The following list is provided to assist the developer in determining the classification of a particular street. New streets will be classified by the director of public works. If a street or portion of a street is not listed, the developer is responsible for making inquiries to the Public Works Department to determine the correct street classification.

STREET NAME	MAJOR ARTERIALS FROM	то
BRIDGEPORT WAY W	200' S of 19 ST W	300' N/O 75
ST-W South City Limits		
CIRQUE DR W	ORCHARD ST W	
	BRIDGEPORT WAY	,
LAKEWOOD Drive West	HANNAH-PIERCE/ORCHARD	66 ST W
ORCHARD ST W	HANNAH-PIERCE RD W	40 ST W
REGENTS BLVD W	27 ST W	67 AVE W
27 ST W	REGENTS	
	BRIDGEPORT WAY	

# **SECONDARY ARTERIALS**

STREET NAME	FROM	то
27 ST W	GRANDVIEW DR W	
40 ST W	BRIDGEPORT WAY ALAMEDA AVE W	FIRCREST
C/L	, 12 111237 (717 2 17	
40 ST W	OLYMPIC BLVD W	67 AVE W
64 ST W	GRANDVIEW DR W	CHAMBERS
CRK	DDIDOEDORTMANA	44 OT 18/404b
67 AVE W ST W	BRIDGEPORT WAY W	-44 ST <u>W</u> 19th
CHAMBERS CRK RD W	STEILACOOM C/L	64 ST W
CHAMBERS CRK RD W	64 ST W	CHAMBERS
LNW		
CHAMBERS CRK RD W	CHAMBERS LN W	67 AVE W
CHAMBERS LN W	CHAMBERS CRK RD W	
CIRQUE DR W	BRIDGEPORT WAY BRIDGEPORT WAY W	GRANDVIEW
DR W	BRIDGEFORT WAT W	CICANDVIEW
GRANDVIEW DR W	27 ST W	64 ST W
MILDRED ST W	96 ST E	19 ST W
OLYMPIC BLVD W	GRANDVIEW DR W	40 ST W

# **COLLECTOR ARTERIALS**

то
YSTAL SPRGS R/R-X-ING
DRW E DAY IS.
ACH RD W VISTA PL W
DR W 67 AVE W
FIRCREST
/E W ELWOOD DR
T WAY
CIRQUE DR
LN W CIRQUE DR
51 ST CT W GRANDVIEW

ELWOOD DR W	40 ST W	CIRQUE DR
W		
ELWOOD DR W	PARKWAY W	27 ST W
GRANDVIEW DR W	19 ST W	27 ST W
LEMONS BEACH RD W	31 ST W	TACOMA C/L
SUNSET DR W	19 ST W	CIRQUE DR
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B. Function Classification Definitions.

1.Major Arterials. Major arterials provide service for major traffic movements within the city. They serve major centers of activity, intra-area travel between University Place and other suburban centers, between larger communities, and between major trip generators. Major arterials serve the longest trips and carry the major portion of trips entering and leaving the overall area. Typically they are one of the highest traffic volume corridors in the city. The design year ADT is approximately 5,000 to 30,000 vehicles per day or more. They frequently carry important intra-urban and inter-city bus routes.

The spacing of major arterials usually varies from about one mile in highly developed business areas to five miles or more in rural areas. Service to abutting land is subordinate to the provision of routes for to major traffic movements. It is desirable to place arterials on community and neighborhood boundaries or adjacent to, but not through, major shopping centers, parks, and other homogeneous areas.

2.Secondary Arterials. Secondary arterials interconnect with and augment the major arterial system. Secondary arterials connect major arterials to collector arterials and small generators. They provide service to medium-size trip generators, such as less intensive commercial development, high schools and some junior high/grade schools, warehousing areas, active parks and ball fields, and other land uses with similar trip generation potential. They distribute travel to smaller geographic areas and communities than those identified with the major arterial system. They provide routes for trips of moderate length, somewhat lower level of travel mobility than major arterials. The design year ADT is approximately 2,500 to 15,000.

Spacing of secondary arterials is usually less than one mile in fully developed areas. They provide intra-community continuity and are typically a continuous street with a direct rather than a meandering alignment. They may carry local bus routes. Secondary arterials allow for more emphasis on land access than the major arterial system. They usually do not penetrate identifiable neighborhoods.

3.Collector Arterials. Collector arterials distribute trips from major and secondary arterials to the ultimate destination, or may collect traffic from local streets and channel it into the major and secondary arterials systems. They carry a low proportion of traffic traveling through the entire subarea; carry a high proportion of local traffic with an origin or destination within that area. Design year ADT is approximately 2,500 to 15,000. They may be on a somewhat meandering alignment and need not be particularly long or continuous. Spacing is typically about one-quarter mile in developed areas. Collector arterials provide both land access service and traffic circulation within residential neighborhoods, commercial, and industrial areas. They may penetrate identifiable residential neighborhoods.

4.Local Street System. The local street system provides circulation and access for residential neighborhoods away from the arterial system. The local street system consists of local access and minor access streets.

For developments or neighborhoods of moderate size or larger, the streets serving as primary access to and from the bordering arterial system should be considered for collector arterial classification with no direct lot access and abutting residences oriented away from it. Traffic generators, such as schools or churches, within residential areas should be considered within the local circulation pattern, not only from within the subdivision, but from adjacent neighborhoods as well. There should be a limited number of access points with the arterial streets that border the subdivision.

Local streets should be designed for relatively uniform low volume of traffic upon full development, particularly for local access and minor access streets. The system should be designed to discourage

excessive speeds and should minimize the necessity for traffic control devices. Internal streets with direct lot access should be discontinuous so as to discourage through traffic.

a. Local feeder streets serve as primary access to the development from the adjacent street system. They distribute traffic from local or minor streets in residential neighborhoods and channel it to the arterial system. There are usually no bus routes, with the exception of possible school buses. They directly serve any major traffic generators within the neighborhood, such as an elementary school or a church. They usually serve one moderate size neighborhood or a combination of a few small developments, rather than interconnecting two or more larger neighborhoods. They serve little, if any, through traffic generated outside the neighborhood. Typical ADT may range from about 400 to 1,500. Abutting residences are oriented away from the feeder.

b. Minor access provides direct access from abutting land to the local access streets. There are usually no bus routes on local access streets. They are typically internal subdivision streets providing circulation within the subdivision or between subdivisions. Service to through-traffic is deliberately discouraged. Minor access streets can never be a higher classification. Typical ADT may range from about 300 to 1,000.

Table I

MINIMUM PUBLIC STREET DESIGN STANDARDS

Design Standard	Major Arterial	Secondary Arterial	Collector Arterial	Local Road Feeder	Local Road Minor
Minimum Right-of-Way	84' 85' to 92'89'	62' <u>63'</u> to 66' <u>67'</u>	<del>54'</del> <u>55'</u> to <del>66</del> ' <u>67'</u>	<del>60'</del> <u>57'</u>	<del>56'</del> - <u>57'</u>
Parking Lane	None	Requires City Engineer Approval	Requires City Engineer Approval	Both sides 8' wide	<sup>3</sup> Both sides 8' wide
Minimum Maximum Grade	0.7% / 8%	0.7%/ 8%	0.7%/ 15%	0.7%/ 15%	0.7% / 15%
Curb and Gutter	Cement Concrete Curb and Gutter Both Sides	Cement Concrete Curb and Gutter Both Sides	Cement Concrete Curb and Gutter Both Sides	Cement Concrete Curb and Gutter Both Sides	Cement Concrete Curb and Gutter Both Sides
Sidewalks	Both Sides: 5-6' wide (commercial areas may require up to 10' widths at discretion of the public works department)	Both Sides: 5' 6'wide (commercial areas may require up to 10' widths at discretion of the public works department)	Both Sides: 5' 6'	Both Sides: 5'	Both Sides: 5'
Planter Strip	Both Sides 3.5' to 5' wide	Both Sides 3.5' to 5'wide	Both Sides 5'wide	Both Sides 5'wide	Both Sides 5'wide
Bike Lanes	Both Sides	Both Sides	Both Sides	Optional	Optional
Cul-De-Sac (a) Radius (pavement width) (b) maximum length	N/A	N/A	N/A	N/A	45' Paved Radius (residential) 600'
Intersection Curb Radius	25'-35'	25'-35'	25'-35'	25'30'	<del>25</del> ' <sup>2</sup> 20'
Minimum Centerline Radius for Normal Crown	w/superelevation n*1 per AASHTO w/o superelevation 600'	w/superelevatio n* per AASHTO w/o superelevation 600'	150'	150'	As Approved
Raised Landscape Median	8' to 12' wide	8' to 12' wide	<sup>4</sup> Optional 8' to 12' wide	None	None
Travel Lane	11' wide	11' wide	11' wide	10' wide	10' wide

\*1Maximum superelevation = 6%

2 Increase to 35' at arterial intersections.

3 May be reduced to one side of cul-de-sacs if signed and subject to Fire Department approval.

4 As determined by the City Engineer

Table II **Stopping Sight Distance (SSD)** 

Design Speed (mph)	Stopping Sight Distance <sup>1,2,3</sup> (ft)
25	150
30	200
35	250
40	325
45	400
50	475

Table III
Entering Sight Distance (ESD)

Design Speed (mph)	Entering Sight <sup>4,5</sup> Distance (ft)
25	295
30	355
35	415
40	470
45	530
50	590

<sup>&</sup>lt;sup>1</sup>Is based on entering vehicle eye height of 3.5 feet, measured 10 feet back from edge of traveled way. Approaching vehicle height is 4.25 feet.

Table IV
Stopping Sight Distance Correction Factor

SSD in Feet for Downgrade Slope 3 %	SSD in Feet for Downgrade Slope 6 %	SSD in Feet for Downgrade Slope 9 %
50	110	
30	70	
20	40	70
	Downgrade Slope 3 % 50 30	Downgrade Slope 3 %  50  110  30  70

<sup>&</sup>lt;sup>2</sup>Is based on an eye height of 3.5 feet and an object height of 0.5 feet.

<sup>&</sup>lt;sup>3</sup>The minimum SSD for any down-grade averaging 3 percent or steeper will be increased as shown in Table IV

<sup>&</sup>lt;sup>4</sup>Applies to intersection and driveway approaches to typical roads under average conditions. In difficult topography the city engineer may authorize a reduction in the ESD based on factors mitigating the hazard. Such factors may include an anticipated posted or average running speed less than the design speed or the provision of acceleration lanes and/or a median space allowing an intermediate stop by an approaching vehicle making a left turn.

<sup>&</sup>lt;sup>5</sup>Applies to intersections and driveways.

20	10	20	30
			1

# **Table XXX Intersection Spacing**

Distance between major arterial

Distance from major arterial to secondary arterials

Distance from major and secondary arterials to collector arterials

Spacing of intersections on arterial shall be

Spacing of intersections on local access roads shall be

One mile +/One-half mile +/One-quarter mile +/300 feet or more
150 feet or more

The intent of spacing is to minimize the number of intersections on arterials and local road feeders. (Ord. 142 § 1 Exh. A (2B.030), 1997).\*

# 13.15.060 Naming.

Streets and roads shall be named according to specific criteria established by the city.

An address number will be assigned to all new buildings at the time the building permit is issued. It is then the owner's responsibility to see that the house numbers are placed clearly and visibly at the main entrance to the property or at the principal place of ingress.

The developer must check with the building official regarding the naming of streets. This should be done at the time the preliminary plat is submitted and again upon approval of the final plat. The building official will insure that the name assigned to a new street is consistent with policies of the city.

### 13.15.070 Signing.

The developer is responsible for providing all traffic control signs. Traffic control signing shall comply with the provisions as established by the U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD).

Street designation signs, including poles and hardware, will be paid for by the developer but will be designed, furnished and installed by the city to establish uniformity unless otherwise indicated by the city. A written request must be submitted to the city public works department when signing is needed and the developer will be billed upon completion. Street designation signs shall display street

### 13.15.080 Right-of-way.

Right-of-way is determined by the functional classification of a street. See Minimum Public Street Design Standards Table for specific additional information. Additional roadside easements may be required to facilitate roadway maintenance.

Right-of-way requirements may be increased if additional lanes, pockets, transit lanes, bus loading zones, operational speed, bike lanes, utilities, schools or other factors are proposed and/or required by the city.

Right-of-way shall be conveyed to the city on a recorded plat or by a right-of-way dedication deed. All costs of same to be borne by the property owner/developer.

### 13.15.090 Private streets and alleys.

A. Private streets may be allowed under the following conditions:

1.Permanently established by commonly- owned tract (or easement if situation requires) pro-viding access to serve no more than four dwelling units or businesses on separate parcels, or unlimited dwelling units or businesses situated on one parcel when approved as a planned development district

<sup>\*</sup> Prior legislation: Ordinance 22 adopted Chapter 12.08 PCC and Ordinance 94-77 as an interim road classification plan.

- (PDD) and sufficient to accommodate required improvements, to include provisions for future use by adjacent property owners when applicable.
- 2. Have a minimum 20-foot paved surface, and have a sidewalk five feet in width on one side of such design that prevents parking on the side-walk (sidewalk not required for two or less dwelling units)
- 3.Private street serving single-family, multi-family, mobile home, or commercial uses shall be accessible at all times for emergency and public service vehicle use.
- 4. Will not result in landlocking of present or future parcels, conflict with any transportation or street improvement plan, nor obstruct public street circulation.
- 5. Covenants have been approved by the city and recorded which provide for maintenance of the private streets and associated parking areas by the owner, private road maintenance agreement, or homeowners' association or other legal entity.
- 6.If parking on a private street is requested, an additional eight feet of pavement shall be pro-vided on each side of the street where parking is to be allowed.
- 7. Construction and inspection standards for public road apply for private roads unless other-wise noted within these guidelines.
  - B. Alleys are considered private roads and are governed by the following criteria:
    - 1. Allowed for primary access only when lots served have full frontage on a public street.
- 2.Serves a maximum of 30 lots, with a maximum length of 400 feet, no cul-de-sacs and no dead ends if serving more than four lots.
- 3. When an alleyway is to be provided with utilities, the alley shall be located within a utility easement.
- 4. Minimum alley tract (easement if circumstances require) width of 20 feet with a pavement surface of 16 feet (including thickened edge), based on a five-foot structure setback from property line or edge of tract (easement). For differing structure setback requirements, alley configuration shall be designated to provide for safe turning access to properties.
- 5.Alleyways shall be provided with a paved surface, a thickened edge on one side and cross slope in one direction.
  - 6. Alleys will be allowed only when lots have frontage on a public street.
  - 7. Alley entry shall be provided by a drive-way cut.
- 8. Construction and inspection standards for public roads apply for alleys unless otherwise noted within these guidelines.
- C. Acceptance as Public Streets. Acceptance of private streets as public streets will be considered only if the street(s) meet all applicable public street standards, including right-of-way widths.

### MINIMUM PRIVATE STREET AND ALLEY DESIGN STANDARDS

Design Standard	Private Street	Alley (Residential Only)
Minimum Right-of-Way (Tract)	26' (with an additional 6' utility esmt. outside tract)	20'
Service Area	4 Dwelling Units Maximum	30 Lots Maximum
Minimum Pavement Width	20'	16'
Parking Lane	None <u>*¹</u>	None
Minimum and Maximum Grade	0.5% - 15.0%	0.5% 15.0%
Curb Type	<del>Vertical Curb</del> <u>None</u>	Wedge Curb or None if in 2% V-section
Sidewalk	5' One Side (within tract) <sup>2</sup>	None
Cul-De-Sac Radius (pavement width)	45	None
Intersection Curb Radius	10	10
Design Speed (MPH)	15	10

<sup>\*</sup>\_1Pavement width and tract width shall increase eight feet for each parking lane desired.

(Ord. 142 § 1 Exh. A (2B.070), 1997).

# 13.15.100 Developments on substandard streets.

All new developments which obtain access from substandard public or private streets shall be required to construct all necessary street improvements to bring any street up to current city standards prior to final approval. Such improvements shall be made from the point of access to the closest intersection of a public street that meets current standards. Street improvements may include but are not limited to curb and gutter, sidewalk, street storm drainage, street lighting, traffic signal modification, relocation or installation, utility relocation, and street widening all per these standards.

# 13.15.110 Street frontage improvements.

- A. All developments or major tenant improvements shall install street frontage improvements at the time of construction as required by the department of public works pursuant to these standards. Such improvements may shall include curbs, gutters, bike lanes, planter strips, medians, sidewalks, bus stops, bus shelters, bus pads, bus pullout, street storm drainage, street lighting system, traffic signal modification, relocation or installation, utility relocation, landscaping and irrigation, and street widening all per these standards. Plans shall be prepared and signed by a licensed civil engineer registered in the state of Washington. Right-of-way dedication shall be required in conjunction with required street frontage improvements.
- B. All frontage improvements shall be made across the full frontage of property from centerline to right-of-way line.
- C. Exceptions.

<sup>&</sup>lt;sup>2</sup> Not required for two or less dwelling units

- 1. When the director of public works deems that the above such improvements cannot be accomplished at the time of building construction, a recorded agreement on forms provided by the city shall be completed which provide for these improvements to be installed at a later date by the applicant or by the applicant's signing of a waiver of protest to a local improvement district (LID) in favor of and on a form acceptable to the city. Provided further that no street frontage improvements shall be required in conjunction with the building or remodeling of a single family home on single residential lot unless the lot is part of a subdivision of land which required street frontage improvements as a condition of final plat approval.
- 2. Requirements of this section shall not apply to the construction, remodeling or enlargement of any Group R, Division 3 (single family or duplex) or Group U occupancy (as defined in the Uniform Building Code, to the construction of any accessory residential structure, to any sign, or to the structural addition, alteration or repair to any existing structure within any twelve month period which neither exceeds fifty percent of the value of the existing structure nor increases the total floor space of the structure by more than ten percent. Provided, that no Group R, Division 3 structure or mobile home shall be constructed or placed on a lot unless such lot takes access from a road which satisfies the requirements of this Chapter.

### 13.15.120 Cul-de-sac.

Streets designed to have one end permanently closed shall be no longer than 600 feet measured from centerline of street intersection to the center of the bulb section. Proposed exceptions to this rule will be considered by the City Engineer based on pertinent traffic planning factors such as topography, sensitive areas and existing development. At the closed end, there shall be a widened "bulb" having a minimum paved traveled radius as shown in the Minimum Public Street Design Standards Table. Within an easement dedicated to the public, developer shall install five-foot-wide concrete side-walk(s) from the end of the cul-de-sac to the nearest public road per Option A or Option B in drawings, Figure 1-06. Required easement width shall be determined by the director of public works.

### 13.15.130 Hammerhead turnaround.

Hammerheads will be allowed on streets which serve four lots or less and must be approved by the city fire marshal. See standard hammerhead detail, drawing 2-32, at the end of this chapter.

### 13.15.140 Temporary dead-ends-Dead End Streets.

- A. Dead-end streets shall be permitted only where there is no feasible connection with an adjacent street, or if topographic or existing forested areas prevent such connections. Half-streets, which do not provide for future full right-of-way width, shall not be allowed.
- B. Where a street is temporarily dead ended, turn-around provisions must be provided where the road serves more than one lot. The turnaround may be a hammerhead with a minimum distance on both sides at the centerline intersection of 60 feet to facilitate emergency vehicle turnaround.

Where a street is temporarily dead ended, turn-around provisions must be provided where the road serves more than one lot. The turnaround may be a hammerhead with a minimum distance on both sides at the centerline intersection of 60 feet to facilitate emergency vehicle turnaround.

#### 13.15.150 Medians.

Raised, landscaped medians shall be provided along all major and secondary arterial roadways, and are optional for collector arterial roadways. Medians will include pedestrian landing/refuge areas to make it safer for pedestrians to cross wide streets, where appropriate. Medians shall be designed so as not to limit turning radius or sight distance at intersections. A detailed landscaping and irrigation plan prepared by a professional landscaped architect registered in the state of Washington shall be

submitted to the public works department for review and approval. The developer is required to pay all water system connection fees and charges associated with installation of an irrigation system.

#### 13.15.160 Intersections.

- A. Traffic control will be as specified in the Manual on Uniform Traffic Control Devices (MUTCD) or as modified by the director of public works as a result of appropriate traffic engineering studies.
- B. Street intersection shall be laid out so as to intersect as nearly as possible at right angles. Sharp angled intersections shall be avoided. For reasons of traffic safety, a "T" intersection (three- legged) is preferable to the crossroad (four- legged) intersection for local access streets. For safe design, the following types of intersection features should be avoided:
  - 1. Intersections with more than four intersecting streets;
  - 2."Y" type intersections where streets meet at acute angles;
  - 3. Intersections adjacent to bridges and other sight obstructions.
  - C. Spacing between adjacent intersecting streets, whether crossing or "T", should be as follows:

cation involved is:	offset should be:	
Major Arterial	350 feet	
Secondary Arterial	300 feet	
Collector Arterial	200 feet	
Local Road Feeder	150 feet	
Local Road Minor	150 feet	

When different class streets intersect, the higher standard shall apply on curb radii. Deviations to this may be allowed at the direction of the director of public works:

D. On sloping approaches at an intersection, landings shall be provided with grade not to exceed one foot difference in elevation for a distance of 30 feet approaching any arterial or 20 feet approaching a collector or local access street, measured from nearest right-of-way line (extended) of intersecting street.

### 13.15.170 Driveways.

- A. General.
  - 1.Details of driveway sections are located at the end of this chapter.
- 2.All abandoned driveway areas on the same frontage shall be removed and the curbing and sidewalk or shoulder and ditch section shall be properly restored.
- 3.All driveways shall be constructed of Port-land concrete cement and shall be subject to the same testing and inspection requirements as curb, gutter, and sidewalk construction.
- 4. Joint-use driveways serving two adjacent parcels are permitted upon formal written agreement by both property owners and approval of the city. The agreement shall be a recorded easement for both parcels of land specifying joint usage. Joint use driveways shall be a minimum of 15 feet wide and paved along that portion which serves both parcels.
- 5.Grade breaks, including the tie to the roadway, shall be constructed as smooth vertical curves. The maximum change in driveway grade shall be eight percent within any 10 feet of distance on a crest and 12 percent within any 10 feet of distance in a sag vertical curve.
  - 6.No commercial driveway shall be approved where backing onto the sidewalk or street will occur.
- 7.All driveway commercial locations must be shown on the plat Mylar's and/or on the site development plans. Residential driveway locations for lots in formal plats are not restricted to any location unless so noted on the plat Mylar.

- 8.New driveway locations created by the <u>platting\_development</u> of property shall be unified whenever possible to create the fewest number of accesses onto a city street.
- 9. Combined driveways for adjoining properties are encouraged. In conjunction with the approval of a development, the City may require the applicant to provide access and circulation easement to an abutting owner, where joint access is reasonable to serve future development.

### B. Arterial Streets.

- 1.No driveway may access an arterial within 75 feet (measured along the arterial) of any other such arterial street access on either side of the street; provided, that such access may be located directly opposite another access.
- 2. No driveway access shall be allowed to an arterial street within 150 feet of the nearest right-of-way line of an intersecting street.
- 3. Within the limitations set forth above, access to arterial streets within the city shall be limited to one driveway for each tract of property separately owned. Properties contiguous to each other and owned by the same person are considered to be one tract.
- 4.Driveways giving direct access onto arterials may be denied if alternate access is available. Deviations Variations from this standard may be permitted if sufficient engineering justification is provided to the director of public works as set forth in Chapter 13.10 of these Standards.
- 5. Wherever a potential access exists to any property from both a public road and a private easement, the city may refuse access to the public road.
- 6. The public works department and Pierce Transit will determine the minimum separation that will be allowed between an existing bus stop and a proposed driveway.

## C. Residential Driveways.

- 1.Residential driveways shall be constructed the maximum practical distance, but in no event less than 35 feet or the posted speed limit in feet, whichever is greater, from a side street or intersection. The distance is measured from the road right-of-way line to the nearest edge of the driveway.
- 2. Wherever a potential access exists to any property from both a public road and a private easement, the city may refuse access to the public road.

#### D. Width.

- 1. The maximum driveway width for two-way access drives onto an arterial or collector shall be 24 feet for residential, 30 feet for commercial uses, and 35 feet for industrial uses. Maximum driveway widths for one way access drives onto an arterial or collector shall be 20 feet for residential, 20 feet for commercial, and 25 feet for industrial uses. A road approach or wider driveway width may be approved by the director of public works where a substantial percentage of over-sized vehicle traffic exists, where divisional islands are desired, or where multiple exit or entrance lanes are needed.
- 2. The maximum two-way driveway width onto a local access street shall be 24 feet for residential uses and 26 feet for commercial uses.
- 3. The maximum one way driveway width shall be 15 feet for residential and 22 feet for commercial driveways. Parking lot circulation and signing needs shall be met on site. The public right-of-way shall not be utilized as part of a one way parking lot flow.
- 4.Road approaches and/or ingress and egress tapers may be required in industrial and commercially zoned areas as directed by the director of public works. Tapers shall be designed per Institute of Transportation Engineers publication "Transportation and Land Development" by V.G. Stover and F. Koepke.
- 5. Commercial drive aisles from the drive-way section through the associated parking lot(s) shall be a minimum of 24 feet and shall meet all the requirements of the planning department and the fire marshal.

## 13.15.180 Sight obstruction.

The following sight clearance requirements take into account the proportional relationship between speed and stopping distance.

The sight distance area is a clear-view triangle formed on all intersections by extending two lines of specified length (A) and (B) as shown below from the center of the intersecting streets along the centerlines of both streets and connecting those endpoints to form the hypotenuse of the tri-angle. See sight obstruction detail, drawing 2-30, at the end of this chapter.

Sight Distance Triangle:

A. Stop or Yield Controlled Intersection.

Sight D	istance	(Ft.)	
(A)			(B)

Speed Limit	<b>Arterial Street</b>	Local Street
20 mph	<del>200</del> 295	*
25 mph	<del>250</del> 355	*
30 mph	<del>300</del> 415	*
35 mph	<del>350<u>470</u></del>	*
40 mph	4 <del>00</del> 530	*
50 mph	590	*

<sup>\*</sup>Sight distance measured from a point on the minor road 45-10 feet from the edge (extended) of the major road pavement and measured from a height of eye at 3.50 feet on the minor road to height of object at 4.25 feet on the major road.

B. Uncontrolled Intersection.

Sight Distance (Ft.)	
(A)	(B)

Speed Limit	Arterial Street	Local Stree
20 mph	90	90
25 mph	110	110
30 mph	130	130
35 mph	155	155
40 mph	180	180

- C. The vertical clearance area within the sight distance triangle shall be free from obstructions to a motor vehicle operator's view between a height of three feet and 10 feet above the existing surface of the street.
- D. Exclusions. Sight obstructions that may be excluded from these requirements include: fences in conformance with this chapter, utility poles, regulatory signs, trees trimmed from the base to a height of 10 feet above the street, places where the contour of the ground is such that there can be no cross visibility at the intersection, saplings or plant species of open growth habits and not in the form of a hedge which are so planted and trimmed as to leave at all seasons a clear and unobstructed cross view, buildings constructed in conformance with the provisions of appropriate zoning regulations and pre-existing buildings.

## 13.15.190 Surfacing requirements.

All streets in the City of University Place will be paved with either asphalt concrete or Portland cement concrete, in strict compliance with these standards.

The pavement design shall meet the requirements in the latest publication of the AASHTO Guide for Design of Pavement Structures. The pavement section shall be designed and stamped by an engineer currently licensed in the state of Washington.

One soil sample per each 500 l.f of centerline with three minimum per project representative of the roadway subgrade shall be taken by a qualified soils technician hired by the developer and delivered to a soil lab in order to determine a statistical representation of the existing soil conditions.

Soil tests shall be performed by an engineering firm specializing in soils analysis and currently licensed in the state of Washington.

The soils report, signed and stamped by a soils engineer licensed by the state of Washington, shall be based on actual soils tests and submitted with the plans. All depths indicated are a minimum compacted depth.

Construction of streets paved with asphalt concrete shall conform to Section 5-04 of the Standard Specifications. Pavement material will be Class "B" asphalt concrete and be constructed at least two inches thick (minimum compacted thick-ness) over the prepared crushed surface, top course, or asphalt treated base. Mechanical spreading and finishing will be as described in Section 5-04.3(9) of the Standard Specifications. Compaction will be performed by the equipment and methods presented in Section 5-04.3(10) of the Standard Specifications, and surface smooth-ness shall satisfy the requirement of Section 5-04.3(13) of the Standard Specifications.

Portland cement concrete streets will be constructed as specified in Section 5-05 of the Standard Specifications.

Permanent pavement patching will be per-formed as described in the pavement repair detail listed herein (Figure 2-8), and in compliance with Section 5-04 of the Standard Specifications. All fill material will be placed in lifts no thicker than six inches and mechanically compacted to 95 percent of standard density, as described in Section 2-03 of the Standard Specifications and to the satisfaction of the city inspector.

# 13.15.200 Temporary street patching.

Temporary restoration of trenches shall be accomplished by using two-inch Class B Asphalt Concrete Pavement when available or two-inch medium-curing (MC-250) Liquid Asphalt (cold mix), two-inch Asphalt Treated Base (ATB), or steel plates. ATB used for temporary restoration may be dumped directly into the trench, bladed and rolled. After rolling, the trench must be filled flush with asphalt concrete pavement to provide a smooth riding surface.

All temporary patches shall be maintained by the contractor until such time as the permanent pavement patch is in place.

If the contractor is unable to maintain a patch for whatever reason, the city will patch it and will charge the developer contractor the actual cost plus overhead and materials.

# 13.15.210 Trench backfill and restoration.

Trench restoration shall be either by a patch or patch plus overlay as required by the city.

- A. All trench and pavement cuts shall be made by spade bladed jackhammer or sawcuts. The cuts shall be a minimum of one foot outside the trench width.
- B. All trenching shall be backfilled with crushed surfacing materials conforming to Section 2-04 of the WSDOT/APWA Standard Specifications. The trench shall be compacted to 95 percent maximum density, as described in Section 2-03 of the WSDOT/APWA Standard Specifications.

- C. If the existing material is determined by the city to be suitable for backfill, the contractor may use the native material except that the top eight inches of trench shall be two-and-one-half inch minus ballast. All trench backfill materials shall be compacted to 95 percent density.
- D. Backfill compaction shall be performed in six- inch lifts.
- E. Replacement of the asphalt concrete or Port-land cement concrete shall be of existing depth plus one inch, or three inches, whichever is greater. Replacement of Portland cement concrete shall match existing thickness of adjacent concrete or six inches, whichever is greater.
- F. Tack shall be applied to the existing pavement and edge of cut and shall be emulsified asphalt grade CSS-1 as specified in Section 9- 02.1(6) of the WSDOT/APWA Standard Specifications. Tack coat shall be applied as specified in Section 5-04 of the WSDOT/APWA Standard Specifications.
- G. Asphalt concrete Class B shall be placed on the prepared surface by an approved paving machine and shall be in accordance with the applicable requirements of Section 5-04 of the WSDOT/APWA Standard Specifications, except that longitudinal joints between successive layers of asphalt concrete shall be displaced laterally a minimum of 12 inches unless otherwise approved by the director of public works. Fine and coarse aggregate shall be in accordance with Section 9- 03.8 of the WSDOT/APWA Standard Specifications. Asphalt concrete over two inches thick shall be placed in equal lifts not to exceed two inches each.
- H. All street surfaces, walks or driveways within the street trenching areas affected by the trenching shall be feathered and shimmed to an extent that provides a smooth-riding connection and expeditious drainage flow for the newly paved surface. Shimming and feathering as required by the director of public works shall be accomplished by raking out the oversized aggregates from the Class B mix as appropriate.
- I. Surface smoothness shall be per Section 5- 04.3(13) of the WSDOT/APWA Standard Specifications. The paving shall be corrected by removal and repaving of the trench only.
- J. All joints shall be sealed using paving asphalt AR4000W.
- K. When trenching within the roadway shoulder(s), the shoulder shall be restored to its original or better condition.
- L. The final patch shall be completed as soon as possible and shall be completed within 30 days after first opening the trench. This time frame may be adjusted if delays are due to inclement paving weather, or other adverse conditions that may exist. Delaying of final patch of overlay work is allowable only subject to the director of public work's approval. The director of public works may deem it necessary to complete the work within 30 days' time frame and not allow any time extension. If this occurs, the contractor shall perform the necessary work as directed by the director of public works.

# 13.15.220 Staking.

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed as a professional engineer or professional land surveyor by the state of Washington.

A pre-construction meeting shall be held with the city prior to commencing staking. All construction staking shall be inspected by the city prior to construction.

The minimum staking of streets shall be as directed by the director of public works or as follows:

- A. Stake centerline every 50 feet in tangent sections and 25 feet in curved sections plus grade breaks, points of vertical curvature (PVCs), points of vertical tangency (PVTs), high points and low points, with cut and/or fill to subgrade.
- B. Stake top of ballast and top of crushed surfacing at centerline and edge of pavement at the above-described intervals.
- C. Stake top back of curb at the above- described intervals with cut or fill to finished grade.

## 13.15.230 Testing.

Testing shall be required at the developer's or contractor's expense. The testing shall be ordered by the developer or contractor. Testing shall be performed by an engineering firm currently licensed in the state of Washington. Testing shall be done on all materials and construction as specified in the WSDOT/APWA Standard Specifications and with frequency as specified herein. A list of required tests is provided in Appendix.

In addition, the city shall be notified before each phase of street construction commences (i.e., staking, grading, subgrade, ballast, base, top course, and surfacing).

# **APPENDIX**

# **TESTING AND SAMPLING FREQUENCY GUIDE**

·· ITEM	TYPE OF TESTS	MINIMUM NO.	FREQUENCY
GRAVEL BORROW TON	GRADING AND SE	1 EACH	1 – 4,000
SAND DRAINAGE BLANKET TON	GRADING	1 EACH	1 – 4,000
CSTC GRADING, SE AND FRACTURE CSBC GRADING, SE AND FRACTURE BALLAST	1 EACH 1 EACH GRADING, SE AND DUST 1 – 2,000 TON	1 – 2,000 TON 1 – 2,000 TON RATIO	1 EACH
BACKFILL/SAND DRAINS TON	GRADING	1 EACH	1 – 2,000
GRAVEL BACKFILL FOR:			
FOUNDATIONS	GRADING, SE AND DUST 1 – 1,000 TON	RATIO	1 EACH
WALLS	GRADING, SE AND DUST 1 – 1,000 TON	RATIO	1 EACH
PIPE BEDDING	GRADING, SE AND DUST 1 – 1,000 TON	RATIO	1 EACH
DRAINS	GRADING	1 EACH	1 - 100 TON
PCC STRUCTURES: (Sidewalk, curb and	gutter, foundations)		
COARSE AGGREGATE TON	GRADING	1 EACH	1 – 1,000
FINE AGGREGATE	GRADING	1 EACH	1 – 500 TON
CONSISTENCY	SLUMP	1 EACH	1 – 100 CY
AIR CONTENT	AIR	1 EACH	1 – 100 CY
CYLINDERS (28 DAY)	COMPRESSIVE STRENGT 1 - 100 CY	ГН	2 EACH
CEMENT: PHYSICAL CERTIFICATION	CHEMICAL AND	1 ·	1 – JOB
ASPHALT CEMENT CONCRETE:			

BLE TON	ND SAND I	SE	1 EACH	1 – 1,000
MIN JOB	ERAL FILLER	S.G. AND PI, CERTIFICATION		1 1-
CON TON	MPLETED MIX	FRACTURE, SE, GRADING	1 EACH	1 – 1,000
CON	MPACTION	ASPHALT CONTENT 2 EACH	5 – 400 TON	
ASPHAL	T TREATED BASE:			1
TON	MPLETED MIX I NTENT	SE, GRADING, ASPHALT	1 EACH	1 – 1,000
	MPACTION	1 EACH	5 – CONTROL LO	)T*
ASPHAL	T MATERIALS	CERTIFICATION	1	1 – JOB
RUBBER	RIZED ASPHALT:	CERTIFICATION	1	1 – JOB
COMPAC	CTION TESTING:			
EME	BANKMENT	COMPACTION	1 EACH	1 – 500 LF
CUT	SECTION	COMPACTION	1 EACH	1 – 500 LF
CST	-C	COMPACTION	1 EACH	1 – 500 LF
CSE	BC	COMPACTION	1 EACH	1 – 500 LF
BAL	LAST	COMPACTION	1 EACH	1 – 500 LF
TRE	ENCH BACKFILL	COMPACTION	1 EACH	1 500 LF

# SE = Sand Equivalency

<sup>\*</sup> A control lot shall be a normal day's production. For minor quantities 200 tons or less per day, a minimum of two gauge readings shall be taken.

### Article III. Sidewalks, Curbs and Gutters

### 13.15.240 General.

All properties within commercial zones of the city, properties abutting arterial or local access streets and properties upon which there are to be public buildings shall, in conjunction with new construction or a major tenant improvement, have curbs, gutters, and sidewalks constructed along abutting streets.

## 13.15.250 Design standards.

Plans for the construction of sidewalks, curbs and gutters are to be submitted as part of the street plans when applicable.

The city has set forth minimum standards as outlined in this section which must be met in the design and construction of sidewalks, curbs and gutters. Because these are minimum standards, they may be modified by the director of public works should the director feel circumstances require increased or decreased widths.

### 13.15.260 Sidewalks.

Sidewalks shall be constructed of commercial concrete, minimum four inches thick except in driveway approaches where the minimum thick-ness shall be six inches. When the sidewalk, curb and gutter are contiguous, the width of the side-walk shall be measured from back of curb to back of sidewalk.

- A. Arterial Streets. Sidewalks, curbs and gutters shall be required on both sides of all arterial streets interior to the development. Sidewalks, curbs and gutters shall also be required on the development side of streets abutting the exterior of said development. Arterial streets for purposes of this subsection shall include major arterials, secondary arterials and collector arterials.
- B. Local Access Streets. Sidewalks shall be required on both sides of local access streets which are interior to the development and on the development side of local road feeder and local road minor streets abutting the exterior of said development including cul-de-sacs.
- C. The design and construction of all side-walks, curbs, and gutters shall meet the following minimum standards:
- D. The width of sidewalks shall be as shown in the minimum street design standards and the street design drawings. The design of all sidewalks shall provide for a gradual rather than an abrupt transition between sidewalks of different widths or alignments.
- E. Form and subgrade inspections by the city are required before sidewalk is poured.
- F. Monolithic pour of curb, gutter and sidewalk will not be allowed.
- G. For driveway requirements, see UPMC 13.15.170.

### 13.15.265 Pedestrian Circulation

Joint pedestrian and bicycle only facilities which are separate from but continue the street right-of-way of the public roadway system shall be a minimum of twelve feet wide paved surface (sixteen feet desirable) and shall be built with necessary drainage and illumination. The joint bicycle/pedestrian right-of-way may be asphalt or concrete per Public Works Department approval. Additional right-of-way width may be required to accommodate drainage facilities.

## 13.15.270 Curb and gutter.

Cement concrete curb and gutter shall be used for all street edges unless otherwise approved by the director of public works. All curbs and gutters shall be constructed of commercial concrete as shown on drawing 2-14.

Extruded curb and gutter per WSDOT/APWA Standard Specifications is allowed.

Form and subgrade inspections by the city are required before curb and gutter are poured.

## 13.15.280 Handicap accessibility ramps.

All sidewalks must be constructed to provide for accessibility ramps in accordance with the Standards of state law.

Accessibility ramps shall be constructed of commercial Portland cement concrete. Form and subgrade inspections by the city are required before accessibility ramps are poured.

## 13.15.290 Bus pads.

Bus stop pads shall be installed to Pierce Transit specifications as part of frontage improvements where bus stops currently exist or will be created where no pads are currently present.

## 13.15.300 Staking.

The criteria set forth in UPMC 13.15.220 for engineering and surveying qualifications and construction meetings shall be adhered to in addition to the following:

The minimum staking of curb, gutter and side-walk shall be as directed by the director of public works or as follows:

Stake top of back of curb every 50 feet in tan-gent sections and 25 feet in curved sections plus grade breaks, points of vertical curvature (PVCs), points of vertical tangency (PVTs), high point and low points, with cut or fill to finished grade.

## 13.15.310 Testing.

Testing shall be required at the developer's or contractor's expense on all materials and construction as specified in the WSDOT/APWA Standard Specifications.

At a minimum, one slump test and two test cylinders shall be taken once per day. All other testing frequencies shall be as specified in the Testing and Sampling Frequency Guide in UPMC 13.15.230.

In addition, the city shall be notified before each phase of sidewalk, curb and gutter construction commences.

### Article IV. Bikeways

### 13.15.320 General.

Bike lane construction is required on all arterial streets adjacent to any development or redevelopment where the estimated cost of improvements on such properties exceeds 25 percent of the value of the existing structures, or as a condition of building permit, or plat or short plat approval.

### Article V. Illumination

#### 13.15.330 General.

All developments requiring a site development permit review frontage improvements pursuant to this <u>Code</u> shall provide street lights in accordance with the standards for such improvements of the city and they shall be owned and operated by the city if located within public rights-of-way. Street lighting located on private properties shall be under a maintenance agreement and maintained by the homeowners' association.

## 13.15.340 Design standards.

A street lighting plan submitted by the applicant and approved by the public works director shall be required for all street light installations. Type of installation shall be as set forth in these Standards and as directed by the city except where noted herein.

All public street light designs shall be prepared by an engineering firm capable of performing such work. The engineer shall be licensed by the state of Washington. All developments shall submit the lighting plan on a separate sheet. After system is completed and approved, a set of "as built" mylars shall be submitted to the city as a permanent record.

Street lighting shall incorporate a mixture of two pedestrian light poles to one median light pole along sidewalks to achieve lighting requirements and also to provide pedestrian safety and pedestrian scale to the street.

## A. Planter Strip Lighting

Light poles located within planter strips shall be 16 feet high, round tapered fiberglass poles, model No. OA-305-16-GR/-3 (anchor base) as manufactured by W.J. Whatley, Inc. or City Engineer approved equal. Mounted on each pole shall be a luminaire, model No. K118-LAR-III-100-MH-120-K18-GR, as manufactured by W.J. Whatley, Inc. or City Engineer approved equal. Each pole shall be outfitted with a decorative base cover, as manufactured by W.J. Whatley, Inc. Pole color to be determined by City Engineer. Poles shall be positioned to provide a minimum 24 inch clearance between the edge of the pole base and the vertical face of the curb.

# B. Median Lighting

Light poles located within raised medians shall be 35 feet high, round tapered fiberglass poles, model No. A4328-(Y)-18-64/611-N6 (anchor base) as manufactured by W.J. Whatley, Inc. or City Engineer approved equal. Each pole shall be outfitted with a decorative base cover, as manufactured by W.J. Whatley, Inc. Pole color to be determined by City Engineer. Pole color to be determined by City Engineer. Mounted on each pole shall be a decorative double mast arm, model No. KA 72-T1-8-7' (rise) and two luminaires, Model No. K-205-EPP-200-HPS-120-PC-GR, all as manufactured by King Luminaires, or City Engineer approved equal.

Spacing will be determined by the director of public works using the following criteria:

# AVERAGE MAINTAINED HORIZONTAL ILLUMINATION (FOOT CANDLES)

Road Class	Residential
Local Feeder and Minor	0.4
Collector Arterial	0.6
Secondary Arterial	0.8
Major Arterial	0.8
Uniformity Ratio:	6:1 average: minimum for local 4:1 average: minimum for collector 3:1 average: minimum for secondary and major arterial

Dirt Factor = 0.85, lamp lumen depreciation factor – .073 Minimum Weak Point Light = 0.2fc except residential local street

Average Illumination at Intersections = 1.5 times the illumination required on the more highly illuminated street

400 watt initial lamp lumens	=	50,000
200 watt initial lamp lumens	=	22,000
150 watt initial lamp lumens	=	16,000
100 watt initial lamp lumens	= .	9,500

Line loss calculations shall show that no more than five percent voltage drop occurs in any circuit. Lamp load factor shall equal 1.2. Pole foundations shall be per drawing 2-17.

All street light electrical installations including wiring conduit and power connections shall be located under-ground.

The general notes in UPMC 13.15.345 need to be included on any plans dealing with street design in addition to all applicable requirements as set forth in UPMC 13.10.040.

## 13.15.345 Street light construction.

- A. All workmanship, materials and testing shall be in accordance with the most current Washing-ton State Department of Transportation/American Public Works Association Standard Specifications for Road, Bridge, and Municipal Construction, and National Electrical Code as applicable unless otherwise specified below. In cases of conflict the most stringent guideline shall apply. When the most stringent guideline is not clear, the director of public works will make the determination. The electrical contractor shall be familiar with all above stated publications and guidelines as they will be strictly enforced by the city.
- B. All safety standards and requirements shall be complied with as set forth by the State of Washington Department of Labor and Industries.
- C. The contractor shall be responsible for all traffic control in accordance with the Manual on Uniform Traffic Control Devices. Prior to disruption of any traffic, traffic control plans shall be prepared and submitted to the city for approval. (See WSDOT Standard Plans K2 K21.) No work shall commence until all approved traffic control is in place.
- D. A pre-construction meeting shall be held with the City of University Place prior to the start of construction.
- E. All approvals and permits required by the City of University Place shall be obtained by the contractor prior to the start of construction.
- F. It shall be the responsibility of the contractor to have a copy of an approved set of plans on the construction site at all times.
- G. All surveying and staking shall be done by a surveying or engineering firm licensed in the state of Washington.
- H. Temporary erosion control/water pollution measures shall be required in accordance with Section 1-07.15 of the WSDOT/APWA Standard Specifications and the King County Surface Water Design Manual. At no time will silts and debris be allowed to drain into an existing or newly installed facility.

- I. If construction is to take place in the county right-of-way, the contractor shall notify the county and obtain all the required approvals and permits.
- J. The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility locations prior to construction by calling the Underground Locate Line at 1-800-422-5555 a minimum of 48 hours prior to any excavation. The contractor will also be responsible for maintaining all locate marks once the utilities have been located.
- K. Electrical permits and inspections are required for all street lighting installations within the City of University Place. The contractor is responsible for obtaining permits prior to construction. These permits are available from the electrical inspection permit counter at Tacoma Public Utilities, 3628 South 35th Street, Tacoma. Prior to installation of any materials the electrical contractor shall submit for approval by the city two copies of material catalog cuts, specifications, shop drawings and/or wiring diagrams. Any materials purchased or labor performed prior to such approval shall be at the contractor's risk. Mounting heights, arm length, power source, luminaire type and bolt patterns shall follow UPMC 13.15.340. Modifications of any portion of the lighting system will not be allowed without prior approval by the city.
- L. A rated service disconnect shall be provided for every branch circuit. Light branch circuit breakers shall be 40 amp minimum. The location and installation of the disconnect shall conform to the National Electric Code (NEC) and City of University Place Standards. The service disconnect shall by of a type equal to a "MYERS" MEUGL-M100C- UM or "UNICORN" CPIIIB-0111A Service, 120/ 240 VAC, CALTRANS TYPE 3B or city approved equal, with two lighting relays, one three position test switch (Auto/Off/Manual) and one photocell. The photocell shall face north unless otherwise directed by the city.
- M. Service entrance conductors shall be a minimum size of #2 copper. All lighting wire shall be stranded copper with a minimum size of #8 with insulation suitable for wet locations. Phasing tape will not be allowed. All wire shall be installed in schedule 40 PVC conduit with a minimum diameter of one-and-one-quarter inches. All conduit shall be installed in the "utility ditch" or as other-wise directed by the city. A bushing or bell end shall be used at the end of every conduit. All splices shall be in the nearest junction box. Wire nuts will not be allowed. All splices will be made with Type C copper fittings, centered and encased in a 3-M Scotchcast epoxy kit, rated at 600 Volts, Type 82-A1, 82-B1 or city approved equal. If more than one circuit passes through a junction box each is to have a PCV sleeve clearly identifying the circuit. (WSDOT Standard Specification 8- 20.3). A 500-volt megger test will be performed by the electrical contractor on each circuit between conductor and ground prior to acceptance of the lighting system. The insulation resistance shall not be less than six mega-ohms to ground 2,500 feet and over nor less than eight mega-ohms under 2,500 feet. A functional test will be performed by the city, in which it is demonstrated that each and every part of the system functions as specified or intended herein. (WSDOT Standard Specifications 8-20.3(11).
  - N. Each luminaire pole shall have an in-line, fused, water tight electrical disconnect located at the base of the pole. Access to these fused disconnects shall be through the hand-hole on the pole. The hand-hole shall be facing away from on- coming traffic from the adjacent street. Load side of in-line fuse to luminaire head shall be cable and pole bracket wire, two conductor, 19-strand copper #10 and shall be supported at the end of the luminaire arm by an approved means. (Drawing 2- 17.2). Fuse, size, disconnect installation and grounding in pole shall conform to WSDOT Standards.

- O. City approved pull boxes or junctions boxes shall be installed per WSDOT Standard Plan J- 11a in all street lighting installations. Junction boxes shall be incorporated into the back edge of sidewalk or as directed by city. Where no side-walks exists, junction boxes shall have a concrete pad per University Place. No conduit run shall be more than 200 feet between Junction Boxes. A junction box shall be located within 10 feet of each luminaire pole and at every road crossing. No conduit shall be installed in the roadway except at designated road crossings. Conduit entering the junction box shall be perpendicular to the sides of the box and a minimum of six but no more than eight inches below the lid. Boxes shall be clearly and indelibly marked as lighting boxes by the legend "L.T." or "LIGHTING". All J-Boxes shall be supported by a minimum six-inch crushed gravel pad. A three-eighths-inch expansion joint shall be installed between concrete sidewalk and junction box.
- P. All lighting poles shall be as specified in UPMC 13.15.340. In existing developed areas, the city may require the use of other poles to establish uniformity within the developed area. After installation and before acceptance by the city all poles shall be free of dents and marks. Sonotube shall be removed to below ground level. Pole bases shall be grouted and all luminaire heads shall be plumb and level.
- Q. Conduit shall extend between three and six inches above the concrete base.
- R. Any modification to approved lighting plans shall be reviewed and approved by the city prior to installation. Any approved modifications shall be shown on a Mylar as-built supplied to the city after the lighting installation is completed and before final acceptance. It shall be the responsibility of the electrical contractor to ensure these as-builts are provided to the city.

# 13.15.350 Staking.

The criteria set forth in UPMC 13.15.220 for engineering and surveying qualifications and preconstruction meetings shall apply as well as the following:

- A. Location and elevation to the center of every pole base.
- B. Location and elevation of each service disconnect.

## 13.15.360 Testing.

All illumination systems shall be subject to an electrical inspection. Lamp, photocell and fixture shall be under warranty for a period of one year.

### Article VI. Signals

### 13.15.370 General.

Signals shall be installed per the requirements. This work shall consist of furnishing and installing a complete and functional traffic control system of controllers, signals, 3M Opticom systems and appurtenances as required by the city.

### 13.15.380 Design standards.

Signal system shall be designed in accordance with the specifications as set forth in the WSDOT Design Manual and WSDOT/APWA Standard Specifications unless otherwise authorized by the city.

All public signal designs shall be prepared by an engineering firm capable of performing such work. The engineer shall be licensed by the state of Washington.

# 13.15.390 Induction loops.

Induction loops shall be constructed per WSDOT/APWA Standard Specification 8- 20.3(14)C and the following:

- A. Loops shall not be cut into final lift of new asphalt.
- B. Loops shall be installed in crushed surfacing top course (CSTC) before paving or shall be cut in existing asphalt or leveling course to sub-base before intersection is overlaid.

# 13.15.400 Staking.

The criteria set forth in UPMC 13.15.220 for engineering and surveying qualifications and preconstruction meetings shall apply as well as the following:

- A. Location, with cut and fill to center of all pole bases shall be marked in the field.
- B. Location of junction box shall be marked in the field.
- C. Location of all corners of controller base shall be marked in the field.
- D. Location of service disconnect shall be marked in the field.

## 13.15.410 Testing.

All signals shall be subject to any necessary electrical inspections as well as requirements as set forth in the WSDOT Design manual and the WSDOT/APWA Standard Specifications.

A signal system shall not be approved or accepted by the city until the signal has performed correctly to the city's satisfaction for a 30-day "check-out" period as outlined below.

Controller and cabinet testing may be required by WSDOT District 3 laboratory and/or the City of University Place. All specifications and materials samples shall be submitted to the city for review and approval prior to installation.

### 13.15.420 Check-out procedure.

The contractor shall call for an intersection check-out after completing the controller cabinet installation along with all other signal equipment complete with wiring connections. All parts and workmanship shall be warranted for one year from date of acceptance.

New signals shall operate without any type of failure for a period of 30 days. The contractor shall have a representative available to respond to sys-tem failure within 24 hours during the 30-day "check-out" period.

Failure of any control equipment or hardware within the "check-out" period shall restart the 30- day "check-out" period.

### Article VII. Roadside Features

### 13.15.430 General.

Miscellaneous features included herein shall be developed and constructed to encourage the uniform development and use of roadside features wherever possible. The director of public works shall have the discretion to allow or not allow the installation of new, or the modification of existing miscellaneous features within the right-of-way as requested by the public from time to time.

# 13.15.440 Design standards.

The design and placement of roadside features included herein shall adhere to the specific requirements as listed for each feature, and, when applicable, to the appropriate standards as set forth in UPMC 13.10.010 and 13.10.040.

# 13.15.450 Staking.

The criteria set forth in UPMC 13.15.220 for engineering and surveying qualifications and preconstruction meetings shall apply.

# 13.15.460 Testing.

Testing shall be required at the developer's or contractor's expense on all materials and construction as specified in the WSDOT/APWA Standard Specifications and with a frequency as specified in the WSDOT Construction Manual.

## 13.15.470 Survey monuments.

A. All existing survey control monuments which will be disturbed or destroyed during construction shall be referenced prior to construction and replaced after construction by a professional land surveyor licensed by the state of Washington. All applicable RCWs and WACs will be complied with, including but not limited to, Chapters 332-120 and 332-130 WAC and Chapter 58.09 RCW. The monuments shall be replaced with the proper type as outlined in subsections (B) or (C) below at the expense of the responsible builder or developer.

- B. Street Type: major arterial, secondary arterial, bus routes and truck routes. A pre-cast concrete monument with cast iron monument case and cover installed per City of University Place Standards is required.
- C. Street Type: collector arterial, local access feeder, and local access minor. A poured-in-place concrete surface monument per City of University Place Standards is required.
- D. Monument Locations. Appropriate monuments as outlined in subsections (B) or (C) above shall be placed:
  - 1.At all street intersections:
- 2.At the points of curvature (PCs) and points of tangency (PTs) of all horizontal curves or at the point of intersection (PI) if it lies in the traveled roadway:
- 3.At all DLC corners, section corners, quarter corners and sixteenth corners that fall within the subdivision. Where these points fall outside of the pavement or sidewalks, a poured-in-place monument per City of University Place standards shall be set so that the top of the monument is one foot below the surface of the ground.
  - E. The monument case shall be installed after the final course of surfacing has been placed.

## 13.15.480 Bus stops, shelters, and amenities.

- A. Pierce Transit shall determine the required necessity and locations of all new bus stops, pull outs, shelters and other associated amenities required as frontage improvements for new developments for public transportation.
- B. The University Place School District will use the following criteria in placement and design of school bus stops:
- 1.A school bus stop shall be required for each new residential subdivision or apartment complex where school children are to be boarding or deboarding unless it is determined by the school district that a new bus stop is not required because adjacent facilities already exist for the site.
  - 2. Placement shall be determined by the school district and the city.
- 3.Location of school bus stops shall be designed with safety as a paramount concern. Major arterials with high traffic counts should be avoided where possible and only used when bus pull outs are available and significant protection provided for children.
- 4.School bus stops shall be designed to compliment the residential environment and pro-vide convenient location and access for neighbor-hood children including sidewalk access.
- 5. Every effort shall be made to make school bus stops and sidewalk access to school bus stops a safe and pedestrian-friendly environment.
- 6.Pierce Transit and the school district should make every effort to coordinate the location of bus stops.
- C. The physical location of any bus stop shall be primarily determined by the following considerations: maximizing safety, operational efficiency, and minimizing impacts to adjacent property. Bus pullouts may be required on all arterial roads for safe bus loading and to minimize impacts on traffic flow of buses stopping. Additionally, bus pull outs may be required on local access roads if road geo-metrics require, such as determined by the city and the school district.
- D. All transit and school bus stops shall be identified in some fashion. This may include pavement marking and bus stop signs. Contact Pierce Transit for details on Pierce Transit sites.
- E. Passenger shelters are required at all bus pullouts, transfer centers, and bus stops as part of frontage improvements for developments. The following requirements apply to bus shelters.
- 1.Passenger shelters for Pierce Transit sites and school district sites shall be designed to standards of Pierce Transit, provide protection from the elements, and reasonably vandalism resistant for easy maintenance.

Specifications for bus shelters:

- a. Bus shelters shall be models 4x2S-GL246.5 or larger as manufactured by Ace Aluminum Company, phone number (209) 268-5506, or approved equal.
- b. Anchors/Footing. Anchors and footing shall be constructed in accordance with Pierce Transit specifications.
  - c. Benches. Benches shall be constructed in accordance with Pierce Transit's cur-rent standard.
  - d. Assembly. The whole shelter structure and components shall be easily and rapidly assembled.
- e. Installation Equipment. All necessary installation equipment shall be included with the delivery of shelters.
  - f. No advertising will be allowed on or within any portion of any bus shelter or benches.
- 2.Pierce Transit shelters shall be maintained by Pierce Transit. School bus stop shelters shall be maintained by the subdivision's home-owners' association or apartment owner, which ever is appropriate.

F. Designing quality into the walk to and wait at a bus stop facility is an important design consideration. A pedestrian friendly environment shall be designed into all bus stop locations and surrounding service area to make bus stop use easy, friendly, and safe.

The following pedestrian friendly criteria shall be applied by the planning and community development department during the review of bus stop facilities in conjunctions with developments.

- 1.Provide concrete walkways constructed to sidewalk standards linking various sections of subdivision and developments to peripheral streets with bus stops.
- 2.In designing walkways provide access through mid-blocks to decrease distances to bus facilities and flexibility to pedestrians.
- 3. Provide accessibility ramps and other facilities consistent with barrier free design Standards along walkways leading to bus stops.
- 4.Developments enclosed by walls or fences shall provide openings or gates for walk-ways to provide direct access between developments and bus facilities.
  - 5. Use street signs to mark pedestrian walk-ways.
- 6.Separate roads and parking areas from pedestrian pathways by grade separations, landscaping and other devices. Per these standards, a planting strip with trees shall be provided to buffer sidewalks or walkways from streets and parking areas. When possible a second row of trees should be provided between the sidewalk and adjacent property.
  - 7. Provide pedestrian facilities such as lighting, signs, trash cans as warranted by anticipated use.
  - 8. Street systems should be designed so as to minimize pedestrian travel to bus stops.

## 13.15.490 Mailboxes.

A. During construction, existing mailboxes shall be accessible for the delivery of mail or, if necessary, moved to a temporary location. Temporary relocation shall be coordinated with the U.S. Postal Service. The mailboxes shall be reinstalled at the original location or, if construction has made it impossible, to a location as outlined below and approved by the U.S. Postal Service.

- B. Location.
  - 1.Bottom or base of box shall be 36 inches to 42 inches above the road surface.
  - 2. Front of mailbox 18 inches behind vertical curb face or outside edge of shoulder.
- 3.Clustered mailboxes are required for developments. Contact the U.S. Postal Service for details. See drawing 2-18.
- C. Mailboxes shall be set on posts strong enough to give firm support but not to exceed four-by-four-inch wood or one-and-one-half-inch diameter pipe, or material and design with comparable breakaway characteristics.

## 13.15.500 Guard rails.

For purposes of design and location, all guard rails along roadways shall conform to the criteria of the Washington State Department of Transportation Design Manual as may be amended or revised.

## 13.15.510 Retaining walls.

- A. Rock walls may be used for erosion protection of cut or fill embankments up to a maximum height of eight feet in stable soil conditions which will result in no significant foundation settlement or outward thrust upon the walls. For heights over six feet or when soil is unstable, structural wall of acceptable design stamped by a licensed structural engineer shall be used. Rock walls over six feet high shall be subject to inspection by a geo-technical engineer as outlined in the following paragraph. All retaining walls over six feet in height shall meet yard setback requirement of the zone
- B. Any rock wall over 30 inches high in a fill section shall require an engineered design by a geotechnical engineer. The geotechnical engineer shall continuously inspect the installation of the

- wall as it progresses and shall submit to the city inspection reports, including compaction test results and photographs taken during the construction, documenting the techniques used and the degree of conformance to the geotechnical engineer's design.
- C. In the absence of such a rock wall design, walls having heights over four feet or walls to be constructed in conditions when soil is unstable require a structural wall having a design approved by the public works department if inside the right-of-way or the building department if outside the right-of-way. The design of structural walls shall be by a professional engineer qualified in retaining wall design. Structural walls require issuance of a building permit prior to construction.
- D. Any proposed retaining wall supporting a surcharge less than 15 feet from the base shall be designed by a geotechnical engineer.
- E. The rock material shall be as nearly rectangular as possible. No stone shall be used which does not extend through the wall. The rock material shall be hard, sound, durable and free from weathered portions, seams, cracks and other defects. The rock density shall be a minimum of 160 pounds per cubic foot.
- F. The rock wall shall be started by excavating a trench having a depth below subgrade of one half the base course or one foot (whichever is greater).
- G. Rock selection and placement shall be such that there will be minimum voids and, in the exposed face, no open voids over six inches across in any direction. The final course shall have a continuous appearance and shall be placed to minimize erosion of the backfill material. The larger rocks shall be placed at the base of the rockery so that the wall will be stable and have a stable appearance. The rock shall be placed in a manner such that the longitudinal axis of the rock shall be at right angles or perpendicular to the rockery face. The rocks shall have all inclining faces sloping to the back of the rockery. Each course of rocks shall be seated as tightly and evenly as possible on the course beneath. After setting each course of rock, all voids between the rocks shall be chinked on the back with quarry rock to eliminate any void sufficient to pass a two- inch square probe.
- H. The wall backfill shall consist of quarry spalls with a maximum size of six inches and a minimum size of four inches or as specified by a licensed engineer. This material shall be placed to a 12-inch minimum thickness between the entire wall and the cut or fill material. The backfill material shall be placed in lifts to an elevation approximately six inches below the top of each course of rocks as they are placed, until the uppermost course is placed. Any backfill material on the bearing surface of one rock course shall be removed before setting the next course.
- Perforated drainage pipe and filter fabric shall be installed as per drawing 2-26. This pipe requirement may be waived by the engineer upon a showing by the developer that no subsurface water problem exists.

## 13.15.520 Street trees.

It is the goal of the city to aesthetically enhance public roads by the use of plantings and landscaping where practical. Therefore, the street trees on the following table shall be employed when planting street trees in or along the public right-of-way.

## A. Planting Theme.

- 1.Ratio: Three street trees to one accent tree.
- 2. Species: See following table.

- B. Planting Size. Trees two- to three-inch caliper, measured six inches above the base. Ground cover (i.e., ivy), four-inch pot spaced 18 to 20 inches on center or one-gallon pots at 20 inches on center. Low growth shrubs (i.e., juniper), one- gallon pots at three feet on center. Shrubs (i.e., rhododendron) 18 to 24 inches in height at five feet on center three-gallon pot at five feet on center.
- C. Location. Trees shall be centered in the planter strip or median. Trees shall be spaced 35 feet on center starting 15 feet from the side property line. Tree spacing may be adjusted slightly to allow a 10-foot clear zone on either side of a drive-way.
- D. Maintenance. All developments required to plant street trees will also be required to maintain the trees for the life of the project, regardless of ownership.
- E. Exceptions to the planting theme may be made by the director of public works and the director of planning and community development. Exceptions include but are not limited to screening industrial areas, planting around historical sites, maintaining natural vegetation that better serves as street landscaping or beautification.

## STREETS AND LANDSCAPING PLANTS

## TREES:

Sweet Gum – Liquidamber styraciflua
Red Oak – Quercus rubra
Red Maple – Acer rubrum
Douglas Fir – Pseudotsuga menziesii
Canada Hemlock – Tsuga canadensis
Deodar Cedar – Cedrus deodara
Pennsylvania Marshall Green Ash – Fraxinus species

## **ACCENT TREES:**

Norway Maple – Acer platanoides
Crabapple – Malus species
Carriere Thorn – Crataegus iavallei
Downy Serviceberry – Amelanebier canadensis
Flowering Cherry – Prunus species
Japanese Black Pine
Austrian Pine
Flowering Cherry Kwanzan – Prunus species
Thundering Flowering Plum

#### SHRUBS:

Photina – Photinia fraseri Viburnum – Viburnum Japanese Privet – Ligustrum texanum Smooth Sumac – Rhus glabra Siberian Dogwood – Cornusalba sibirica

## GROUNDCOVERS:

Wintercreeper – Euonymus fortunei Baltic Ivy – Hedera helix baltica Saint Johns Wort – Hypericum calycinum Bearberry Cotoneaster – Cotoneaster dammeri Japanese Spruge - Pachysandra terminalis

## 13.15.530 Temporary signs and banners.

No temporary signs or banners shall be permitted in the right-of-way without the express per-mission in writing by the city engineer, and any such object in the right-of-way without written permission is declared illegal. Temporary signs and banners allowed in the right-of-way shall meet the requirements for temporary signs in the zoning code, except setback requirements. Temporary signs in the right-of-way shall be located as close to the outside edge of the right-of-way as possible.

## **Article VIII. Emergency Vehicle Access**

## 13.15.540 Purpose.

Emergency vehicle access shall be provided from a public or private street to a parcel(s) of land that has a structure(s) on it. This access is exempt from any normal setbacks established for public or private streets. Emergency vehicle access shall be provided and maintained in accordance with the provisions of these standards.

- A. Abbreviated Designation. Emergency vehicle access will be cited routinely in the text as the "EV access."
- B. Applicability. EV access shall be required for every building hereafter constructed or installed when any portion of an exterior wall of the first story is located more than 150 feet from the edge of the driving surface of the private or public street providing access to the parcel(s) of land on which that building is located as measured by an approved route around the exterior of the building.

## C. Exemptions.

- 1. When buildings are protected with an approved automatic fire sprinkler system, the pro-visions of this section may be modified by the city after conferring with the local fire chief.
- 2. When an EV access cannot be installed in conformance with these standards due to topography, waterways, nonnegotiable grades, or other similar conditions, the city, after conferring with the local fire chief, may allow an exemption to these standards by requiring additional fire protection as specified in Article 9 section 902.2.1 exception #2 and Article 10 section 1001.9 of the most current edition of the Uniform Fire Code as adopted by the city.
- 3.All common residential accessory buildings similar to Group M-1 occupancies (private garages, carports, sheds, some agricultural buildings, tanks, towers and fences over six feet tall) as defined by the most current edition of the Uniform Building Code as adopted by the city.
- 4.A one-time expansion, remodel, or alteration of existing uses or structures if the proposed change does not exceed 25 percent of the floor area of the existing use or structure.
- D. Environmental Considerations. When an environmental checklist is required, it shall be submitted to the city environmental official for the work shown on the EV access construction plans. Before the project plans are given final approval by the city, a declaration of nonsignificance or a final environmental impact statement must be issued, and all appeal periods must have expired.

## 13.15.550 Administration.

- A. Submittal Procedure. A site plan shall be submitted to the city and fire chief in accordance with the site plan submittal standards of the pro-posed building permit. Site plan details shall include, but not be limited to, location and size of the EV access, location of structures, and parcel or lot configuration.
  - B. Fees. Fees for EV access review are set by separate resolution adopted by the city council.

C. Variances. The city hearings examiner shall have the authority to grant a variance from the provisions of this chapter, when, in the opinion of the city hearings examiner, the conditions as set forth in subsection (1) below have been found to exist. In such cases a variance may be granted which is in harmony with the general purpose and intent of this chapter so that the spirit of this chapter shall be observed, public safety and welfare secured, and substantial justice done.

Prior to the public hearing on any proposed variance, the hearings examiner shall notify the fire district of the hearing and request comments and concerns that the fire district may have about the variance.

- 1. Required Showings for a Variance. Before any variance may be granted, it shall be shown:
- a. That there are special circumstances applicable to the subject property such as shape, topography, location, or surroundings that do not apply generally to the other property in the same vicinity;
- b. That such variance is necessary for the preservation and enjoyment of a substantial property right possessed by other property in the same vicinity but which because of special circumstances is denied to the property in question;
- c. That the granting of such variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity in which the subject property is located;
- d. That such variance is based on sound engineering judgment, and that requirements for safety, function, and maintainability are fully met. The city may grant a variance to this chapter only upon submittal of additional information, plans and/or design data by an engineer showing that the requested variance is safe, in the best interest of the public, and will not impose undo maintenance costs on city maintenance forces, if applicable.
- 2.City Hearings Examiner May Impose Conditions on Variances. When granting a variance, the city hearings examiner shall determine that the circumstances do exist as required by subsection (C)(1) of this section, and attach specific conditions to the variance which will serve to accomplish the standards, criteria, and policies established by this chapter.
- D. Appeals. Any person aggrieved by any act or decision of the examiner under this chapter may appeal to the council pursuant to the provisions of the city appeals ordinance, as now enacted or hereafter amended.
- E. Inspections. The city reserves the right to enter onto the property during construction and after completion of the EV access to inspect it for compliance with the conditions of the permit.

The city reserves the right to periodically inspect all EV accesses.

F. Enforcement. The applicant must have the EV access constructed in compliance with the conditions of the permit before the project will receive final inspection approval.

Prior to issuance of the occupancy permit on commercial structures, a letter of compliance shall be submitted to the city verifying that the EV access has been completed to the standards in this document.

Failure to construct and/or maintain the EV access as approved, will result in on-site inspections and potential citation under the current edition of the Uniform Fire Code.

## 13.15.560 EV access requirements.

- A. Length. If an EV access is required, it shall extend from the public or private street to within 150 feet of all portions of an exterior wall of the first story of any structure requiring said EV access as measured by an approved route around the exterior of the building.
- B. Width. EV access serving not more than two dwelling units shall not be less than 15 feet. EV access for all other projects shall not be less than 20 feet with no parking allowed, 26–28 feet with parking on one side and 32 feet with parking on both sides.

- C. Vertical Clearance. EV access shall have an unobstructed vertical clearance of not less than 13 feet six inches. The city, after conferring with the local fire chief, may allow a reduction in the vertical clearance; provided such reduction does not impair access by emergency vehicles, and approved signs are installed and maintained indicating the established vertical clearance.
- D. Construction Guidelines. EV access shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all-weather driving capabilities. Individual single-family EV access surface treatment may be gravel. Multifamily and higher uses must be paved.
  - E. Turning Radii. A minimum outside turning radius of 45 feet shall be provided for all EV access.
- F. Turnarounds. A dead end EV access in excess of 150 feet in length shall be provided with a turnaround conforming to the cul-de-sac or hammerhead details, drawings 2-32 and 2-33, pro-vided at the end of this chapter. A turnaround shall be provided within 150 feet of the end of the EV access.
- G. Bridges and Structures. All bridges and structures, including drainage structures, on an EV access shall be capable of carrying a minimum design load of HS-20 per AASHTO Standards Specified for Highway Bridges. The design and as-builts for all bridges shall be certified by a licensed structural engineer.
- H. Gates (If Applicable). A building permit issued by the city is required when gates are installed over private streets. In order for the city to issue the building permit, the following requirements must be met:
- 1.Locked gates shall have rapid entry capabilities compatible with the local fire district requirements.
- 2.Gates which serve 10 or more dwelling units will have an Opticom activation system or an equivalent and compatible system that is approved by the fire chief.
  - 3.All electrically-activated gates will have default capabilities to the unlocked position.
  - 4. The minimum clear width of a gate shall be compatible with the required width of the EV access.
  - 5.Gates that might be obstructed by the accumulation of snow shall not be installed.

The city shall provide notice to the appropriate fire district for a new gate.

- I. Number of Access Routes. More than one EV access may be required for commercial developments when it is determined by the city that access by a single street may be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access, unless mitigation acceptable to the city is pro-vided.
- J. Grade. The maximum street grade (vertical profile grade) of an EV access shall be 15 percent. All sections of EV access with grades of over 12 percent shall be paved with 0.17 feet, compacted depth, of asphalt concrete.
- K. Obstruction. The required width of an EV access shall not be obstructed in any manner, including parked vehicles. Minimum required widths and clearances established under these standards shall be maintained at all times.
- L. Signs. When required by the city, approved signs or other approved notices shall be provided and maintained for EV access to identify such streets and prohibit the obstruction thereof, or both. "No parking Fire Lane" signs shall be installed using fire district's requirements.

M. Approval of EV Access Location. Plans for all EV access shall be approved by the fire chief and the city before a building permit is issued. All construction for the EV access must be completed prior to city approval of the final building inspection.

## **Article IX Roundabouts**

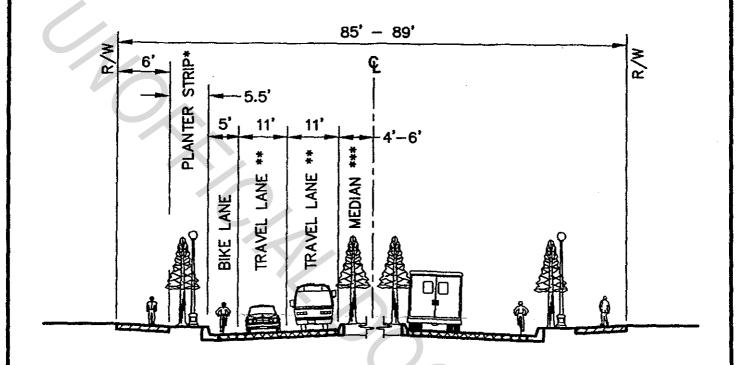
## 13.15.570 Design Standards

Roundabout design shall comply with either the State of Florida Department of Transportation Roundabout Design Guidelines or the State of Maryland Roundabout Design Guidelines as the Director of Public Works may require in the exercise of reasonable engineering judgement.

## LIST OF FIGURES/DRAWINGS

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# ROADWAY SECTION MAJOR ARTERIAL - 5 LANE

DETAIL

N.T.S.

## NOTES:

- 1. NO ON-STREET PARKING PERMITTED.
- \* MAY BE ELIMINATED OR WIDTH REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY, SUBJECT TO CITY ENGINEER'S APPROVAL.
- \*\* MAY BE REDUCED TO 10' WITH CITY ENGINEER'S APPROVAL.
- \*\*\* MAY BE REDUCED TO 3' WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY, SUBJECT TO CITY ENGINEER'S APPROVAL.

REVISED 12/7/98; 6/2/99

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

ROADWAY SECTION
MAJOR ARTERIAL - 5 LANE

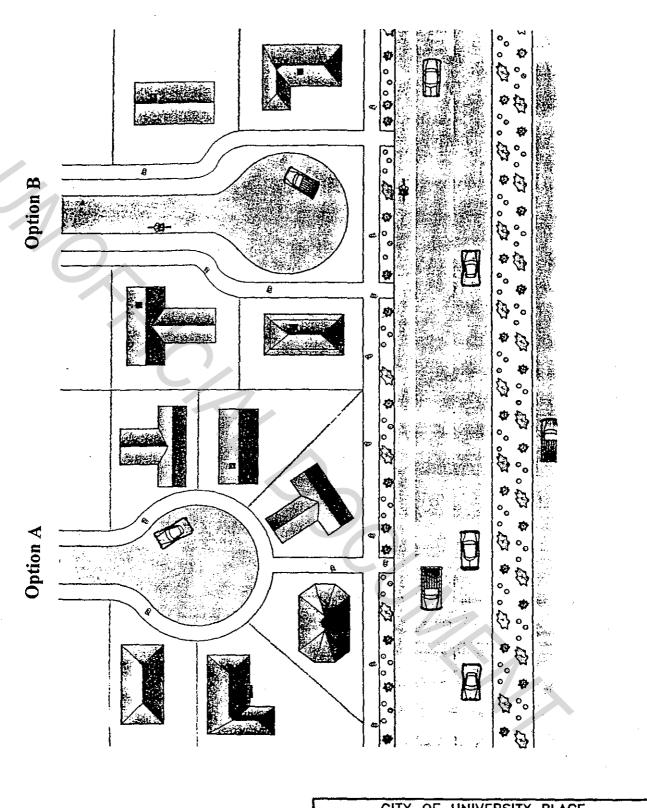
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APPROVED BY	1/0	
APPROVED BY CITY ENGINEER TED KE	li. reac	DATE 6-3-99

DWN CKD DATE 6-3-99

DWN JM CKD DATE FILE

5/12/97 FIG01-01

REV. NO. 2



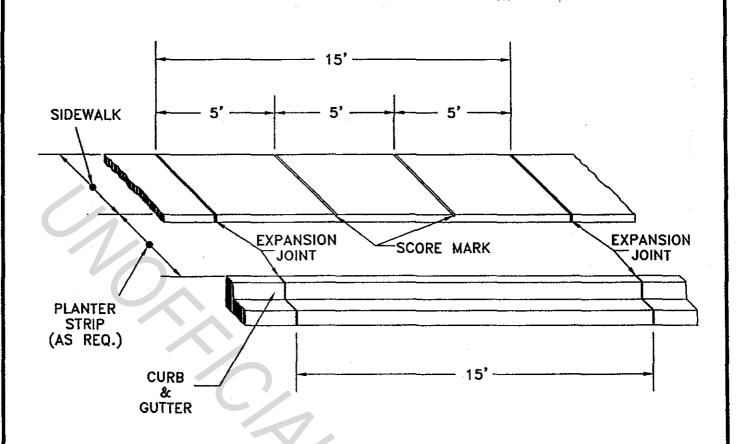
CITY OF UNIVERSITY PLACE
DEPARTMENT OF PUBLIC WORKS
PEDESTRIAN BIKE PATH CONNECTION
BETWEEN THROUGH STREET AND
CUL-DE-SAC

APPROVED BY CITY ENGINEER CKD SPS DATE 4-3-99

UK SPS DATE 4-3-99

FILE FILE 4/22/97 FIG01-06

REV. NO. 2



- 1. EXPANSION JOINT MATERIAL TO BE 3/8" THICK PREMOLDED JOINT FILLER FULL THICKNESS OF CONCRETE.
- 2. FORM AND SUBGRADE INSPECTION REQUIRED BEFORE POURING CONCRETE.
- 3. SCORE MARKS SHALL BE  $\pm 1/8$ " WIDE BY  $\pm 1/4$ " DEEP. FOR SIDEWALKS OVER 8' IN WIDTH, A LONGITUDINAL SCORE MARK SHALL BE MADE ALONG CENTER OF WALK.
- 4. EXPANSION JOINTS SHALL BE INSTALLED IN CURB AND GUTTER AND IN SIDEWALK AT PC AND PT AT ALL CURB RETURNS. EXPANSION JOINTS SHALL BE PLACED IN SIDEWALK AT SAME LOCATIONS AS THOSE IN CURB AND GUTTER WHEN SIDEWALK IS ADJACENT TO CURB AND GUTTER, UNLESS OTHERWISE DIRECTED BY ENGINEER.

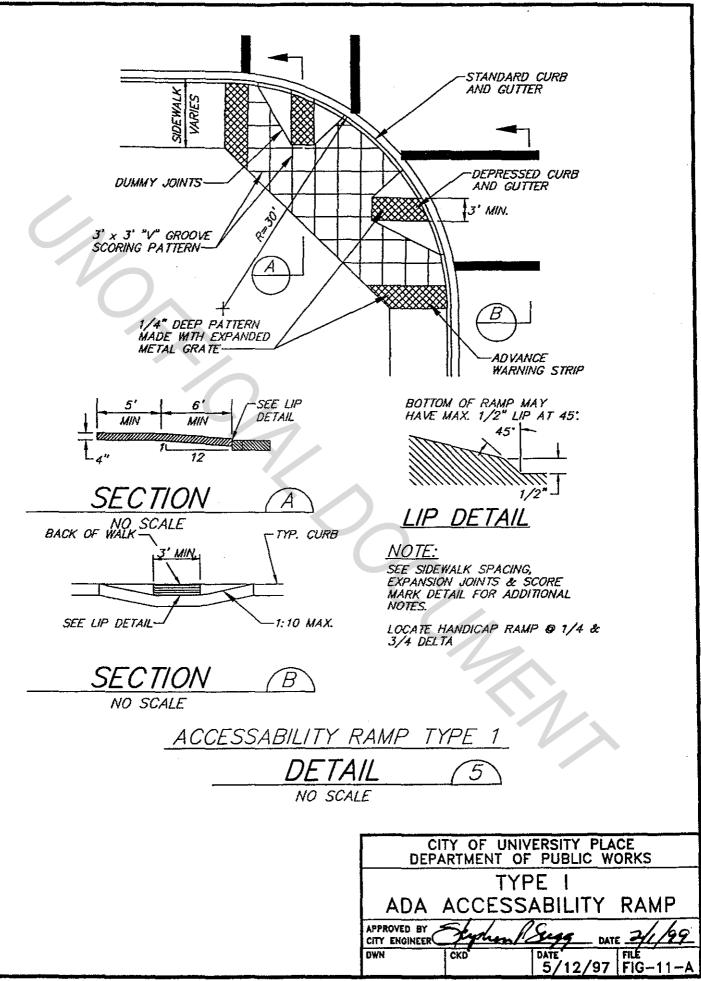
DEPARTMENT OF PUBLIC WORKS

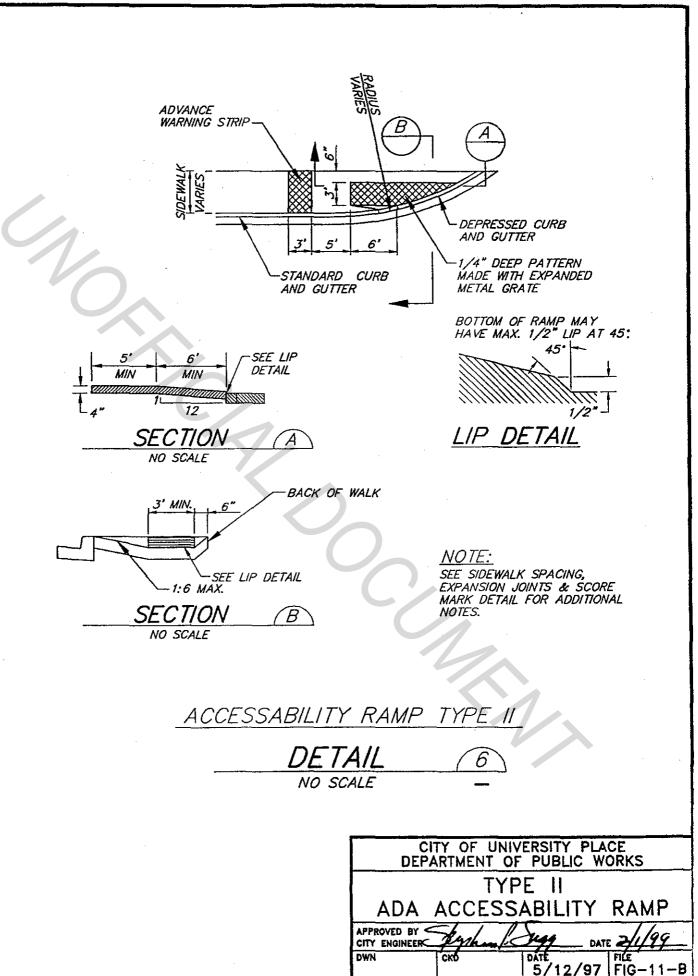
SIDEWALK SPACING
EXPANSION JOINTS & SCORE MARKS

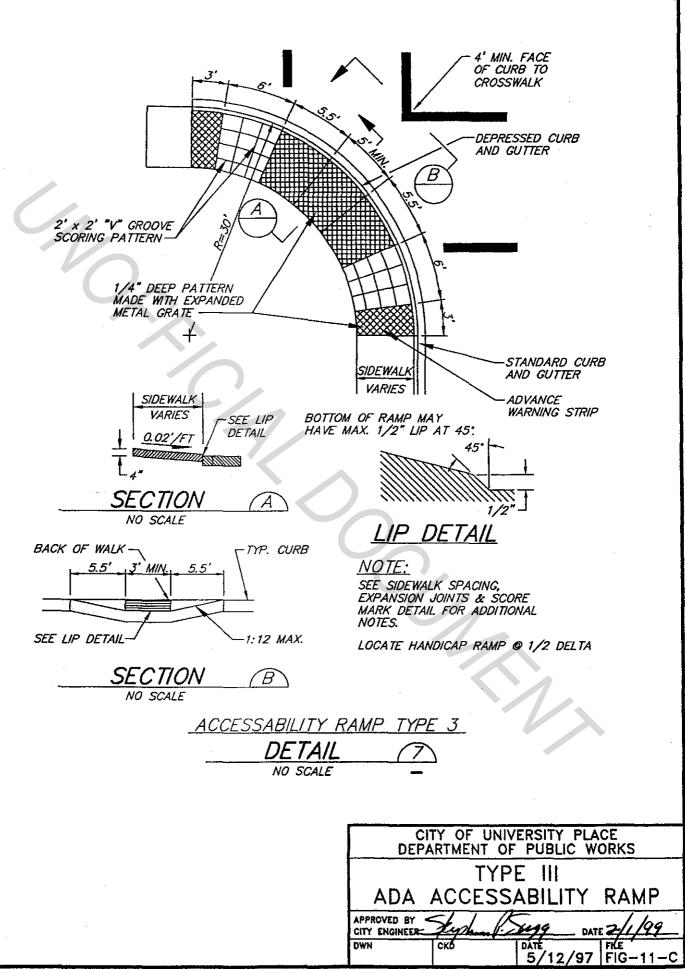
APPROVED BY JOHN STATE 199

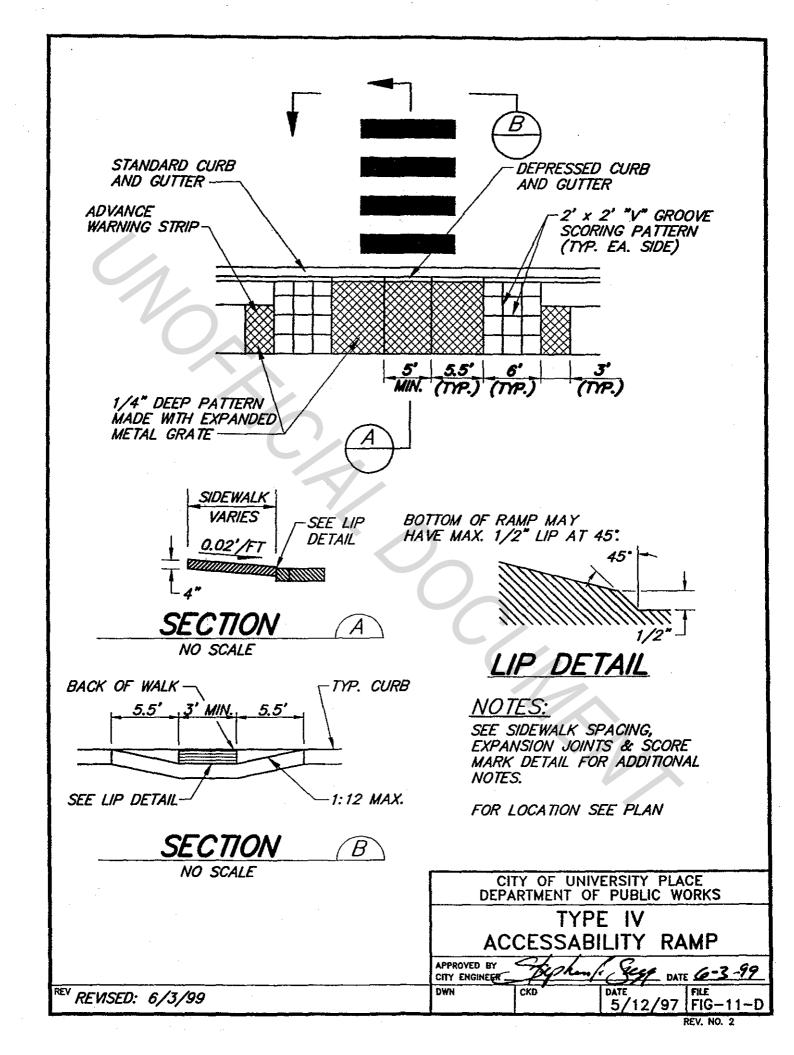
4/22/97

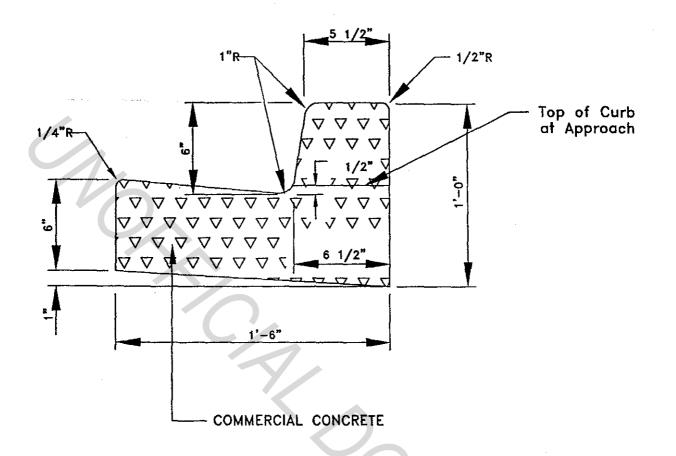
CITY OF UNIVERSITY PLACE











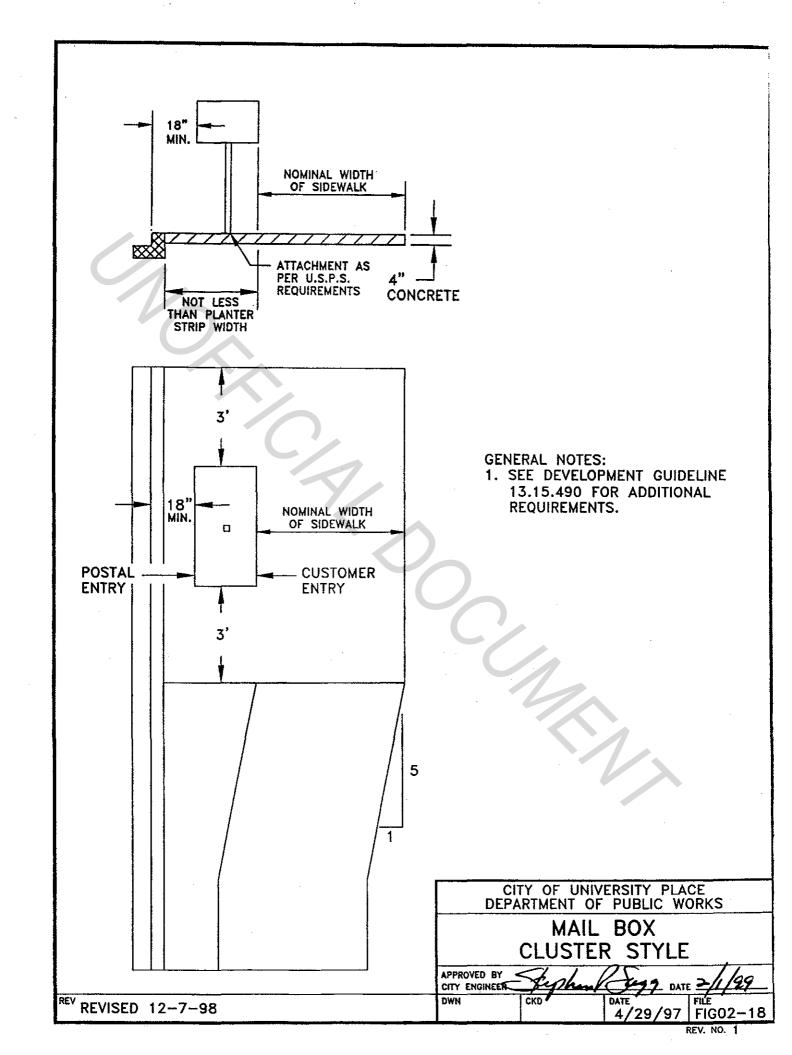
- 1. EXPANSION JOINT MATERIAL TO BE 3/8" THICK PREMOLDED JOINT FILLER FULL THICKNESS OF CONCRETE SPACING.
- 2. FORM AND SUBGRADE INSPECTION REQUIRED BEFORE POURING CONCRETE.

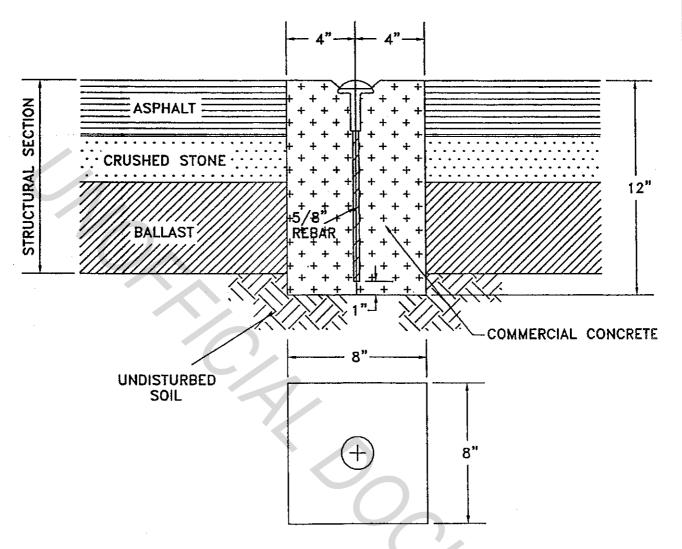
CITY OF UNIVERSITY PLACE
DEPARTMENT OF PUBLIC WORKS

CEMENT CONCRETE
CURB & GUTTER

APPROVED BY
CITY ENGINEER SUPPLIES DATE 3/99
DWN CKD DATE 4/22/97 FIG02-14

REV





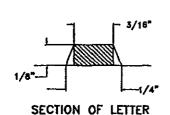
- 1. THIS MOUNUMENT TO BE USED PRIMARILY ON BITUMINOUS OR ASPHALT CONCRETE PAVEMENT FOR USE PRIMARILY IN SUBDIVISIONS AND MINOR ARTERIALS.
- 2. CONCRETE BASE DIMENSIONS SHOWN ARE MINIMUM. CONCRETE BASE NEED NOT BE FORMED.
- 3. CAP SHALL BE "BERNTSEN RB SERIES" OR BRASS PLUG MARKER.
- 4. CONCRETE TO BE PLACED ON A FIRM AND UNYIELDING FOUNDATION.

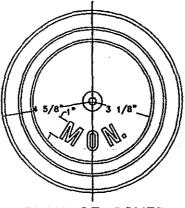
CITY OF UNIVERSITY PLACE
DEPARTMENT OF PUBLIC WORKS

CAST IN PLACE
MONUMENT

APPROVED BY
CITY ENGINEER
CKD

DATE
4/22/97 FIG02-20





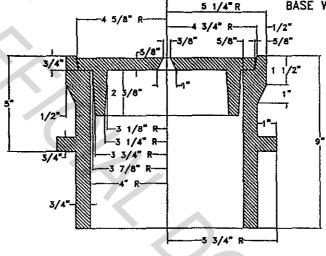
## PLAN OF COVER

#### NOTES:

THE CASTINGS SHALL BE GRAY-IRON CASTINGS, ASTM DESIGNATION A 48, CLASS 40. THE COVER AND SEAT SHALL BE MACHINED SO AS TO HAVE PERFECT CONTACT AROUND THE ENTIRE CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE.

WHEN THE MONUMENT CASE AND COVER ARE PLACED IN CEMENT CONCRETE PAVEMENT THE CONCRETE BASE WILL BE NECESSARY.

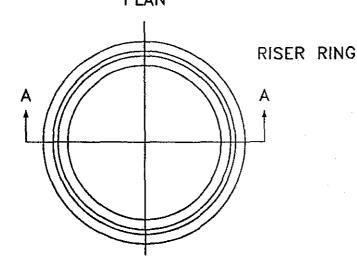
APPROXIMATE WEIGHTS:
CASE 60 LBS.
COVER 19 LBS.
TOTAL 79 LBS.

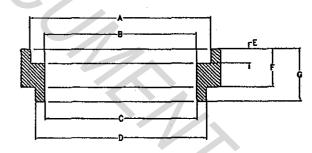


SECTION

PLAN

SECTION A-A



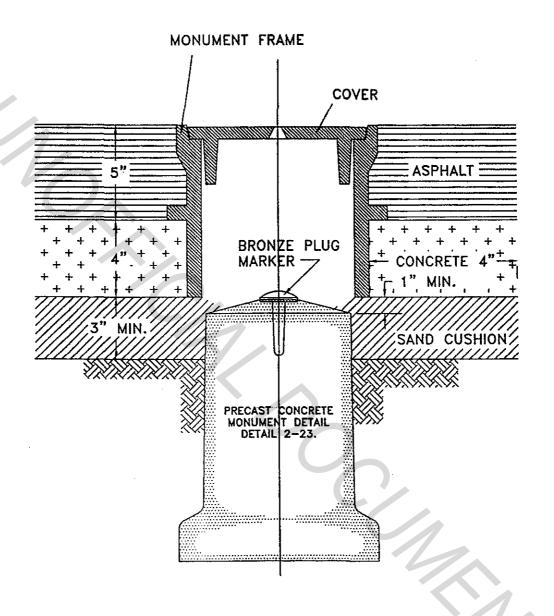


SIZE			
DIM	1-1/2"	2"	3"
A.	10-1/2"	10-1/2"	10-1/2"
В	9-1/2"	9-1/2"	9-1/2"
С	8"	8"	8"
D	9"	9"	9*
E	3/4"	3/4"	3/4"
F	1-1/2"	2"	3"
G	2-1/4"	2-3/4"	3-3/4"

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

MONUMENT CASE AND COVER WITH RISER

DWN CKD DATE 4/22/97 FIGO2-21



NOTE: FOR USE PRIMARILY ON ARTERIAL STREETS, STREETS WITH BUS TRAFFIC AND TRUCK ROUTES.

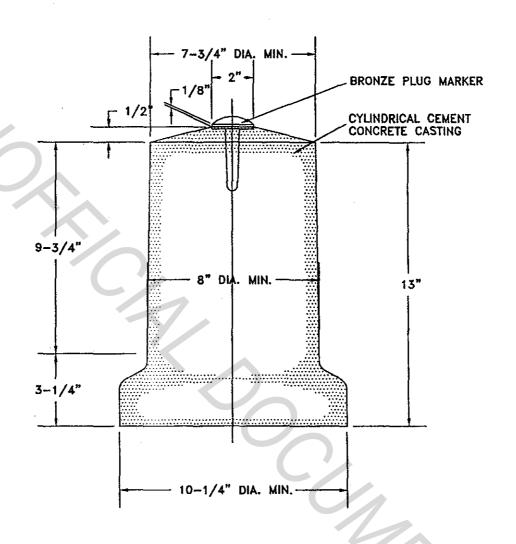
REVISED 12-7-98

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

> MONUMENT CASE AND COVER

APPROVED BY
CITY ENGINEER PROPERTY DATE
DWN
CKD
DATE
4/22/97 FIGO2-22

REV. NO. 1



MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE CASTING AT 28 DAYS - 3000#.
MAXIMUM AGGRETE SIZE TO BE 1".

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

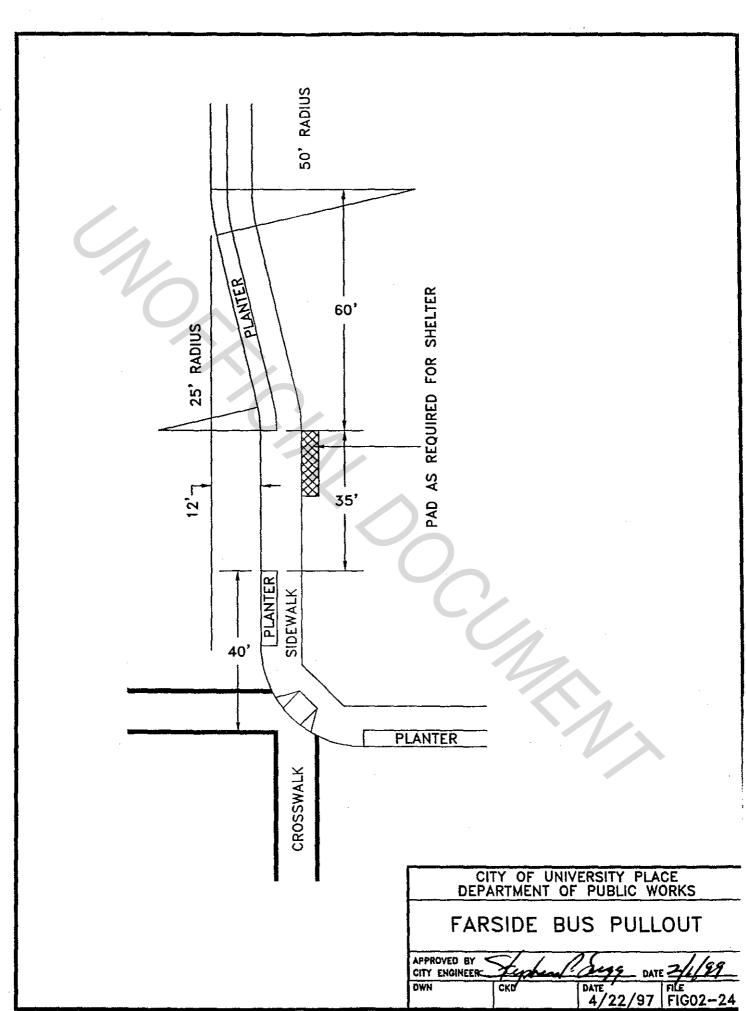
PRECAST CONCRETE MONUMENT

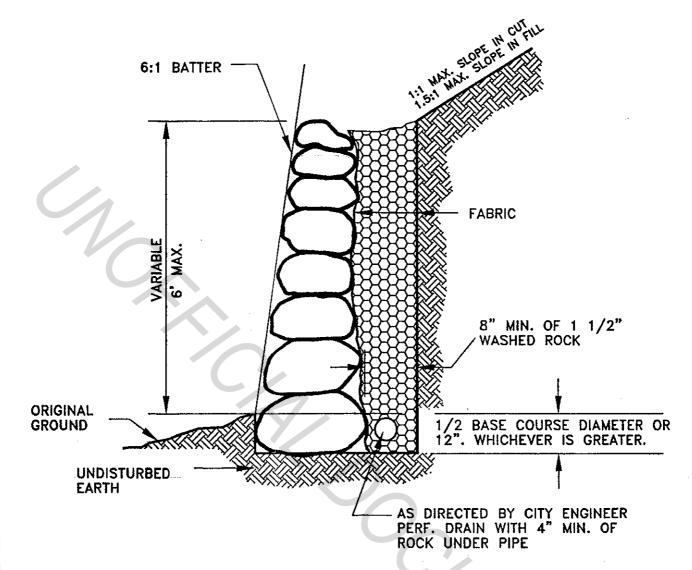
APPROVED BY
CITY ENGINEER

CKO

DATE

4/22/97 FIG02-2





1. Rockeries higher than 5' shall be constructed of rocks of graduated sizes from 5-man to 2-man from bottom to top. Rockeries of 5' or lower shall be constructed of 3-man to 2-man from bottom to top. Rock size catagories shall include:

Two-man rocks (300 to 600 pounds), 13 inches in least dimension;

Three-man rocks (800 to 1200 pounds), 16 inches in least dimension:

Four-man rocks (1500 to 2200 pounds), 18 inches in least dimension;

Five-man rocks (2400 to 3400 pounds), 24 inches in least dimension.

- 2. The rockery shall be installed with a smooth face.
- 3. The long dimension of the rocks shall extend into the earth to provide maximum stability.
- 4. The rock shall be placed so as to lock into two rocks in the lower tier.
- 5. Call for inspection prior to base course being placed (for verification of rockery height, foundation material and rock size).
- Design varying from those indicated shall carry the seal of a civil engineer experienced in soil mechanics.

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

ROCK RETAINING WALL

APPROVED BY

CITY ENGINEER SUPLEMENT DATE

DATE

4/22/97 FIG02-26

## PAVEMENT MARKING DETAILS

TYPE 1 WHITE

TYPE 2a

000 🖭 0 0 0 0 GORE STRIPE 16 4" WIDE WHITE PLASTIC STRIPE EDGE STRIPE TYPE 1 WHITE 1,0 000 CHANNELIZING STRIPE 17' TYPE 1 WHITE OR YELLOW TYPE 2d OR 2e 4,0 0 11 20' LANE STRIPE 32' TYPE 1 YELLOW 0 0 0 TWO-WAY LEFT TURN 0 STRIPE 16' TYPE 1 YELLOW TYPE 2d 0 11 0 0 0 ण 0 4 <sup>III</sup> DOUBLE YELLOW CENTER Щ 0 0 0 0 STRIPE 16 16'

## LANE MARKERS

- O TYPE 1 LANE MARKERS, WHITE OR YELLOW
- TYPE 29 REFLECTIVE LANE MARKER, WHITE AND RED
- TYPE 2d REFLECTIVE LANE MARKER, YELLOW AND YELLOW
- TYPE 2. REFLECTIVE LANE MARKER, WHITE-ONE SIDE ONLY

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

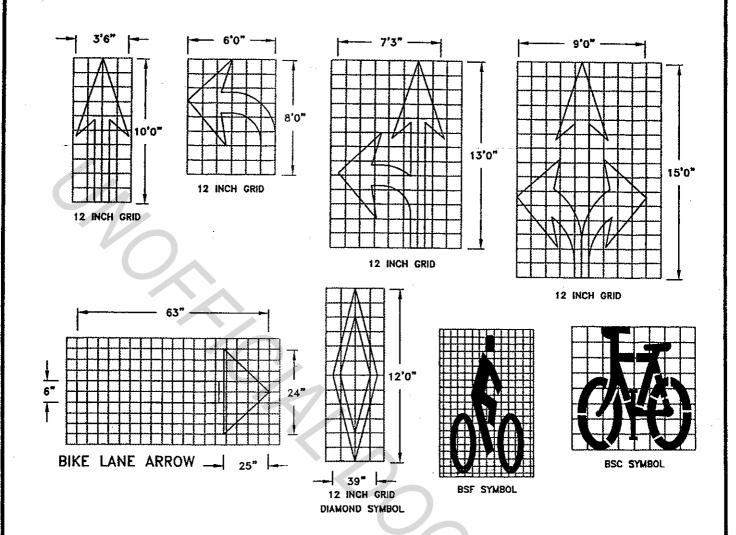
STRIPING DETAIL

APPROVED BY Sighten Steps DATE 6-3-99

REVISED: 6/2/99

CKB DATE

FIGO2-REV. NO. 2



## COMPLETE WORD STENCILS

48"



48"

48"

## **GENERAL NOTES:**

- 1. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC OR METHACRYLIC RESIN.
- 2. ALL MARKINGS SHALL MEET FEDERAL METRIC STANDARDS.

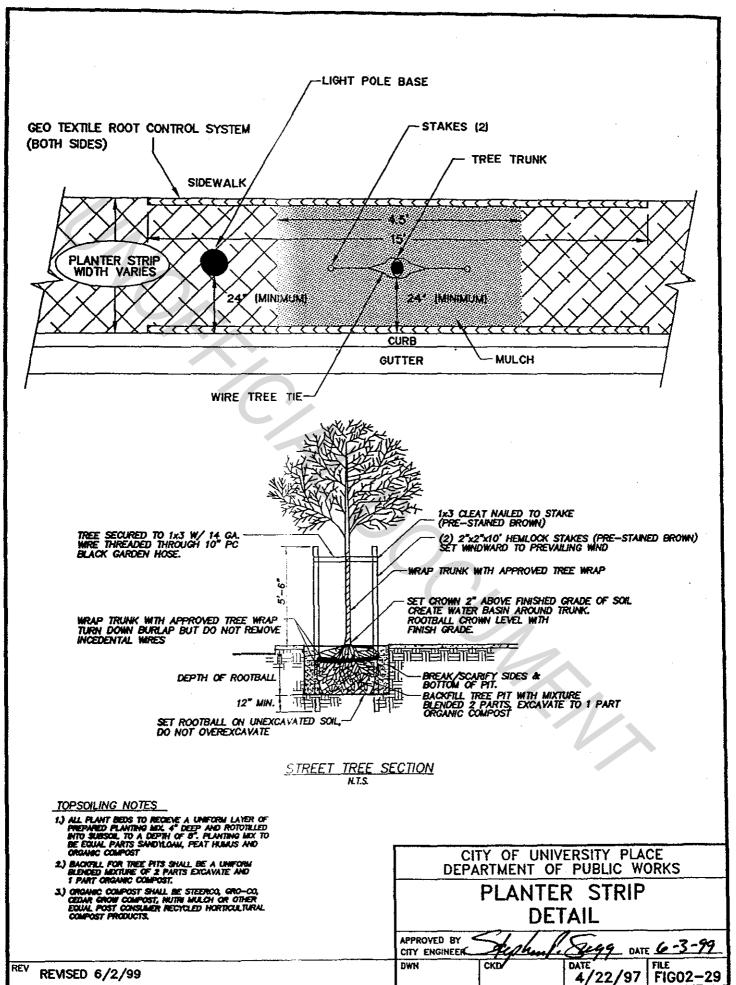
CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

PAVEMENT MARKINGS

APPROVED BY Sugg DATE 2/1/99

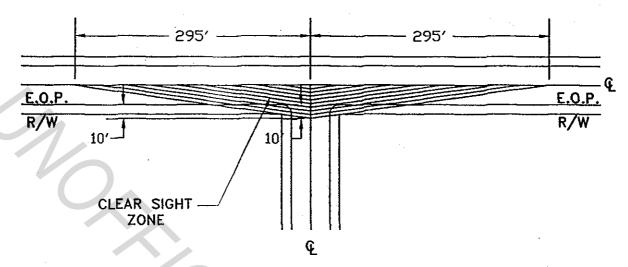
DATE FILE

4/22/97 FIG02-28



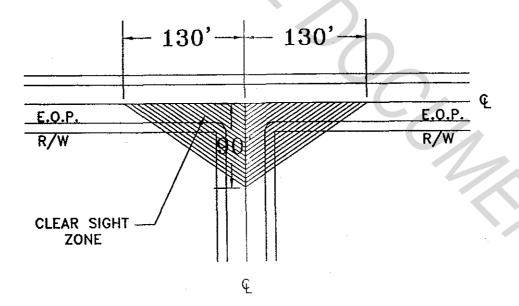
# STOP OR YIELD CONTROLLED INTERSECTIONS

EXAMPLE: MAJOR STREET SPEED LIMIT = 25 M.P.H.



# UNCONTROLLED INTERSECTIONS

EXAMPLE: MAJOR STREET SPEED LIMIT = 30 M.P.H. MINOR STREET SPEED LIMIT = 20 M.P.H.



## **GENERAL NOTES:**

1. SEE SECTION 13.15.180 OF THE PUBLIC WORKS STANDARDS FOR MORE INFORMATION ON THE VERTICAL CLEARANCE WITHIN THE CLEAR SIGHT ZONE.

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

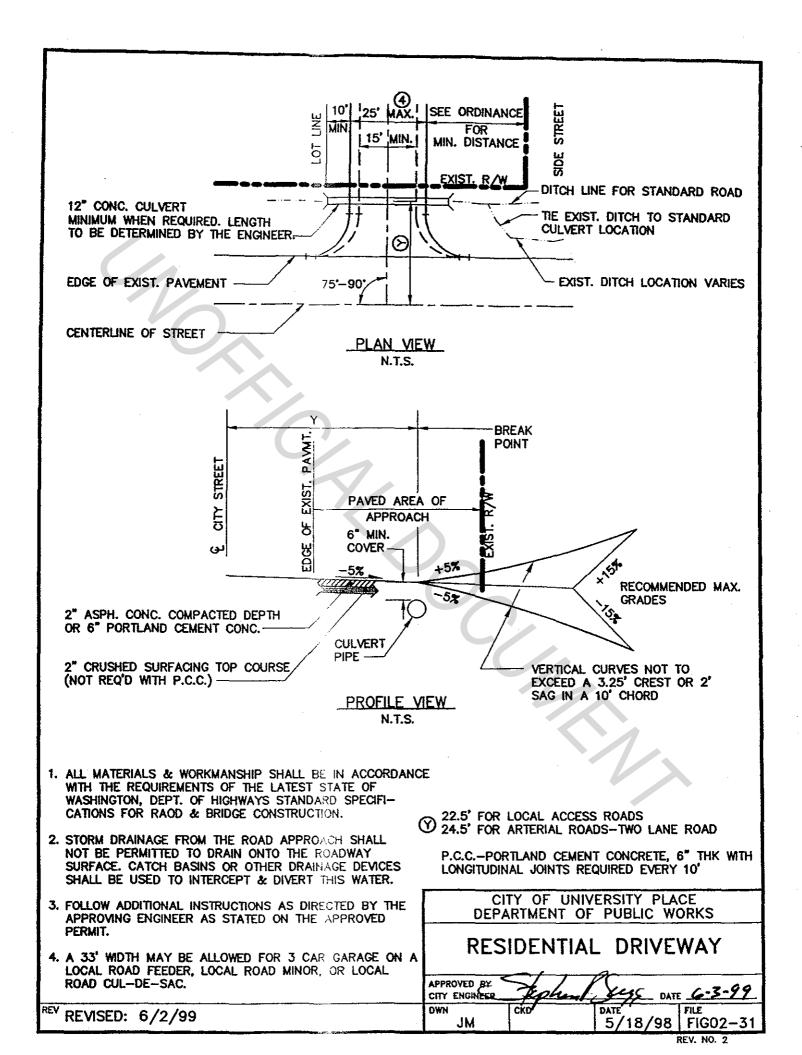
SIGHT OBSTRUCTION

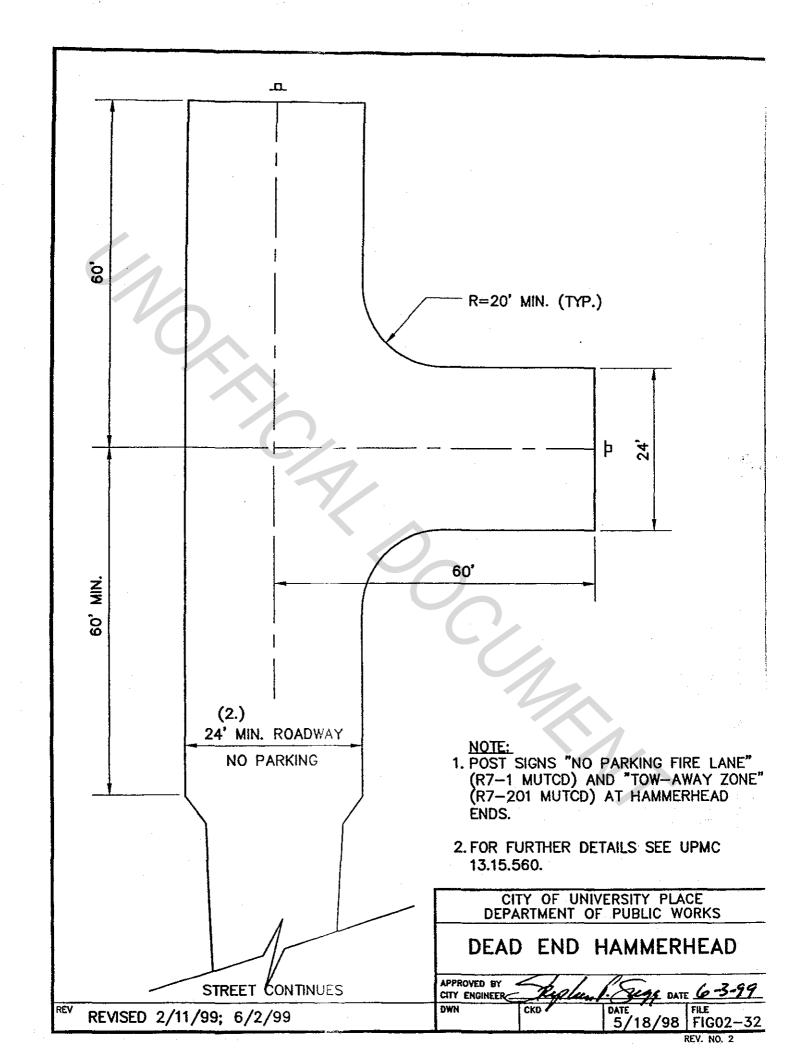
APPROVED BY Supplied Supplied DATE 6-3-99

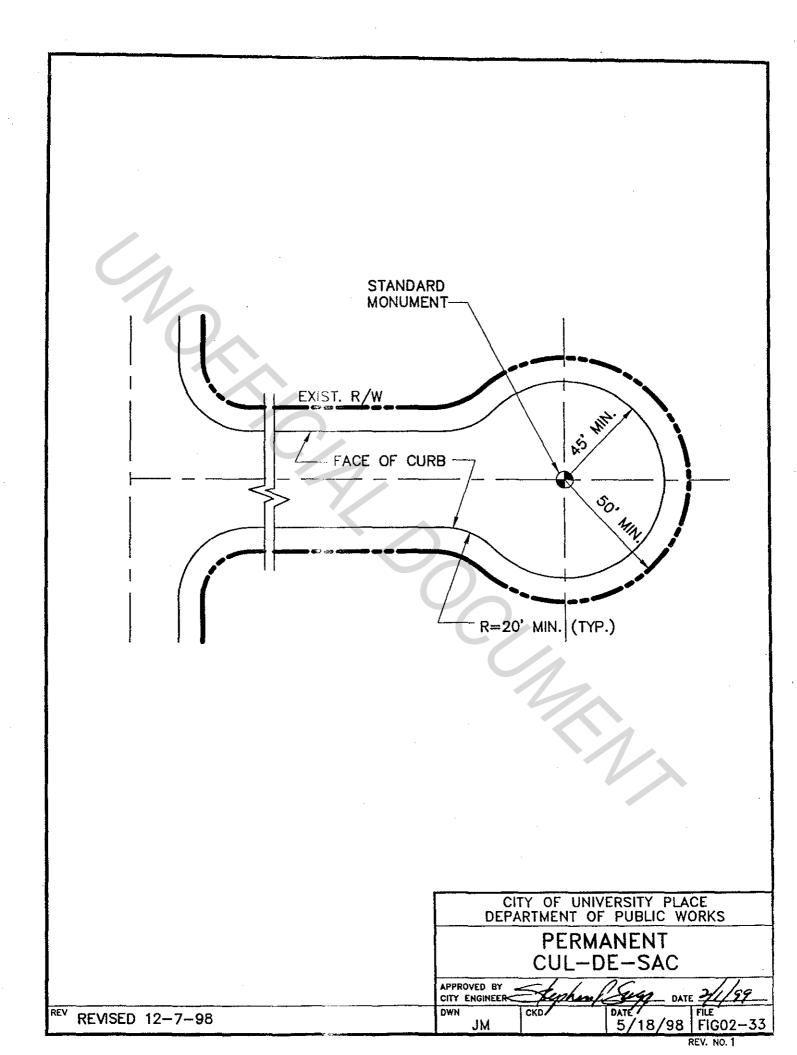
REVISED 12/7/98; 6/2/99

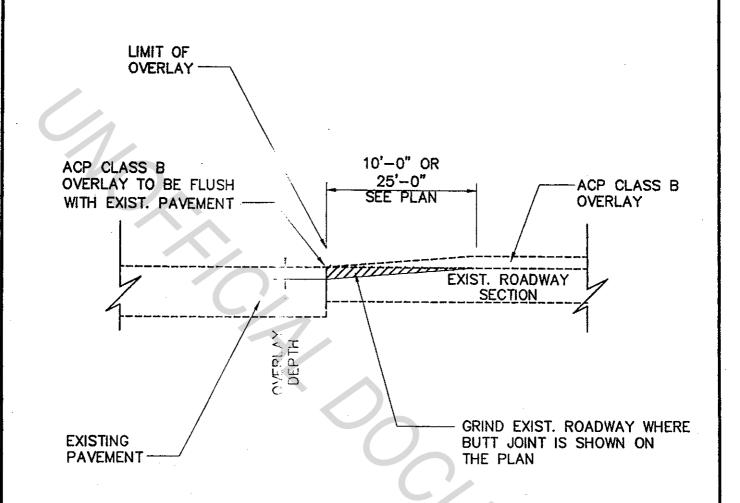
4/22/97 FIG02-30

REV, NO. 2









# NOTES:

REV

1. EMULSIFIED ASPHALT GRADE CSS-1. TACK SHALL BE APPLIED TO EDGES OF EXISTING PAVEMENT. ALL JOINTS SHALL BE SEALED USING PAVING ASPHALT AR4000W.

CITY OF UNIVERSITY PLACE DEPARTMENT OF PUBLIC WORKS

BUTT JOINT

DETAIL

APPROVED BY CITY ENGINEER LIGHT STATE

OWN JM CKD DATE 2/16/99 FIG02-34

3M | 2/16/99 [FIGUZ